Integrated Adaptation Program to enhance resilience of communities and ecosystems in the dry Miombo Woodlands of Tanzania Mainland and Dryland of Zanzibar

Part I: Project Information

GEF ID
10364

Project Type
FSP

Type of Trust Fund
LDCF

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
Integrated Adaptation Program to enhance resilience of communities and ecosystems in the dry Miombo Woodlands of Tanzania Mainland and Dryland of Zanzibar

Countries
Tanzania

Agency(ies)
FAO

Other Executing Partner(s)
Vice President?s Office (VPO) and Tanzania Forest Service Agency (TFS) under the Ministry of Natural Resource and Tourism as lead executing entities. Other executing partners are: President Office Regional Administration and Local Government (PO-RALG), Ministry of Agriculture; Ministry of Livestock and Fisheries; Ministry of Agriculture and Natural Resource, Livestock and Fisheries- Zanzibar; and Tanzania Meteorological Agency (TMA)

Executing Partner Type
Government

GEF Focal Area
Climate Change

Taxonomy
Focal Areas, Climate Change, Climate Change Adaptation, Ecosystem-based Adaptation, Complementarity, Adaptation Tech Transfer, Private sector, National Adaptation Plan, Livelihoods, Least Developed Countries, Innovation, Climate information, Climate resilience, National Adaptation Programme of Action, Mainstreaming adaptation, Community-based adaptation, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Demonstrate innovative approache, Stakeholders, Type of Engagement, Partnership, Information Dissemination, Consultation, Participation, Civil Society, Academia, Community Based Organization, Non-Governmental Organization, Indigenous Peoples, Beneficiaries, Local Communities, Communications, Awareness Raising, Behavior change, Strategic Communications, Private Sector, Financial intermediaries and market facilitators, Individuals/Entrepreneurs, SMEs, Gender Equality, Gender Mainstreaming, Women groups, Sex-disaggregated indicators, Gender-sensitive indicators, Gender results areas, Access and control over natural resources, Access to benefits and services, Knowledge Generation and Exchange, Participation and leadership, Capacity Development, Capacity, Knowledge and Research, Knowledge Generation, Workshop, Seminar, Course, Training, Knowledge Exchange, South-South, Conference, Exhibit, Peer-to-Peer, Field Visit, Learning, Indicators to measure change, Theory of change, Adaptive management

Sector
AFOLU

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 0

Climate Change Adaptation
Climate Change Adaptation 2

Submission Date
4/8/2022

Expected Implementation Start
7/1/2022

Expected Completion Date
6/30/2027

Duration
60In Months

Agency Fee($)

419,540.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CCA-1	CCA-1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation	LDCF	3,500,000.00	30,000,000.00
CCA-2	CCA-2: Mainstream Climate Change Adaptation and Resilience for Systemic Impact	LDCF	916,210.00	18,192,029.00
		Total Project Cost($)	**4,416,210.00**	**48,192,029.00**

B. Project description summary

Project Objective

To reduce vulnerability and increase climate change resilience of communities and priority sectors through introducing, testing and adapting selected appropriate technologies and innovative practices.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
1. Improving the enabling environment to promote the uptake of climate change adaptation technologies in priority sectors in Tanzania	Technical Assistance	1.1. Strengthened policy and institutional frameworks for promoting the transfer of adaptation technologies and innovations for climate resilient value chains **Indicator 1**:Degree to which the capacity of targeted institutions is strengthened to mainstream adaptation (measured with a capacity scoring methodology : Increase of 2 in the capacity score of each institution (out of a maximum of 4: Low capacity = 1; Basic Capacity = 2; Moderate Capacity = 3; Strong Capacity = 4)) **Indicator 2**: Number and type of policies/plans that will mainstream climate	1.1.1. Support the establishment of a decision support system for cross-sectoral/ cross-ministerial coordination mechanism at national and subnational levels to mainstream climate change adaptation in integrated landscape planning efforts. 1.1.2. Climate change vulnerability assessments conducted as a means for prioritizing and designing cost-effective adaptation solutions in the targeted regions and integrated into cross-sectoral decision support systems for Miombo woodlands and Dryland Zanzibar. 1.1.3. NTFPs, fodder and horticulture strategies developed in support of value chain development in the context of climate change. 1.1.4. Climate change adaptation (technologies, innovations) integrated into Medium Term Expenditure Framework (MTEF), and landscape	LDCF	528,290.00	7,240,340.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
2. Supporting resilient production systems for	Investment	2.1 Increased resilience of production systems and landscapes **Indicator 3:** # hectares of land under climate-resilient management (contributing to GEF CCA Core Indicator 2) 25 000 ha	2.1.1. Adaptation learning forums/platforms supported and equipped for key value chains (horticulture, beekeeping, and fodder), including AFPS and Farmer Field Schools (FFS). 2.1.2. Innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for priority sectors introduced, tested and promoted in FFS, APFS and producers? plots. 2.1.3. Improve and support access to digital extension services through ICT and availability of mobile services to smallholder producers, traders and end-users. 2.1.4. Introduce, support and promote digital and mobile based climate services and information sharing services targeting decision makers, agricultural insurance agencies and smallholder producers.	LDCF	1,775,490.00	18,201,997.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
3. Scaling up adaptation technologies and practices in NTFPs and horticulture value chains through markets and investments	Investment	3.1. Climate resilient post-harvest technologies upscaled through local supply infrastructure and innovations in value addition **Indicator 4:** Number and type of technologies introduced and out scaled: 10 **Indicator 5:** Percentage of post-harvest losses: Project beneficiaries report post-harvest losses of less than 15% 3.2. Market systems and financial and incentive mechanisms developed and strengthened for diversification of activities to reduce vulnerability **Indicator 6**: Number of producers using ICT to access domestic and export	3.1.1. Climate-resilient storage facilities (including cooling, warehouses and alternative packaging technologies such as canning and vacuuming) are introduced to improve preservation and quality, and reduce post-harvest losses. 3.1.2. Processing technologies for selected value chains introduced and producer organizations/SMEs trained in post-harvest handling. 3.1.3. Appropriate packaging technologies are introduced and collection centres are determined, established and/or improved. 3.2.1. Actors trained on use of ICT in accessing NTFPs, fodder, NUS and horticulture markets (domestic and export). 3.2.2. SMEs and producer organization groups supported in the development of business plans and marketing strategies. 3.2.3. SMEs and producer organization groups have access to	LDCF	1,500,234.00	16,475,481.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
4. M&E and knowledge transfer	Technical Assistance	4. Effectiveness of selected innovative approaches and technologies assessed and knowledge on climate change adaptation benefits widely disseminated. **Indicator 8:** # knowledge and communication products developed, disseminated and accessed through relevant knowledge sharing platforms: 10 knowledge products **Indicator 9:** # of briefs presenting lessons learned shared and accessed by stakeholders: 10	4.1.1. Practical and applied training and communication material developed and disseminated to different target audiences (policy makers, Forest and agricultural advisory services at local and National level) using print, radio, tv programs and social media, community video shows, exhibition, etc. 4.1.2. SADC`s Great Green Wall Initiative (GGWI) and SRAP structure as well as SAGCOT?s sectorial associations/platforms used to present innovative approaches and technologies to other countries (building upon the regional DSL IP structure). 4.1.3. Project M&E strategy developed and implemented.	LDCF	401,900.00	2,236,167.00
				Sub Total ($)	**4,205,914.00**	**44,153,985.00**

Project Management Cost (PMC)		
LDCF	210,296.00	4,038,044.00
Sub Total($)	**210,296.00**	**4,038,044.00**
Total Project Cost($)	**4,416,210.00**	**48,192,029.00**

Please provide justification

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Tanzania Meteorological Authority	In-kind	Recurrent expenditures	3,000,000.00
Private Sector	NMB Foundation	In-kind	Recurrent expenditures	500,000.00
GEF Agency	Food and Agriculture Organization of United Nations	In-kind	Recurrent expenditures	600,000.00
Recipient Country Government	Vice Presidents Office	In-kind	Recurrent expenditures	5,000,000.00
Recipient Country Government	Sikonge DC	In-kind	Recurrent expenditures	3,182,000.00
Recipient Country Government	Nsimbo	In-kind	Recurrent expenditures	3,000,000.00
Recipient Country Government	MAINRL	In-kind	Recurrent expenditures	1,970,379.00
Recipient Country Government	Lake Tanganyika Basin	In-kind	Recurrent expenditures	5,070,000.00
Recipient Country Government	Lake Rukwa Basin	In-kind	Recurrent expenditures	5,000,000.00
Recipient Country Government	Ministry Of Water	In-kind	Recurrent expenditures	4,900,000.00
Private Sector	AG Energies	In-kind	Recurrent expenditures	25,509.00

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Nkasi District Council	In-kind	Recurrent expenditures	3,182,000.00
Recipient Country Government	Tanganyika District Council	In-kind	Recurrent expenditures	2,034,000.00
Recipient Country Government	Ministry of agriculture	In-kind	Recurrent expenditures	5,000,000.00
Recipient Country Government	Tanzania Forest Services Agency (TFS)	In-kind	Recurrent expenditures	4,500,000.00
GEF Agency	Food and Agriculture Organization of the United Nations	Grant	Recurrent expenditures	262,141.00
Recipient Country Government	Tanganyika District Council	Grant	Recurrent expenditures	966,000.00
			Total Co-Financing($)	**48,192,029.00**

Describe how any "Investment Mobilized" was identified

Co-financing mobilized was identified through a thorough engagement process with other closely related ongoing and planned initiatives, governments (national, regional, district), and private sector actors. Where complementarities were particularly significant, parties expressed their interest in supporting the project through targeted investments. Investment mobilized has been identified with the NMB Foundation and AG Energies. For NMB Foundation, the USD 500,000 investment mobilized will: i) support small and medium farmers to access agricultural finance; ii) facilitate job creation and economic growth through mentorship, coaching, business training, digital and financial literacy training; iii) support the development of sustainable businesses plans for selected SMEs/cooperative businesses; iv) support the development of market strategies for selected SMEs/cooperative businesses; v) facilitate access to/creation of innovative finance mechanisms for value chain resilience, including bonds (such as green bonds) for resilient production of niche commodities, micro-insurance, as well as creation of credit lines for SMEs and start-up agribusinesses. For AG Energies investment mobilized will contribute to i) promote innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for priority sectors introduced, tested and promoted in FFS, FFF and producers? plots; ii) equip SMEs/cooperative businesses with solar-

powered cold storage systems, solar cold rooms/fridges/freezers (capacity depending of the products stored and amount); iii) promote partnership with solar companies to equip SMEs/cooperative businesses with solar and electric drying systems for highly perishable horticulture products or NTFPs such as berries and mushrooms; iv) promote partnership with Solar Companies to equip SMEs/cooperative businesses with solar moisture controlled storage technologies for cattle fodder in the Miombo region; and v) promote partnership with Solar Companies to provide training on operation and maintenance of climate resilient storage facilities for beneficiary SMEs/cooperative businesses.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	LDCF	Tanzania	Climate Change	NA	4,416,210	419,540	4,835,750.00
			Total Grant Resources($)		**4,416,210.00**	**419,540.00**	**4,835,750.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

150,000

PPG Agency Fee ($)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	LDCF	Tanzania	Climate Change	NA	150,000	14,250	**164,250.00**
			Total Project Costs($)		**150,000.00**	**14,250.00**	**164,250.00**

Meta Information - LDCF

LDCF true
SCCF-B (Window B) on technology transfer false
SCCF-A (Window-A) on climate Change adaptation false

Is this project LDCF SCCF challenge program?
false

This Project involves at least one small island developing State(SIDS). false

---

This Project involves at least one fragile and conflict affected state. false

---

This Project will provide direct adaptation benefits to the private sector. false

---

This Project is explicitly related to the formulation and/or implementation of national adaptation plans (NAPs). true

---

This Project has an urban focus. false

This Project covers the following sector(s)[the total should be 100%]:*

Agriculture	**60.00%**
Natural resources management	**0.00%**
Climate information Services	**25.00%**
Costal zone management	**0.00%**
Water resources Management	**10.00%**
Disaster risk Management	**0.00%**
Other infrastructure	**5.00%**
Health	**0.00%**
Other (Please specify:)	**0.00%**
Total	**100%**

This Project targets the following Climate change Exacerbated/introduced challenges:*
Sea level rise false
Change in mean temperature true
Increased Climatic Variability true
Natural hazards false
Land degradation false
Costal and/or Coral reef degradation false
GroundWater quality/quantity false

To calculate the core indicators, please refer to Results Guidance

Core Indicators - LDCF

CORE INDICATOR 1	Total	Male	Female	% for Women
Total number of direct beneficiaries	58,143	26,164	31,979	55.00%

CORE INDICATOR 2	
Area of land managed for climate resilience (ha)	25,000.00

CORE INDICATOR 3	
Total no. of policies/plans that will mainstream climate resilience	17

CORE INDICATOR 4		Male	Female	% for Women
Total number of people trained	25,000	12,500	12,500	50.00%

OUTPUT 1.1.1

Physical and natural assets made more resilient to climate variability and change

---

		Male	Female
Total number of direct beneficiaries from more resilient physical assets	**49,143**	**22,114**	**27,029**

Ha of agriculture land	Ha of urban landscape	Ha of rural landscape	No. of residential houses
25,000.00			**0**

No. of public buildings	No. of irrigation or water structures	No. of fishery or aquaculture ponds	No. of ports or landing sites
0	**0**	**0**	**0**

Km of road	Km of riverban	Km of coast	Km of storm water drainage

Other	Other(unit)	Comments
0		

OUTPUT 1.1.2

Livelihoods and sources of income of vulnerable populations diversified and strengthened

---

		Male	Female
Total number of direct beneficiaries with diversified and strengthened livelihoods and sources of income	**7,600**	**3,420**	**4,180**

Livelihoods and sources of incomes strengthened / introduced

Agriculture	Agro-Processing	Pastoralism/diary	Enhanced access to markets
true	**true**	**true**	**true**
Fisheries /aquaculture	Tourism /ecotourism	Cottage industry	Reduced supply chain
true	**false**	**false**	**false**
Beekeeping	Enhanced opportunity to employment	Other	Comments
false	**true**	**false**	

OUTPUT 1.1.3

New/improved climate information systems deployed to reduce vulnerability to climatic hazards/variability

---

		Male	Female
Total number of direct beneficiaries from the new/improved climatic information systems	**1,100**	**495**	**605**

Climate hazards addressed

Flood	Storm	Heatwave	Drought
true	**true**	**true**	**true**

Other	Comments
false	

Climate information system developed/strengthened

Downscaled Climate model	Weather/Hydromet station	Early warning system	Other
false	**true**	**true**	**false**

Comments

Climate related information collected

Temperature	Rainfall	Crop pest or disease	Human disease vectors
true	**true**	**true**	**false**

Other	Comments
false	

Mode of climate information disemination

Mobile phone apps	Community radio	Extension services	Televisions
true	**false**	**false**	**false**

Leaflets	Other	Comments
false	**false**	

OUTPUT 1.1.4

Vulnerable natural ecosystems strengthened in response to climate change impacts

Types of natural ecosystem

Desert **false**	Coastal **false**	Mountainous **false**	Grassland **false**
Forest **false**	Inland water **false**	Other **false**	Comments

OUTPUT 1.2.1

Incubators and accelerators introduced

		Male	Female
Total no. of entrepreneurs supported	**0**	**135**	**165**
No. of incubators and accelerators supported	**0**	Comments	
No. of adaptation technologies supported	**0**	Comments	

OUTPUT 1.2.2

Financial instruments or models to enhance climate resilienced developed

---

Financial instruments or models

PPP models	Cooperatives	Microfinance	Risk insurance
false	**false**	**false**	**false**

Equity	Loan	Other	Comments
false	**false**	**false**	

OUTPUT 2.1.1

Cross-sectoral policies and plans incorporate adaptation considerations

---

Will mainstream climate resilience	Of which no. of regional policies/plans	Of which no. of national policies/plan
0	**0**	**0**

Sectors

Agriculture	Fishery	Industry	Urban
true	**false**	**false**	**false**

Rural	Health	Water	Other
true	**false**	**false**	**false**

Comments

OUTPUT 2.1.2

Cross sectoral institutional partnerships established or expanded

---

No. of institutional partnerships established or strengthened	**0**

Comments

OUTPUT 2.1.3

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

---

No. of systems and frameworks	**0**

Comments

OUTPUT 2.1.4

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

---

No. of systems and frameworks **0**

Comments

OUTPUT 2.2.1

No. of institutions with increased ability to access and/or manage climate finance

---

No. of institution(s)

Comments

OUTPUT 2.2.2

Institutional coordination mechanism created or strengthened to access and/or manage climate finance

No. of mechanism(s)

Comments

OUTPUT 2.2.3

Global/regional/national initiatives demonstrated and tested early concepts with high adaptation potential

No. of initiatives or technologies

Comments

OUTPUT 2.2.4

Public investment mobilized

Amount of investment
(US$)

Comments

OUTPUT 2.2.5

Private investment mobilized

Amount of investment
(US$)

Comments

OUTPUT 2.3.1

No. of people trained regarding climate change impacts and appropriate adaptation responses

---

Total no. of people trained	**25,000**	Male **12,500**	Female **12,500**
Of which total no. of people at line ministries	**25,000**	Male **12,500**	Female **12,500**
Of which total no. of community/association	**0**	Male **0**	Female **0**
Of which total no. of extension service officers	**0**	Male **0**	Female **0**
Of which total no. of hydromet and disaster risk management agency staff	**0**	Male **0**	Female **0**
Of which total no. of small private business owners	**0**	Male **0**	Female **0**
Of which total no. school children, university students or teachers	**0**	Male **0**	Female **0**
Other	Comments		

OUTPUT 2.3.2

No. of people made aware of climate change impacts and appropriate adaptation responses

		Male	Female
No. of people with raised awareness	**0**	**0**	**0**

Please describe how their awareness was raised

OUTPUT 3.1.1

National climate policies and plans enabled including NAP processes by stronger climate information decision-support services

---

No. of national climate policies and plans

Comments

OUTPUT 3.1.2

Systems and frameworks established for continuous monitoring, reporting and review of adaptation

---

No. of systems and frameworks

Comments

OUTPUT 3.1.3

Vulnerability assessments conducted

No. of assessments conducted

Comments

OUTPUT 3.2.1

No. of institutions with increased ability to access and/or manage climate finance

---

No. of institution(s)

Comments

OUTPUT 3.2.2

Institutional coordination mechanism(s) created or strengthened to access and/or manage climate finance

---

No. of mechanism(s)

Comments

OUTPUT 3.2.3

Global/regional/national initiative(s) demonstrated and tested early concepts with high adaptation potential

---

No. of initiative(s) or technology(ies)

Comments

OUTPUT 3.3.1

No. of people trained regarding climate change impacts and appropriate adaptation responses

		Male	Female
Total no. of people trained	**0**	**0**	**0**
Of which total no. of people at line ministries	**0**	Male	Female
Of which total no. of community/association	**0**	Male	Female
Of which total no. of extension service officers	**0**	Male	Female
Of which total no. of hydromet and disaster risk management agency staff	**0**	Male	Female
Of which total no. of small private business owners	**0**	Male	Female

Of which total no. school children, university students or teachers	**0**

Other	Comments

OUTPUT 3.3.2

No. of people made aware of climate change impacts and appropriate adaptation responses

---

		Male	Female
No. of people with raised awareness	**0**		
Please describe how their awareness was raised			

Part II. Project Justification

1a. Project Description

1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description).

The United Republic of Tanzania is a Least Developed Country (LDC) located on the eastern coast of Africa within the Africa Great Lakes region. It spans a total area of 945,087 km?, comprised of a land area of 883,749 km? and 59,050 km? of inland water bodies, and part of the Indian Ocean. The land area can be divided into Tanzania mainland (881,289 km?), and the Zanzibar archipelago (2,460km?). This archipelago is a constellation of two major islands, Unguja and Pemba, and about 50 small islets.

The country has sustained a relatively high economic growth over the past decades, averaging 6?7% a year (see Figure 1)[1][1], with growth strongest in the services and manufacturing sector and weaker in the agricultural sector.[2][2] The agricultural sector is however the predominant livelihood for the majority of Tanzanians and contributes to about 23% of Growth Domestic Product (GDP), more than 30% of export earnings, and employs about 67% of the population (URT, 2016). In Zanzibar, the agricultural sector contributes to about 27.6% of GDP[3][3], export earning value of 80%, and employs nearly 70% of the archipelago?s population[4][4]. However, the sector remains underdeveloped and highly vulnerable to climatic shocks.

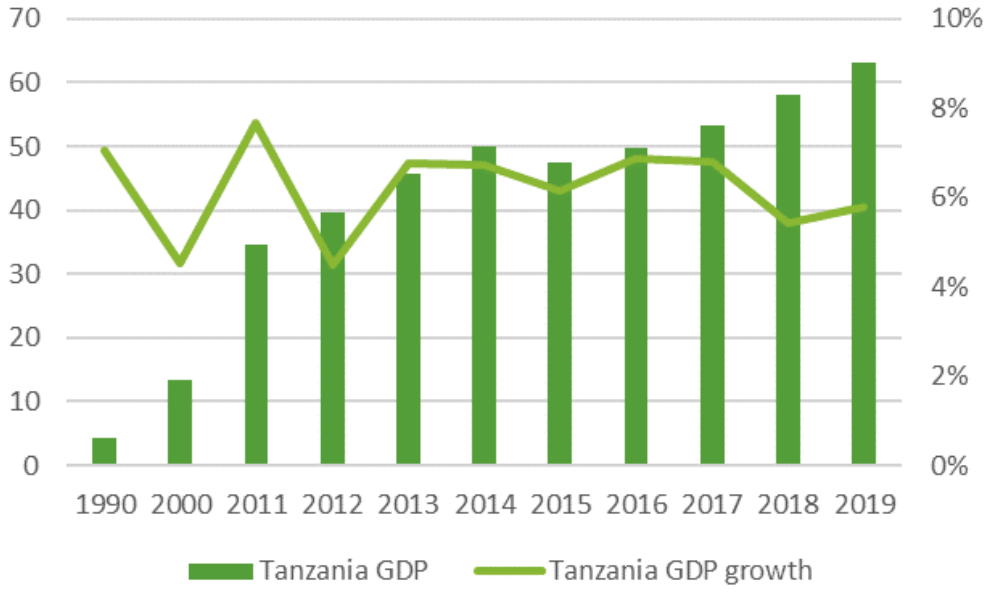


Figure 1 Tanzania GDP [USD billions] and GDP growth [annual %] of Tanzania

In 2021, approximately 64% of the population resided in rural areas, both in Tanzania mainland and Zanzibar.[5][5] Hence, it has to be noted that the level of poverty differs greatly within Tanzania: whereas in 2012 4.2% of the population of Dar es Salaam fell below the Basic Needs poverty line, 33.3% of the population was in rural areas.[6][6] Consequently, over 80 % of the country?s poor and extremely poor live in rural areas. The incidence of rural poverty is highest among female-headed households in arid and semi-arid regions that depend almost exclusively on livestock and food-crop production[7][7].The Basic Needs poverty however has been declining substantially: from 34.4% (2007) to 26.4% (2018) and food poverty from 11.7% to 8% respectively.[8][8]It is the first major decline in poverty in twenty years, and consequently, the Human Development Index (HDI) value for Tanzania increased from 0.466 (2011) to 0.521 (2014) and to 0.529 (2020).

COVID-19[9][9]

On 16 March 2020, the Ministry of Health of Tanzania announced the first case of COVID-19.[10][10] Since March 2020, the pandemic has spread throughout the Country.[11][11] Vulnerable communities in Tanzania face additional pressure due to COVID-19 which might result in a worsening of the food security situation and lead to a decrease in the projected economic growth.[12][12] The projected COVID-19 recovery creates an opportunity to take another step in the direction of sustainable development, and further align the country with the Tanzania Development Vision 2025.[13][13]

Description of the areas of intervention

The areas covered by the project are located in the southern and western parts of Tanzania, between Lakes; Victoria, Tanganyika, and Nyasa, a region consisting of flat land that has been categorized as the Central Zambezian Miombo woodlands ecoregion, and on Pemba and Unguja, the two major islands of the Zanzibar archipelago.[14][14]

Miombo region

The Central Zambezian Miombo woodlands cover 93% of Tanzania?s forested land. These Miombo woodlands are biologically rich and diverse with up to 8,500 vascular plant species, 4,590 of them being endemic, and as many as 83 indigenous tree species, which bear edible fruits and nuts throughout the year. Moreover, the woodlands provide a vast number of Non-Timber Forest Products (NTFPs) such as edible insects, fruits, mushrooms, vegetables, honey, bulbs, fodder, medicinal products, and wild meat, and serves as a crucial source of essential subsistence goods. In addition, the Miombo provides ecosystem services such as stocking carbon, controlling soil erosion, providing shade, maintaining hydrological cycles and soil fertility, supporting farming systems and providing roaming

refuge for livestock. Due to all these functions, the dry Miombo woodlands ensure the resilience of surrounding communities and provides the backbone of rural livelihoods. About 23% of the households in the region use the dry Miombo forest as source for food and to meet their basic needs during critical food shortage months[15][15].

The targeted zone in the Miombo region comprises Protected Area (PAs) surrounded mainly by cropland which has increased by 40% in the past 20 years (1995 -2015). 65% of the total population in the area live below the poverty line and more than 85% depend on agriculture (crop and livestock). Agriculture is characterized by unsustainable land-use practices, shifting cultivation and low productivity.[16][16] Combined with population growth, these farming practices increase pressure on the remaining dry forest formation outside the PAs and its ecological, as well as socio-economic services. Even though protection is in place for threatened timber species, evidence is suggesting that they are still being harvested mainly due to sub-optimal enforcement.[17][17] The biodiversity of the Miombo woodlands is currently decreasing, despite its remarkable capacity to recover after disturbances.[18][18]

Box 1. SHARP+ Results Highlights in Miombo region

? **No. of HH interviewed:** 273 (31% women-led and 69% men-led)

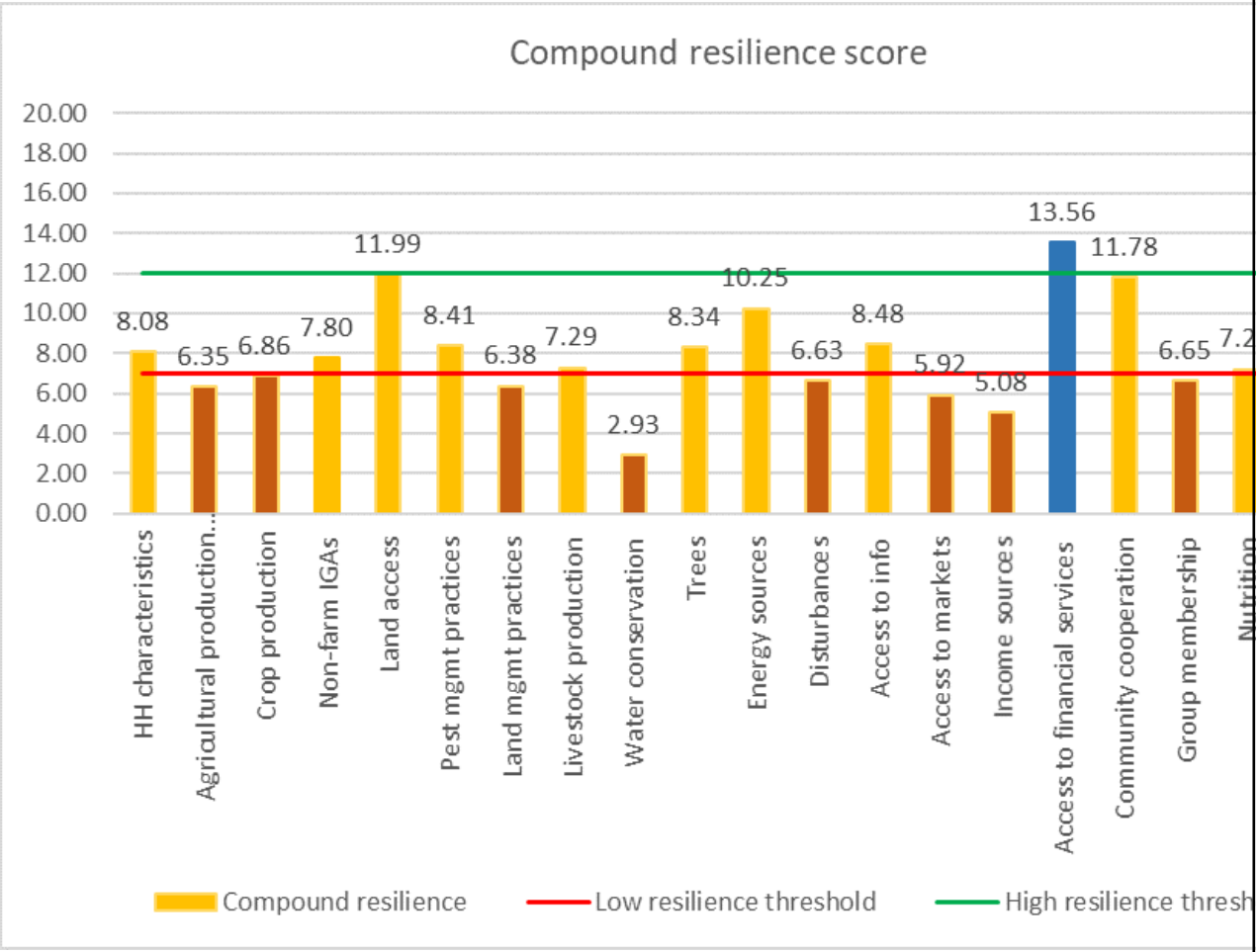
? Economic: When asking producers whether they were able to sell their agricultural produce in local markets during the last 12 months, 45% (149 households) stated that they were not able to sell any. Of these, 47% sold only few and only 8% sold most of the desired products.Women seem to have more restrictions to sell on markets, as 64% of them were not able to sell any produce. Regardless of the quantity sold, 93% of farmers sell their products individually, and only 7% mentioned to do it through a cooperative or a farmer organization. 47% of farmers selling any product mentioned to set the prices using the current market price which represents the main price setting strategy, followed by 38% of farmers that use the price imposed by the dealer.

? Agricultural activities: 96% of respondents were subsistence farmers. Agricultural systems were described as poorly diversified, with 46% of farmers mixing crop cultivation with livestock production.Low crop species diversity (2.46 seasonal plants on avg,) was observed, with only 14% of farmers owning perennial crops and almost all farmers (97%) produced maize as their main seasonal crop. Women-headed households were not involved in the production of sorghum, onion, tomoato, or potato, but were more highly involved in groundnut production (31%).. Access to seeds is difficult for 60% of farmers. 74% of farmers lost at least some of their pre-harvest produce during the past season. Of these, 35% declared losing some of it (less than 30% of the pre-harvest production), 26% mentioned losing about half of it and 13% reported the loss of over 60% of the pre-harvest crops.

? Post-harvest: The majority of respondents are losing more than 10% of their post-harvest production. Post-harvest actions allowing to add value, maintain high quality and/or reduce losses such as cleaning, packaging or cooling were only practiced by 38% of the households surveyed. In contrast, 59% of the respondents said that they did not do anything to try to reduce this loss (the reasons why were not reported in the surveyand 3% did not respond. Men (43%) were more likely to take action on post-harvest loss reduction than women (30%).

? Land management: Around 67% of farmers interviewed haven?t taken any action to improve the quality of the land and/or reverse degradation trends.The disaggregation by sex of the main decision-maker shows that dual-led households present the larger adoption of such practices (41%), compared to women-led households (17%) and to men-led households (35%).

Resilience



Aspects with low resilience levels to highlight:

? Over 85% of farmers reported not taking any action to improve water conservation in their farm system and household, despite 52% reporting a decrease in water availability in the last three years. 67% of farmers did not take any actions to improve or preserve the soil quality in the last year.

? Most people having used land management practices perceived them to be of moderate utility (53%) and 24% perceived them of little or no utility.

? Over 77% of farmers have been affected by climate hazards in the last 3 years, mostly floods (32% of all farmers), late onset of the rainy season (23%), strong wind (9%) and drought (8%).Only 7% of farmers have also experienced non-climate shocks, including mainly pest-outbreaks and earthquake. Almost all farmers felt a negative impact of the disturbance on their agricultural production being mainly crop failure (50%), crop damage (29%) and productivity (17%). 58% of farmers affected by a shock did not change their behaviour and use any coping strategy.

? 59% of farmers interviewed are not members of community-based groups, particularly those promoting the exchange of knowledge on agricultural practices (crops, animals, forestry, and fisheries) and traditional knowledge. The most common groups are religious groups and women?s groups. 62% of farmers who are part of a group consider that their participation in these groups did not provide them useful knowledge or means to improve the household?s livelihoods.

? Only 18% of farmers surveyed are involved in any certifications schemes to increase the production value. Certification scheme are associated with increased adherence to standards and thus increase access to the agricultural produce to market. The vast majority of farmers who are not involved in such schemes are also not aware that they exist.

Zanzibar

Both on Unguja and Pemba Islands various land uses and land covers can be found (see Figure 2) and non-agricultural vegetation includes short coral scrub and thickets, to higher, closed canopy forests and mangroves. The forests on Zanzibar belong to the Zanzibar-Inhambane Coastal Forest Mosaic ecoregion and are a key component of the Coastal East African Forest Global Biodiversity Hotspot.[19][19] All selected project sites on the Zanzibar archipelago are characterised as drylands, meaning that water availability is scarce.[20][20]

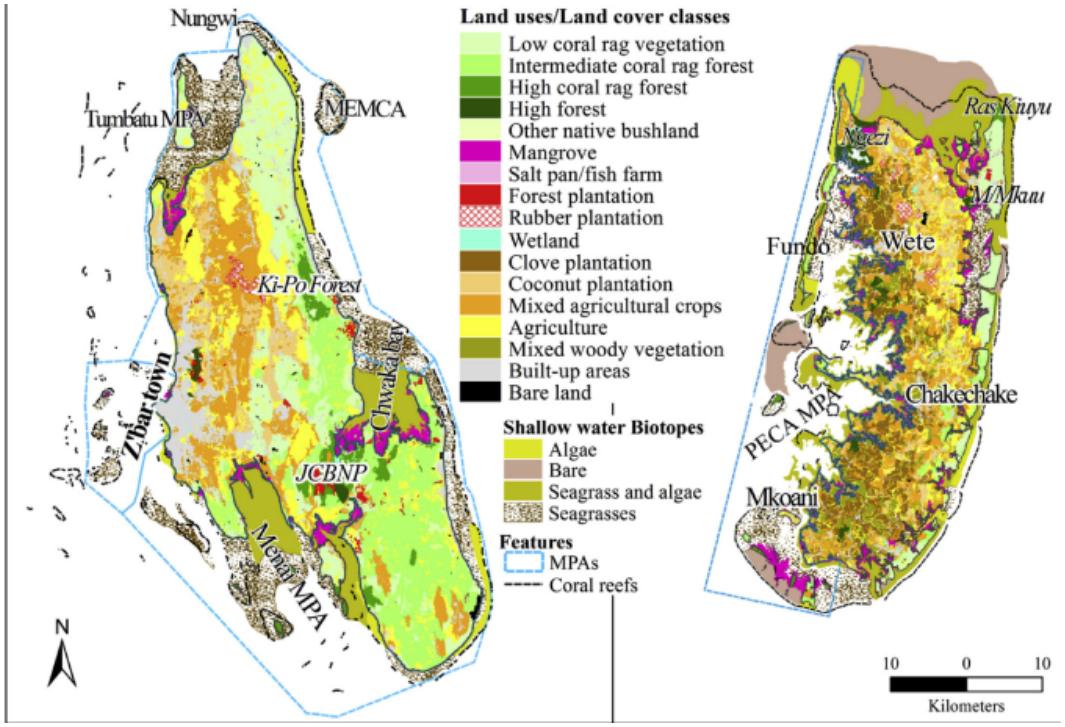


Figure 2: Land use on Unguja and Pemba[21][21]

These drylands are dominated by small-scale subsistence farming (73%), with crop production being the main source of livelihoods for 99% of surveyed households. Some are also involved in livestock production (41%), agroforestry (18%), and beekeeping (9%).[22][22] Cassava (80%) and rice (52%) are the most common crops. Zanzibar still has a strong potential to increase its horticulture crop production, more precisely fresh fruits and vegetables, as the current yield ranges from 5-7 tons per hectare while potential yield is estimated at 25-45 tons per hectare.[23][23] The production systems however, are characterized by low productivity, arising from a combination of factors such as insufficient access to inputs (quality and variety of seeds, fertilizers, etc.) and a lack of adoption of

appropriate land management practices (only 51% have taken any action to improve the quality of the land and/or reverse degradation trends).

Most of the respondents of the PPG SHARP survey (80%) declared to have access to weather forecast information, mostly through radio. In general, the information disseminated on pest outbreaks remained very limited. Information on adaptation practices for crop and livestock production also remains very limited, in particular for women.

About 55% of all farmers managed to sell some of their products in the past year, yet this was lower for female farmers (44%). Most of the farmers who did not sell any goods indicated that their level of production was too low for commercialization. A specific problem that impedes women from selling their goods is the fact that they disproportionate responsibilities in child and home care which spare little time for farm operation and budgeting. Farmers were found to who sell their produce individually and not as part of any organization. Goods are mostly sold on farmgate price on regional markets, in the streets, directly to neighbors or the community, or to traders. Only 23% of the surveyed farmers were found to use available market information and have the power to decide on the price and 13% were found to rely on dealers/intermediaries on setting the price. The lack of structured markets to producers in the island (especially in Pemba which relies on boat and plane for transportation) prevents small scale producers from accessing markets outside the island.

The resilience assessment by SHARP shows moderate resilience levels for the project sites on Zanzibar (see Box 2), suggesting that households are aware of issues affecting their livelihoods and that are equipped with limited capacity to cope, adapt and transform when changes occur.

Box 2. SHARP+ Results Highlights in Zanzibar

? **No. of HH interviewed:**269 (28% women-led and 32% men-led, and 40% dual decision-makers)

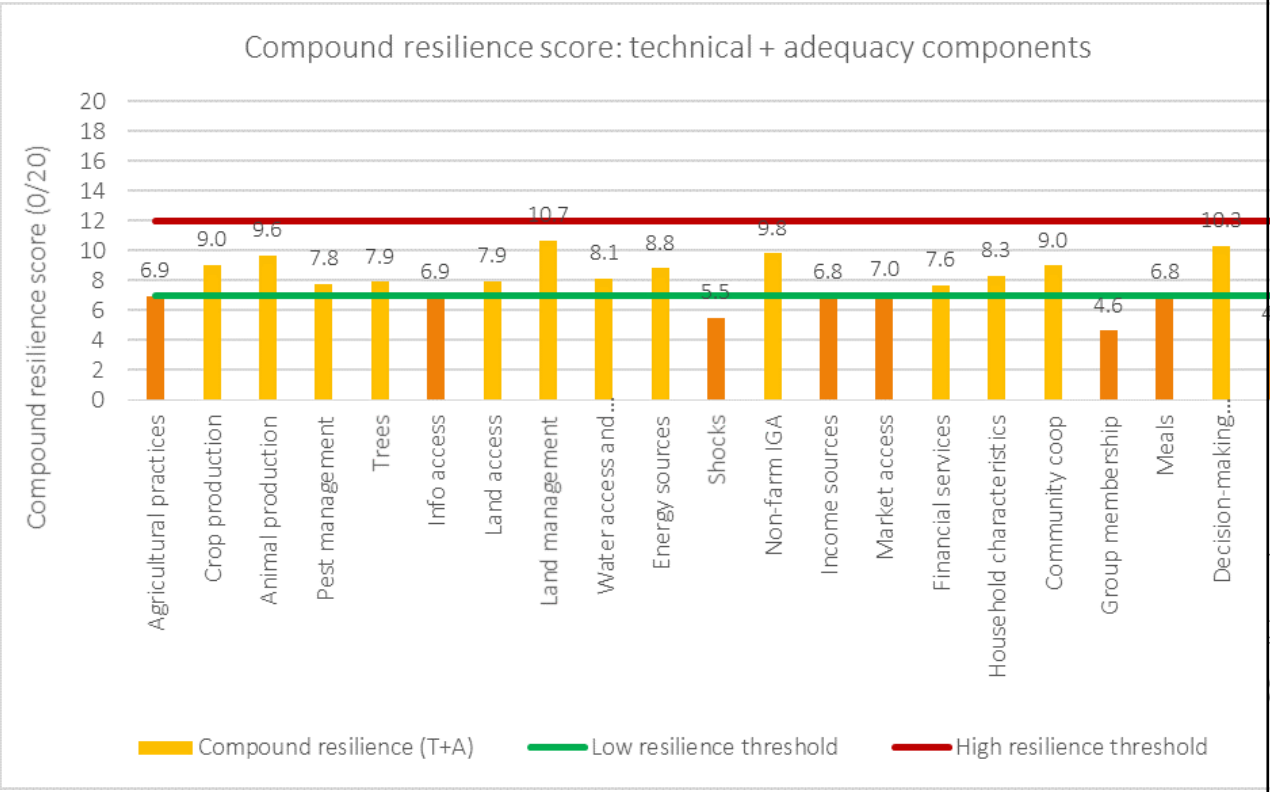
? **Economic:** In the last 3 years, at least one member of 14% of 269 sampled households has migrated to find work; About 71% of farmers identified themselves as subsistence farmers, able only to produce for family needs, whereas 21% declared to produce for selling to local consumers / markets and 7% of respondents are found to practice agribusiness (e.g. for export).Only 55%were able to sell at least some of their agricultural produce in local markets in the last 12 months (219 households).The majority of farmers sell at regional markets (29%), on the street (29%), directly to traders coming to the village (24%), to the community itself (21%) and at local markers (16%).About 61% of farmers selling any product mentioned to take the prices available at the market to set their own. Only 13% of famers mentioned to use any other available information to decide on the price at which sell their agricultural produces and 13% noted that the dealer / intermediary is the one setting the price. Households led by women (49%) reported the higher needs of loans to cover unforeseen expenses.

? **Agricultural activities:** Crop production is the main source of livelihoods of 99% of the HH, followed by 41% of households engaged in livestock production, 18% involved in agroforestry/tree production and 9% in beekeeping. Only 11% make compost out of manure. The most common crops are cassava (80% of farmers) and rice (52%). A mix of seasonal crops as tomato (16%), maize (12%), yam (13%) and cowpea (10%) are other important crops, with significant variation between districts. The cultivation of leguminous crops suitable to the region, such as cowpeas and groundnuts should be further incentivized. The majority of farmers (68%) only utilize native / local crop varieties and species in their production systems, while only 6% of households mentioned to use new varieties exclusively. About 24% of the sample mentioned to rely on mix of both. Seeds and seedlings are mainly produced/reproduced by farmers themselves in 73% of the cases. Over 55% of farmers lost at least some of their pre-harvest produce during the past season. Of these, 11% declared losing some of it (less than 30% of the pre-harvest production), 9% mentioned to losing about half of it and 9% reported the loss of over 60% of the pre-harvest crops. Conversely, 45% reported no or minimal losses before harvesting.

? Post-harvest: 66% of farmers declared minimal post-harvest losses. About 34% lost some of their produce after harvesting, of which 29% lost less than 30% of the production, 1% around half, and 4% most of it. When inquiring about the use of any post-harvest techniques, only 24% of farmers declared their use. The remainder (83% of farmers) did not take any action to increase the life and/or value of the produce and instead consumed the crops immediately after harvest.

? **Land management:** Around 51% of farmers interviewed have taken some actions to improve the quality of the land, such as incorporation of crop residues (36%), manuring (36%) and animal urea (31%) as the main practices used. 26% of farmers noted the used of synthetic fertilizers and 7% practice slash and burn.

Resilience



Aspects with low resilience levels to highlight:

? Over 66% of farmers have been affected by climate hazards in the last 3 years, mostly droughts, extreme heat and late onset of the rainy season. About 33% of farmers have also experienced non-climate shocks, including pest-outbreaks and the presence of animal disease both possibly linked to changes in temperatures.
? Despite the presence of shocks most farmers did not use any coping strategy (score of 5.5 for climate and non-climate shocks).
? Poor agricultural practices, including low diversification of production systems (score of 6.92 for agricultural practices)
? Limited access to climate information, and only 15% have access to information on agricultural and post-production practices for climate adaptation
? Only 24% of farmers considered that their agricultural activities have been profitable in the last 3 years, whilst 65% mentioned that these were not always lucrative, and 11% deemed these as unprofitable.
? 65% of families have no savings after meeting their main expenses.
? 58% of farmers interviewed are not members of community-based groups, particularly to those promoting the exchange of knowledge on agricultural practices. Around 20% of farmers participating in any group claimed their access to field schools, and 25% to women?s groups.
? Very low household dietary diversity score (HDDS) observed in 29% households (1 to 3 food items consumed in the last 24 hours)
? 63% of farmers are not able to storage food at any point during the year and 35% does it only after the harvesting season
? Only 13% of farmers (53 respondents) is aware of any climate-related programme or project, but only a third of them (14) has participated. The main benefits received were training /capacity building

Selected value chains

The selected value chains are the horticulture value chain in Zanzibar, as well as the NTFP and fodder value chains in mainland Tanzania. These value chains were selected based on the Rapid Assessment technique of the Guideline for Value Chain Selection (2005).[24][24] The horticulture and NTFP value chains were further narrowed down, meaning that they respectively include tomatoes, passion fruits, watermelon, vanilla, cinnamon, ginger, and turmeric (horticulture Zanzibar) and beekeeping and edible wild foods with particular attention for NUS (NTFP mainland Tanzania). Table 1 provides an overview of the assessment criteria used for the selection of the value chains.

Table 1: Assessment criteria

Criteria	Grading scale			Comment
Economic Criteria				
Market demand prospect	Good: 5	Mode-rate: 3	Poor: 1	Volume of production and consumption, Volume of market demand and volume of unmet market demand
Prospect for value addition	Good: 5	Mode-rate: 3	Poor: 1	Potential or prospects for value addition of a commodity is examined. Potential for market growth, employment creation, Marketability and scalability of the commodities is also essential to be examined.
Environmental Criteria				
Impact of the environment on value chain functions	Good: 5	Mode-rate: 3	Poor: 1	Level of vulnerability of VC (sections) to rising temperatures, reduced water availability, less (reliable) rainfall, etc. Adaptive capacity of the actors in VC
Potential for products and/or services that compensate for greenhouse gases (GHG)	Good: 5	Mode-rate: 3	Poor: 1	Potential of the value chain to reduce Green House Gas (GHG) or value chain that does not degrade the environment
Social Criteria				
Impact of the value chain on surrounding communities	Good: 5	Mode-rate: 3	Poor: 1	Potential conflicts (and costs) between VC actors and communities
Women?s relative control over equipment, assets, and sales income	Good: 5	Mode-rate: 3	Poor: 1	Potential of the value chain to attract women and youth
Institutional Criteria				

Donors/support organisations are ready to collaborate and invest	Good: 5	Mode-rate: 3	Poor: 1	Ability of the value chain to attract public and private investment and donor support

The selected products of the horticulture value chain can be divided into two large groups, namely (1) fresh fruits and vegetables (tomatoes, passion fruit and watermelon) and (2) spices (vanilla, ginger, cinnamon and turmeric). The first group, namely fresh fruits and vegetables, are being mostly produced by smallholder farmers, and Tanzanian Horticulture Association (TAHA) reports indicate that the current yield levels are still far below the potential. Fruits and vegetables are traded either directly at markets or through processors. Most hotels and restaurants in Zanzibar and tourist mobility offer a huge potential in the local demand of fresh fruits and vegetables, with supply to the sector being largely imported. Potential support from the government, development partners, and TAHA as an apex organization is an opportunity to the value chain development.The value chain experiences several challenges including low productivity associated with over dependency on erratic rainfall; high cost of farm inputs; high post-harvest loss because of poor post-harvest handling practices including storage and processing; packaging and inadequate farmers knowledge and training, price volatility and weak negotiation capacity of actors; insufficient capital to access quality inputs;and weak export capacity due to poor infrastructure including cold chain.

Similar to the production of fresh fruits and vegetables, spices are cultivated by smallholder farmers with farm sizes which are mostly below one acre. Spices are mostly intercropped with other crops (banana, citrus or other tree crops). Traditional processing is done by majorities before selling the produce to retailers or larger farmers. A part of the spices ends up being exported. There is consistent demand for spices from Zanzibar both locally and internationally, which offers an advantage to engage in the value chain in commercial perspective. Similarly, the supportive environment created by the government is, yet another opportunity in the value chain. The main challenge observed is low and unreliable production capacities of small holder farmers that could attract good markets. Moreover, the chain is constrained by limited processing technology and knowledge.

The selected fodder value chain is situated in mainland Tanzania and is characterized by being largely informal and complex due to the high number of actors involved (see Figure 3).[25][25]

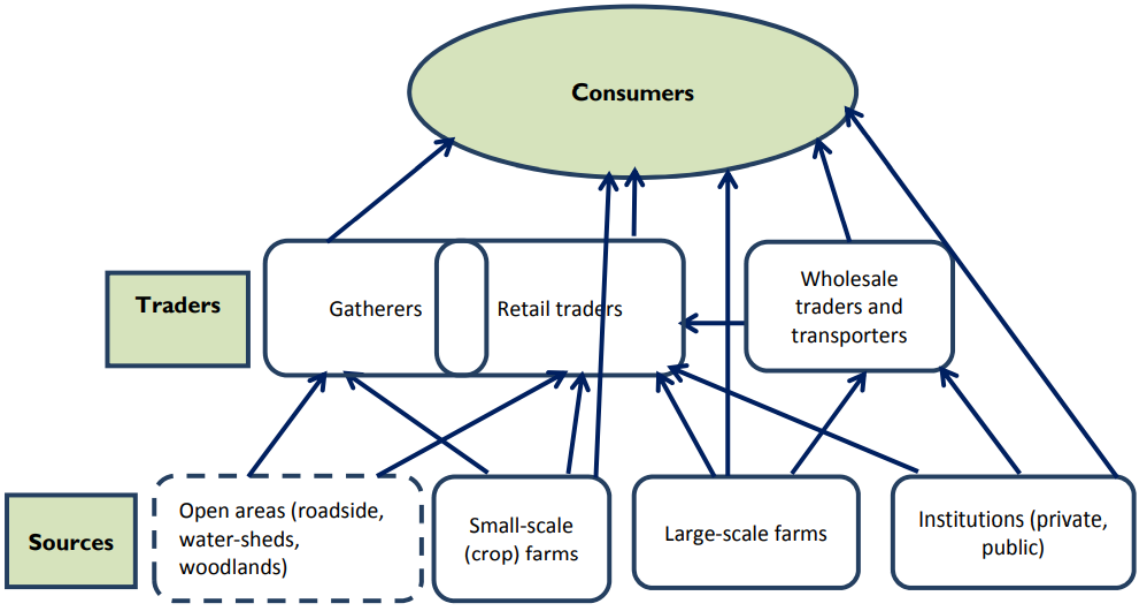


Figure 3: FEED value chain actors map

It has been noted that, about 3,651,193 cattle heads are present in the project sites while feed resources make up only 26% on average (with deficits in all types of rainfall years). This offers a huge market potential for the feed value chain not only in the study area, but across Tanzania. The livestock industry is coordinated with potentials of attracting business if the value chain is upgraded. On the other hand, limited production and marketing knowledge is a challenge to the fodder value chain. Post-harvest processing technology and knowledge is yet another challenge that need to be addressed in upgrading the value chain.

The beekeeping value chain is regarded as a traditional and rural-based activity of local communities. The use of local hives dominated the sector although now there is a marginal shift to improved and commercial hives. Production from bee results in several different end products including honey, bees wax, royal gel, pollen, bee venom, glue and propolis. Due to underdevelopment of the sector in Tanzania on both supply and demand side, most beekeepers and processors,[26][26] including in the surveyed districts, are only able to use honey and bee wax leaving the potential of other more profitable products untapped. Honey and bee wax are mostly sold either directly to consumers or through traders and processors. The beekeeping value chain is an interesting market as there is a high demand, a low entry barrier, and there is a beekeeping division present within the Ministry of Natural Resources and Tourism making sure the sector is represented. On the other hand, low productivity because of traditional practices and local processing technologies hinders growth of the value chain. The lack of transparency and weak and/or non-compliance to standards is yet another weakness in the value chain which also limits the export possibilities.

Lastly, there is the wild foods value chain which relates to mushrooms and edible wild fruits available in the Tanganyika, Sikonge and Nkasi districts in the Tanzanian Miombo woodlands. Production and

productivity of wild mushroom and fruits are unpredictable because the foods are seasonal and depend on natural growth and regeneration, rather than agricultural activities. They are generally used to complement household farming activities. Due to informality of the value chain, the production volume of the collected wild food is not known. However, it is worth noting that the wild food is normally collected in the nearby forest. In most cases women dominate this node of the value chain. The biggest challenges towards developing the wild foods value chain is the informality and limited coordination and data. On the other hand, the chain represents a particular importance as it is easily accessible to those who possess the knowledge.

Historical climate

Zanzibar has a bimodal rainfall regime (see Figure 4) with an historical average annual precipitation of approximately 1150mm (1961-1990), while the Tabora region has a unimodal rainfall regime lasting from beginning of November until the end of April. with an annual baseline (1961?1990) precipitation of 952mm[27][27].

Historical Observed Monthly Precipitation for Tanzania, United Republic of at Location (39.30,-6.06) for 1986-2005

Historical Observed Monthly Precipitation for Tanzania, United Republic of at Location (32.82,-5.07) for 1986-2005

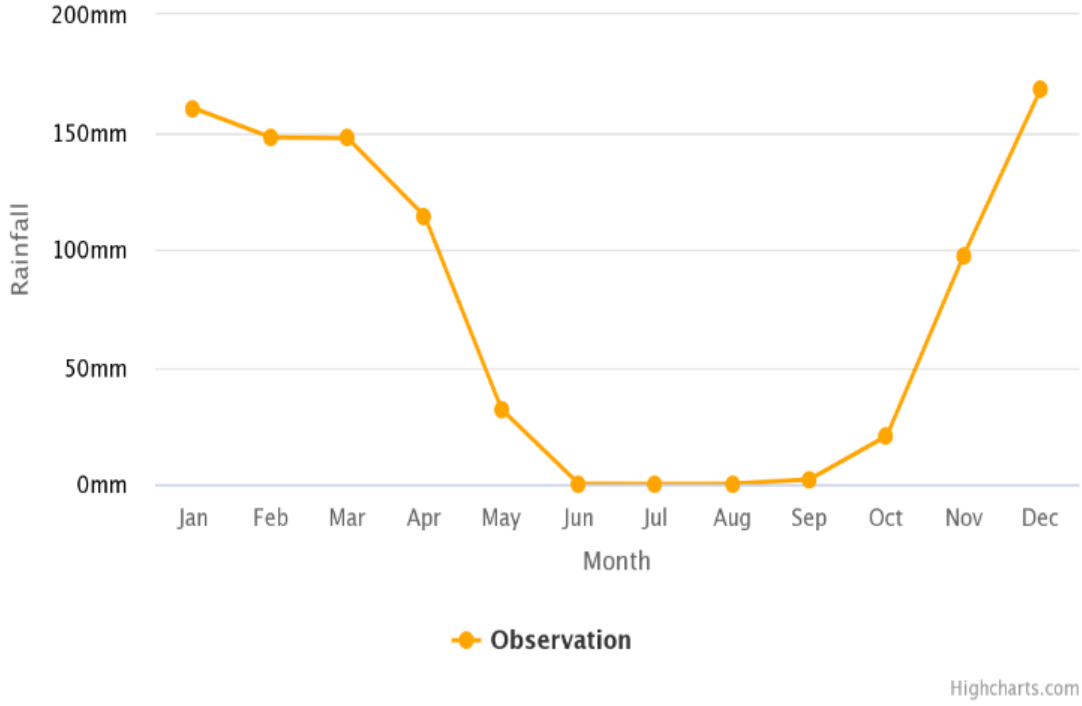


Figure 4: Historical observed monthly precipitation for Tanzania for 1986-2005 (Upper Zanzibar, right Tabora)[28][28]

An analysis of historical trends in precipitation and temperature was conducted during the PPG phase, for all areas of intervention. It found no significant change in annual total and seasonal average rainfall could be detected in the 30 years of historical record (1981-2010). However, a significant increase of rainfall during off season were observed in Micheweni (Tumbe). This increase of rainfall during off season month has the potential to strongly impact tree crops and post-harvest activities such as drying and storage. For instance, it is conducive to aflatoxins contamination that normally present a serious threat to the marketing of maize and will likely worsen if off season rains persist without adaptation strategy.

No significant change in extreme events related to intra-seasonal rainfall patterns were found across target areas, except in Nkasi district where a significant dry spell periods have been experienced in the past 30 years of historical record.

In target areas across Zanzibar, dry condition dominated during March-April-May (MAM) season with a probability of occurrence of 63% in any given year, while wet conditions had a probability of occurrence of 53% during OND season[29][29]. In target areas across Tanzania mainland, mild wetness dominated by 38%.Other important results with regards to extreme events is the increasing trend of Dry-Wet abrupt alteration and should receive proper attention due to its compound effects on agriculture production and socioeconomic development. The dry-wet abrupt alteration reduces the net photosynthesis process, degrade chloroplasts, reduce chlorophyll, reduce crop yield and reduce nutrients uptake and utilization by the crop resulting with grain that have deficiency in nutrients[30][30].

The analysis of average annual temperature between 1981 and 2010 showed a notable and statistically significant increase of approximately 1.0?C for both minimum and maximum temperatures. The extreme temperature events like the number of warm days and nights, have increased significantly across the target areas, while the cold events such as the number of cold days and cold nights have decreased significantly in the 30 years historical record. This elevated the incidences of extreme heat condition across the target areas in Tanzania mainland and Zanzibar. Increase in temperature and extreme warm events have impacted the agricultural sector across the target areas by increasing evapotranspiration in plants and reducing soil moisture contents, and resulted to decreased crop yields.

The increased evapotranspiration combined with drought may have led to shrinking of wetland and water sources where perennial rivers across the target areas (e.g. in Sikonge) have become seasonal. This may have contributed to negative impacts on pastoralist access to water resources in Tanganyika and Nkasi where conflict to access of water resources between farmers and pastoralists was reported. Moreover, an increase in temperature across target areas may have contributed in pest and pathogen outbreaks in crop and livestock as was reported in the SHARP report. The combination drought and high temperature may have contributed to wildfires that was observed during the field visit in the Miombo forest in target areas across Tanzania mainland.

Climate change and projected impacts

Climate projections for Tanzania show an increasing trend in temperature. The analysis carried out during the PPG phase looked at future climate projection under two pathways (RCP 4.5 and RCP 8.5). The analysis indicates that temperature is projected to increase significantly across all target areas. During the present century (2011-2040) the average temperature would increase by 1.0?C across target areas under both RCP 4.5 and RCP 8.5 emission scenarios. In the mid-century (2041-2070) under both RCP 4.5 and RCP 8.5 emission scenarios, annual average temperature would increase by 2?C across target areas in Zanzibar and Tanzania mainland. In the end century (2070-2100), under RCP 8.5, the annual average temperature would increase by 4.0?C and 3.0?C across target areas in Tanzania mainland and Zanzibar, respectively. While under RCP 4.5, the annual temperature would increase 2.0?C across target areas in Tanzania mainland and Zanzibar.

The projected temperature changes could also entail an increase in the mean number of days with high temperatures (more than 30?C), especially in the southern part of Tanzania.[31][31] Moreover, an increase in the likelihood of severe droughts, in particular in the southwest (see Figure 5), is also projected.[32][32]

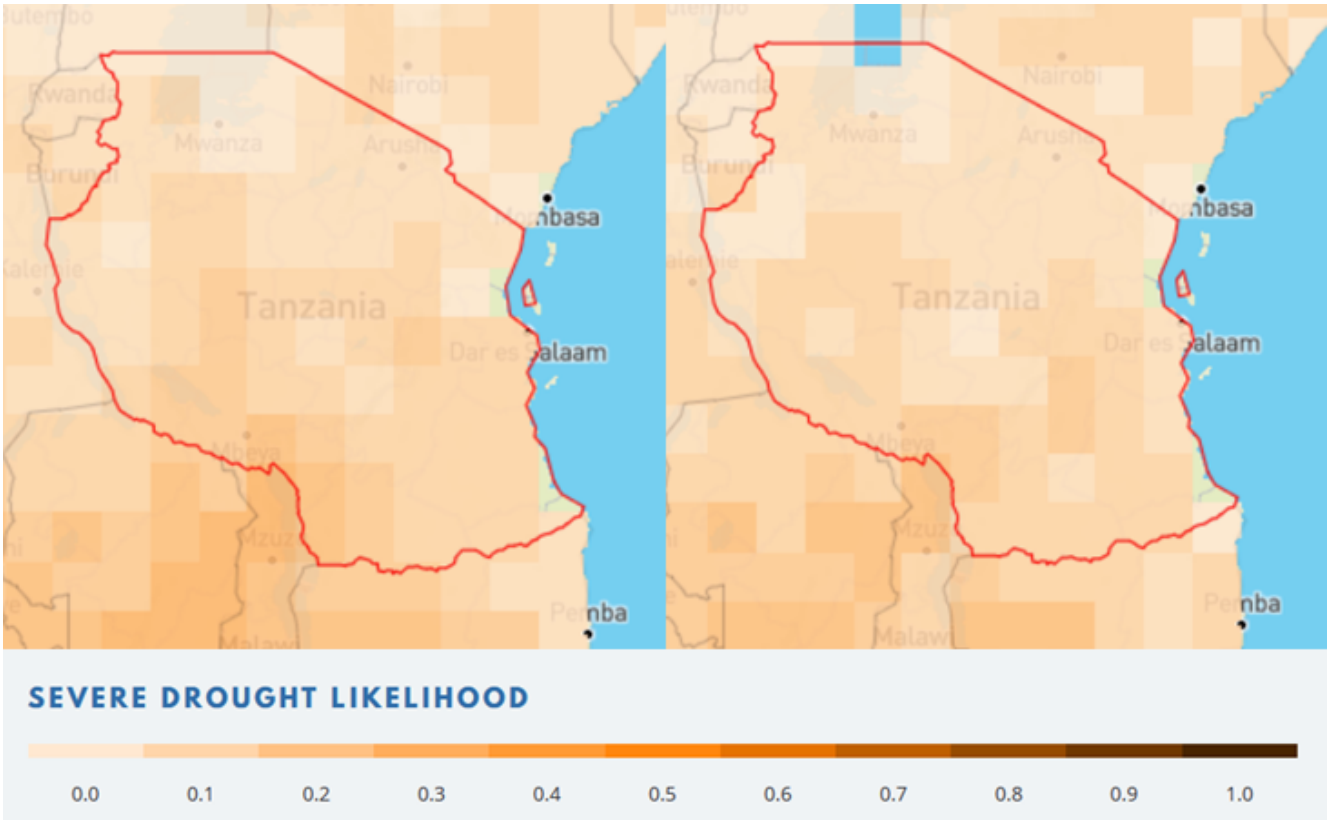


Figure 5: Projected change in severe drought likelihood of Tanzania for 2040-2059 (compared to 1986-2005), RCP 4.5 (left) and RCP8.5 (Right)[33][33]

The warming trend in the target areas will likely have strong impact on agriculture sector and livestock, by increasing the risk of diseases and pest infestation. The major crops that are maize and rice would be negatively impacted by increasing trend in temperature. For instance, major rice diseases (blast and bacterial leaf blight) affect by declining the yields and are significantly aggravated by increase in temperature. The significant increasing trend in temperature across the target areas would attribute significant increase in extreme climate event related to temperatures. Indeed, the number of warm days and warm night are projected to increase, while the number of cold days and cold nights are projected to decline across the target areas.

The projected change in temperature across the project target sites could have detrimental consequences to people?s livelihood and the ecosystem at large. The IPCC 2018 published special report that outline the impacts of 1.5?C warming, underscoring the urgent need for designing adaptation and mitigation strategies. The projected increase in temperature across the project target areas could increase the trends of intensity and frequency of weather and climate extreme. Local species could lose over half of their climatologically determined geographical range at 2?C range (IPCC, 2018). In Zanzibar where the government is now investing in a blue economy, the projected change in temperature would rise the water temperature and this is expected to drive marine ecosystem like fish to higher latitude for favorable temperatures while exacerbating bleaching responses in the coral reefs. This would make the fishing sectors and industries vulnerable more vulnerable to the projected change in temperatures.

Projected precipitation changes are highly uncertain and have high spatial variability across Tanzania.[34][34] Zanzibar average annual precipitation is projected to increase insignificantly by the 2050s[35][35] , while the Tabora region could also see an insignificant increase for the 2050s.[36][36] However, climate models project with strong agreement that the mean number of rain days will decrease while the amount of rainfall on each rainy day will increase. These changes suggest more variable rainfall, with both higher likelihood of dry spells and a higher likelihood of intense rainfall events[37][37].

Hence, projected impacts on Zanzibar are significant, due to projected significant changes in rainfall patterns. On the one hand, it is likely that the prevalence of crop pest and diseases will increase, adversely affecting agricultural production.[38][38] Moreover, increasing rainfall and temperature variability is likely to reduce crop yield.[39][39],[40][40] Zanzibar is less likely to be exposed to droughts than the sites in mainland Tanzania, yet is becoming more vulnerable to flooding events.[41][41] Moreover, it is exposed to sea level rise, with increases projected to be of 0.2m to 1m over the next century, which would have several negative impacts on local livelihoods. Firstly, sea level rise will impact both the volume and salinity of aquifers which means a decrease of the availability of freshwater.[42][42] This issue could be exacerbated by over pumping of groundwater.[43][43]. In a time

where the use of groundwater has been proposed to increase productivity of agriculture and decrease poverty on Zanzibar, the need for a good water resource management plan is at an all-time high.[44][44]Secondly, sea level rise will cause more frequent seawater intrusions in agricultural land and water wells along the coast.[45][45] Increasing levels of salinity will require Zanzibar farmers to adapt and opt for more resilient crops.[46][46] Thirdly, the rising sea level is causing an increase in shoreline (coastal) erosion with negative effects on land availability.

Root causes of Climate Vulnerability

1) Widespread poverty

The rural populations in the Katavi, Rukwa and Tabora districts experience high levels of poverty. In the Chakechake, Kusini, Kaskazini and Micheweni districts of Zanzibar poverty is also present and widespread: 71% of the interrogated households are small-scale subsistence farmers. Under these circumstances, households are forced to focus on their immediate survival. Consequently, they have low capacity to invest in adaptation and remain extremely vulnerable to shocks and stressors that are expected to increase in frequency or intensity due to climate change.[47][47] On the other hand, people living in poverty are also known to have assets with higher exposure to climate risks.[48][48] Lastly, the additional pressure caused by climate change is restricting the possibility of people to escape poverty: the combination of reduced agricultural productivity or a decreasing income in general and the increased risk of investments create a disincentive or even impossible situation to save and invest.[49][49] Consequently, the opportunities for poor communities and persons to increase resilience towards climate risks shrink.

2) Population growth

Tanzania?s overall population has seen strong growth in the past decades and is currently estimated at over 58 million (2019)[50][50]. The population is expected to reach 138 million by 2050.[51][51]Population in the Miombo woodlands is similarly increasing at a high rate, while the population in Zanzibar growing at a slightly higher rate than the national average[52][52]. Population growth comes with growing demand for agricultural land, as well as for natural resources and products to supplement livelihoods.[53][53] Local communities in the targeted areas are forced to overuse the landscape, to encroach into forests and rangelands, and to migrate in an attempt to derive their basic livelihoods. The associated over exploitation and destruction of the environment is also aggravating the effects of climate change. Moreover, the growing population in combination with limited natural resources can result in conflicts between communities.[54][54]

3) Gender inequality

Women are particularly affected by climate change. The Gender Report identified that looking after the basic needs of the families (food, education, and health) is the pressing priority for women. This combination requires them to engage in livelihood strategies which do not require them to leave the families. Therefore, women are mostly active on farms rather than off farms (when compared to men). Although their involvement in agricultural activities is high, women have low access to agricultural extension services in order to deal with low productivity. Moreover, those women leading businesses have poor access to institutional or financial credit. Lastly, women encounter barriers to participation in development, planning, and policymaking processes which hampers their overall development. Unlike men, women often have less access to education and training, information and resources. Moreover, they have a greater vulnerability to poverty, and typically weaker legal protections and social status. Therefore, women are uniquely and differentially affected by the negative effects of climate change given their substantial role in agriculture and food production.

Drivers of Climate Vulnerability in the Landscapes

1) Unsustainable agricultural practices

Both the Miombo woodlands and drylands of Zanzibar are characterized by soils with low fertility, upon which productivity is also generally low. Moreover, most agricultural activities of local farmers do not make use of sustainable practices or approaches that could improve soil quality or revert and prevent soil degradation.[55][55] Unsustainable agricultural practices contribute to environmental degradation, including the misuse of fertilizers and the slash-and-burn practice that is observed in the areas of intervention. Therefore, the productivity level of agricultural activities remains low and is projected to stay low or even decrease. In combination with population growth this means additional land is needed in order to achieve food security. At the same time the mitigation potential of approaches such as agroforestry or intercropping with nitrogen fixing legume crops remains unexploited.

2) Unsustainable extraction of natural resources

Households rely on the exploitation of natural resources, and in particular forest or marine (Zanzibar) resources, to supplement their incomes. High dependence on biomass energy (mainly firewood and charcoal) due to limited access to alternative energy carriers also adds pressure to the landscape while upholding widespread energy insecurity in the targeted communities. The unsustainable extraction of resources decreases the resilience of the ecosystems and increases the vulnerability of the communities. In the targeted landscapes of the Miombo woodlands, the unsustainable utilization of forest resources is a leading cause of forest and land degradation, with extraction rates far exceeding regeneration rates. Another threat to the ecosystems relates to NTFP harvesting/gathering. For instance, honey gathering using traditional beehive making by debarking and felling trees (often *Julbernardia globiflora*) is highly destructive and often targets larger trees. When less abundant tree species are used, this can lead to the disappearance of mature specimens, and diminish the nectar resource, the number of bee colonies, and the number of trees suitable for wild hives[56][56]. Fires used to control bees can also spread, and threaten surrounding land, forests, and villages. Other NTFPs harvesting is often unsustainable and unrestricted, such as medicinal plants which are said to be disappearing[57][57], threatening biodiversity. In Zanzibar the unsustainable exploitation is rather related to the drylands and the marine environment. As the health of those forest and marine environments is decreasing due to climate change and demographic pressure, the capacity of these environments to provide in

supplementary resources is however decreasing. Moreover, environmental degradation is the opposite of what is needed to counter climate change.

Barriers

Below is a description of the barriers preventing the systematic adoption of adaptation measures in the areas of intervention:

Barrier 1: Inadequate institutional capacity to mainstream climate change adaptation measures into sectoral planning and implementation at various levels

Government agencies need dependable information to determine what climate adaptation practices and technologies to support and implement. As there is limited knowledge on climate vulnerability and adaptation technologies, it is difficult to mainstream adaptation into sectoral planning, budgets, and support the implementation of appropriate measures. Indeed, adaptation requires integrated planning approaches to effectively address systemic climate change adaptation challenge. At this time, siloed approaches, and low capacity of cross-sectoral planning mechanisms prevail. The result is that national government climate change related policies, planning, and investments do not adequately address on-the-ground adoption of climate resilient practices and technologies. On the other hand, local governments require capacity-building and support in the design, adoption and implementation of policies and plans to effectively support local stakeholders to adopt climate resilient practices and technologies. Participatory land use planning and use, which effectively integrates climate change adaptation, is not yet commonplace.

Barrier 2: Low knowhow to adopt and sustain climate resilient technologies and practices at community level

Local traditional adaptation mechanisms and strategies are becoming inadequate in the face of increasing climate variability and extreme events. Smallholder farmers and livestock keepers do not have enough access to the knowledge, tools and networks required to sustainably adopt climate resilient practices and technologies. Indeed, farmers in Zanzibar indicated during the PPG phase that education and training is the top priority to become more resilient.[58][58] In Zanzibar only 15% of the farmers indicated having access to information on climate adaptation practices in agriculture, such as the use of improved crops and livestock varieties, as well as incorporation of agro-forestry systems, and the use of post-production practices. Indeed, amongst key knowledge gaps are a good understanding of climate vulnerability at local level, and of locally-adapted adaptation solutions. ICT has been shown to be an effective tool to improve access to information relevant for agricultural decision-making, including for instance on pest management, as well as to improve access to markets. However, at this time, most producers do not have access to these types of information through ICT, including agro-meteorological information which can contribute to more informed decision-making at various levels including the field level. Smallholders are instead highly reliant upon agricultural and forestry extension services and systems, although current support services are not organized or capacitated to assist producers to adequately adapt to climate change.

Barrier 3: Limited technical knowledge on and access to post-harvest technologies.

Smallholders and women in particular, have limited access to post-harvest technologies, agriculture insurance services, direct access to information, extension services and inputs, whereas physical infrastructure (such as roads) and market linkages remain fragmented. In addition, insufficient access to reliable energy infrastructure for value-adding activities such as processing, cooling and packaging materials, presents a significant barrier to both post-harvest loss reduction and value chain development in the targeted areas. With limited access to post-harvest technologies, smallholders often struggle to

preserve their harvest until optimal market prices and profits are met. Furthermore, without access to adequate storage facilities, increased impacts from climate change (changes in precipitation, humidity patterns and temperature) can lead to increases in mycotoxin contamination as well as outbreaks of pests and diseases and also accelerate the overall spoilage process in perishable products, particularly for horticulture and NTFPs. As a result, value-addition remain underdeveloped, while post-harvest losses can be catastrophic (e.g. 4% of SHARP respondents in Zanzibar reported post-harvest losses of more than 60%).

Barrier 4: Insufficient access to finance, an unfavorable investment climate and low organization of producers into groups

Smallholder farmers (women in particular) but also SMEs in the targeted areas face significant barriers in accessing capital and other forms of finance as they often have insufficient collateral, financial capacity, and have low levels of participation in groups/poorly organized and are marginalized. Bank lending is typically low and with high interest rates due to perceptions of the agriculture, forestry and livestock sectors as low profit generators that involve high risks and transaction costs. According to the SHARP survey in Zanzibar, only 30% of the families surveyed in need of a loan managed to obtain it, either through lending institutions or banks (70%), through family and friends (18%) or through cooperatives (12%). Moreover, these institutions are often not willing to risk investing in smallholder producers or provide insurance given their high dependence on unpredictable weather patterns and market price fluctuations. Smallholders in the targeted regions are not well linked to markets or financial institutions, such as micro-credit or micro-insurance, making it very challenging for them to financially sustain their production over time. Private sector investments in the targeted sectors therefore remain low, including for value-adding activities despite their potential for enhancing rural economies by transforming subsistence production into commercialization.

Barrier 5: Suboptimal information exchange and coordination among farmers? organizations, private sectors such as input suppliers, traders and processors

Market access is a key challenge for producers in the areas of intervention. The SHARP survey in Zanzibar highlighted that only 55% of producers were able to sell any agricultural product in local markets in the preceding 12 months, though numbers vary by district, in large part due to long distances and limited mobility (especially for women). Moreover, regardless of the quantity sold, 99% of farmers reported selling their products alone, and only 1% (2 respondents) mentioned doing it through an informal farmer organization. While the limited organization contributes to limiting market opportunities for many producers, there is also limited interest in participating in groups and their frequent meetings due to time constraints. Offering these isolated producers readily accessible information through ICT platforms can contribute to increasing market access, yet this is not an approach commonly available in the areas of intervention. Information which can be provided to enable individuals or small groups to more effectively access markets includes on the pricing of agricultural products (inputs and outputs), and connections to suppliers, buyers and logistics providers (such as storage facilities and transport companies). The latter information can support individual producers in establishing the required connections to improve market access, without necessarily requiring their active involvement in groups. In addition, ICT services can provide information on traceability, thereby opening up opportunities for export markets. This is particularly relevant to the honey sector in Tanzania, where ICT could make data input more efficient and reliable, thereby lowering the cost of compliance with traceability standards.

2) The baseline scenario and any associated baseline projects.

In the baseline, a range of policy, legal and technical measures, and investments, are being undertaken to address the negative impacts of climate change in Tanzania mainland and Zanzibar.

Legal and policy baseline

The Government of Tanzania has put in place a comprehensive policy framework and ambitious roadmap to promote economic development while undertaking various efforts towards addressing climate change in accordance with the national context.

Table 2. Tanzania policies and legal instruments

Theme	Main Legislation/Policy/Strategy
Environment	National Environment Policy (1997); Environmental Impact Assessment and Audit Regulations (2005); The Environmental Management (Air Quality Standards) Regulations (2007)
Climate Change	National Climate Change Strategy (NCSS, 2012); Second Communication to the UNFCCC (2014); Zanzibar Climate Change Strategy (2014); Guidelines for Integrating Climate Change Adaptation into National Sectoral Policies, Plans and Programmes of Tanzania (2012); National Strategy on Gender and Climate Change (2013); Nationally Determined Contributions (2018); National Climate Change Response Strategy 2021-2026 (2021)
Biodiversity, Wildlife & Natural Resources	Wildlife Policy (2007); Wildlife Conservation Act (2009); National Beekeeping Policy (1998); National Biodiversity Strategy and Action Plan (2015)
Water	National Water Policy (NAWAPO) (2002); Water Resources Management Act of 2009 (WRMA); National Water Sector Development Strategy (NWSDS) (2006)
Forestry	Forest Act No. 14 (2002); National Forest Policy (1998); National Strategy for Reduced Emissions from Deforestation and Forest Degradation - REDD+ (2013)
Energy	National Energy Policy (2015)
Growth and Development	Tanzania Development Vision 2025 (1999); Rural Development Policy (2001); National Strategy for Growth and Reduction of Poverty II (2010); Tanzania?s Second Five Year Development Plan 2016/17? 2020/21 (2016); Tanzania?s Third Five Year Development Plan 2021/22-2025/26 (2021)
Agriculture	National Agricultural Policy (2013); Seed Act and Regulation (2003 & 2014); (2010); National Irrigation Policy (2009); Agricultural Sector Development Strategy II (2015); Tanzania Agriculture and Food Security Investment Plan (2011)
Livestock	National Livestock policy (2006), Grazing-land and Animal Feed Resources Act No. 13 (2010)
Nutrition	National Food and Nutrition Policy (1992)
Planning and Land Tenure	Land Act No. 4 and Village Land Act No. 5 (1999); Land Use Planning Act No. 6 (2007); National Land Policy (1995)
Decentralization	Local Government (District Authorities) Act (1982); Local Government (Urban Authorities) Act (1982)
Socio-economic	Gender Policy (2000)
Trade & Private Sector Development	National Micro-Finance Policy (2000); National Trade Policy (2003); National Private Sector Development Policy (2018)

Baseline projects

Several projects and programmes implemented by the (national/local) government and private sector compose the baseline for this project, to the extent that they are well aligned with the project?s objective and can provide a platform for collaboration, technical integration and co-financing. The most relevant are as follows:

Table 3: Baseline projects with Co-financing

Baseline name	Description	Timeframe	Budget	Co-financing amount and additional value
UNJP-FAO	Support sustainable value chain development for job creation, food and nutrition security.	2022-2023	USD 600,000	The proposed project will be building and synchronize with UNJP FAO project on: Capacity development to individual agri-entrepreneurs women and men farmers. Capacity Development of relevant institutions to strengthen productivity, in rural and urban areas, and inclusive development, including new/innovative technologies, improvement of related ICT support services, advocacy for commercialization of agriculture and its trade in the local/regional export markets, market Information systems, generation of data on high value commodities and also access to finance, commercialization of agriculture in support of food security and exports, storage and market access interventions, formal and non-formal TVET opportunities.

NMB Foundation	Building financial management capacities among producers and their organisations	2021- 2025	USD 500,000	The proposed LDCF will build on a past cooperation between FAO and NMB Foundation (2014-2016) in Kiroka and Morogoro aimed at strengthening smallholder households? access to finance through collective production, storage and marketing strategies. With co-finance from NMB Foundation the proposed project will focus on building financial management capacity among producers and their organizations, creating sustainable linkages with local financial service providers and agricultural value chain agents, and improving agricultural practices to enhance productivity. Linkages between farmer organizations (Fos) and financial service providers will be established to provide room for development of a long-term market strategy. The National Microfinance Bank Foundation for Agricultural Development, as a co-financier for this project, will contribute to the following: 1. Support small and medium farmers to access agricultural finance. This is achieved through increased capacity-building of farmer organizations and their respective members while also offering training to improve financial literacy skills; 2. Facilitate job creation and economic growth through mentorship, coaching, business training, digital and financial literacy training. The emphasis is on innovation to spur positive change for our communities; 3. Support the development of sustainable businesses plans for selected SMEs/cooperative businesses; 4. Support the development of market strategies for selected SMEs/cooperative businesses; and 5. Facilitate access to/creation of innovative finance mechanisms for value chain resilience, including

The Hand in Hand Initiative by the FAO and the United Republic of Tanzania	This project aims to contribute to ongoing initiatives by the government and agricultural stakeholders to enhance digital agricultural technology uptake, market development, and strengthening partnerships, towards improving productivity, increasing production and incomes, increasing resilience, and ensuring food and nutrition security.	2022-2024	USD 262,141	The proposed project will be complementing this project through technical support on promotion and use of digital agricultural extension services in the country and facilitating partnership for agricultural investment and climate resilience with key agricultural stakeholders on the country.
Ministry of agriculture	In-kind cofinancing	2022-2026	USD 5,000,000	Extension initiatives in the project area M-Kilimo system running cost
TFS	Grants	2022-2026	USD 4,500,000	Facilitate beekeeping activities Support tree seedling activities and increasing restoration

AG Energies	In-kind	2022-2026	USD 25,509	Innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for priority sectors introduced, tested and promoted in FFS, FFF and producers? plots. Equip SMEs/cooperative businesses with solar-powered cold storage systems, solar cold rooms/fridges/freezers (capacity depending of the products stored and amount). Partnership with solar companies to equip SMEs/cooperative businesses with solar and electric drying systems for highly perishable horticulture products or NTFPs such as berries and mushrooms. Partnership with Solar Companies to equip SMEs/cooperative businesses with solar moisture controlled storage technologies for cattle fodder in the Miombo region. Partnership with Solar Companies to provide training on operation and maintenance of climate resilient storage facilities for beneficiary SMEs/cooperative businesses.

Multiple other complementary initiatives are also ongoing, including some from the Adaptation Fund (AF), the EU, the Green Climate Fund (GCF), IFAD and UNDAP framework, and are presented in the table below:

Table 4: Baseline projects Without Cofinancing

Project Title	Funder	Description	Duration	Funding
Agricultural Sector Development Programme Phase (ASDP II)	Government	Development of priority commodities, land use planning, sustainable watershed management, climate-smart agriculture and water management	2015/6 - 2024/5	USD 5.892 billion including USD 40 million in the targeted area

Water Sector Development Program (WSDP II)	Government	Establish water facilities	2006-2025	USD 2 million including USD 1 million in the targeted area
Southern Agricultural Growth Corridor of Tanzania (SAGCOT) Initiative	SAGCOT	The public-private initiative has as objective to boost agricultural productivity, improve food security, reduce poverty and ensure environmental sustainability through the commercialization of smallholder agriculture	2010-2030	USD 70 million
Agriculture and Fisheries Development Programme	IFAD	This programme funded by IFAD (and co-financed by the Tanzanian government) is active in both the Tabora regions and the two island of Zanzibar. Its objective is to contribute to inclusive food systems for improved livelihoods, food security, nutrition and climate resilience.	2020-2027	USD 58.85 million
Beekeeping value chain support by European Union (EU)	EU	Development of the beekeeping value chain, including in Singida, Kigoma, and Shinyanga regions	2020-2025	EUR 11,079,900
Training initiative between TAHA, COLEACP, WorldVeg and NM-AIST	Government	Provision of training to bridge the skill gap in the horticulture industry	2020-2025	As part of the two Fit For Market programmes. The process will follow COLEACP?s ?Jobs-Skills-Training approach?

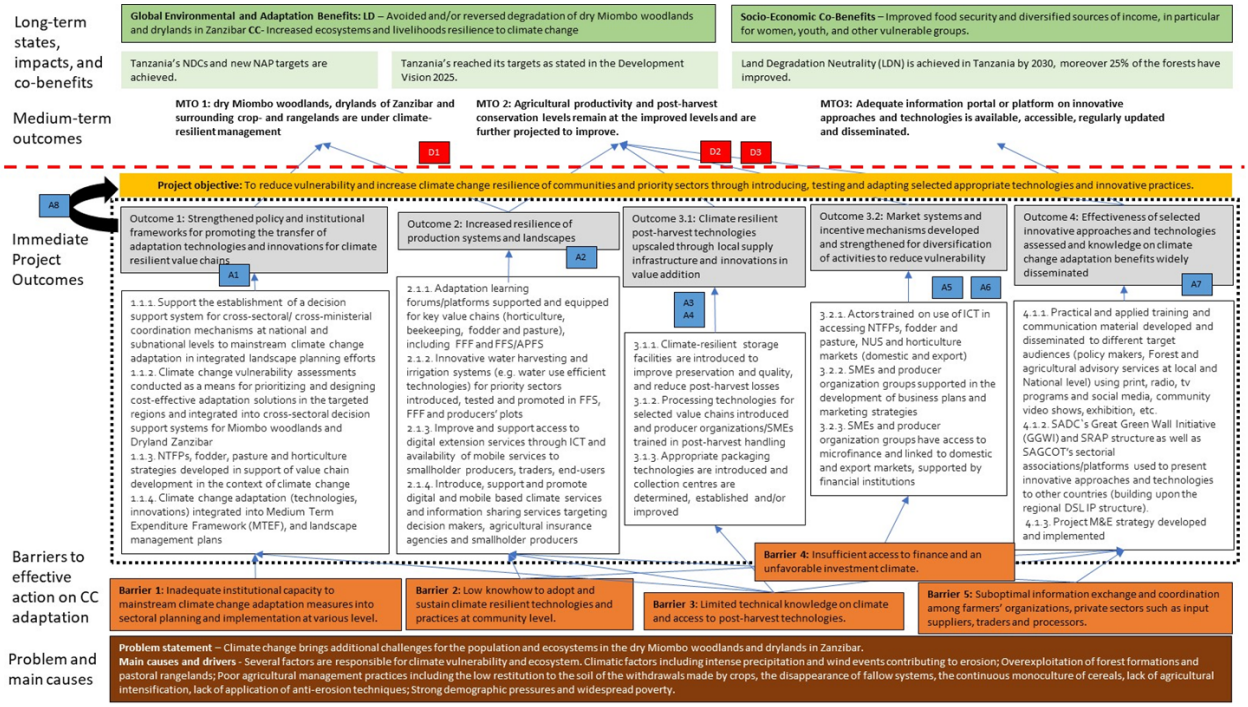
The AGRI-CONNECT Program- Supporting Value Chains for Shared Prosperity in Coffee, Tea, and Horticulture[59][59]	EU	The EU funded AGRI-CONNECT programme will improve the lives of 150,000 smallholders in the Southern Highlands of Tanzania and Zanzibar. It will contribute to inclusive economic growth, private sector development and investment, job creation and improved food and nutrition security. The project aims at increasing the competitiveness and profitability of the horticulture sector for smallholders and traders in Iringa, Njombe, Songwe, Mbeya,, Ruvuma,, Katavi, and Zanzibar. Key activities include improving trade relations of farmers with other farmers, lead firms and traders, supporting financial inclusion and piloting innovative ICT solutions.	2020-2024	EUR 100 million
Blue Action Fund (BAF) - Ecosystem Based Adaptation Programme in the Western Indian Ocean (FP 122)	GCF	The programme funded by the GCF has the objective to enhance, through a coastal zone management based on the conservation and sustainable use of coastal ecosystems, ecosystem services that contribute to reducing climate change-related risks for vulnerable coastal communities. The outcome will increase the resilience of vulnerable coastal populations to climate change.	2019-2028	USD 65 million (of which 8.8 million estimated for Tanzania)

Strategic Water Harvesting Technologies for Enhancing Resilience to Climate Change in Rural Communities in Semi-Arid Areas of Tanzania SWAHAT	Adaptation Fund	Funded by the AF and implemented by the National Environment Management Council, the objective the SWAHAT project is enhancing resilience and adaptation of semi-arid rural communities to climate change-induced impacts of drought, floods and water scarcity which will be achieved through strategic water harvesting technologies that will contribute to improved crops, aquaculture and livestock productivity, reforestation as well as combating emerging crops and livestock pests and diseases.	2020-2024	USD 1,3 million
Enhancing Climate Change Resilience of Coastal Communities of Zanzibar	Adaptation Fund	Funded by the AF and implemented by National Environment Management Council, the main objective of the project is to build the capacity of smallholder farmers in tackling climate change impacts through practical and innovative solutions that have concrete and tangible outputs. Specifically, the project envisages achieving the following: ? Constructing water harvesting infrastructures for supplying water throughout the year in selected sites ? Promoting soil and water conservation techniques for improved water protection and crop productivity ? Developing integrated climate resilient livelihoods diversification systems in selected sites ? Institutional capacity building of local government authorities and communities in planning , implementation of climate change adaption actions and dissemination of project results and lessons learnt.	2020-2023	USD 1 million

3) The proposed alternative scenario with a brief description of expected outcomes and components of the project and the project?s Theory of Change.

Project theory of change

This section presents the project's Theory of Change (ToC), which sets out the project's causal logic and relationships between the project's outputs (goods and services delivered by the project) and immediate project outcomes (changes resulting from the use of project outputs by key stakeholders), medium and longer-term changes and states, and the project's ultimate desired impact (fundamental, durable changes in environmental and social benefits).



The central problem the project seeks to address is the high climate vulnerability of both the communities and ecosystems of the Katavi, Rukwa and Tabora regions located in the Miombo woodlands of South-west Tanzania and of the Chake Chake, Micheweni, Kusini and Kaskazini districts located in the drylands of Zanzibar. The high climate vulnerability of these rural regions and districts is caused by a combination of factors among which climate change, environmental degradation,unsustainable management practices, demographic pressures, and widespread poverty plays a major role. These factors adversely affect the resilience of both communities and ecosystems.

The project seeks to break this vicious cycle where anthropogenic pressures cause further environmental degradation and continues to increase vulnerability over time. It is therefore proposed to increase climate change resilience of communities and priority sectors through introducing, testing and adapting selected appropriate technologies and innovative adaptation practices (project objective). These technologies and practices relate to agriculture (increasing productivity and sustainability), NTFPs (increasing diversification and sustainable harvesting), and post-harvest processing and commercialization of both agricultural products and NTFPs. Through this approach the project aims to overcome the following five barriers that impede the achievement of increased resilience for both communities and ecosystems of the Miombo woodlands and drylands of Zanzibar:

1. Inadequate institutional capacity to mainstream climate change adaptation measures into sectoral planning and implementation at various level.

2. Low knowhow to adopt and sustain climate resilient technologies and practices at community level.

3. Limited technical knowledge on climate change adaptation and access to post-harvest technologies.

4. Insufficient access to finance, extension services and an unfavorable investment climate

5. Suboptimal information exchange and coordination among farmers? organizations, private sectors such as input suppliers, traders and processors.

The proposed method to overcome these barriers consists of four interlinked Components, each dedicated to one specific area of action. Each project component entails a set of project activities and outputs that will deliver immediate project outcomes (see below). Besides these direct project outcomes, the project will also contribute to wider development objectives and socio-economic and co-benefits, such as empowerment of communities and especially women in communities, climate change sensitization, capitalization of traditional knowledge and increased resilience towards non-climate shocks such as pandemics.

Component 1 will address the above Barriers 1 and 3 by improving the enabling environment to promote the uptake of climate change adaptation technologies in priority sectors in Tanzania. It will achieve this by supporting cross-sectoral/ministerial coordination mechanisms at national and subnational level in order to mainstream climate change adaptation in integrated landscape planning efforts. Moreover, climate change vulnerability assessments will be conducted in order to identify,

prioritize and design cost-effective adaptation solutions (technologies and approaches) mostly related to the horticulture, fodder, and NTFP value chains. As a next step and to stimulate further development of the selected value chains, NTFPs, fodder (Miombo woodlands) and horticulture (Zanzibar) strategies will be developed, taking into account the context of climate change. Lastly, climate change adaptation solutions that have been prioritized by the vulnerability assessment will be integrated into Medium Term Expenditure Frameworks and landscape management plans.

? Outcome 1.1 Strengthened policy and institutional frameworks for promoting the transfer of adaptation technologies and innovations for climate resilient value chains

Component 2 ?Supporting resilient production systems for resilient livelihoods? addresses Barriers 2, 3 and 5. This component is dedicated to the support of adaptation learning forums/platforms and more specifically the Forest and Farm Facility and Farmer Field Schools which are also being supported under the DSL IP child project. The support will target equipment and small infrastructure. Moreover, innovative water harvesting and irrigation systems will be introduced for the selected value chains and the testing and use of these technologies and systems will be further promoted through the Forest and Farm Facility and Farmer Field Schools. In order to increase knowhow for local communities, the already existing digital and mobile based mechanisms to provide agro-meteorological information to smallholder producers will be further supported and extended in supporting informed agricultural production decisions. This will go hand in hand with training on interpreting and application of agro-meteorological information in agricultural value chain for climate resilient agriculture and support to improve the availability of mobile services.

? Outcome 2.1 Increased resilience of production systems and landscapes

Component 3 ?Scaling up adaptation technologies and practices in NTFPs and horticulture value chains through markets and investments? addresses Barriers 3 and 4. The focus of this component is twofold. On the one hand, climate resilient storage facilities, post-harvest handling, packing technologies and collection centres are either established or improved. This should help to reduce post-harvest losses and have a beneficial effect on the quality of products (Barrier 3). On the other hand, the efforts are directed towards market systems and financial mechanisms. Actors will be trained on the use of ICT in accessing markets of the selected value chains, namely horticulture, fodder, and NTFPs. Moreover, support will be given to SMEs and producer groups in the development of their business plans and marketing strategies and support by financial institutions should provide access to microfinance for these SMEs and producer groups and give them the opportunity to link to domestic and export markets. Examples of financial institutions are NMB foundation, SAGCOT and VICOBA (Barrier 4).

? Outcome 3.1. Climate resilient post-harvest technologies upscaled through local supply infrastructure and innovations in value addition

? Outcome 3.2. Market systems and financial and incentive mechanisms developed and strengthened for diversification of activities to reduce vulnerability

Component 4 ?M&E and knowledge transfer addresses Barriers 2 and 5. This will be achieved by assessing and sharing the benefits of the selected innovative approaches and technologies (Component

1). Together with this assessment practical and applied training will be given and communication material will be developed and disseminated through various channels. In order to disseminate information on the innovative approaches the Digital Green Approach will be used. Regarding the regional communication, SADC?s Great Green Wall Initiative, SRAP structure and SAGCOT?s sectorial associations and platforms will be used. As last aspect the project?s monitoring and evaluation strategy will be developed and implemented.

? Outcome 4.1 Effectiveness of selected innovative approaches and technologies assessed and knowledge on climate change adaptation benefits widely disseminated

The five project Outcomes can be regarded as strongly interlinked due to their focus on the innovative approaches and technologies for the horticulture, fodder and NTFPs value chains. Each component is dedicated to a certain aspect of this value chain. Component 1 addresses the enabling environment, namely supporting the policy and institutional framework to stimulate the uptake of climate adaptation solutions and preparing the farmers and other actors to make use of the selected technologies or approaches (climate adaptation solutions). Secondly, Component 2 addresses the day-to-day knowledge that is needed for decision-making at the field level, by the farmers and other actors present in the value chains. The component focuses on the production stage and supports the actors while they are making use of the selected climate adaptation solutions. Thirdly, Component 3 is dedicated to the post-harvest preservation and the financial and market aspects. Resilience of the selected value chains is increased by reducing post-harvest losses and enabling the possibility for all actors to develop their businesses. The last component, Component 4, addresses the evaluation phase and related communication. Practical information that has come up by using the selected climate adaptation solutions will be collected, analyzed and shared.

Despite the clear order of all components, only Component 4 is dependent on Component 1. The evaluation of used technologies and approaches can only take place if any are selected and being used. The other components have a separate value, yet in combination with the other components this value will increase.

Together the five Outcomes will contribute to the project objective to reduce vulnerability and increase climate change resilience of communities and priority sectors through introducing, testing and adapting selected appropriate technologies and innovative practices.

The achievement of the project outcomes and progress towards the project objective and longer-term impacts depends on a number of wider assumptions[60][60] being met (depicted by an 'A' in the ToC below). Assumptions that directly relate to achievement of the project's immediate outcomes are that:

A1 - Sufficient (local) stakeholder engagement in order to ensure that national and subnational policies and strategies are adequate

A2 - The introduced innovative adaptation technologies and approaches are monitored and updated based on local feedback

A3 - Farmers are introduced to the innovative adaptation technologies and approaches and have the knowhow to use and maintain them

A4 - ICT access and availability through mobile networks is stable.

A5 - Private sector shows willingness to take leadership in order to generate sufficient financial response

A6 - Sufficient demand on market that allow SMEs to remain viable

A7 - Communities are able and willing to participate in the project activities, in particular cultural barriers do not prevent the participation of women and youth

A8 - Absence of major shocks that prevent community from participating to the activities

In addition, the project rests on the assumptions that there are no major shocks that impede the communities of participating to the project.

If the project outcome-level assumptions are met then the delivery of the project Components will result in further gains along the pathway to sustainable development and increased resilience against climate change, represented by three Medium Term Outcomes (MTO). These Medium-Term Outcomes are:

? Dry Miombo woodlands, drylands of Zanzibar and surrounding crop- and rangelands are under climate-resilient management (MTO1).

? Agricultural productivity and post-harvest conservation levels remain at the improved levels and are further projected to improve (MTO2).

? Adequate information portal or platform on innovative approaches and technologies is available, accessible, regularly updated and disseminated (MTO3).

Achievement of these longer-term outcomes, which is beyond the immediate influence and accountability of the project (shown as dotted red line in the ToC diagram), is subject to further impact drivers (D1-3), namely that:

D1 ? Market demand for sustainable NTFP and crops, including NUS.

D2 ? Local communities embrace the need for transformational change to address new climate realities.

D3 - Supportive environment for financial investment and business opportunities.

Together with additional external inputs, these would be expected to contribute to the long-term targets as stated in Tanzania?s Development Vision 2025 meaning sustainable development, also in the rural areas such as the Miombo woodlands and drylands of Zanzibar. Moreover, degradation of ecosystems would be halted and reversed increasing resilience on both environmental and socio-economic levels.

The project is also addressing nine Sustainable Development Goals, most particularly SDG 1 No poverty, SDG 2 Zero hunger, SDG 5 Gender equality, SDG 8 Decent work and economic growth, SDG 9 Industry, innovation and infrastructure, SDG 11 Sustainable cities and communities, SDG 12 Responsible consumption and production, SDG 13 Climate action and SDG 15 Life on land.

Further details of the project Components, outcomes, outputs and associated activities are presented in the following section.

COVID-19

In term of project design, the project?s overall strategy is geared towards increasing the ecological, social and economic resilience in the target landscapes. The proposed is aligned with Tanzania government initiatives in response to COVID-19. Additionally, the project?s interventions are designed to mitigate the negative impact of COVID-19, and contribute to a green recovery, by:

•Supporting local supply chains, hence increasing the resilience of local food systems, food security and nutrition (through the introduction of innovative production, post-harvest and irrigation technologies and approaches) while simultaneously addressing land degradation, increasing agricultural productivity and increasing diversification of livelihood and income activities ? Outcomes 1.1, 2.1, 3.1 and 3.2.

•Creating green jobs through the selected value chains which will improve the market and social situation of targeted landscapes (e.g. assistance with business plans and access to microfinance) ? Outcome 3.2

•Promote the sustainable management of forest resources which make a significant contribution to food and nutrition security ? Outcome 1

•Promote and support access to ICT services which will stimulate the virtual sharing of knowledge and online access to agriculture and forestry advisory services, thereby addressing limited mobility ? Outcome 2

The project interventions in the field will apply guidance from FAO resource handbook for running farmer field schools (FFS) during the COVID-19 pandemic: http://www.fao.org/3/ca9064en/ca9064en.pdf

The handbook has two main purposes. First, it contains guidelines that focus on reducing risks of COVID-19 community transmission when running FFS and other agricultural training activities, based on WHO recommendations adapted to the context of FFS. Second, it aims to guide practitioners in using FFS positively to disseminate basic protective measures and build effective responses to the COVID-19 pandemic. To this end, a set of 21 learning activities to integrate COVID-19-related topics in FFS and help communities respond to the challenges they face.

All participatory events (e.g. activities in Farmer Field Schools and Forest and Farm Facility) will be used to: (i) counter the spread of fake news on COVID-19, (ii) equip and train front-line project facilitators and field workers, and community leaders, about COVID-19 related knowledge; (iii) raise awareness and disseminate information about COVID-19 impacts and response measures in agriculture, forestry, food security and nutrition; and (iv) inform about and encourage the observation of the official rules to be followed to avoid contagion and transmission.

The project will put in place mitigation measures to strengthen human health as a part of good agricultural practices, in line with the Interim guidance: sustaining FAO?s commitment to Environmental and Social Standards during the COVID-19 pandemic: https://www.fao.org/3/ca9290en/CA9290EN.pdf. At a minimum, it will take into consideration personal hygiene, physical distancing, measures at the workplace, and information dissemination.

Project Objective and Components

The Project Objective is to reduce vulnerability and increase climate change resilience of communities and priority sectors through introducing, testing and adapting selected appropriate technologies and innovative practices. This will be achieved through the following interlinked Components, Outcomes, and Outputs:

Component 1. Improving the enabling environment to promote the uptake of climate change adaptation technologies in priority sectors in Tanzania

Business as Usual Scenario:

Effective responses to climate change need to be systemic, and require adequate information for evidence-based decision-making (e.g. vulnerability assessments, knowledge of adaptation solutions), appropriate cross-sectoral coordination mechanisms to address often siloed approaches, and benefit from taking integrated landscape approaches to planning. The Government of Tanzania is undertaking various efforts towards addressing climate change, in accordance with its stated international commitments and its National Climate Change Response Strategy 2021-2026. At national level, the National Climate Change Steering committee serves as the coordination mechanism for adaptation, and comprises representatives from key sector ministries responsible for: Energy, Water, Gender, Fisheries, Agriculture, Forestry, Wildlife, Finance, Industry, Justice and Constitutional Affairs, Land, Livestock Development, Foreign Affairs, Investment and Economic Empowerment, and International Cooperation. In addition, there is also a representative from government of Zanzibar. The NCCSC is chaired by the Permanent Secretary of the VPO. On the other hand, the National Climate Change Technical Committee (NCCTC) is made up of the Directors of the various ministries comprising the NCCSC, and chaired by the Director of Environment. Its function is to oversee all technical issues related to the implementation of climate change actions, including the National Climate Change Response Strategy 2021-2026. Similarly, Zanzibar has its own Zanzibar Climate Change Steering and Technical Committees. While all these committees constitute relevant coordination bodies, limited technical capacity of its members, insufficient coordination capacity, and inadequate availability, exchange, and use of information and knowledge are impeding their effectiveness. Without the project, mainstreaming climate change adaptation measures into sectoral planning and their implementation will remain challenging, financing adaptation will remain dependent on international donors as adaptation will remain largely outside of Medium-Term Expenditure Frameworks, and interventions supported may not effectively address the introduction of locally appropriate innovative adaptation technologies.

Adaptation Scenario:

The additional funding (GEF/LDCF USD 528,290) is required to improve the enabling environment to promote the uptake of climate resilient and adaptation technologies for selected value chains in the agriculture, forestry, and livestock sectors at national level and in the targeted areas in the Miombo region and Zanzibar (Outcome 1.1). Complementing the DSL IP child project, this component aims to enhance stakeholder capacity to mainstream adaptation measures into both landscape and sectoral planning and implementation at various levels. A decision-support system for cross-sectoral coordination mechanisms will be designed and established (Output 1.1.1), involving key stakeholders including line ministries, private sector organizations, provincial-level representatives, etc. It will be customized to the needs of the country?s different climate change committees to be capacitated. A decision support system is a risk management framework for climate change adaptation together with the decision support tools necessary to implement the framework. The tools may include case studies demonstrating the application of the framework.

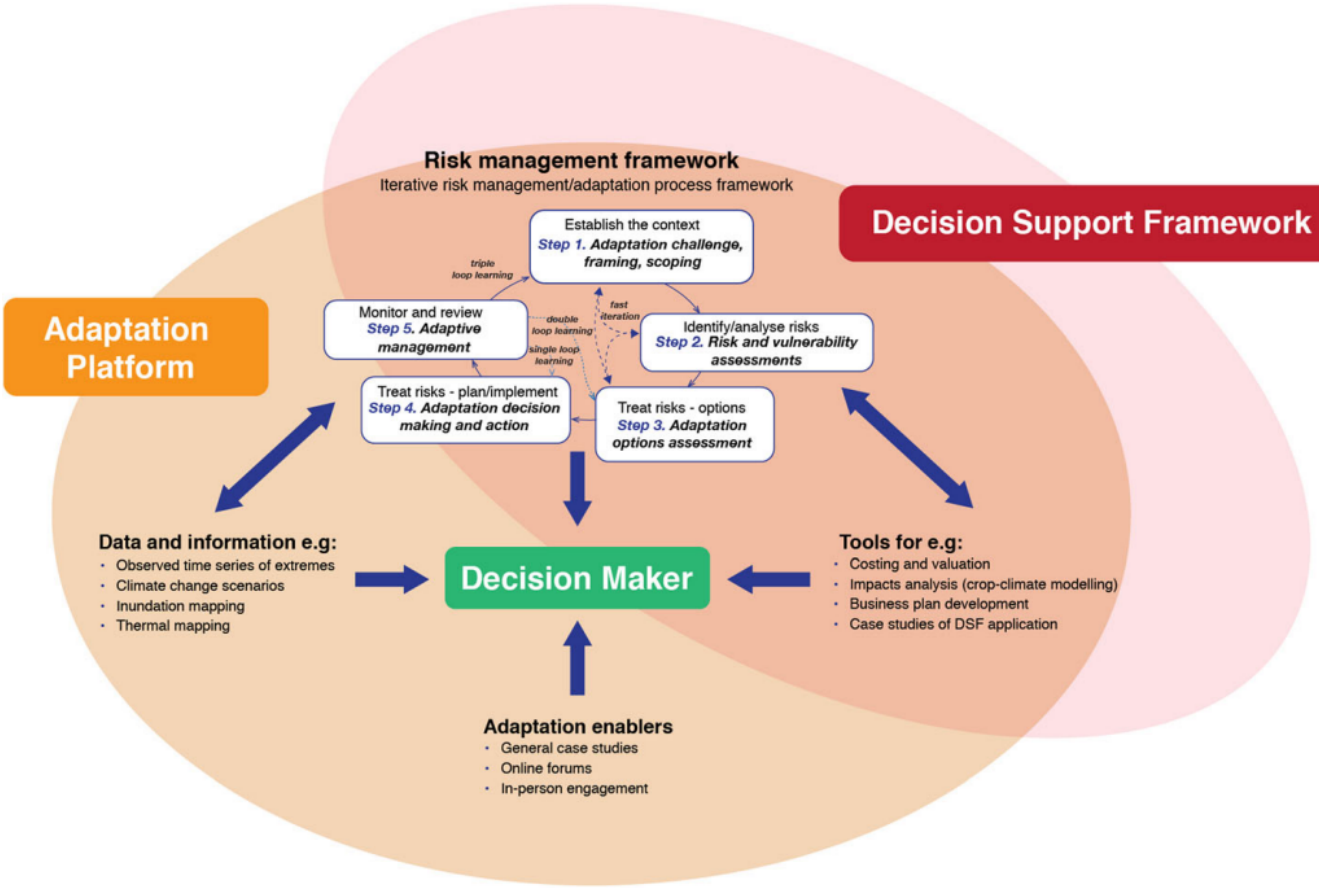


Figure 6 Typical structure of an adaptation platform and associated decision support framework[61][61].

As part of the implementation of the decision support framework, climate change vulnerability and risk assessments will be conducted to identify key issues related to climate change impacts, livelihoods and natural resource use in the project sites (Output 1.1.2). Their findings will be shared and used by the cross-sectoral coordination mechanisms to support evidence-based decision-making. Furthermore, these assessments will be used as a basis for identifying, prioritizing and designing cost-effective adaptation solutions to address the specified adaptation problems and vulnerability to climate hazards and their impacts and help scale up community adaptation and enhance resilience of the selected value chains (Components 2 and 3).

Building on the above, support will be provided to formulating sector strategies for horticulture, NTFP, and fodder in the targeted regions (Output 1.1.3), in support of SME and agribusiness development including through enhanced private sector investment.

At the District level, LDCF resources will be used to mainstream climate change adaptation into Medium Term Expenditure Frameworks (MTEF), and landscape management plans (Output 1.1.4), and ensure sustainable financing of adaptation action. A coordinated effort with the DSL IP project in Tanzania will be undertaken to ensure an harmonized approach and alignment for adjusting subnational plans with similar objectives.

Outcome 1.1. Strengthened policy and institutional frameworks for promoting the transfer of adaptation technologies and innovations for climate resilient value chains

Output 1.1.1. Support the establishment of a decision support system for cross-sectoral/ cross-ministerial coordination mechanisms at national and subnational levels to mainstream climate change adaptation in integrated landscape planning efforts

As stated earlier, adaptation requires systemic responses, yet a key barrier to mainstreaming adaptation into landscape planning efforts includes the low institutional capacity of cross-sectoral coordination mechanisms. The project proposes to conduct a capacity needs assessment of institutions with key roles in CCA and landscape planning with a focus on target sectors and local actors. As required, the project will then design a decision support system for adaptation, taking into account the needs of these institutions. Further capacity-building will then take place, including training members of the coordination mechanisms, and other key national and subnational stakeholders (e.g. priority sector training and research institutions such as the Beekeeping Institution and Agriculture Research Institution-ARI), on the concept of climate change adaptation for effective mainstreaming of CCA actions. As there remains a key gap in the availability of climate risk information to prioritize adaptation action and budgeting, the project will also conduct one national and two regional workshops (Zanzibar and Miombo Woodlands) to develop a common and participatory climate risk assessment and adaptation prioritization methodology as a model to support national CCA processes (to be implemented under Output 1.1.2).

<u>Key activities:</u>

? Capacity needs assessment of institutions with key roles in CCA and landscape planning with a focus on target sectors and local actors to mainstream climate change adaptation in integrated landscape planning efforts

? Design a decision support system for climate change adaptation

? Train members of the committees at National and Subnational[62][62] Government levels on the concept of climate change adaptation for effective mainstreaming of CCA actions

? Conduct one national and two regional workshops (Zanzibar and Miombo Woodlands) to develop a common and participatory climate risk assessment and adaptation prioritization methodology as a model to support national CCA processes

Output 1.1.2. Climate change vulnerability assessments conducted as a means for prioritizing and designing cost-effective adaptation solutions in the targeted regions and integrated into cross-sectoral decision support systems for Miombo woodlands and Dryland Zanzibar

The project proposes to conduct a number of participatory climate change vulnerability assessments to identify key issues related to climate change impacts, livelihoods and natural resource use in the project sites. These vulnerability assessments should have a particular focus on small-scale subsistence farming, on the horticulture, NTFPs and fodder value chains and on the use of natural resources as alternative livelihood. The vulnerability assessment will be conducted both in project areas located in the dry Miombo woodlands as in the drylands of Zanzibar, and complement assessments conducted under the DSL IP. A participatory approach will be piloted for the climate change vulnerability assessments with the use of tools adapted to the local context. The participatory approach will allow the institutionalization of the perspectives and knowledge of local populations with regards to key climate hazards, exposures and vulnerabilities in general, and increase the support for the resilience-building priorities, in this case mostly adaptation solutions, that will be implemented afterwards.

The findings of the climate change vulnerability assessments will be consequently used to identify, design and prioritize adaptation practices, appropriate technologies and innovative approaches, and feed into Components 2 and 3. This will happen in a participatory manner through focus group discussions with either villages in the projects sites or producer organizations or cooperatives for each value chain. Moreover, the findings of the vulnerability assessments will also be shared with the cross-sectoral coordination mechanism (Output 1.1.1) to support evidence-based decision-making on their behalf.

Key activities:

? Conduct 10 participatory CC vulnerability assessments based on common methodology developed in 10 localities/villages

? Participatory mapping, identification, and prioritization of both local and evidence-based adaptation practices, appropriate technologies, and innovative approaches to enhance resilience of

prioritized value chains (horticulture, NUS, fodder, and NTFPs) in cooperation with Sokoine University of Agriculture (SUA) and University of Zanzibar (SUZA)

? Packaging of best practices and dissemination of CC vulnerability assessments? results to the cross-sectoral coordination mechanism (Output 1.1.1)

Output 1.1.3. NTFPs, fodder, pasture and horticulture strategies developed in support of value chain development in the context of climate change

The NTFPs and horticulture priority value chains identified during the PPG have potential to be further developed. Based on six criteria[63][63] the following value chains were further specified: beekeeping, edible wild foods, and fodder (Miombo woodlands); and tomatoes, passion fruit, watermelon, vanilla, cinnamon, ginger, and turmeric (Zanzibar). This project will support the development of business strategies for each of the NTFP and horticulture chains and elaborate further on the chosen products. This exercise will start with an assessment of the existing strategies, policies, plans, and budgets at national and subnational levels to mainstream climate change adaptation in the respective value chains. Consequently, gender-responsive and climate-sensitive development strategies will be developed. Where relevant, they will build on the existing national strategies. The strategies are ought to facilitate policy dialogue, and recommendations will be made in the strategies that support policy reforms that stimulate the transfer of technologies and innovation for climate resilient value chains.

Key activities:

? Assessment of needs for revisions to strategies, policies, plans, and budgets at national and subnational levels to mainstream CCA

? Development of Zanzibar NTFP strategy integrating climate concerns, building on the national NTFP strategy developed through the DSL IP

? Development of a Miombo woodlands fodder and pasture development strategy integrating climate concerns

? Support Development of a Zanzibar horticulture development strategy (2021-2030) by focusing on integration of CC issues..

? Support revision of the existing Tanzania mainland national horticulture development strategy (2012-2021) by integrating CC issues

Output 1.1.4. Climate change adaptation (technologies, innovations) integrated into Medium Term Expenditure Framework (MTEF), and landscape management plans

At the District level, LDCF resources will be used to mainstream climate change adaptation into Medium Term Expenditure Frameworks (MTEF), and landscape management plans. The MTEF is intended to facilitate a number of important outcomes: greater macroeconomic balance; improved inter- and intra-sectoral resource allocation; greater budgetary predictability for line ministries; and more efficient use of public monies[64][64]. The MTEF also endeavors to make public expenditures more efficient and effective, essentially by allowing line ministries greater flexibility in managing their budgets in the context of hard budget constraints and agreed upon policies and programs[65][65]. A comprehensive MTEF has different stages depending on national contexts, although it typically has the following: I. Development of Macroeconomic/Fiscal Framework; II. Development of Sectoral Programs; III. Development of Sectoral Expenditure Frameworks; IV. Definition of Sector Resource Allocations; V. Preparation of Sectoral Budgets; VI. Final Political Approval. Through this project, a coordinated effort with both the DSL IP and FAO/GCF ECCR project will be undertaken to ensure a harmonized approach and alignment for adjusting subnational plans with similar objectives. Finally, efforts will be undertaken to identify ways to ensure that adaptation solutions are not only mainstreamed into landscape management plans/Joint Village Land Use Plans in accordance with the VLUP guidelines.

Box 3. Overview of the Participatory Land Use Management Process in Tanzania[66][66]

There are six steps involved in the PLUM guideline to develop Village Land Use Plans (VLUPs). These are as follow:

? **Preparation**: This step involves establishing a District-level PLUM team, identifying priority villages, and developing an action plan for those villages.

? **Participatory rural appraisal for land-use management**: This second step, involving the Village Council and Village Assembly, will lead to the preparation of a community action plan.

? **Mapping existing village land uses**: Here, the objectives are to establish village boundaries, identify land uses and management problems, to ultimately inform the preparation of the Village Existing Land Use Map.

? **Participatory village land-use planning**: The participatory approach is necessary to address land-use conflicts within the community which are bound to arise. Here the VLUPs are prepared, alongside village land use management by-laws to enforce the implementation of the VLUP.

? **Implementation of village land administration**: At this stage, the enhancement of security of land tenure is expected. Compliance with the approved VLUP is monitored, and a District Land Registry is established. Existing land rights, boundaries, owners, and rights of other parties are established and ascertained. Importantly, this is where **Certificates of Customary Right of Occupancy (CCRO)** are issued, which is the long-term, legal outcome of the VLUP process. The CCRO specifies rights conferred to a land occupier and user following tribal customs and traditions on land. Under the customary land tenure system, land belongs to the whole tribe, clan and family, while tribal leaders are the custodians on behalf of the members. The Village Land Act (1999) confers these custodial powers to Village Councils and Village Assemblies in registered villages. Once the VLUP has been prepared and adopted by the Village Assembly and approved by District Council, the issuance of the CCRO is a formality, albeit with some cost implications (for example formal mapping of boundaries and depositing of information with registrar of Lands). It provides long-term security for the villagers and may be used as collateral if borrowing money for village infrastructure[67][67].

? **Detailed Village Land Use Management Planning:** After the most important limitations for improved land-use management have been minimized in the previous steps, villagers are more motivated to adopt land management measures in order to mitigate land degradation, to optimize land production and to improve living conditions. Hence, this is where SLM and SFM measures can be adopted, as barriers to their adoption are removed.

Key activities:

? Sensitize and train staff in ten (10) Districts for the integration of CCA into MTEF

? Support the integration of CCA into Joint Village Land Use Plans to promote a landscape approach (cross-boundary) in miombo woodlands (including DSL-IP target areas), as well as drylands of Zanzibar

Component 2. Supporting resilient production systems for resilient livelihoods

Business as Usual Scenario:

Smallholder farmers and livestock keepers have limited access to the knowledge on locally appropriate adaptation technology, agro-meteorological information, tools and networks required to sustainably adopt climate resilient practices and technologies. Additional education and training is indicated as the number one method to increase resilience by the small-scale subsistence farmers of Zanzibar that participated in the SHARP assessment. Production techniques and practices for horticulture, fodder production, and NTFP value chains such as beekeeping are becoming inadequate in the face of increasing climate variability and extreme events. Furthermore, agricultural and forestry extension services and systems are not well organized or capacitated to assist producers to adequately adapt to climate change.

Adaptation Scenario:

The additional funding (GEF/LDCF USD 1,775,490) is required to increase the resilience of production systems, landscape and communities in the targeted regions (Outcome 2.1). Improvements to production systems will be the targets for key value chains including horticulture, NTFP and fodder, and will be complemented by the activities at other stages of the value chain under Component 3 related to post-harvest technology and market access. Interventions will focus on building capacities of livestock keepers, smallholder farmers, and forest users to reduce climate change risks and vulnerabilities in the targeted areas. The activities of Component 2 will also coordinate and complement other relevant initiatives, namely, the DSL IP, to promote the replication of good innovations/practices to other areas inside and outside of the country.

LDCF resources will be used to establish and support climate change adaptation learning forums/platforms in the form of Farmer Field Schools (FFS), complementing those established under the DSL IP child project. Focusing on NTFP, fodder and horticulture systems, interventions will include crop rotation and agroforestry, introduction of locally constructed greenhouses (for horticulture), establishment of fodder banks to bridge the forage scarcity during droughts and dry seasons, as well as strengthening community seeding of drought tolerant grasses and shrubs (e.g. elephant grass) and community horticulture nurseries.

Activities under Component 2 will also promote the testing and upscaling of innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for horticulture and NUS, including through FFS and APFS (Output 2.1.2.) For instance, sustainable water management practices and technologies will be promoted to support sustainable intensification efforts and decrease dependency on irregular rainfall and the limited availability of water (e.g. *in situ* and *ex situ* rainwater harvesting, water tanks, small scale irrigation, etc.).

The project will rely on ICT to increase access to critical information for decision-making at the field level, as well as for improving market access for individual producers and SMEs (Outcome 3.2). Hence, it is essential that to enable these activities the project first ensure that the end-users have sustainable access to ICT equipment and services (Output 2.1.3). To this end, partnerships with network providers (e.g. Zantel, Voda, Tigo and Airtel) will be established to ensure availability of mobile services (internet/Data Services) to the targeted beneficiaries.

Subsequently, Output 2.1.4 will introduce and support information and communication technologies (ICT) in accessing and use of agro-meteorological information and products to smallholder producers. This activity will be implemented in close coordination with Tanzania?s Meteorological Authority (TMA) and will build upon the USAID-supported ?Building Capacity to Implement Priority Actions for Resilient Agriculture and Food Security Project in Tanzania?, which supports capacity building on conversion of agro-meteorological data and analyses into timely and actionable information available to farmers.

Outcome 2.1 Increased resilience of production systems and landscapes

Output 2.1.1. Adaptation learning forums/platforms supported and equipped for key value chains (horticulture, beekeeping, fodder and pasture), including Farmer Field Schools (FFS/APFS)

The Government of Tanzania developed in 2017 National Climate Smart Agriculture Guidelines (2017), with technical support from FAO. It builds upon the ASDP II directives and calls for resilience in the agricultural sector using CSA and ecosystem-based approaches. The project will disseminate and promote CCA technologies and approaches that have been identified in the guidelines in the targeted areas, including ecosystem-based approaches such as agroforestry and restoration efforts. Producers will be introduced to the SAGCOT tool for Inclusive Green Growth for Small Scale Producers (linked to Component 4), And good practices from SAGCOT experience with climate-smart agriculture, integrated land management, and rainwater harvesting will be shared. Through LDCF investment the proposed project will be linked with Tanzania Climate Smart Agriculture Alliance (TCSAA). Specifically, the project will rely on the Farmer Field Schools (FFS) as the means to provide adaptation learning opportunities to farmers. Indeed, Farmer Field Schools are well established in Tanzania (see Box 4), are also being implemented through the DSL IP, and contribute to addressing the need for additional extension services. The FFS approach needs to be combined with effective agricultural inputs supply services, as a low access to agricultural inputs can significantly limit the impact of improved knowledge on good practices, as adoption would be limited. In the areas of intervention, priorities validated during the PPG phase include providing seeds, organic fertilizers, and equipment and small infrastructure such as locally constructed greenhouses for horticulture, community horticulture nurseries, and fodder seed banks for climate-resilient and/or indigenous varieties. The FFS will also support Output 2.1.2 (see below).

Box 4. FFS APPROACH AND HISTORY IN TANZANIA

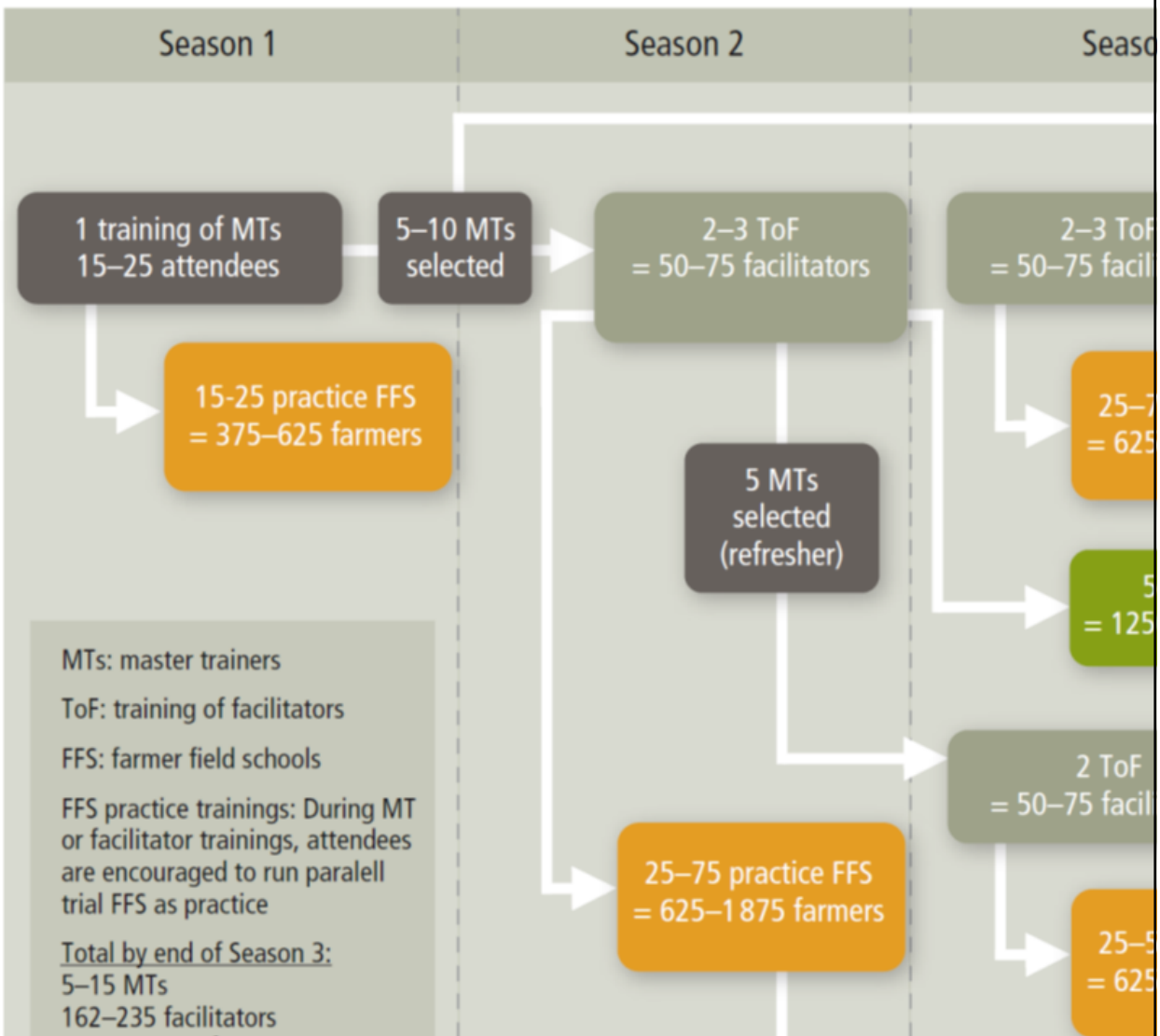
FFS is an approach to extension that is based on people-centered learning and was developed as an alternative to the conventional, top-down, extension approaches. It uses innovative and participatory methods to create a learning environment, including learning networks, in which land users have the opportunity to learn for themselves about particular production problems, and ways to address them, through their own observation, discussion and participation in practical learning-by-doing field exercises. However, this organizational capacity can also be applied challenges throughout the value chain - to credit and other financing modalities, to processing, to marketing, and to sales and investments.

The curriculum of the field schools includes team building and organization skills, as well as covers special topics suggested by the field school members themselves. The field schools are a way for farming communities to improve their decision-making skills and to stimulate local innovation for sustainable agriculture. The emphasis is on empowering farmers to implement their own decisions in their own fields.

Farmers are supported by a facilitator, who is trained and may be responsible for more than one FFS. The facilitator of an FFS is normally an extension worker or another farmer who has ?graduated? from another field school. The facilitator guides the group, helps them decide what they want to learn and to think of possible solutions, and advises them if they have questions. The facilitators are trained by master trainers through the use of detailed curriculum and training modules. The facilitators also ensure that a range of top-level scientific expertise is brought to FFS through the master trainers and the training modules. The FFS are therefore an ideal approach for linking field to extension services to scientific research, with, most importantly, information and knowledge flowing equally in all directions.

A typical FFS will have 15-25 members, who, through the FFS experience, become empowered to identify, analyze and understand challenges and mobilize solutions. This can then be rapidly scaled up, season after season, to reach more farmers across the landscape as more individuals acquire the skills and knowledge to become facilitators and master trainers (i.e. cascade training, see Figure below).

Figure 9: Scaling-up FFS – a case from Africa



Key activities:

? Establish and support climate change adaptation learning forums/platforms, including Climate Change Adaptation Farmer Field Schools (CCA-FFS), complementing those established under the DSL IP child project.

? Facilitate farmer field days/Exchange visit on CCA-FFS involving Trainee of Trainers

? Provide equipment and inputs for CCA-FFS Program (including seeds, organic fertilizers, bio-insecticide equipment, and small infrastructure such as locally constructed greenhouses for horticulture, community horticulture nurseries, modern beehives, tree nurseries, and pasture seed banks for climate-resilient and/or indigenous varieties)

? Support seed production, collection, processing, and storage facilities in the project areas

? Establishment of Climate resilient tree nurseries centre at village level and at least two centralized nurseries in the landscape of Zanzibar and Tanzania Mainland. The establishment of tree nurseries will be complimented by DSL-IP

? Support Agroforestry and restoration initiatives along the project areas focusing on climate resilience.

Output 2.1.2. Innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for priority sectors introduced, tested and promoted in FFS and producers? plots

The project will address issues related to water availability for agricultural and horticultural production in the areas of intervention. Indeed, intra-seasonal rainfall variability is a central concern affecting productivity and exacerbated by climate change. The situation was found to be particularly dire in Pemba where horticultural production was suffering from high water scarcity, affecting both the season and offseason crop production. Despite reporting recurrent climatic shocks in the PPG SHARP survey, most farmers in Zanzibar did not use any coping strategy. For instance, 95% of farmers experiencing droughts did not take any action to cope with them; and only 8% of farmers acknowledged to have changed their behaviour (e.g. shift in agricultural practices, incorporation of water management techniques) following the shocks. Rainwater harvesting and irrigation are well known to help address these issues, yet adoption remains low, and inappropriate implementation of these adaptation technologies can reduce their effectiveness and long-term adoption. According to the above field findings several activities need to be conducted to address the challenges facing the communities

Key activities:

? Introduction and testing of at least one technology per village of intervention through CCA-FFS/producers? plots irrigation systems, charcoal dams, dykes boreholes etc.)

? Support and equip appropriate water harvesting technologies

? Provision of awareness on sustainable conservation and protection of waters sources and infrastructures

? Support the establishment of new water users associations and strengthen the existing ones

? Exchange visits to promote the adoption of innovative water harvesting and irrigation systems

Output 2.1.3. Improve and support access to digital extension services through ICT and availability of mobile services to smallholder producers, traders and end-users

Agricultural producers and livestock keepers continue to rely primarily on radio, television and extension officers to access agrometeorological information. However, recent experience from USAID and TMA through the project ?Building Capacity for Resilient Food Security Project in Tanzania? has demonstrated that mobile phones (both feature phones and smart phones) are the preferred means of obtaining agrometeorological information by farmers, livestock keepers, and extension officers. Yet, they face a number of challenges limiting access to digital platforms to access agrometeorological information and advisory, of which limited awareness in the use of smartphones, limited access to electricity, and poor network coverage. The project also highlighted a need for general awareness in the use of digital services for agricultural production among farmers. To ensure the enabling environment for the implementation of ICT activities is in place, the project will set in place an MoU with mobile service providers to ensure sufficient access to ICT for project beneficiaries.

Key activities:

? Develop a partnership with service providers to improve access to ICT for project beneficiaries focusing on CCA

? Provide training on the use of digital platforms and tools, including devices such as smartphones, tablets, and computers

? Develop and disseminate ICT based communication materials for increases awareness, access and use of digital agricultural extension services in the country (linked to Component 4).

Output 2.1.4. Introduce, support and promote digital and mobile based climate services and information sharing services targeting decision makers, agricultural insurance agencies and smallholder producers

The ?Building Capacity for Resilient Food Security Project in Tanzania? project experience demonstrated that increased use of agrometeorological information and advisory services yields adaptation benefits, namely: increased productivity of agricultural systems, improvement in livestock management and vaccination, and increased use of improved seeds varieties. However, due to often

low literacy rates, significant work is required to improve understanding and correct interpretation of the agrometeorological information provided. Moreover, while seasonal and daily forecasts are the most received agrometeorological information and advisory to both farmers and extension officers across districts, they still need to be complemented with intra-season updates for timely decision-making, as there is a need for increased access timely access to dekadal forecasts and advisory, which contains essential information to guide of seasonal progress and management. Such as prolonged dry and wet spell periods, but high rainfall intensity forecast for proper management of agricultural fields. In addition, data provided needs to be usable and credible: this entails it needs to be in the correct format and of sufficient quality, including accounting for localized conditions through downscaled forecasts.The project will therefore build on the experience of the FAO and the Ministry of Agriculture, the Ministry of Livestock and Fisheries, and Tanzania Meteorological Authority in supporting mobile based climate services. Mobile services providers are engaged through the Ministries but also through the e-Government agency in provision of mobile and internet-based services. At this time, experience has been largely acquired in Tanzania mainland, and the project therefore will seek to replicate and scale up the approach in Zanzibar. Specifically, FAO has introduced a mobile based digital service for disseminating agro-meterological information known as Ugani Kiganjani. There is also a web-based agro-meteorological platform which supports timely access to localized climate information by farmers, extension officers and planners. These services were promoted mostly in Tanzania mainland.

Key activities:

? Establishment and Strengthening early warning system through improvement of observational and communication infrastructure

? Training on accessing to agro-meteorological information (e.g. district downscaled weather forecasts and pest outbreak information) for extension officers and smallholder producers

? Training on interpreting and integrating agro-meteorological information and products into adaptation decision-making for smallholder producers

? Promoting access and use of climate information for climate resilient agriculture through digital and mobile based platforms through workshops, forums, dialogue and national agricultural events

? To scale-out environmental management systems and interpret the information at community level

Component 3. Scaling up adaptation technologies and practices in NTFPs and horticulture value chains through markets and investments

Business as Usual Scenario:

As described above, smallholders have limited access to post-harvest technologies, insurance, information, extension services, and inputs. As a result, value-addition remain underdeveloped while post-harvest losses can reach unsustainable levels: in Tanzania farmers lose up to 40% of the

harvest.[68][68] These high levels of post-harvest losses are a threat to food security, incomes and livelihoods of many households and also requires Tanzania to import food on a yearly basis while its own production should be sufficient to meet its national needs. Addressing post-harvest losses is a very efficient way to increase both quality and quantity of food available, however, the development and distribution of technologies requires investment of capital. These investments are possible for larger-scale farmers who focus on export, yet most smallholder farmers have limited capital to make the investment and the additional pressure from climate change is preventing them further from reaching the needed level. Moreover and again in contrast to larger-scale farmers, smallholders in the targeted regions are not well linked to markets or financial institutions, making it very challenging for them to financially sustain their production over time.

Adaptation Scenario:

The additional funding (GEF/LDCF USD 1,500,235) is required to enhance the adaptive capacity of local private sector through the transfer and deployment of adaptation technologies to improve value addition and supply chain infrastructure. The proposed activities under Component 3 will coordinate and complement other relevant initiatives focusing on value chain development, namely, the DSL IP, the FOLUR IP (for activities in Zanzibar) and IUCN-led GCF proposal, particularly in terms of training and other learning opportunities as well as the application of relevant tools and approaches.

Outcome 3.1 focuses on introducing and upscaling post-harvest technologies to enhance the climate resilience of local supply chain infrastructure and promote innovations through value addition. LDCF resources will be used to climate proof the supply chain through technology interventions along key stages of the chain:

Climate-resilient storage facilities (including cooling) will be introduced to improve preservation and quality and reduce post-harvest losses (Output 3.1.1). For instance, solar-powered cold storage and solar drying systems will be established to preserve and ensure quality of highly perishable horticulture products or NTFPs such as berries and mushrooms. Similarly, moisture controlled storage technologies for cattle fodder will be introduced in the Miombo region.

Processing and packaging technologies for selected value chains will also be introduced (Output 3.1.2 and 3.1.3) and technology innovations for applications that integrate renewable energy/energy efficient measures, including off-grid solutions, will be sought where possible. Local SMEs and producer organizations will also receive training in appropriate post-harvest handling and collection centres will be established in strategic locations.

Outcome 3.2 is focused on market access and developing marketing systems. Activities under Output 3.2.1 will provide training to value chain actors in the use of ICT and how to access domestic and export markets for selected NTFP, fodder and horticulture products. Furthermore, LDCF resources will be used to provide technical support and capacity building to strengthen SMEs/producers cooperatives (emphasis will be on engaging youth and women) for selected horticulture products, NTFP and fodder (Output 3.2.2). Furthermore, these actors will be linked with micro-credit institutions and supported in

increasing their access to domestic and export markets, through the project?s engagement with the National Microfinance Bank (NMB) foundation, SAGCOT, Village Community Banks (VICOBA and SACCOS) and other financial institutions (Output 3.2.3). The involvement of financial institutions is also expected to facilitate access to/creation of innovative finance mechanisms for value chain resilience, including bonds (such as green bonds) for resilient production of niche commodities, micro-insurance, as well as creation of credit lines for SMEs and start-up agribusinesses.

Outcome 3.1. Climate resilient post-harvest technologies upscaled through local supply infrastructure and innovations in value addition

Output 3.1.1. Climate-resilient storage facilities (including cooling, warehouses and alternative packaging technologies such as canning and vacuuming) are introduced to improve preservation and quality, and reduce post-harvest losses

As a first step, the project will proceed with the identification and selection of promising climate-resilient SMEs/cooperative businesses in collaboration with the Community Development Division of the Ministry of Health, Community Development, Gender, Elders and Children (MoHCDGEC), the Local Government Authority and the Tanzania Cooperative Development Commission (TCDC), which will be supported throughout Component 3 of the project. The selection criteria will be determined during implementation, but could focus for example on the inclusion of women and youth MSMEs and SMEs owners and managers; those with potential to yield adaptation benefits; opportunities for green recovery from COVID-19 pandemic; ability to be a role model for the community; as well as skills and experience. Subsequently, the project will proceed to assist the selected SMEs in adopting climate-resilient storage facilities to reduce post-harvest losses. It will focus largely on the value chains supported under Component 2 as well, which are horticulture, fodder production, and NTFP value chains. Regarding horticulture, investments are needed in pack houses with complete cold chains which are only scarcely present in Zanzibar and some parts of Tanzania mainland and almost absent in the Miombo region. In combination with training the two technologies could strongly increase food loss reduction capacity. The fodder chain is also characterized by the presence of both larger-scale farmers and smallholder farmers, yet in this case both can benefit from the introduction of moisture controlled storage technologies if adapted at their respective situations. Other post-harvest storage technologies for small-scale farmers need to be investigated as well which will be done through a diagnostic study. For the NTFP chain we need to look at honey and other wild foods separately. Collection centers with storage tanks and facilities to test the quality of honey will constitute an important upgrade and can avoid adulteration of the product. For other wild foods, mostly fruits and mushrooms, solar drying facilities could be of great use to reduce post-harvest losses and to promote the use of solar energy. As reliable access to electricity is a central issue in rural areas, the project will focus on the introduction of solar operated systems which is more efficient and can be sustainably utilized without further altering the environment. To ensure the sustainability of these activities, trainings will be provided on the development (where possible) operation and maintenance of the facilities, and the availability of repair parts locally will have been previously ensured.Technical energy-related aspects of these technologies will be covered in collaboration with energy companies who will act as service provider and provide in-kind cofinancing.

Key activities:

? Identification of promising SMEs/cooperative businesses (with a particular focus on women and youth) in collaboration with the Community Development Division of MoCDGEC, LGAs and the Tanzania Cooperative Development Commission (TCDC)

? Diagnostic study of the post-harvest technology needs of selected/promising SMEs/cooperative businesses

? Equip SMEs/cooperative businesses with solar-powered cold storage systems, solar cold rooms/fridges/freezers (capacity depending of the products stored and amount).

? Equip SMEs/cooperative businesses with solar and electric drying systems for highly perishable horticulture products or NTFPs such as berries and mushrooms

? Equip SMEs/cooperative businesses with solar moisture controlled storage technologies for animal fodder and pasture in the Miombo region

? Training on operation and maintenance of climate-resilient storage facilities for beneficiary SMEs/cooperative businesses

Output 3.1.2. Processing technologies for selected value chains introduced and producer organizations/SMEs trained in post-harvest handling

In addition to improving storage facilities, processing raw products can also reduce significantly post-harvest losses and add value to these products, thereby increasing incomes for producers and SMEs. Post-harvest handling is very relevant for smallholder subsistence farmers as it can, by providing more food security, strongly increase their resilience. Training and low-cost processing are very relevant given the limited amount of inputs needed while strong results can be achieved. Regarding the horticulture chain, much of the primary processing in done by sun drying on the ground. Drying kits such as tents and flash driers, and training, especially for vanilla, will improve quality and reliability of the product. Regarding the fodder value chain, both the value chain and previous studies report almost no form of processing, despite shortages being common in the dry season. The replication of hay-making instruments is important to upgrade the chain. The NTFP value chain also shows a very limited amount of processing techniques and technologies. For example most of the honey in the Tanzanian honey chain, one of the bigger NTFP chains, is sold as raw honey due to the limited access to processing facilities and technologies. The introduction of collection centers with storage tanks, as mentioned in output 3.1.1, can facilitate more processing. The introduction of traceability and certification can also increase (formal) quality. Regarding wild foods such as fruit or mushrooms, sun drying is practiced to some extent yet in most areas wild foods are only available in the season where they can be harvested, indicating limited processing and preservation. The Zanzibar Technology and Business Incubator, the government agency VETA and parastatal organization SIDO will be supported to enhance their capacity to provide trainings to producer organizations/SMEs on food processing (Output 3.1.2) and packaging (Output 3.1.3).The combination of training with low-cost processing equipment can greatly influence the situation and benefit smallholder farmers. Additionally, existing

local successful business of the selected value chains will be linked to the project beneficiaries? to encourage them of the possibilities, therefore this will be combined with trainings to be provided by ZTBI, VETA and SIDO.

Key activities:

? Support capacity development to producer organizations/SMEs on food processing (Output 3.1.2) and packaging (Output 3.1.3) involving institutions such as Zanzibar Technology and Business Incubator (ZTBI), Vocational Educational and Training Authority (VETA), and Small Industries Development Organization (SIDO)

? Support FFPOs and SMEs from Zanzibar and Tanzania mainland to participate in incubation center for training on Good Agriculture Practices, Entrepreneurship, and Agro-processing in line with United Nations Joint FAO project (UNJP)

? Support the development of training manuals to be utilized by ZTBI, VETA and SIDO and develop user manuals for beneficiaries reference (linked to Component 4)

? Equip SMEs/cooperative businesses with low-cost processing technologies

? Training to producer organizations/SMEs in post-harvest handling/innovative processing technologies, as well as operation and maintenance of processing equipment, for selected value chains

Output 3.1.3. Appropriate packaging technologies are introduced and collection centres are determined, established and/or improved

The third aspect of post-harvest handling that will be treated by the project is packaging. Again, ZTBI, VETA, and SIDO will be key partners providing trainings producer organizations/SMEs on this topic. This training is mostly relevant in the NTFP value chain. For example most of the honey in the Tanzanian honey chain, one of the bigger NTFP chains, is stored in buckets that have been used for keeping industrial products like cooking oil or paints. This practice needs to be addressed, both for small scale beekeepers through training and in collection centers by introducing proper packaging facilities as guided by the Tanzania Bureau of Standards (TBS). For other wild foods, such as fruits or mushrooms, training on appropriate packaging materials could improve product packages and attract relatively better price. The ministry of natural resources and tourism has prepared a Honey product quality assurance guideline (2007) of which it?s dissemination haven?t yet to distributed was limited due to resources constrains, this project will help it dissemination at local level.

Key activities:

? Equip SMEs/cooperative businesses with low-cost packaging technologies

? Training to producer organizations/SMEs in packaging, as well as operation and maintenance of packaging equipment, for selected value chains

? Partnership with TBS on proper guidelines for honey value chain management

? Capacity building on the use of honey product quality assurance guidelines at community level.

Outcome 3.2. Market systems and incentive mechanisms developed and strengthened for diversification of activities to reduce vulnerability

Output 3.2.1. Actors trained on use of ICT in accessing NTFPs, fodder and pasture, NUS and horticulture markets (domestic and export)

As stated earlier, the areas of intervention of the project face limited access to extension services, as well as marketing services that enable access to market information such as prices. The FAO?s Ugani Kiganjani provides that information based on market information provided by the Ministry of Industry and Trade from the Tanzania mainland. The message targets producers and buyers who can access market information based on commodity and market of interest. The service integrates the M-Kilimo platform, which is provided by the Ministry of Agriculture. M-Kilimo is a mobile technology that aims to help farmers, breeders and fishermen access markets through their mobile phones, and deliver extension services remotely. M-Kilimo can take extension and marketing services directly to producers, even in periods where physical contact is limited such as the COVID-19 pandemic. As of 2021, it is estimated that through the M-Kilimo System 1,979,662 farmers and 6,840 extension officers have been registered and are now able to share knowledge and skills, out of a target of six million farmers. Morogoro (153,977), Njombe (153,158) and Mara (148,772) are the regions with highest numbers of the farmers registered in the system, while the Coastal region (14,784 farmers) and Mtwara (28,000) are the regions with the lowest enrollment in the system. Zanzibar does not currently have access to the system.

Key activities:

? Support the scale-out of an information sharing system that disseminates market information such as M-Kilimo, mainly on demand and prices, to smallholder farmers and SMEs, and provide training to the beneficiaries of the service to enable interpretation of the shared information

? Establish the setup for M-Kilimo platform for Zanzibar

? Assess opportunities for ICT to increase traceability in NTFPs, fodder and pasture, NUS and horticulture value chains to support access to export markets

Output 3.2.2. SMEs and producer organization groups supported in the development of business plans and marketing strategies

The promising SMEs and producer organizations which will have demonstrated viable adaptation-based business ideas will benefit from support to develop capacity to launch their business ideas. Local

SMEs and producer organizations, with a focus on women's and youth, received assistance to strengthen their managerial, entrepreneurial, and business management skills, through a tailored training program. Topics covered will include, amongst others, financial literacy (e.g. management and accounting), market studies, commercialization strategies; communication/marketing strategies; financing strategies and how to develop sustainable business plans. The FAO Rural Invest methodology and business ideas and plans development toolkit will be utilized to serve this purpose. This work will be led by the FAO Invest center and FAO local master trainers of the methodology and toolkit. Businesses will indeed receive direct expert support for the development of sustainable business plans as well as marketing strategies and will become proficient in the Market Analysis & Development (MA&D) approach. The development of the adaptation-based businesses will further take into account the impact COVID-19 had on market demand and seek opportunities to support a green and blue recovery and build back better.

Key activities:

? Training program on basic business skills (e.g. financial literacy, market studies, business plans). 50 pax (including SMEs and facilitators) meeting at farmer site for 4 days ? 2 days for good governance and, while 2 days again for financial literacy, market studies and business plans

? Development of market strategies and sustainable businesses plans for selected SMEs/cooperative businesses.

Output 3.2.3. SMEs and producer organization groups have access to microfinance and linked to domestic and export markets, supported by financial institutions including National Microfinance Bank Foundation (NMB Foundation) SAGCOT and others financial institutions

This Output will address a key barrier to effective adaptation: the insufficient access to finance for climate-resilient SMEs and producer organizations, and an unfavorable investment climate. The project will foster partnerships with financial institutions (e.g. CRDB bank, National Microfinance Bank (NMB) foundation, Tanzania Agricultural Bank Development (TADB), and Village Community Banks (VICOBA and SACCOS), among others) through a learning platform to provide information on different financial opportunities (and financial literacy, through Output 3.2.2) which can be accessed by SMEs/POs, as well as help them in securing credit at affordable rates. These partnerships with financial institutions will seek to increase the availability of capital and other forms of finance to SMEs/POs to make CCA investments in selected value chains. Moreover, the project will seek to facilitate access to/creation of innovative finance mechanisms to reduce climate-related financial risks, (e.g. crop failure due to extreme weather events). Innovative financing may include, for example, the development of specific financial products for climate-resilient SMEs, green bonds, the provision of short- and long-term microfinance, flexible payment terms linked to cash flow, risk-based credit scoring and ICT data capture, alternative collateral and guarantee options, group lending, financing through downstream buyers, and risk sharing between multilateral financial institutions (MFIs) and domestic banks. Improving access to finance will in part ensure the long-term sustainability of supported SMEs/POs.

Key activities:

? Conduct assessment/situation analysis on national beekeeping associations and FFPOs

? Set up platform to enable linking market actors with micro-credit institutions (i.e. National Microfinance Bank (NMB) foundation, SAGCOT, Village Community Banks (VICOBA and SACCOS) and other financial institutions). 30 pax (10 market drivers, 9 representatives from AMCOS and 10 members from facilitating team)

? Facilitate access to/creation of innovative finance mechanisms for value chain resilience, including bonds (such as green bonds) for resilient production of niche commodities, micro-insurance, as well as creation of credit lines for SMEs and start-up agribusinesses. 30 pax (10 market drivers, insurance person, 9 representatives from AMCOS and 10 members from facilitating team)

? Support SMEs, producer organisations and cooperative businesses to create partnerships with experienced Tanzanian exporters. 40 pax (10 exporters, 30 representatives from AMCOS and 10 members from facilitating team)

? Establish and strengthen linkage between FFPO?s and National Appex such as TABEDO , PEBA and ZABA in beekeeping production

Component 4. M&E and knowledge transfer

Business as Usual Scenario:

Under the business as usual scenario, CCA best practices and lessons learned are not widely captured and evidence based best adaptation practices/technologies are not disseminated in the targeted areas and in other parts of Tanzania and the region.

Adaptation Scenario:

The additional funding (GEF/LDCF USD 401,900) is required to develop a Monitoring and Evaluation system (M&E) and implement M&E activities, including reporting and the organization of the mid-term and end of project evaluations, and to develop a project-specific communication strategy and plan to ensure common understanding of key project messages and activities, capture and disseminate project best practices and lessons learned. M&E of adaptation innovations as well as of commercialization and financing approaches will also be undertaken under this component.

Project resources will be strategically used for incubation and accelerator at national level, including through the DSL cross-sectoral coordination structure and at regional and Global level through the DSL hub project (Miombo/Mopane Cluster): sharing of evidence based best adaptation practices/technologies in drylands and Zanzibar across the three targeted sectors (forestry, agriculture and livestock), and through Great Green Wall Initiative (GGWI). The project will also leverage on the

sectorial associations/platforms facilitated by SAGCOT, capturing and building upon those lessons learnt.

Outcome 4.1 Effectiveness of selected innovative approaches and technologies assessed and knowledge on climate change adaptation benefits widely disseminated.

Output 4.1.1. Practical and applied training and communication material developed and disseminated to different target audiences (policy makers; forest and agricultural advisory services at local and National level; local communities) using print, radio, tv programs and social media, community video shows, exhibition, etc.

Under this Output, the project will first seek to develop a locally appropriate Knowledge Management and Communication Strategy (KMCS). All communication and awareness-raising materials will consider the information needs and ambitions of women and minority groups in the generation of knowledge, its dissemination, and the outreach that will ultimately take place, including through a Digital Green Approach[69][69].

The KMCS will set out a systematic knowledge management process to capture and exchange lessons learned and best practices in CCA for drylands, and will support training and communication activities (including within Components 2 and 3) to systematize and disseminate them at local and national levels, as well as with other DSL IP countries (see Output 4.1.2). It will address the needs of practitioners, decision-makers and local stakeholders, making use of both traditional and new communication media and networks. KMCS activities will be aligned with the GEF communication and visibility policy and FAO?s corporate communication strategy.

Key activities:

? Development of a project knowledge management and communication strategy (KMCS)

? Development of locally appropriate training and communication materials (including Digital Green Approach)

? Dissemination of the communication materials to target audiences

Output 4.1.2. SADC`s Great Green Wall Initiative (GGWI) and SRAP structure as well as SAGCOT?s sectorial associations/platforms used to present innovative approaches and technologies to other countries (building upon the regional DSL IP structure)

The project will leverage the regional DSL IP structure to present innovative adaptation approaches and technologies to other countries of the region. As part of its KMCS, the project will therefore liaise with relevant initiatives in the region to identify appropriate exchange, learning, and capacity development opportunities on sustainable drylands management and CCA, and subsequently organize some of these

knowledge exchange events. Finally, the project proposes to develop linkages and engage with key global forums and regional-level platforms (e.g. SADC GGWI, Miombo Network), with specific training provided on a demand basis to relevant departments on the use of existing sources of information on sustainable drylands management and CCA technologies and approaches (e.g. WOCAT, TerrAfrica) as well as adaptation technologies.

Key activities:

? Liaise with the relevant initiatives in the region and platforms to identify appropriate exchange, learning and capacity development opportunities to improve Tanzania?s access to regional and global knowledge and expertise in relation to sustainable drylands management and CCA

? Organize national and sub-national participation in regional and global ?cross-fertilization? exchanges, study tours and peer-to-peer learning opportunities, including exchange-learning visits (with cross-site visits at local, national and regional levels)

? Develop linkages and engage with key global forums and regional-level platforms (e.g. SADC GGWI, Miombo Network), with specific training provided on a demand basis to relevant departments on the use of existing sources of information (e.g. WOCAT, TerrAfrica)

Output 4.1.3. Project M&E strategy developed and implemented

This output will ensure that project results are properly monitored throughout implementation through a performance framework, regular monitoring activities and evaluations. This will enable adaptative management of the project, and ensure timely responses can be made as required to ensure the achievement of the project objective. The project?s M&E framework will generate and systematically document lessons learned that will contribute to the knowledge base on climate-resilient adaptation technology.

Key activities:

? M&E framework development and implementation

? Mid-term project review

? Terminal evaluation

4) Alignment with GEF focal area and/or Impact Program strategies;

The proposed project forms an integral part of the GEF-7 Sustainable Forest Management (SFM) Dryland Sustainable Landscape Impact Program (DSL IP) child project in Tanzania, which seeks to restore and promote the sustainable use of the Miombo ecoregion - the most extensive and increasingly

threatened dry forest formation in Tanzania mainland and Zanzibar. The LDCF resources will complement the DSL IP and contribute to enhance adaptation and resilience of key value chains, landscapes, and stakeholders to climate change impacts. The complementarity and alignment between the DSL IP and the LDCF activities will ensure the resilience of agro-ecological systems and forests in Tanzania?s drylands by reversing degradation. The combined efforts will contribute to building sustainable livelihoods through SFM/SLM practices and improving market access through effective private sector engagement, while improving coherence in delivery across sectors through a landscape-level approach.

The coordinated effort of the LDCF will also strengthen the DSL IP?s impact in terms of protecting the biodiversity and ensuring its sustainable use within Tanzania?s key dryland forest ecosystem. The Miombo woodlands together with Zanzibar represent a global biodiversity hotspot with irreplaceable endemism while providing various ecosystem goods and services. The GEF-LDCF programming will enhance the conservation of these ecosystems and their biodiversity thereby ensuring the resilience of the surrounding farmland and communities, especially under climate change.

In addition to the DSL IP, the LDCF project will coordinate and complement the Food System Land Use and Restoration (FOLUR) IP child project in Tanzania, particularly in terms of both projects? activities in Unguja, Zanzibar. Initial discussions with the implementing agency (WWF) have identified value chain development and capacitation of SMEs as a key intervention area of complementarity. Coordinated efforts will therefore seek to ensure that mechanisms and approaches are shared between the LDCF and FOLUR projects in Zanzibar, including in capturing and sharing of best practices and lessons learnt, along with scaling up innovations for improved market access and ecosystem resilience.

The project will also generate mitigation co-benefits through reduced and avoided forest degradation from implementing more sustainable practices. Furthermore, the LDCF project activities related to introducing renewable energy/energy efficient technologies will also deliver mitigation co-benefits from reduced CO_2 emissions otherwise associated with inefficient energy consumption (such as firewood and charcoal).

5) Incremental/additional cost reasoning and expected contributions from the baseline, the LDCF, and co-financing;

Tanzania is a least developed country and is highly vulnerable to the effects of climate change and variability. The risk of climate hazards poses an increasing threat to the communities whose livelihoods depend on the agriculture, forestry and livestock sectors, particularly in Tanzania?s drylands and low-lying islands. The increasing impacts on climate-sensitive sectors combined with persistent poverty and low capacities to adapt to climate change add to the precarious situation of vulnerable communities in the targeted regions. Moreover, unsustainable land-use practices, seawater intrusion in Zanzibar, shifting cultivation, overgrazing, wood fuel extraction and charcoal production, and uncontrolled fires are eroding the resilience of the landscape, leaving the ecosystem extremely vulnerable to climate change impacts.

In the absence of alternative livelihoods such as diversification of crops; access to markets and income sources; and with limited availability of evidence-based knowledge, tools, and skills to adopt appropriate adaptation practices and technologies, communities are left with little means to implement resilient livelihood strategies. Furthermore, inadequate attention is also given to support producer organizations, which could create options at a viable scale for local communities that currently have no other choice than unsustainably exploiting the production systems that their livelihoods are dependent upon.

Without targeted investments and technical inputs, this negative trend is likely to escalate further as climate change impacts continue to increase in intensity and frequency. However, given Tanzania?s LDC status, there is limited public financing available to provide the support needed at community level. Private investments also remain low due to the investment risk involved and high transaction costs. Additionally, due to socio-economic conditions in the targeted regions, smallholder producers and SMEs do not have the financial resources nor access to credit to climate-proof their practices, supply chains, and businesses without external support.

The proposed LDCF project builds on, and is complemented by, the efforts of several ongoing baseline initiatives that address climate challenges in the targeted regions (see Baseline above and table below). The use of LDCF funds will target the margin between the current baseline investments and a climate-resilient development scenario that promotes adaptation technologies and incorporates innovative approaches and practices to enhance community resilience. Furthermore, through the project?s engagement with financial institutions such as National Microfinance Bank (NMB) foundation, SAGCOT and Village Community Banks (VICOBA and SACCOS), the LDCF resources will seek to increase the availability of capital and other forms of finance to SMEs and small-scale agribusinesses to make investment in adaptation technologies and approaches, beyond business as usual.

Co-financing	**Co-financing amount**	**Additional value**
UNJP-FAO - Support sustainable value chain development for job creation, food and nutrition security.	USD 600,000	The proposed project will be building and synchronize with UNJP FAO project on: Capacity development to individual agri-entrepreneurs women and men farmers. Capacity Development of relevant institutions to strengthen productivity, in rural and urban areas, and inclusive development, including new/innovative technologies, improvement of related ICT support services, advocacy for commercialization of agriculture and its trade in the local/regional export markets, market Information systems, generation of data on high value commodities and also access to finance, commercialization of agriculture in support of food security and exports, storage and market access interventions, formal and non-formal TVET opportunities.

NMB Foundation - Building financial management capacities among producers and their organisations	USD 500,000	The proposed LDCF will build on a past cooperation between FAO and NMB Foundation (2014-2016) in Kiroka and Morogoro aimed at strengthening smallholder households? access to finance through collective production, storage and marketing strategies. With co-finance from NMB Foundation the proposed project will focus on building financial management capacity among producers and their organizations, creating sustainable linkages with local financial service providers and agricultural value chain agents, and improving agricultural practices to enhance productivity. Linkages between farmer organizations (Fos) and financial service providers will be established to provide room for development of a long-term market strategy. The National Microfinance Bank Foundation for Agricultural Development, as a co-financier for this project, will contribute to the following: 1. Support small and medium farmers to access agricultural finance. This is achieved through increased capacity-building of farmer organizations and their respective members while also offering training to improve financial literacy skills; 2. Facilitate job creation and economic growth through mentorship, coaching, business training, digital and financial literacy training. The emphasis is on innovation to spur positive change for our communities; 3. Support the development of sustainable businesses plans for selected SMEs/cooperative businesses; 4. Support the development of market strategies for selected SMEs/cooperative businesses; and 5. Facilitate access to/creation of innovative finance mechanisms for value chain resilience, including bonds (such as green bonds) for resilient production of niche commodities, micro-insurance, as well as creation of credit lines for SMEs and start-up agribusinesses.
The Hand in Hand Initiative by the FAO and the United Republic of Tanzania	USD 262,141	The proposed project will be complementing this project through technical support on promotion and use of digital agricultural extension services in the country and facilitating partnership for agricultural investment and climate resilience with key agricultural stakeholders on the country.
Ministry of agriculture	USD 5,000,000	Extension initiatives in the project area M-Kilimo system running cost
TFS	USD 4,500,000	Facilitate beekeeping activities Support tree seedling activities and increasing restoration

AG Energies	USD 25,509	Innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for priority sectors introduced, tested and promoted in FFS, FFF and producers? plots. Equip SMEs/cooperative businesses with solar-powered cold storage systems, solar cold rooms/fridges/freezers (capacity depending of the products stored and amount). Partnership with solar companies to equip SMEs/cooperative businesses with solar and electric drying systems for highly perishable horticulture products or NTFPs such as berries and mushrooms. Partnership with Solar Companies to equip SMEs/cooperative businesses with solar moisture controlled storage technologies for cattle fodder in the Miombo region. Partnership with Solar Companies to provide training on operation and maintenance of climate resilient storage facilities for beneficiary SMEs/cooperative businesses.
District councils of Sikonge, Nsimbo, Tanganyika and Nkasi	USD 12,364,000 in total	Direct beneficiaries of project interventions. Capacity development of district technicians, awareness raising on resilient practices, etc.
Local administration Zanzibar	USD 1,970,379	
Lake Tanganyika and Lake Rukwa Basins	USD 10,070,000 in total	Capacity development of water technicians, awareness raising on water harvesting and water management techniques, etc.
Ministry of water	USD 4,900,000	

6) Adaptation benefits (LDCF/SCCF);

The proposed project is expected to increase resilience and reduce vulnerability of 25 000 hectares of land 83,143 direct of which approximately 45% male and 55% female, and of which 20% are youth.

The proposed project is directly aligned with the goal of the LDCF/SCCF Programming Strategy 2018-2022, through its efforts to strengthen resilience and reduce vulnerability of Tanzanian communities and landscapes to adverse impacts of climate change. In response to the enhanced emphasis on private sector engagement in the LDCF strategy, the project is promoting an ecosystem-based and market-driven approach to build resilience in key ecosystems and to strengthen the adaptive capacities of local private actors and SMEs. The project?s alignment with the first two objectives of the LDCF strategy and consequent adaptation benefits are outlined below.

LDCF Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation. LDCF resources will be used in a catalytic and complementary manner to enhance the resilience of priority sectors that contribute to the livelihoods of the targeted

communities, in particular women and youths in a holistic manner. This will be achieved by introducing, testing and adapting selected appropriate technologies and innovative practices as well as associated knowledge and skills to increase the efficiency and profitability of horticulture, NTFP and cattle fodder while decreasing pressure and degradation of the landscape and vital ecosystem services that communities depend upon.

LDCF Objective 2: Mainstream climate change adaptation and resilience for systemic impact. The project will lead to the mainstreaming of climate resilience and adaptation into sectoral planning and programming in the targeted regions. At national level, the project will strengthen the capacity of national institutions to integrate climate change adaptation into their programming. At the regional level, lessons learnt from the project will be shared, including through the DSL IP regional Miombo cluster, which also presents platform to foster partnerships and collaboration for systemic impact across the region.

Moreover, the project intends to provide adaptation benefits in line with Tanzania?s revised **Nationally Determined Contributions** (NDC, 2021). In particular, the project is aligned with adaptation priorities for agriculture, including but not limited to: Upscaling the level of improvement of agricultural land and water resources management; Increasing productivity in an environmentally sustainable way through, inter alia, climate-smart agriculture interventions; and Strengthening knowledge systems, extension services and agricultural infrastructure to target climate actions, including using climate services and local knowledge.

Regarding the NAP process, the Government of Tanzania is preparing together with UNDP a NAP readiness project named ?Integrating Climate Change Adaptation into Tanzania?s Planning Processes? to be submitted to the GCF. This readiness project has the overall objective to strengthen Tanzania?s adaptive and resilience capacities by facilitating the integration of climate change adaptation planning processes which will be achieved through the following three outcomes: i) Adaptation planning governance and Institutional coordination strengthened; ii) Evidence base for designing adaptation solutions strengthened; and iii) A national adaptation plan developed and validated. The LDCF project will contribute to this NAP process, especially at the institutional level while strengthening policy and institutional frameworks for promoting the transfer of adaptation technologies and innovations for climate value chains; and by generating evidence of adaptation solutions and best practices in the ground which could help inform the NAP process.

7) Innovativeness, potential for scaling, sustainability and capacity development[70]. ?

Innovativeness

The project provides an innovative approach to community-level climate change adaptation in Tanzania, particularly through its focus on technologies to enhance resilience in production systems and along value chains. For instance, the project is innovative in its complementary with DSL IP, and

the efforts to bring technology innovations into the targeted DSL IP region, toward building resilience of both the communities and ecosystems. By providing alternative livelihood opportunities through technology transfer, the project also enhances the impact of the DSL IP by alleviating pressures on the landscape.

The project?s market-driven approach is innovative in terms of climate change adaptation, particularly the activities for identifying and introducing appropriate technologies and practices to support vulnerable communities in accessing market opportunities that they are currently excluded from. To date, several technologies and practices have been developed, tested and evaluated in Tanzania. The project will build on these outcomes to ensure that technologies are matching the specific needs of the project beneficiaries. The specific technology interventions are expected to generate innovations through value addition/commercialization while also reducing post-harvest losses (such as through the use of ICT), altogether increasing the productive output and thereby more resilient livelihoods in the targeted communities.

Finally, the project is innovative in its selection of horticulture, fodder, and NTFP as priority areas for enhancing climate change adaptation. These sub-sectors are currently underdeveloped in the targeted regions but at the same time represent untapped opportunities for innovations and entrepreneurship.

The intention is to facilitate the development of community-led innovation to adapt to climate change, bringing in local knowledge and devolving responsibility amongst drylands communities in Miombo and Zanzibar. Moreover, sensitization and awareness at local level will be carried out through seminars and workshops adopting a community-based approach, and with targeted inclusion of women and youth, as well as by producing and disseminating learning material. Information and education are essential components to empower forest-dependent communities, pastoralists and small-holder producers, as they are central tools to adapt to climate change. Specific training to foster SME development on approaches and strategies will contribute to better resilience and sustainability of the project results.

Sustainability, Scaling up, and System-wide Capacity Development

The project is incorporating a system-wide capacity development (CD) approach to maximize country ownership, sustainability and scale up intended results. This approach aims to empower people, strengthen organizations, institutions and networks as well as enhancing the enabling policy environment interdependently across national and subnational levels and based on inclusive assessment of country needs and priorities. The proposed LDCF project take a cross-sectoral and participatory approach that involves national authorities, private sector and local communities and leaders. As a first step (Component 1), the FAO Capacity Needs Assessment Tools will be applied to assess the three CD dimensions ? individual, organizational and enabling environment, and will help identify gaps and opportunities, as well as inform any modifications to project activities to ensure CD mainstreaming for impact. Throughout the project, participatory, gender sensitive, and socially inclusive approaches will be a key tool in enhancing country ownership. It will ensure that the coordination mechanisms put in place include actors across scales, to enable the vertical sharing of information and transfer knowledge from the national level to the districts and villages. Moreover, under Components 2 and 3, the project will work on addressing gaps in knowledge and a limited access to extension services to disseminate

information, in order to increase the adoption of climate-resilient production practices as well as post-harvest technologies. It will do so by scaling up the use of a range of proven tools, including FFS and ICT services, across the areas of intervention. These approaches are also part of the sustainability and scaling up strategy of the project, whereby training of trainers takes place and enables project activities to be replicated and scaled out over time. Indeed, by illustrating that selected adaptation technologies lead to diversified livelihood opportunities through increased incomes, improved value chain efficiency, food security and nutrition, the project will promote their uptake in other areas of Tanzania, and potentially in neighboring countries (e.g. through regional knowledge exchange visits).The project?s integration with the DSL IP also provides solid platform for scaling out the innovations and best practices generated by the LDCF to other countries in region.

Sustainability of project interventions is supported on several levels. As illustrated above, capacity-building is at the core of the interventions, including on maintenance of equipment which mitigates the risk of equipment becoming defunct after the project ends. Sustainability of project results is also promoted through developing the capacity of the LGAs to integrate adaptation to climate change into their plans, which in turn helps ensure their sustainability post-project. Similarly, a long-term impact on government capacity to plan for adaptation will be sustained through using the project development of a common and participatory climate risk assessment and adaptation prioritization methodology. Finally, addressing barriers related to capacity to develop sustainable business plans and access to finance, will contribute to ensuring that businesses supported through the project can become self-sustained.

The Project Technical Coordinator in the PMU will be in charge of following the systemic capacity development components together with knowledge management and stakeholder engagement. FAO will provide overall quality assurance through a dedicated member on the internal Project Task Force (PTF) who will be task with the knowledge management, stakeholder engagement and system-wide capacity development components.

8) Summary of changes in alignment with the project design with the original PIF

The extensive consultations and data collection undertaken during the PPG phase enabled the refinement of the project design, and therefore there were some minor restructuring and reformulation of the project outcomes and outputs. Moreover, ambitions have been raised in terms of number of policies and plans mainstreaming climate change issues to 17. The following Table summarizes the more substantive changes made:

Output as written in the PIF	Output revised or added during PPG

Output as written in the PIF	Output revised or added during PPG
1.1.1. National and subnational institutions have improved capacity for comprehensive planning and implementation 1.1.2. Cross-sectoral/ cross-ministerial coordination mechanism at national and subnational level to mainstream climate change adaptation in integrated landscape planning efforts.	Output 1.1.1. Support the establishment of a decision support system for cross-sectoral/ cross-ministerial coordination mechanism at national and subnational levels to mainstream climate change adaptation in integrated landscape planning efforts Outputs 1.1.1 and 1.1.2 were merged, as the former was phrased as an outcome in the PIF.
Output 1.1.4. Based on 1.1.3, evidence based adaptation practices, appropriate technologies, and innovative approaches identified and prioritized to enhance resilience across prioritized value chains (horticulture, NUS, fodder, woodfuel and NTFPs)	Output 1.1.2. Climate change vulnerability assessments conducted as a means for prioritizing and designing cost-effective adaptation solutions in the targeted regions and integrated into cross-sectoral decision support systems for Miombo woodlands and Dryland Zanzibar The activities related to the original Output 1.1.4 were integrated under the rephrased Output 1.1.2, in order to streamline the process. It is also integrating the former Output 4.1.1. Adaptation benefits of selected innovative approaches and technologies assessed and shared at various levels (Component 1), as it is part of the capacity building efforts.
Output 1.1.5. NTFPs, woodfuel, fodder and horticulture strategies developed in support of value chain development in the context of climate change	Output 1.1.3. NTFPs, fodder and horticulture strategies developed in support of value chain development in the context of climate change During PPG, a review of existing strategies and needs revealed slightly different priorities, and woodfuel was removed.
2.1.5. Support and capacitate priority sector training and research institutions (e.g Beekeeping Institution and Agriculture Research Institution-ARI) on mainstreaming climate adaptation actions.	This output was removed and introduced as activity under Component 1, Output 1.1.1
3.2.2. Priority sector cooperatives (engaging youth and women) are strengthened through technical support and capacity building	This output was removed to ensure better integration with activities under 3.1 and avoid a duplication of activities. It was also deemed repetitive with other Outputs under 3.2.

Output as written in the PIF	Output revised or added during PPG
4.1.3. Digital Green Approach used for wider dissemination of innovative approaches.	This removed as it was deemed, as an approach, to be more relevant under more generally Output 4.1.1. Practical and applied training and communication material developed and disseminated to different target audiences (policy makers, Forest and agricultural advisory services at local and National level) using print, radio, tv programs and social media, community video shows, exhibition, etc.

The changes in the Output plan have also resulted in changes to the amount of budget allocated to the project?s four Outcomes. These are displayed in the table below:

Outcome	Amount budgeted in PIF	Amount budgeted in PPG phase
Outcome 1	400,000 (LDCF)	528,290 (LDCF)
Outcome 2	1,500,000 (LDCF)	1,775,490 (LDCF)
Outcome 3	1,850,000 (LDCF)	1,500,235 (LDCF)
Outcome 4	455,914 (LDCF)	401,900 (LDCF)

In terms of co-financing, since the project was initially prepared at PIF stage significant changes have taken place in terms of the eligible co-financings. While not all envisioned co-financings were mobilized during the PPG phase, all efforts were made to compensate for those which were not realized. Amongst those, new commitments from Districts Councils were mobilized, demonstrating a high level of commitment to the project. Moreover, private sector actors, including AG Energies, were actively engaged during the PPG phase and committed new co-financings. Where expected co-financings were not mobilized, consultations were still conducted, and those partners will be engaged for coordination during the project implementation (e.g. EU Beekeeping value chain support project who showed its commitments to support LDCF project activities and develop synergies). Several Government institutions are also providing additional co-financings not foreseen at PIF stage (VPO, Ministry of Agriculture, Ministry of water, Lake Basins Agencies). The changes in the co-financings are not expected to have adverse impacts on the scope of the project and achievement of outcomes, quite the contrary, as they demonstrate stronger relationships with local and private sector actors in support for the project. Overall, the investments mobilized exceed the GEF Updated Co-Financing Policy (2018) ambition for a ratio of Co-Financing to GEF Project Financing of at least 7:1 in LDCs. New co-financing amounts are displayed in the table below:

Co-financing source	Amount budgeted in PIF	Amount budgeted in PPG phase
FAO	1,000,000	862,141
Tanzania Forest Service Agency (TFS)	6,700,000	4,500,000
Government of Tanzania (ASDPII)	9,000,000	0
Government of Tanzania (VPO)	0	5,000,000
Ministry of Agriculture	5,000,000	0
Ministry of Livestock and Fisheries	4,700,000	0
Ministry of Agriculture Natural Resources, Livestock and Fisheries, Zanzibar	3,000,000	1,970,379
National Microfinance Bank (NMB) Foundation	500,000	500,000
European Union	11,079,900	0
Tanzania Meteorological Authority	0	3,000,000

Nsimbo District	0	3,000,000
Sikonge District Council	0	3,182,000
Nkasi District Council	0	3,182,000
Tanganyika District Council	0	3,000,000
Lake Rukwa Basin	0	5,000,000
Lake Tanganyika Basin	0	5,070,000
Ministry Of Water	0	4,900,000
AG Energies	0	25,509
Ministry Agriculture	0	5,000,000
TOTAL	**40,979,900**	**48,192,029**

[1]https://data.worldbank.org/country/tanzania.

[2]Second National Communication to the UNFCCC, p. 7-8.

[3] Zanzibar Statistical Abstract 2021

[4] Tanzania?s second Five-Year Development Plan

[5]World Bank DataBank, ?Population estimates and projections?. Consulted October 2021.

[6]Second national communication to the UNFCCC, p. 8; National Strategy for Growth and Reduction of Poverty (NSGRP/MKUKUTA II, 2010/2011-2014/2015).

[7]https://www.ifad.org/documents/38711624/40089486/eb_2016_117_r_11_0002-391-3464.pdf/526d62c8-8a19-49ff-b609-f5e270e5f209?1517980132471=

[8]URT. 2017-2018 Household Budget Survey: Key Indicators Reports. ttps://www.nbs.go.tz/index.php/en/census-surveys/poverty-indicators-statistics/household-budget-survey-hbs/413-the-2017-18-household-budget-survey-key-indicators-report

[9]Project-specific measure to mitigate COVID-19 are presented further below.

[10]Tarimo and Wu, The first confirmed case of COVID-19 in Tanzania: recommendations based on lesson learned from China, *Tropical Medicine and Health*, 2020

[11]Nakkazi E., Obstacles to Covid-19 control in east Africa, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7255338/ ; Covid-19: Counting the cost of denial in Tanzania, *BMJ*2021.

[12]Kassegn and Endris, Review on socio-economic impacts of ?Triple Threats? of COVID-19, desert locusts, and floods in East Africa: Evidence from Ethiopia,Cogent Social Sciences, 2021; Not all first signs point in the worst direction: Mold and Mveyange, The impact of the Covid-19 crisis on trade ? recent evidence from east Africa, 2020.

[13]THE TANZANIA DEVELOPMENT VISION 2025 (mof.go.tz)

[14]GEORGE V., Value Chain Report - Integrated Adaptation Program to enhance resilience of communities and ecosystems in the dry Miombo Woodlands of Tanzania Mainland and Dryland of Zanzibar, 2021.

[15] First SHARP Report for Tanzania Mainland as prepared by TFS, August 2021.

[16]Ruvuga, P.R., Selemani, I.S. and Sangeda, A.Z., 2019. Ecological Sustainability: Miombo Woodland Conservation with Livestock Production in Sub-Saharan Africa. In *Agriculture and Ecosystem Resilience in Sub Saharan Africa* (pp. 237-256). Springer, Cham.

[17]Jew, E. K., Dougill, A. J., Sallu, S. M., O?Connell, J., & Benton, T. G. (2016). Miombo woodland under threat: Consequences for tree diversity and carbon storage. Forest Ecology and Management, 361, 144-153.

[18]D.D. Shirima, ?. Totland, P.K. Munishi, S.R. Moe, Does the abundance of dominant trees affect diversity of a widespread tropical woodland ecosystem in Tanzania?, J. Trop. Ecol., 31 (2015), pp. 345-359

[19] https://tanzania.wcs.org/Landscapes/Zanzibar-Forests.aspx

[20] IUCN definition of ?dryland?.

[21] Khamis, Z.A., Kalliola R. and K?yhk? N., Geographical characterization of the Zanzibar coastal zone and its management perspectives, Ocean & Coastal management, 2017.

[22] SHARP Baseline resilience assessment report, in the districts Chakechake, Kaskazini, Kusini and Micheweni in Zanzibar, 2021.

[23] Magazine Horticulture in Tanzania, Issue 1, 2016, TAHA

[24]Value Chain Report.

[25]PPG Value Chain Report.

[26]Being mostly medium and large companies.

[27] Source: World Bank Climate Change Knowledge Portal based on CRU data

[28]Source: World Bank Climate Change Knowledge Portal, Consulted 2021

[29] A dry year was defined, in the analysis conducted during the PPG, as one with a standardized precipitation index (SPI) less than zero, and a wet year SPI of more than 0.

[30] PPG Phase Consultant Report: CLIMATE VULNERABILITY ASSESSMENT REPORT FOR PROJECT TARGET AREAS IN TANZANIA MAINLAND AND ZANZIBAR (2021)

[31]Country Climate Brief, Future Climate Projection for Tanzania, 2017.

[32]Climate Change Knowledge Portal

[33]Climate Change Knowledge Portal

[34]Climate Change Knowledge Portal

[35]Luhunga, P.M., Kijazi, A.L., Chang'a, L., Kondowe, A., Ng'ongolo, H. and Mtongori, H., 2018. Climate change projections for Tanzania based on high-resolution regional climate models from the Coordinated Regional Climate Downscaling Experiment (CORDEX)-Africa. *Frontiers in Environmental Science*, *6*, p.122.

[36]*Ibid*

[37]Future Climate for Africa. Country Climate Brief, Future Climate Projection for Tanzania, 2017. FCFA_Tanzania_ClimateBrief_R.indd (futureclimateafrica.org)

[38]UNIQUE, Ecosystem-based Adaptation for Rural Resilience in Tanzania: Vulnerability and Impact Assessment, 2020; Second national communication to the UNFCCC, p. 89-90.

[39]UNIQUE, Ecosystem-based Adaptation for Rural Resilience in Tanzania: Vulnerability and Impact Assessment, 2020; Second national communication to the UNFCCC, p. 91.

[40]Second national communication to the UNFCCC, p. 19; Country Climate Brief, Future Climate Projection for Tanzania, 2017.

[41]UNIQUE, Ecosystem-based Adaptation for Rural Resilience in Tanzania: Vulnerability and Impact Assessment, 2020; Climate Change Knowledge Portal

[42]Okello, C., Antonellini, M., Greggio, N. and Wambiji, N., 2015. Freshwater resource characterization and vulnerability to climate change of the Shela aquifer in Lamu, Kenya. Environmental Earth Sciences, 73(7), pp.3801-3817.

[43]Mato, R.A., 2015. Groundwater quality degradation due to salt water intrusion in Zanzibar Municipality. *African Journal of Environmental Science and Technology*, *9*(9), pp.734-740.

[44] Makame, M. and Kangalawe, R., 2018. Water Security and Local People Sensitivity to Climate Variability and Change Among Coastal Communities in Zanzibar. *J. Sustain. Dev*.

[45]Following the survey of:

Hamad, H., Mchenga, I. and Hamisi, M., 2019. Climate Change Increasing Threats on Non-Conserved Mangroves Forests of Micheweni, Zanzibar?Tanzania. *Tanzania Journal of Science*, *45*(3), pp.527-538; Makame, M. and Kangalawe, R., 2018. Water Security and Local People Sensitivity to Climate Variability and Change Among Coastal Communities in Zanzibar. *J. Sustain. Dev*.

[46] Yasmin, S., Rahman Bakar, M.A., Malik, K.A. and Hafeez, F.Y., 2004. Isolation, characterization and beneficial effects of rice associated plant growth promoting bacteria from Zanzibar soils. *Journal*

of Basic Microbiology: An International Journal on Biochemistry, Physiology, Genetics, Morphology, and Ecology of Microorganisms, *44*(3), pp.241-252.

[47]Hallegatte, S., Fay, M. and Barbier, E.B., 2018. Poverty and climate change: Introduction. *Environment and Development Economics*, *23*(3), pp.217-233.

[48]Hallegatte, S., Fay, M. and Barbier, E.B., 2018. Poverty and climate change: Introduction. *Environment and Development Economics*, *23*(3), pp.217-233.

[49]Hallegatte, S., Fay, M. and Barbier, E.B., 2018. Poverty and climate change: Introduction. *Environment and Development Economics*, *23*(3), pp.217-233.

[50]https://data.worldbank.org/country/tanzania; Second national communication to the UNFCCC, p. 7.

[51] World Bank: Tanzania 2019 Country Environmental Analysis Report: *Environmental Trends and Threats,and Pathways to Improved Sustainability*

[52] Tanzania Population and Housing Census of 2012

[53]Gumbo, D.J., Dumas-Johansen, M., Muir, G., Boerstler, F. and Zuzhang, X., 2018. Sustainable management of Miombo woodlands: food security, nutrition and wood energy. FAO.

[54]MASANJA, G.F., 2017. Agropastoral Mobility and Rangelands Multiple Uses in the Miombo Frontier Ecozone of Tabora Region, Western Tanzania. *Scientifica*, *2017*.

[55]SHARP, Zanzibar.

[56] Ribeiro, N. S., Snook, L. K., de Carvalho Vaz, I. C. N., & Alves, T. (2019). Gathering honey from wild and traditional hives in the Miombo woodlands of the Niassa National Reserve, Mozambique: What are the impacts on tree populations?. Global ecology and conservation, 17, e00552.

[57] UNIQUE Forestry and Land Use. 2019. Inception Report: Vulnerability and Impact Assessment Ecosystem-based Adaptation for Rural Resilience (EbARR) in Tanzania

[58]SHARP, Zanzibar.

[59]. https://eeas.europa.eu/delegations/tanzania/search/site/AGRI%20CONNECT_en?search_token=o723U8OfUGuCIx6p-1rePhvLcUTgHe1WG3IBGatQGxA

[60]*Assumptions* are external factors or conditions that need to be present for change to happen, but are beyond the power of the project to influence or address, e.g. turnover of government officials, global financial situation

[61]Palutikof, J.P., Street, R.B. and Gardiner, E.P., 2019. Decision support platforms for climate change adaptation: an overview and introduction.

[62] Subnational government in Tanzania refers to Local Government Authorities (LGAs)

[63]The six criteria are (1) Strategic position of the value chain at the respective district, (2) Production potentials, (3) Market potential of the commodities, (4) Possibility of value addition, (5) Employment creation and potential to attract women and youth and (6) Entry barriers in the value chain

[64]MTEF (grips.ac.jp)

[65]Le Houerou, P. and Taliercio, R., 2002. Medium term expenditure frameworks: from concept to practice-preliminary lessons from Africa. The World Bank.

[66] National Land Use Planning Commission. 2011. Guidelines for Participatory Village Land Use Planning, Administration and Management in Tanzania

[67] UNIQUE Forestry and Land Use. 2019. Inception Report: Vulnerability and Impact Assessment Ecosystem-based Adaptation for Rural Resilience (EbARR) in Tanzania

[68]National Post-harvest Management Strategy 2019-2029.

[69]Digital Green is a non-profit development organization that disseminates agricultural information to rural communities using digital video.

[70]System-wide capacity development (CD) is essential to achieve more sustainable, country-driven and transformational results at scale as deepening country ownership, commitment and mutually accountability. Incoporating system-wide CD means empowering people, strengthening organizations and institutions as well as enhancing the enabling policy environment interdependently and based on inclusive assessment of country needs and priorities.

- Country ownership, commitment and mutual accountability: Explain how the policy environment and the capacities of organizations, institutions and individuals involved will contribute to an enabling environment to achieve sustainable change
- Based on a participatory capacity assessment across people, organizations, institutions and the enabling policy environment, describe what system-wide capacities are likely to exist (within project, project partners and project context) to implement the project and contribute to effective management for results and mitigation of risks.
- Describe the project?s exit / sustainability strategy and related handover mechanism as appropriate.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

The specific villages and districts of intervention are laid out in the table below.

Table 5: Villages and districts covered by the project

	Village/Landscape	Ward	District	Region
1	Tibirinzi		ChakeChake	Pemba Island
2	Vitongozi		ChakeChake	Pemba Island
3	Tumbe Magharibi		Micheweni	Pemba Island
4	Paje-Kitogani (Mtule landscape)		Kusini	Unguja
5	Fujoni		Kaskazini ?B?	Unguja
6	Upenja-Mchekeni Landscape		Kaskazini ?B?	Unguja
7	Ugunda	Ipole	Sikonge	Tabora
	Isanjandugu Kanyamsenga	Kiloleli		
8	Kabungu	Majalila	Tanganyika	Katavi
	Ntisi	Nsimbo	Nsimbo	
9	Miombo	Mtenga	Nkasi	Rukwa
	Challa B	Challa		
	Swuila	Nkwamba		
	Ipanda	Nkomolo		

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities Yes

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Project preparation phase

A wide array of stakeholders were consulted during the PPG phase sporadically from March 2019 to November 2021 through one-on-one interviews, focus groups discussions, consultative meetings, and an inception workshop. These consultations took place both on the ground in Mainland Tanzania and Zanzibar, and online. The purpose of the PPG consultations was to i) conduct studies, undertake analyses, and gather data in order to design the Project document in a manner that is consistent, detailed, with expected and measurable outcomes and outputs, ii) ensure a participatory approach throughout the project design.

The inception workshop was held in Morogoro from 4th to 6th of May 2021, where national level public ministries were present (VPO, VPO-Zanzibar, PO-RALG, Minsitry of Agriculture, Minsitry of Agriculture Zanzibar, Ministry of Water and Irrigation). Furthermore representatives of the National Carbon Monitoring Center, the Tanzanian Meteorlogical Authority, the SAGCOT centre, RS-Tabora and FAO Tanzania were present. The inception workshop was used to present the Project Identficiation Form, the approaches and methodologies used during the project design, and to collect views and recommendations concerning the design of the project. In the period after the inception report, consultants were able to start there mission in order to draft SHARP (Zanzibar), SHARP (Tanzania), Gender Analysis, Value Chain Report and the Climate Vulnerability Assessment Report. In all cases some form of stakeholder consultation was carried, either interviews, focus group discussions or household surveys, except for the Climate Vulnerability Assessment Report. The total amount of household surveys carried out for the two SHARP reports is 670.

Project implementation

VPO will be the lead executing agency for the project. It will be in charge of overall coordination of project implementation, as well as cross sectoral policy aspects and intersectoral coordination. The other executing organizations are the Tanzanian Forest Service Agency under the Ministry of Natural resources and Tourism and the Minsitry of Agriculture (Zanzibar) who have a role regarding the climate change vulnerability assessments, the design of adaptation solutions and the development the strategies. Other key public stakeholders involved in the project are the Ministries in charge of Agriculture, Livestock and Fishing, whos roles relates strongly to the implementation and extension of ICT services together with the Tanzanian Meteorological Authority, the Minsitry of and Water and irrigation who will be active regarding the identification of irrigation technologies, and PO-RALG who will cooperate with the VPO concerning the implementation of planning related outputs.

The climate change vulnerability assessments to be performed in the beginning of the project will receive support from the National Carbon Monitoring Center. Two universities, namely, the Sokoine University of Agriculture and the State University of Zanzibar will be supported to enable them to provide research and training in order to identify adaptation solutions that answer the recommendations made in the vulnerability assessments. The Forest and Farm Facility and Farmer Field School will take these solutions, both agricultural techniques and approaches and irrigation technologies, a step further by testing them and integrating them on the ground, mainly by providing training. In order to disseminate food processing and packaging technologies, the VETA, SIDO and ZTBI will be capacitated to allow them to extend their training services. Technical energy-related aspects of these

technologies will be covered by a cooperation with AG Energy Company who will act as service provider and provide in-kind cofinancing.

Business strategies developed for the horticulture, NTFP and fodder value chains will make use of the value chain associations, who were consulted in the PPG phase (Tanzanian Horticulture Association, Tanzania Honey Council and Tanzania Animal Feed Manufacturers Association). Village Community Banks (VICOBA and SACCOS) along with the National Microfinance Bank Foundation will be engaged in order to link SMEs and producers to micro-credit institutions. Lastly, the dissemination of information will not only happen locally (see above), but also on a regional and international scale for which SADC GGWI, Miombo Network, WOCAT, TerrAfrica and the SAGCOT Centre will be supported in order to disbribute it further at a regional level.

Further details are attached in Annex H2: Stakeholder Engagement Matrix

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

Please see above and details in Annex H2: Stakeholder Engagement Matrix.
Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Various factors affecting the vulnerability of women in the face of climate change have been identified in the design phase of this project. Due to the differences between the two project areas of this project, being the Miombo woodlands and Zanzibar, specificities of each area will be treated where relevant.

•Access to and control over natural resources

Ownership over land and important assets

Despite the existence of national policies, acts, and other instruments that recognize rights to access, control, and ownership of the land resource, gender norms and traditions continue to affect women's legal ownership of land and other important assets in all project sites.[1] Customary land tenure continues to strengthen men's control over land property across Tabora, Katavi, and Rukwa region with slight differences in Zanzibar where the Islamic Sharia of Inheritance is applied. The ownership of the land asset is also very limited among youth which has affected the engagement of the young population in the agriculture sector. There is low awareness about women's right to access and control over natural and productive resources in some of the project sites.

Access to forest resources

Despite farming and livestock keeping being the primary livelihood activities, the effects of climate change and variability have been revealed hence leading to farmers' efforts to look for alternative livelihood activities like engaging in NTFP. However, the study revealed limited and ungendered development of NTFP value including beekeeping, mushrooms, wild fruits, etc. Although beekeeping was found to be a source of livelihood during the off agricultural season in most of the project sites in Tanzania mainland and Zanzibar women's and youth participation in the activity was limited. Likewise, women's participation in mushrooms was more on collection and processing for household consumption with limited marketing. The upgrading of the NTFP value chain is important to increase women and young population engagement.

•Participation and decision making

Gender division of labor in farming and livestock keeping activities across project sites follows a dominant traditional gender roles pattern like most parts of African countries where women were found to continue playing a significant role in most agricultural activities and households? chores. Moreover, gender analysis on reproductive and community roles across all project sites in Tanzania mainland and Zanzibar revealed a systematic inequality where women bear a heavier burden of both productive and reproductive roles with limited participation in leadership at the community level. Moreover, leadership is also limited within the households which remain mostly men led: the decision-maker in households which are receiving income from agricultural and/or livestock activities are mostly man (56,8%) rather than woman or both sexes. The exception was reported for the household headed by women, women owning the private land, and the ones renting land for specific crop production. The same trend is seen regarding the decision power related to market activities where only 15% of women have some form of control. In contrast to the more limited role of women in decision-making, women-only groups are dominant and active in all project sites while men are complaining about time limitations which prevent them from joining group meetings. Tanzania efforts regarding increasing women?s representation in decision-making bodies ranging from the national to local levels should also be acknowledge.

•Socio-economic conditions of women

Time poverty of women

Time allocation differs among men and women in all project sites. Women still spend more time in household chores than man while also taking on a decent part of the production activities. Although women acknowledged observing changes in men's participation in household chores e.g. child care, almost in all project sites women complain to suffer from a challenge of balancing time investment in household chores and production activities. This is attributed to various factors including the use of traditional farming technologies that demand high time investment, absence of labor-saving technologies at home and men's involvement more in outdoor activities leaving the burden to women.

Access to financial resources

The biggest barriers to access to credit are a bad credit history and high interest rates, affecting both men and women. Of those in need of financial support, however, only 17% of women-led households are capable of accessing it, compared to 30% of men-led households. This leads, for example, to difficulties for women headed households to afford agricultural inputs. The difference is less pronounced in Zanzibar, yet still present. The implementation of the existing government initiative to provide loans for women and youth through district councils remains so far very limited. An initiative which is successful and present in both Tanzania mainland and Zanzibar is VICOBA (Village Community Banking). The access to VICOBA is not exclusive for women, yet VICOBA aims to provide solutions for women resulting in a majority of female clients.

COVID-19

The loss of income sources associated with climate change threatens to decrease the resilience of many households, with impacts particularly severe for women, girls and children as on average they have less access to education, information and resources.[2] The COVID-19 pandemic is currently posing an additional challenge which for those in need is difficult to bear. Consequently, particular attention should be paid to women and in the medium and long term to the inequalities between women and men.

Proposed solutions

To reduce the vulnerability of women, and to increase their resilience to the effects of climate change, several actions are being proposed by the project. A gender action plan has been developed to ensure the implementation of activities addressing gender inequality, and monitoring of gender indicators. It will aim at the appropriation, participation and involvement of women, alongside men, throughout the implementation of the project. While this project cannot tackle the full socio-economic consequences of COVID-19, it will integrate actions aimed at increasing the resilience of women in the face of the unexpected shocks, based on a participatory and organizational diagnosis of the communities in the project area.

The project will start by conducting participatory climate change vulnerability assessments with a particular attention to gender equal stakeholder engagement. The support planned by the project for the development of several value chains (NTFP, fodder, NUS and horticulture) will keep a particular focus on women-led businesses. The strategies developed for these value chains will adopt gender-sensitive methodologies as to ensure that development of women?s roles within these value chains is a central

topic. Furthermore, the irrigation systems that will be introduced increase productivity and promote gender equity in access to and control over productive resources. The same reasoning applies to the post-harvest technologies for which promising SMEs and cooperative businesses will be selected with a strong focus on women and youth. Moreover, to increase access to financial resources establishment of Village Savings and Loans Associations (VSLAs) will offer a pathway for women to access services, particularly financial services, but also to access other social services and activities that promote their empowerment.

Lastly, the trainings provided through the project relating to climate change adaptation, agro-meteorological information and ICT, climate resilient storage facilities, post-harvest handling will be conducted at times convenient for women and contain an aspect on gender equality and leadership.

---

[1]Gender analysis and gender action plan, 2021.

[2]Valensisi, G. COVID-19 and Global Poverty: Are LDCs Being Left Behind?. *Eur J Dev Res* **32,** 1535?1557 (2020); World Bank. 2020. Supporting Women Throughout the Coronavirus (COVID-19) Emergency Response
and Economic Recovery. Africa Gender Policy Briefs. Washington, DC: The World Bank

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes
Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project?s results framework or logical framework include gender-sensitive indicators?

Yes
4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

The consultations during the preparation phase of the project document identified several actors of the private sector as either beneficiaries and as key partners for the project.

On the one hand, the project will address barriers which are hindering private sector development, particularly for selected value chains (NTFP, fodder and horticulture). These barriers include (1) limited technical knowledge and access to post-harvest technologies; and (2) insufficient finance and unfavorable investment climate. The project will introduce irrigation, processing, storage and

packaging technologies to SMEs and cooperative businesses, and ensure as sustainable supply of clean energy to power these equipment through AG Energy. The adoption of the processing and packaging technologies (Outputs 3.1.2 ? 3.1.3) will be supported by existing training facilities.

The project will furthermore address the difficult access to finance for private sector actors and the unfavorable investment climate in general. Firstly, the threshold of access to finance will be addressed by setting up platforms which link market actors with micro-credit institutions (Output 3.2.3). The platforms[1] first task will be to distribute knowledge on finance opportunities to market actors. This activity will automatically create a relation between the information provider and subject, which is the second objective of the creation of platforms. Secondly, innovative finance mechanisms for value chain resilience will be introduced which should increase the options for SMEs and producer organizations to find the right type of finance agreement. Thirdly, the unfavorable investment climate will be addressed by providing support to SMEs and producer organizations to develop strategies and business plans and to increase their export opportunities (incubation services). Regarding export opportunities the project will make use of ICT applications which can increase information available to market actors and will link SMEs and producer organizations with experienced exporters. Furthermore, SMEs and producer organization will be supported so they can develop marketing strategies and business plans which will allow them to develop in the short and long run.

All these measure aim at increasing the knowledge base, promote technology adoption, and increase access to finance opportunities in order to increase the resilience of both smallholder farmers and private sector actors within the selected value chains. The project has a strong focus on the private sector and its measures aim at developing the private sector with an impact that reaches beyond the project?s ending date, as knowledge transfers, networks and development plans are part of its strategy.

The LDCF project will work with a number of financial institutions to facilitate access to finance and create innovative finance mechanisms for increased value chain resilience. Amongst those, the National Microfinance Bank Foundation for Agricultural Development, as a co-financier for this project, will contribute to the following: 1. Support small and medium farmers to access agricultural finance. This is achieved through increased capacity-building of farmer organizations and their respective members while also offering training to improve financial literacy skills; 2. Facilitate job creation and economic growth through mentorship, coaching, business training, digital and financial literacy training. The emphasis is on innovation to spur positive change for our communities; 3. Support the development of sustainable businesses plans for selected SMEs/cooperative businesses; 4. Support the development of market strategies for selected SMEs/cooperative businesses; and 5. Facilitate access to/creation of innovative finance mechanisms for value chain resilience, including bonds (such as green bonds) for resilient production of niche commodities, micro-insurance, as well as creation of credit lines for SMEs and start-up agribusinesses. Additionally, the project will work with Village Community Banks (VICOBA and SACCOS) on such issues. VICOBA is a tailored micro-finance program designed to provide credit to low-income people who need capital to start their own businesses and can be particularly helpful to increase access to finance to the most vulnerable groups, including women. The effectiveness of VICOBA can be associated with[2]: i) self-help initiatives among the group members; ii) community capacity building and local resources mobilization; iii) community ownership and shared

leadership; iv) high level of transparency and effective information sharing; v) promotes voluntary accountability among the group members; vi) and enhances good governance.

Furthermore, the project will work hand in hand with the Forest and Farm Facility in support of increased entrepreneurship, access to markets and finance. The Forest and Farm Facility (FFF) is a multi-donor funded project housed within the Forestry Department and implemented in partnership with the International Institute for Environment and Development (IIED), the International Union for Conservation of Nature (IUCN) and AgriCord. It seeks to ensure Climate Resilient Landscapes and Improved livelihoods in partner countries by strengthening the role of Forest and Farm Producer Organizations (FFPOS) as primary agents of change. The Forest and Farm Facility seeks to address four primary challenges: i) policies and their implementation do not always address rural realities for forest and farm producers and their organizations (FFPOs); ii) existing value chains and market systems do not optimize returns for forest and farm producers; iii) climate change adaptation and mitigation initiatives fall short because they do not fully integrate forest and farm producers as active players; and iv) Forest and farm producers continue to have limited access to social benefits and equitable opportunities. The FFF is starting operating in Tanzania and will work among others, in direct support to the LDCF, on increasing entrepreneurship, access to markets and finance through gender equitable value chains delivered through new capacity to provide business incubation within FFPOs.

Finally, AG Energies has been brought on as a key co-financiers and private sector partner for the project. They will provide support for solar-powered post-harvest technologies, which responds to a central need on the ground with regards to adaptation technologies. Their expertise as a technical provider for solar energy will be leveraged, and they will be able to share with the project their hands on experience in building adaptive capacity, increasing productivity and income, reduce energy expenses for entrepreneurs, and ultimately enhance long-term resilience to the adverse impacts of climate change.

---

[1] MZEE WA VICOBA: VICOBA STRUCTURE (sasatobavicoba.blogspot.com)

[2] MZEE WA VICOBA: VICOBA STRUCTURE (sasatobavicoba.blogspot.com)

---

[1] MZEE WA VICOBA: VICOBA STRUCTURE (sasatobavicoba.blogspot.com)

[2] MZEE WA VICOBA: VICOBA STRUCTURE (sasatobavicoba.blogspot.com)

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Risk management is a coordinated set of activities to direct and control an organization with regard to risks. It comprises a structured, methodical approach to identifying and managing risks for the achievement of objectives.

The risk management plan will allow to manage risks by monitoring mitigation actions throughout implementation. Part A focuses on external risks to the project and Part B on the identified environmental and social risks from the project.

Section A: Risks to the project

Description of risk	Impact[1]	Probability of occurrence	Mitigation actions	Responsible party
Risks at national level				
Limited cross-sectoral coordination among concerned ministries and local government authorities	Moderate	Moderate	Clear cross-sectoral arrangements for implementing project and pilot activities that specify the roles and responsibilities of the relevant organization will be maintained throughout the project. The project will further ensure effective inter-agency collaboration and coordination in the project activities.	PMU
Climate change adaptation priorities undermined by national emergencies	Moderate	Moderate	The project management team, will keep abreast of national events and politics to plan contingency activities when/if necessary.	PMU
Project activities are delayed	Moderate	Moderate	Efforts will ensure engagements with the government to maintain its commitment to the proposed project and integrate the objectives of national development policy in decision-making throughout the project to maintain government commitment, and ensure appropriate adaptive management measures are put in place to mitigate any impacts of delays on the achievement of project outcomes.	PMU
Limited technical capacity to conduct preliminary studies and design the implementation of activities.	Moderate	Low	The project will identify and develop human resource capacity as required and engage field officers to work closely with the project manager of the proposed project to ensure timely delivery of project outputs.	PMU

Description of risk	Impact[1]	Probability of occurrence	Mitigation actions	Responsible party
Unreliable electricity access	Moderate	High	There is a need for reliable electricity access for the activities related to irrigation, post-harvest conservation and ICT applications. In order to mitigate the risk of unreliable electricity access, the project provides for electricity supply in those cases where deemed necessary, mostly in the form of solar panels. Regarding ICT applications, the project will extend and support the existing network which diminishes the risk as well	PMU
Lack of investment after project may reduce sustainability of project outcomes	Moderate	Moderate	The project will pay particular attention to the key factors of success in the dissemination and adoption of adaptation technologies elsewhere in the country. The project will assess potential for replication of best practices and lessons learned, develop an up-scaling strategy, a mainstreaming strategy, and a financing strategy that will consider all possible future sources.	PMU
Limited capital available to commercialize and scale up adaptation solutions	Moderate	Moderate	The project will engage with a number of financial institutions to increase the availability of capital and other forms of finance (such as insurance) needed to ensure the uptake of climate technologies for product commercialization, identified by the project.	PMU

Description of risk	Impact[1]	Probability of occurrence	Mitigation actions	Responsible party
The global COVID-19 pandemic causes major disturbances to the ability of stakeholders to participate in project activities	High	Moderate	While the project will likely be impacted in the short and medium term by the crisis, much of the impacts are outside its sphere of influence. From an operational perspective, the project will ensure it puts in place the following mitigating measures as part of a broader adaptive management strategy: (i) Modified working arrangements to permit effective communication and coordination while social distancing among team members, as well as changes to the media and methodologies used for interactions (for example using remote communication where possible, and/or limiting participants, which may potentially rely more on the participation of limited numbers of stakeholder leaders in representation of their constituencies); (ii) Adjustment of implementation and stakeholder engagement arrangements in the short and medium term to account for reduced involvement by Governments and other partnership actors in project activities, due to staff shortages, reorientation of institutional priorities, and social distancing; (iii) Evaluate the need for design modification to reduce the dependency of project functionality from a decreased availability of co-financing; (iv) Adjustment of projects? stakeholder engagement plans, to provide for adjustments to the proposed timetables for interactions.	PMU
Risks at local level				
Weak community engagement	High	Low	The second and third component of the project is designed to build resilience among dryland-dependent communities and thus will require their full and active engagement. Activities outlined here have been decided upon through consultations with target communities and with national and provincial representatives.	PMU
Community interest may decline if tangible benefits are not immediately forthcoming	Moderate	Moderate	It will be necessary for alternative livelihoods, and the necessary enabling environments, to be appropriately planned and thought through such that benefits accrue with minimum delay, so as to convince communities that there are viable alternatives. This risk will be minimized as the communities themselves will be in the driving seat of the process.	PMU

Description of risk	Impact[1]	Probability of occurrence	Mitigation actions	Responsible party
Community commitment to being involved in monitoring may diminish	Moderate		Effective participation of community on the sustainability of the project should be promoted throughout implementation. Community are supposed to be central part in decision making on the proposed intervention through bottom up approach. Community consultations have been carried out and engagement conducted. The PMU will promote effective participation and ownership of the project by the community.	PMU
Extreme events during the project implementation period could undo adaptation benefits and alternative climate-resilient livelihoods	Moderate		The nature of the project is to ensure resilience under the projected future climate conditions, and thus all activities, should be sustainable given exposure to such conditions, and indeed the occurrence of floods or droughts would be a good test of their climate resilience. However, extreme events may divert government attention (at the district, provincial and national levels) to dealing with emergency situations and thus may risk the planned implementation of the project. Project work plans will be adjusted as needed to mitigate this risk.	PMU
Limited uptake of climate vulnerability information by relevant stakeholders	Moderate	Moderate	The climate vulnerability information generated by the project will be designed through a consultative process to respond to the specific needs of the different stakeholders while also ensuring user-friendliness of the different outputs to the specific audience/stakeholders.	PMU
COVID-19	High	High	The project will put in place mitigation measures to strengthen human health as a part of good agricultural practices, in line with the Interim guidance: sustaining FAO?s commitment to Environmental and Social Standards during the COVID-19 pandemic: https://www.fao.org/3/ca9290en/CA9290EN.pdf . At a minimum, it will take into consideration personal hygiene, physical distancing, measures at the workplace, and information dissemination.	PMU

[1] H: High; M: Moderate; L: Low.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

6.a Institutional arrangement for project implementation

The Vice President?s Office (VPO) will be the lead executing agency with overall technical responsibility for the project and operations of day-to-day project activities, supported by other executing partners. The Ministry of Agriculture and Irrigation, Natural resources and livestock Zanzibar will oversee project interventions in Zanzibar. The Ministry of Natural Resources and Tourism will provide overall guidance on policy issues during project implementation. VPO will be responsible and accountable to FAO for the timely implementation and delivery of the agreed project results, operational oversight of implementation activities, timely reporting, and for effective use of GEF resources for the intended purposes and in line with FAO and GEF policy requirements and host the Project Management Unit (PMU).

Implementation of the project will involve other partners including ((i) First VPO Zanzibar (ii) District Councils, (iii) PO-RALG, which will provide over-sight supervisory mandate for project activities under Regional Administration and Local Government Authorities, (iv) Tanzania Forest Services (TFS), (v) the National Land Use Planning Commission (NLUPC), which will support Village Land Use Planning (VLUP) preparations, and (vi) the Ministry of Agriculture, Ministry of Water, and Ministry of Livestock and Fisheries, will provide project guidance and support for the implementation of activities related to agriculture, water, and livestock at all levels.

The project organization structure:

? The Project will establish a **Project Steering Committee (PSC)**, which will be the supreme body responsible for overseeing project implementation. The Permanent Secretary for the VPO and the First VPO of Zanzibar will co-chair the Committee. The PSC will be comprised of First VPO Zanzibar, Permanent Secretaries (PSs) from Ministry of Natural Resource and Tourism, PO-RALG, Ministry of Agriculture, Ministry of Livestock and Fisheries, Ministry of Water, Ministry of Finance and Planning, Ministry of Agriculture Zanzibar, Zanzibar Water Authority (ZAWA), Ministry of Water - Mainland, Higher Learning and Research Institutes, TAFORI, NCMC Conservation Commissioner-TFS, Regional Secretariats, and District Executive Directors, FAO, and Non-State Actors will be co-opted members as appropriate. The PSC will approve Annual Work Plans and Budgets (AWPBs) on a yearly basis and will provide strategic guidance to the Project Management Team and to all executing partners. The Terms of Reference (TOR) for the PSC are provided in Annex X-1. The PSC will meet at least once per year.

? VPO will designate a National Project Director (NPD), who will be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. He/she will also be responsible for supervising and guiding the National Project Coordinator (see below) on the government policies and priorities. The NPD of the DSL-IP child project will work hand to hand with the LDCF NPD at VPO to ensure close collaboration between the two initiatives.

? A Project Management Unit (PMU) will be funded by the GEF and established within VPO HQ. At site level, there will be one Project Focal Person in Dodoma and one in Zanzibar. The main functions of the PMU, following the guidance of the Project

Steering Committee, are to ensure overall efficient management, coordination, implementation and monitoring of the project through the effective implementation of the annual work plans and budgets (AWP/Bs). The PMU will be composed of a National Project Coordinator (NPC) who will be fully dedicated for the project. In addition, the PMU will include a Project Accountant/Administrator; an M&E Expert and a Driver (TOR for PMU is attached as Annex X-1) and a Project Technical assistant for Zanzibar. The GEF fund will cover salaries for the PMU staff. The PMU staff will be recruited on competitive basis or seconded from the government entities for the lifespan of the project. VPO will designate a Procurement Officer to support procurement activities on demand base. A pool of national technical experts will also be hired on a part time basis and covered by GEF fund. The PMU will coordinate closely with the DSL IP PMU to ensure exploitation of synergies and avoid a duplication of efforts. The project focal persons at local level will be in close contact to ensure on the ground coordination of project activities.

? The National **Project Coordinator** (see TOR in Annex X-1) will be the Secretary to the PSC. The NPC will be in charge of daily implementation, management, administration and technical supervision of the project within the framework delineated by the PSC.

? The project will establish a **Project Technical Committee (PTC)** to advise the PMU on technical aspects of project implementation, the quality of project progress reports, AWPBs, technically oversee activities in their sector, and ensure exchange of technical knowledge between their agency and the project activities. The PTC will be composed of Focal Persons for the project from respective agencies (PORALG, TFS, MoW, MLF, MoA, TMA, NLUP, DCs, SAGCOT, Non State Actors, and RSs contact persons) and chaired by VPO. The PTC will meet as necessary to guide specific project activities.

? The execution of the project at the District level will be supported by the **District focal points/persons (DFP),,** which will follow the guidelines for decentralization by devolution (D by D). The DFP will be set up in the selected districts, and their offices equipped. The DFP will be at the front line of the project, engaging with communities and their leaders at the village level, therefore they will have the responsibility to implement the project activities as per their mandate, and to monitor and report on implementation and financial progress directly to PMU and to their Regional Secretariat. The District Council Management Team will be responsible for approving the district-level Annual Work Plan and Budget (AWPB) and monitoring the progress of implementation. The team will be consisting of District Project Focal Points and Technical Staff responsible for Environment, Agriculture, Land Use Planning, Livestock, Forestry and Water Resources, Community Development, and Beekeeping. The District Project focal points will have the responsibility to ensure that there is good communication between the project sites and the PMU and that within each site the

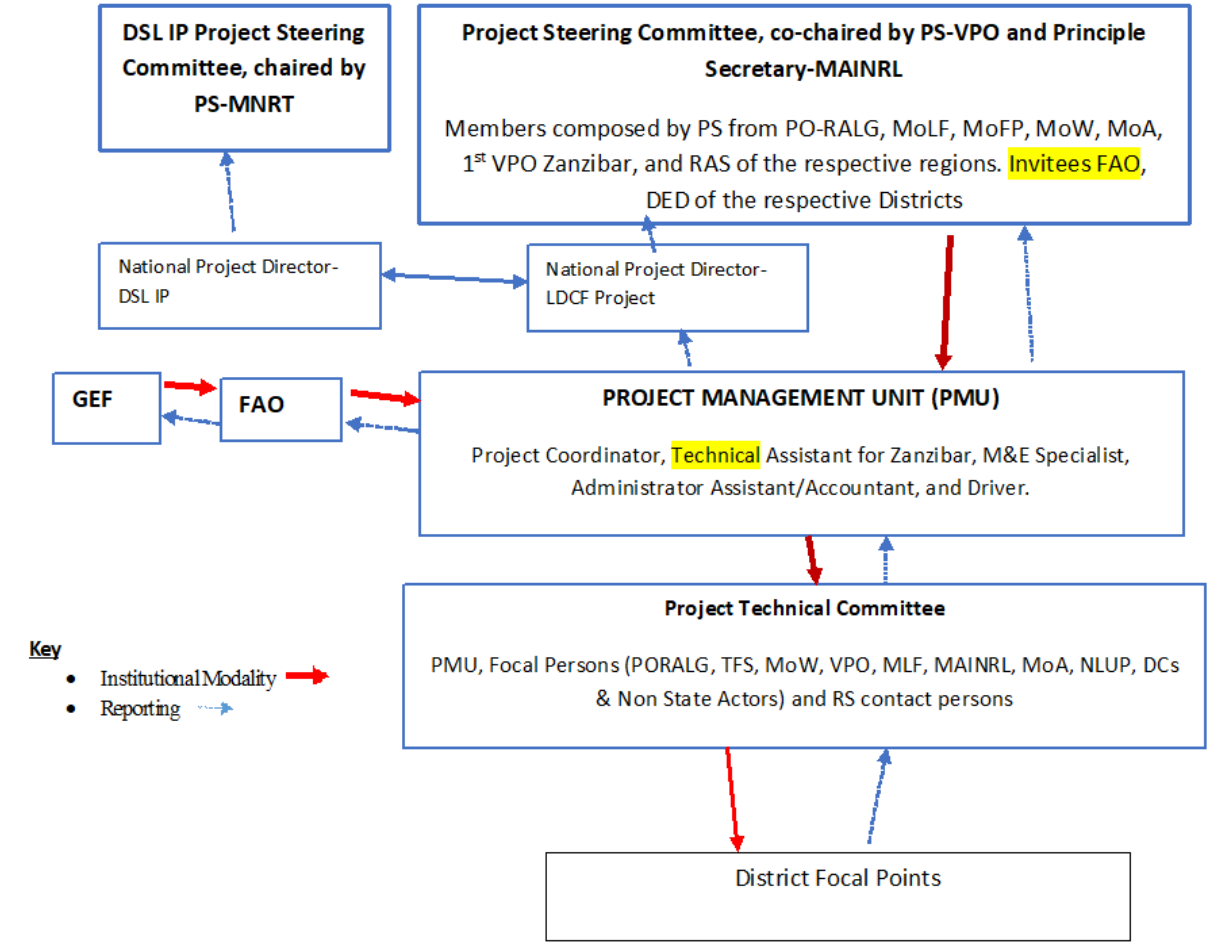
required links and collaborative arrangements are developed to support implementation of project activities.

Disbursement/Flow of funds among implementing stakeholders

FAO will use Operational Partner Agreement (OPA) and Letter of Agreement (LoA) to transfer funds to the operational partners. The counterpart is required to comply with terms and conditions of the signed agreement.

FAO will establish an OPA with VPO, that will be signed by the Permanent Secretary, Ministry of Finance and Planning (MoFP) on behalf of the United Republic of Tanzania. The MoFP will be responsible for establishing an account within the Bank of Tanzania on behalf of VPO. Projects funds will be channeled from FAO to the VPO account in accordance with the Government of Tanzania internal regulations, rules and procedures, which shall provide adequate controls to ensure that the funds are properly administered and expended in accordance with the signed agreement.

FIGURE 1. PROJECT ORGANIZATION STRUCTURE[1]



[1] "It should be noted that the identified Operational Partner(s) or OP, results to be implemented by the OP and budgets to be transferred to the OP are non-binding and may change due to FAO internal partnership and agreement procedures which have not yet been concluded at the time of submission of this funding proposal

Figure 7. Project Organization Structure[1]

GEF

FAO

National Project Director-DSL IP

National Project Director-LDCF Project

? The Food and Agriculture Organization (FAO) will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. FAO will be responsible for providing oversight, technical backstopping and supervision of project implementation to ensure that the project is being carried out in accordance with agreed standards and requirements.

FAO responsibilities, as GEF agency, will include:

? Administrate funds from GEF in accordance with the rules and procedures of FAO;

? Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s)and other rules and procedures of FAO;

? Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;

? Conduct at least one supervision mission per year; and

? Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress;

? Financial reporting to the GEF Trustee.

See Annex J for further details on FAO?s role and internal organization.

6.b Coordination with other relevant GEF-financed projects and other initiatives.

The proposed project is designed to build upon and align with on-going initiatives. Including the DSL IP, the key projects of the GEF relevant to this project, and with whom close coordination will take place to share lessons learnt, scale up interventions, and avoid duplication of efforts, are described below:

Table 6: Ongoing GEF projects

GEF ID	Project	Description	Duration	Budget
9132	**Food-IAP: Reversing Land Degradation trends and increasing Food Security in degraded ecosystems of semi-arid areas of Tanzania**	Funded by the GEF and implemented by IFAD, this project aims reverse land degradation trends in central Tanzania and Pemba (Zanzibar) through sustainable land and water management and ecosystem-based adaptation. It follows a landscape approach to reconcile agriculture, biodiversity conservation, livestock grazing and other competing land uses in order for ecosystem services and their usage to co-exist within the landscape.	2017-2022	USD 7,155,963
9524	**Supporting the implementation of integrated ecosystem management approach for landscape restoration and biodiversity conservation in Tanzania**	The overall objective of this project is to strengthen integrated natural resources management and restoration of degraded landscapes for building resilient socio-ecological systems in Tanzania. Specifically, the project will: (i) enhance national enabling environment and capacity of actors for sustainable landscape restoration (SLR) efforts and for commitment to SLR; (ii) improve landscape management through implementation of restoration plans and integrated landscape management practices in selected project sites; (iii) develop and share knowledge, disseminate good practices, and appropriate monitoring an devaluation (M&E) systems and financing arrangements that support adaptive management of SLR interventions and strategies	2018-2023	USD 11,205,872
9400	**Safeguarding Zanzibar?s Forest and Coastal Habitats for Multiple Benefits**	Funded by the GEF and implemented by UNDP, this project will implement a landscape approach to safeguard Zanzibar?s terrestrial and coastal forest habitats for multiple benefits. The development of cost-effective and sustainable solutions to reduce the detrimental impacts of poor biodiversity and ecosystem management is central to all aspects of this project.	2020-2026	USD 5,181,671

10250	**Integrated landscape Management in Dry Miombo Woodlands of Tanzania (Sustainable Forest Management Impact Program on Dryland Sustainable Landscapes: DSL IP)**	Funded by the GEF and implemented by the FAO, this DSL-IP child project has as objective to halt and reverse the negative trend of land degradation and biodiversity loss in degraded areas of the Miombo woodlands. More specifically it addresses the region in the south-west of Tanzania and proposes to apply an integrated landscape management approach.	2021-2026	USD 7,368,807

[1] ?It should be noted that the identified Operational Partner(s) or OP, results to be implemented by the OP and budgets to be transferred to the OP are non-binding and may change due to FAO internal partnership and agreement procedures which have not yet been concluded at the time of submission of this funding proposal

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

The goals for Tanzania?s development trajectory are framed in the country?s **Development Vision 2025** which was created in 1999. This policy paper lists five objectives, being (i) high quality livelihood, (ii) peace, stability and unity, (iii) good governance, (iv) a well-educated and learning society and (v) a strong and competitive economy, that the Tanzanian nation should strive to achieve by 2025. In order to achieve the objectives set in the Development Vision 2025, Tanzania has drafted and implemented a number of policies and strategies.

The cross-sectoral **Five-Year Development Plans** aim to enhance the pace of progress towards the Development Vision 2025. The Second Five-Year Development plan (2016/17-2020/21) underscores the importance of agriculture and natural resources management for achieving sustainable economic development. It stresses the need for research programs to improve and develop new technologies, quality seed and agronomic practices in response to climate change (e.g irrigation technique, livestock management production, early warning systems). The more recent **Third Five-Year Development Plan (2021/22?2025/26)** is the third and last development plan aiming at realizing the objectives set in the Development Vision 2025. The Plan contains a strong focus on promoting participation of the private sector and non-state actors in economic development.

Tanzania?s Agricultural Sector Development Strategy II (ASDS-2) (2015) sets a new direction for the development of the sector and integrates the **Comprehensive Africa Agriculture Development Programme (CAADP)** objectives. It stresses the need to continue the pursuit of a sector-wide approach to plan, coordinate and harmonize the resources (public and private) required to accelerate implementation of existing initiatives and to incorporate new initiatives which address national, regional and sectoral development priorities.

In line with the ASDS-2, the **Agriculture and Food Security Investment Plan (TAFSIP)** is Tanzania?s version to operationalize the CAADP framework formulated to assist achievement of TDV 2025. It is a 10-year road map for agricultural and rural development that identifies priority areas for public and private investments in the sector to promote agricultural growth, rural development, and food security and nutrition. It is a framework for the prioritization, planning, coordination, accountability, harmonization and alignment of investments that will drive Tanzania?s agricultural development over the next decade. To achieve the CAADP objectives, the investment plan is expressed in terms of seven thematic programme areas: (i) Irrigation Development, Sustainable Water Resources and Land Use Management; (ii) Agricultural productivity and Rural Commercialization; (iii) Rural Infrastructure, Market Access and Trade; (iv) Private Sector Development; (v) Food Security and Nutrition; (vi) Disaster Management, Climate Change Adaptation and Mitigation; and (vii) Policy Reform and Institutional Support.

As an implementing vehicle at the sectoral level, the Ministry of Agriculture has developed its **Agriculture Climate Resilience Plan (ACRP)** to guide the strategic interventions for adaptation in the agriculture sector. The ACRP presents a wide range of adaptation options including improving agricultural land and water management; accelerating uptake of Climate Smart Agriculture; reducing impacts of climate-related shocks through risk management; and strengthening knowledge and systems to target climate action. The ACRP aims to integrate resilience in agricultural policy decisions, influence planning processes, and implement investments on the ground.

Tanzania has launched the **National Climate Change Strategy (2012)** and the **Zanzibar Climate Change Strategy (2014)**, which set out the strategic intervention and priorities for climate action. The strategies aim to, among others, enhance adaptive capacity to climate change thereby ensuring long term resilience; resilience of ecosystems to climate change; and enhanced participation in climate change mitigation activities to contribute to international efforts while ensuring sustainable development. In 2021 the country published its **National Climate Change Response Strategy 2021-2026**, which has the following adaptation priorities which are particularly well aligned with this LDCF project: 3.3 Promote use of non-timber forest products; 3.5 Enhancing sustainable bee keeping initiatives and technologies; 5.1 Promote climate smart practices for management of agricultural land and efficiency water use for agriculture; 5.3 Reduce Post harvest losses and promote value addition of agriculture produce; 10.3 Promote and enhance provision of climate services; 10.4 Promote development of livestock insurance schemes; and 14.1 Mainstream climate change issues into land use planning and management.

The Tanzania?s revised its **Nationally Determined Contributions** (NDC) in 2021, which is guided by both national and international contexts and expected to be implemented by 2030. The NDCs are in line with the Tanzania Development Vision (2025), Tanzania Five Year Development Plan, and anchored into the National Climate Change Strategy (2012). For adaptation, the NDC states the desire of Tanzania to embark on a climate resilient development pathway. In doing so, it will reduce the impacts of climate

change variability and associated extremes such as droughts and floods, which have long-term implications to all productive sectors and ecosystems, particularly the agricultural sector. The adaptation measures are expected to significantly reduce the risks of climate related disasters compared to the current situation. Based on a conservative and a worst-case scenario of 50cm and 1m sea-level rise by 2100, the contribution will verifiably reduce the impacts of sea level rise to the island and coastal communities, infrastructure and ecosystems including mangroves. The project will therefore support the government in considering the impacts of climate change in development planning. Moreover, the project is aligned with adaptation priorities for agriculture, including but not limited to: Upscaling the level of improvement of agricultural land and water resources management; Increasing productivity in an environmentally sustainable way through, inter alia, climate-smart agriculture interventions; and Strengthening knowledge systems, extension services and agricultural infrastructure to target climate actions, including using climate services and local knowledge.

Tanzania undertook the **National Adaptation Plan** formulation process in 2015. The NAP is not yet finalized.

Tanzania has also published two **National Communications to the UNFCCC (2003 and 2015)**. The proposed project is a concretization of some of the recommended adaptation and mitigation options, in particular the search and implementation of improved food production technologies, more sustainable harvesting of forestry products and the encouragement of community forestry. In 2018 Tanzania completed its **Technology Needs Assessment** which was further elaborated by a **Technology Action Plan on Agriculture and Water Sectors**. This project has taken into account both report and relates strongly the conclusions that can be found therein as this project will introduce new irrigation and water-harvesting technologies (Output 2.1.2) which can be the proposed drip irrigation or rainwater-harvesting from rooftops as proposed in the Technology Action Plan on Agriculture and Water Sectors. Moreover, the project will also make use of solar power to decrease post-harvest losses (Output 3.1.1), a technology that the Technology Needs Assessment indicates to be very useful and efficient in Tanzania, especially in the rural areas. The post-harvest component of this project is also aligned with Tanzania?s **National Post-Harvest Management Strategy** that was developed in cooperation with the FAO. Not only regarding the recommendations, namely enlarging the pool of smallholder farmers that has access to and makes use of post-harvest technologies, but also on the platforms that have been created, training possibilities and technology developers who could be partners in this project.

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

In line with GEF Knowledge Management Guidelines[1], knowledge generation and management is systematically integrated across the project. The knowledge management strategy of the project, which is central to ensure its sustainability and its complementarity with other initiatives, will rely on the following building blocks:

(i) Identifying and using the lessons learnt from previous initiatives to inform project interventions (see some of the lessons already identified below);

(ii) The generation of new knowledge where gaps have been identified (e.g. identification of evidence-based adaptation practices; appropriate technologies and innovative approaches in the horticulture, fodder, and NTFPs value chains; identification of innovative water harvesting and irrigation techniques);

(iii) Communication/awareness raising of climate change adaptation; and

(iv) Knowledge sharing/exchange/dissemination of the lessons learnt through the implementation of the project itself, as well as through the Digital Green Approach, SADC`s Great Green Wall Initiative (GGWI), SRAP structure, SAGCOT?s sectorial associations/platforms, as well as DSL IP regional platform.

The project will ensure coordination with other initiatives to avoid overlap, share good practices and generate knowledge products of good practices.

All project components will be making direct contribution to both knowledge generation and dissemination. In Component 1 climate change vulnerability assessments will generate knowledge based upon which adaptation solutions can be identified and designed. The newly generated knowledge will then be integrated into Medium Term Expenditure Framework (MTEF), and landscape management plans. Component 2 will disseminate information on the climate adaptation solutions (technologies, approaches and practices) to producers, while in the meantime take on the necessary activities to identify innovative water harvesting and irrigation systems/technologies. Component 3 will disseminate knowledge on post-harvest preservation and market access. Lastly, Component 4 will disseminate lessons learnt and good practices within the project intervention areas, as well as beyond (national and regional scale).

The KM strategy will ensure to capitalize on traditional knowledge, and in particular the specific skills and capacities of women and other vulnerable groups, to ensure they can also be agents of change in decision-making processes. This will be enabled through participatory approaches and continued engagement with the communities and vulnerable groups throughout project implementation.

All outputs relevant to knowledge management are listed in Table 7 below, along with an expected timeline.

Table 7: Knowledge management outputs

Output	Expected timeline
Component 1	
Output 1.1.2. Climate change vulnerability assessments conducted as a means for prioritizing and designing cost-effective adaptation solutions in the targeted regions and integrated into cross-sectoral decision support systems for Miombo woodlands and Zanzibar	Year 1 ? year 2
Component 2	
Output 2.1.1. Adaptation learning forums/platforms supported and equipped for key value chains (horticulture, beekeeping, and fodder), including within the Farmer Field Schools (FFS) supported under the DSL IP child project	Year 1 ? Year 4

Output 2.1.2. Innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for priority sectors introduced, tested and promoted in FFS and producers? plots.	Year 2 ? Year 4
Output 2.1.4. Introduce, support and promote digital and mobile based climate services and information sharing services targeting decision makers, agricultural insurance agencies and smallholder producers.	Year 2 ? Year 4
Component 3	
Output 3.1.2. Processing technologies for selected value chains introduced and producer organizations/SMEs trained in post-harvest handling.	Year 2 ? Year 4
Output 3.2.1. Actors trained on use of ICT in accessing NTFPs, fodder, NUS and horticulture markets (domestic and export)	Year 2 ? Year 4
Output 3.2.2. SMEs and producer organization groups supported in the development of business plans and marketing strategies	Year 2 ? Year 4
Component 4	
Output 4.1.1. Practical and applied training and communication material developed and disseminated to different target audiences (policy makers; forest and agricultural advisory services at local and National level; local communities) using print, radio, tv programs and social media, community video shows, exhibition, etc.	Year 3
Output 4.1.2. SADC`s Great Green Wall Initiative (GGWI) and SRAP structure as well as SAGCOT?s sectorial associations/platforms used to present innovative approaches and technologies to other countries (building upon the regional DSL IP structure)..	Year 2 ? Year 4

The project?s communication strategy is described under Output 4.1.1.

---

[1] See GEF Approach on Knowledge Management

https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.C.48.07.Rev_.01_KM_Approach_Paper.pdf

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The project results, as outlined in the project results framework (Annex A1), will be monitored regularly, reported annually and assessed during project implementation to ensure the project effectively achieves these results. Monitoring and evaluation activities will follow FAO and GEF?s policies and guidelines for monitoring and evaluation. The M&E system will also facilitate learning, replication of the project?s results and lessons which will feed the project?s knowledge management strategy.

Monitoring Arrangements

Project oversight and supervision will be carried out by the Budget Holder with the support of the PTF, LTO and FLO and relevant technical units in FAO headquarters. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project adaptation benefits are being delivered.

The FAO-GEF Coordination Unit and HQ Technical units will provide oversight of GEF financed activities, outputs and outcomes largely through the annual Project Implementation Reports (PIRs), periodic backstopping and supervision missions.

Day-to-day project monitoring will be carried out by the Project Management Unit. Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception phase, the results matrix will be reviewed to finalize the identification of i) outputs ii) indicators iii) targets and iv) any missing baseline information

A detailed M&E System, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc) will also be developed during project inception by the PMU M&E specialist.

M&E Activity	Responsible Parties	Timeframe	GEF Budget (USD)
Inception Workshop	Project Management Unit (PMU)	Within two months of project document signature	25,000
Results-based Annual Work Plan and Budget	PMU in consultation with the FAO Project Task Force	3 weeks after Start-up and annually with the reporting period July to June	Project staff time
Project M&E Expert	Full-time expert as part of the PMU	1 month after Start-up	96,000
Project Technical Coordinator	PMU	1 month after Start-up	50,000
Project Inception Report	Project Manager	Within two weeks of inception workshop	Project staff time
Project Progress Reports (PPRs)	Project Manager and M&E Officer	Every six months	M&E Specialist (see above)
Project Implementation Review report (PIR)	Project Manager	Annually in July	M&E Specialist (see above)

Co-financing Reports	FAO Tanzania Representation Office	Annually	Co-financing
Mid-term Review	The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED	In the 3rd quarter of the 3rd year of the project	35,000
Final evaluation (including terminal report)	The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED	To be launched 6 months before project end date.	40,000
Terminal report	FAO Tanzania Representation Office	At least three months before operational closure	6,550
Spot checks	FAO Tanzania Representation Office	Periodically	42,750
Total Budget			**295,300**

Monitoring and Reporting

In compliance with FAO and GEF M&E policies and requirements, the PMU, in consultation with the PSC and PTF will prepare the following i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) annual Project Implementation Review (PIR); (v) Technical Reports; (vi) co-financing reports; and (vii) Terminal Report. In addition, the Core Indicators will be used to monitor adaptation benefits and updated regularly by the PMU.

Project Inception Report. A project inception workshop will be held within two months of project start date and signature of relevant agreements with partners. During this workshop the following will be reviewed and agreed:

- the proposed implementation arrangement, the roles and responsibilities of each stakeholder and project partners;

- an update of any changed external conditions that may affect project implementation;

- the results framework, the SMART indicators and targets, the means of verification, and monitoring plan;

- the responsibilities for monitoring the various project plans and strategies, including the risk matrix, the Environmental and Social Risk Management Plan, the gender strategy, the knowledge management strategy, and other relevant strategies;

- finalize the preparation of the first year AWP/B, the financial reporting and audit procedures;

- schedule the PSC meetings;

- prepare a detailed first year AWP/B,

The PMU will draft the inception report based on the agreement reached during the workshop and circulate among PSC members, BH, LTO and FLO for review within one month. The final report will be cleared by the FAO BH, LTO and the FAO GEF Coordination Unit and uploaded in FAO?s Field Program Management Information System (FPMIS) by the BH.

Results-based Annual Work Plan and Budget (AWP/B). The draft of the first AWP/B will be prepared by the PMU in consultation with the FAO Project Task Force and reviewed at the project Inception Workshop. The Inception Workshop inputs will be incorporated and subsequently, the PMU will submit a final draft AWP/B to the BH within two weeks after the workshop. For subsequent AWP/B, the PMU will organize a project progress review and planning meeting for its progress review and adaptive management. Once PSC comments have been incorporated, the PMU will submit the AWP/B to the BH for non-objection, LTO and the FAO GEF Coordination Unit for comments and for clearance by BH and LTO prior to uploading in FPMIS by the BH. The AWP/B must be linked to the project?s Results Framework indicators to ensure that the project?s work and activities are contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The AWP/B should be approved by the Project Steering Committee, LTO, BH and the FAO GEF Coordination Unit, and uploaded on the FPMIS by the BH.

Project Progress Reports (PPR): The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and to take appropriate remedial action. PPRs will be prepared based on the

systematic monitoring of output and outcome indicators identified in the Project Results Framework *indicate annex number*, AWP/B and M&E Plan. Each semester the *indicate as appropriate Project Coordinator (PC) or Project Manager (PM)* will prepare a draft PPR, will collect and consolidate any comments from the FAO PTF. The *PC / PM* will submit the final PPRs to the FAO Representation in *indicate country* every six months, prior to 31 July (covering the period between January and June) and before 31 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the PMU, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.

Annual Project Implementation Report (PIR): The PIR is a key self-assessment tool used by GEF Agencies for reporting every year on project implementation status. It helps to assess progress toward achieving the project objective and implementation progress and challenges, risks and actions that need to be taken. Under the lead of the BH, the Project Coordinator / Project Manager will prepare a consolidated annual PIR report covering the period July (the previous year) through June (current year) for each year of implementation, in collaboration with national project partners (including the GEF OFP), the Lead Technical Officer, and the FLO. The PC/PM will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission and report these results in the draft PIR.

BH will be responsible for consolidating and submitting the PIR report to the FAO-GEF Coordination Unit for review by the date specified each year *after each co-implementing agency?s review for each respective output under their responsibilities (to be included for joint implementation only)*. FAO - GEF Funding Liaison Officer review PIRs and discuss the progress reported with BHs and LTOs as required. The BH will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat as part of the Annual Monitoring Review of the FAO-GEF portfolio.

Technical Reports: Technical reports will be prepared as part of project outputs and to document and share project outcomes and lessons learned. The LTO will be responsible for ensuring appropriate technical review and quality assurance of technical reports. Copies of the technical reports will be distributed to project partners and the Project Steering Committee as appropriate.

Co-financing Reports: The PMU will be responsible for tracking co-financing materialized against the confirmed amounts at project approval and reporting. The co-financing report, which covers the GEF fiscal year 1 July through 30 June, is to be submitted on or before 31 July and will be incorporated into the annual PIR. The co-financing report needs to include the activities that were financed by the contribution of the partners.

Tracking and reporting on results across the GEF 7 core indicators and sub-indicators: As of July 1, 2018, the GEF Secretariat requires FAO as a GEF Agency, in collaboration with recipient country governments, executing partners and other stakeholders to provide indicative, expected results across applicable core indicators and sub-indicators for all new GEF projects submitted for Approval. During the

approval process of the (insert short project title) expected results against the relevant indicators and sub-indicators have been provided to the GEF Secretariat. Throughout the implementation period of the project, the PMU, is required to track the project?s progress in achieving these results across applicable core indicators and sub-indicators. At project mid-term and project completion stage, the project team in consultation with the PTF and the FAO-GEF CU are required to report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval. Methodologies, responsibilities and timelines for measuring core-indicators will be outlined in the M&E Plan prepared at inception.

Terminal Report: Within two months before the end date of the project, and one month before the Final Evaluation, the PMU will submit to FAO *(to specify the unit in charge in HQ)* a draft Terminal Report. The main purpose of the Terminal Report is to give guidance at ministerial or senior government level on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. The Terminal Report is accordingly a concise account of the main products, results, conclusions and recommendations of the project. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for insuring sustainability of project results.

MTR and Evaluation provisions

Mid-Term Review

As outlined in the GEF Evaluation Policy, Mid-Term Reviews (MTRs) or mid-term evaluations (MTEs) are mandatory for all GEF-financed full-sized projects (FSPs), including Enabling Activities processed as full-sized projects. It is also strongly encouraged for medium-sized projects (MSPs). The Mid-Term review will (i) assess the progress made towards achievement of planned results (ii) identify problems and make recommendations to redress the project (iii) highlight good practices, lessons learned and areas with the potential for upscaling.

The Budget Holder is responsible for the conduct of the Mid-Term Review (MTR) of the project in consultation with the FAO-GEF Coordination Unit halfway through implementation. He/she will contact the FAO-GEF Coordination Unit about 3 months before the project half-point (within 3 years of project CEO Endorsement) to initiate the MTR exercise.

To support the planning and conduct of the MTR, the FAO GEF CU has developed a guidance document ?**The Guide for planning and conducting Mid-Term Reviews of FAO-GEF projects and programmes?**. The FAO-GEF CU will appoint a MTR focal point who will provide guidance on GEF specific requirements, quality assurance on the review process and overall backstopping support for the effective management of the exercise and for timely the submission of the MTR report to the GEF Secretariat.

After the completion of the Mid-Term Review, the BH will be responsible for the distribution of the MTR report at country level (including to the GEF OFP) and for the preparation of the **Management Response** within 4 weeks and share it with national partners, GEF OFP and the FAO-GEF CU. The BH will also send the updated core indicators used during the MTR to the FAO-GEF CU for their submission to the GEF Secretariat.

Terminal Evaluation

The GEF evaluation policy foresees that all Medium and Full sized projects require a separate terminal evaluation. Such evaluation provides: i) accountability on results, processes, and performance ii) recommendations to improve the sustainability of the results achieved and iii) lessons learned as an evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects.

The Budget Holder will be responsible to contact the **Regional Evaluation Specialist (RES)** within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project taking into account the ?GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects?. FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process, via the OED Decentralized Evaluation Support team ? in particular, it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings.

After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within 4 weeks and share it with national partners, GEF OFP, OED and the FAO-GEF CU. The BH will also send the updated core indicators used during the TE to the FAO-GEF CU for their submission to the GEF Secretariat.

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The project is also expected to generate several adaptation benefits. Amongst those, it is anticipated that the project will increase the knowledge on climate change vulnerability and impacts, and how to conduct such assessments in a streamlined manner. Adaptation technologies will then be able to be selected based on the best available evidence, in relation to local conditions. Adaptation will be also be mainstreamed into local planning and budgeting, ensuring adaptation options are effectively implemented as part of long-term resilient planning.

The project will bring several socio-economic benefits to the Miombo landscape communities of Tanzania, and targeted communities in Zanzibar. This will include, among others: i) increased financial security through strengthened livelihoods, new business opportunities through value chain development, and improved access to financial services; ii) increased food security, associated the increased adoption of soil and water management practices, and other relevant adaptation practices, and strengthened food value chains aimed at reducing post-harvest losses; and iii) women and youth empowerment. Indeed, the project will directly contribute to improving the livelihoods and resilience to climate change 83,143 direct

beneficiaries of which approximately approximately 45% male and 55% female (and of which 20% are youth).

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
	Medium/Moderate		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Given the project key components, it is expected that some project interventions may have some moderate to low environmental and social impacts. Therefore, there is a need to have a comprehensive gender sensitive mitigations measures that will guide the project implementation. The assessment on possible risk was conducted based on FAO Environmental and Social Standards (ESS) that set out specific requirements relating to different social and environmental issues. It is important to note that in all project landscape that was visited by the consultant there is no indigenous people living in those areas. For example, in all project sites in Tanzania mainland, there is a high influx of ethnic tribes from other areas in Tanzania hence making the project sites to have mixed ethnic tribes. In Zanzibar though the influx of other ethnic tribes was limited, but there is no any identified indigenous group with special interests that might be affected by the project.

Risk Mitigation Plan

FAO ESS triggered	Risks identified	Risk classification	Mitigation measures	Timeline	Responsibilities of implementation	Indicators to monitor

SAFEGUARD 1 NATURAL RESOURCES MANAGEMENT	The proposed project foresee to develop an irrigation scheme that is more than 20 hectares or withdraws more than 1000 m3/day The project foresee to improve an irrigation scheme (without expansion) The project will work to improve land tenure security and access rights through policy dialogue and mult-stakeholder policy Discussions to promote within the NRM policies a focus improving tenure rights The project will also support implementation of participatory	Low	The following mitigation measures will be implemented: Appropriate efficiency principles and options to enhance productivity, Technically feasible water conservation measures, Alternative water supplies, Resource contamination mitigation or/and avoidance, Potential impact on water users downstream, water use offsets and demand management options to maintain total demand for water resources within the available supply. The**ICID-checklist** will be included, as well as appropriate action within the project to mitigate identified potential negative impacts. Projects aiming at improving water efficiency **will carry out thorough water accounting** in order to avoid possible negative impacts such as waterlogging, salinity or reduction of water availability downstream During implementation phase, the projects will address to the tenure and administration dimensions of the changes that they may provoke, including issues of security of tenure and access to natural resources, compensation, and governance on land administration. The project will apply and adhere to the	Q2-Y1 to Q2-Y5	FAO Vice President?s Office (VPO) Ministry of Agriculture, Irrigation, Natural Resources and Livestock-Zanzibar	Presence of participatory soil management plan adhering to WSC and implemented Level of adherence to the soil management principals disaggregated by geographical locations and sex of landholding person # of dams constructed with recommended height # of farmers benefitting from constructed dams or any water harvesting technology by geographical location and sex # Of inspections conducted to monitor safety measures during and after constructions

SAFEGUARD 2 BIODIVERSITY, ECOSYSTEMS AND NATURAL HABITATS	The targeted zone in the Miombo region comprises Protected Area (PAs) surrounded mainly by cropland which has increased by 40% in the past 20 years (1995 - 2015). And 65% of the total population in the area live below the poverty line and more than 85% depend on agriculture (crop and livestock) Agriculture is characterized by unsustainable land-use practices, shifting cultivation and low productivity. Combined with population growth, these farming practices increase pressure on the remaining dry forest formation outside the PAs and its ecological, as well as socio-economic services. Even though protection is in place for	Low	The project will: ? Introduce Sustainable Forest Management and climate change adaptation measures that will reduce pressure to the forest and Protected areas. This will be done through: disseminate and promote CCA technologies and approaches that have been identified, including ecosystem-based approaches such as agroforestry and restoration efforts. Kindly note that, the project is not foreseeing any activity within the protected areas or buffer zone rather than contributing to reduce the pressure from human activities to the Protected areas from the village lands (croplands).	Q4-Y1 to Q4-Y5	FAO Vice President?s Office (VPO) Ministry of Agriculture, Irrigation, Natural Resources and Livestock-Zanzibar	

SAFEGUARD 3 PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE	The proposed project will: Introduce crops and varieties previously not grown Provide seeds/planting material for cultivation Involve the importing or transfer of seeds and or planting material for cultivation or research and development Supply or use modern biotechnologies or their products in crop production Establish or manage planted forests	Moderate	Avoid undermining local seed & planting material production and supply systems through the use of seed voucher schemes. Ensure that the seeds and planting materials are from locally adapted crops and varieties that are accepted by farmers and consumers. Ensure that the seeds and planting materials are free from pests and diseases according to agreed norms, especially the IPPC. Internal clearance from AGPMG will be requested for all procurement of seeds and planting materials. Clearance from AGPMC is required for chemical treatment of seeds and planting materials. Clarify that the seed or planting material can be legally used in the country to which it is being imported. Clarify whether seed saving is permitted under the country?s existing laws and/or regulations and advise the counterparts accordingly. Ensure, according to applicable national laws and/or regulations, that farmers? rights to PGRFA and over associated traditional knowledge are respected in the access to PGRFA and the sharing of the benefits accruing from their use.	Q4-Y1 to Q4-Y5	FAO Vice President?s Office (VPO) Ministry of Agriculture, Irrigation, Natural Resources and Livestock-Zanzibar	# of seeds and planting materials adopted by farmers in various project landscapes

SAFEGUARD 5 PEST AND PESTICIDES MANAGEMENT	The project will direct or indirect procure, supply and/or result in the use of pesticides through Operational partner on crops, livestock, forestry; or as seed/crop treatment in field or storage; or through input supply programmes including voucher schemes; or for small demonstration and research purposes; or for strategic stocks (locust) and emergencies ; or causing adverse effects to health and/or environment the proposed project will result in the direct or indirect procurement , supply or use of pesticides on crops, livestock, aquaculture, forestry, household as seed/crop treatment in field or storage; or through input supply programmes including voucher	Moderate	During implementation phase, the project will promote Integrated Pest Management (IPM), reduce reliance on pesticides and avoid adverse impacts from pesticide use on the health and safety of farming Communities, consumers and the environment. The project will ensure appropriate training on judicious use of pesticides among farmers/end users is provided before supplying the pesticides. In case pesticides are to be procured, the following shall be observed; 1. The product should be registered in the country of use, or specifically permitted by the relevant national authority if no registration exists. Use of any pesticide should comply with all the registration requirements including the crop and pest combination for which it is intended. 2. FAO/Operational Partners will not procure/supply pesticides that fall under annex III and annex A of Rotterdam and Stockholm Conventions respectively Pesticides that fall in WHO Hazard Class 2 or GHS Acute	Q4-Y1 to Q4-Y5	FAO Vice President?s Office (VPO) Ministry of Agriculture, Irrigation, Natural Resources and Livestock-Zanzibar	# of farmers practicing IPM disaggregated by sex and geographical location List of pesticides that qualifies to be used by farmers

SAFEGUARD 9 INDIGENOUS PEOPLES AND CULTURAL HERITAGE	Tanzania voted in favor of the UN Declaration on the Rights of Indigenous Peoples (UNDRIP 2007) but has not ratified ILO Convention No. 169. During PPG stage, the accompanied project design task force and the PPG Team as well as the results from SHARP survey, that applying Free, Prior and Informed Consent (FPIC), plus other related measures, when engaging with those groups may not be required, to the extent that there is no significant presence of indigenous peoples neither in the sites currently targeted by the project nor in the neighboring areas. By definition there are more than 90% forest dependent peoples. As such, an	Low	Because a majority of the community in the targeted area depend on forest resources, therefore GEF resources will support and facilitate the community access and use of the forest and land resources in a sustainable manner. Cross-sectoral and integrated management of the Miombo woodland in the landscape will be advocated. Further to that, during implementation of the project the following approaches will also be used; 1. Ensuring a positive engagement/ through inclusive consultations of indigenous peoples in the project; 2. avoiding adverse impacts, or when avoidance is not feasible, minimizing, mitigating, or compensating for such effects, as per the indigenous peoples agreement; 3. Tailoring benefits in a culturally appropriate way.	Q4-Y1 to Q4-Y5	FAO Vice President?s Office (VPO) Ministry of Agriculture, Irrigation, Natural Resources and Livestock-Zanzibar	# Of indigenous people involved in the project.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
Environmental and Social Risk Identification and Mitigation Plan	**CEO Endorsement ESS**	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
Objective: To reduce vulnerability and increase climate change resilience of communities through introducing, testing and adapting selected appropriate technologies and innovative practices	***CCA Core Indicator 1:*** Number of direct project beneficiaries	0 because project has not started	45% of end-of-project target	83,143, of which at least 50% women	Training reports/attendance records; SHARP report	District, area and village-level institutions, users? organizations, grassroot organizations, researchers, private sector, and other critical partners willing to take part in project activities	PMU and district facilitation team, with technical support from FAO

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
Component 1: Improving the enabling environment to promote the uptake of climate change adaptation technologies in priority sectors in Tanzania							
Outcome 1.1: Strengthened policy and institutional frameworks for promoting the transfer of adaptation technologies and innovations for climate resilient value chains	**Indicator 1:** Degree to which the capacity of targeted institutions is strengthened to mainstream adaptation *(measured with a capacity scoring methodology)*	Baseline Institutional Capacity Assessment to be conducted at the project inception stage to define the baseline level of capacity of targeted institutions to mainstream adaptation. The project will develop a custom capacity assessment tool for monitoring and evaluation, which may be derived from similar tools, such as the USAID Global Climate Change Institutional Capacity Assessment Tool M&E module[1].	Increase of 2 in the capacity score of each institution (out of a maximum of 4: Low capacity = 1; Basic Capacity = 2; Moderate Capacity = 3; Strong Capacity = 4)	Increase of 2 in the capacity score of each institution (out of a maximum of 4: Low capacity = 1; Basic Capacity = 2; Moderate Capacity = 3; Strong Capacity = 4)	Baseline assessment and subsequent capacity scoring exercises for key institutional stakeholders	(i) Sectoral institutions acknowledge the necessity to strengthen cross-sectoral and regional collaboration and participate accordingly; (ii) High level policy support for CCA (iii) A stable political/global health/market situation allows governments /communities to participate in planning and training exercises	PMU, and district facilitation team ,VPO, MNRT(TFS) and MAINRL-Zanzibar

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
	<u>Indicator 2:</u> Number and type of policies/plans that will mainstream climate resilience (*Contributing to GEF CCA Core Indicator 3*)	Set of plans currently lack the systematic integration of adaptation concerns and associated budgets for implementation of adaptation action; a detailed policy assessment to be conducted at project inception.	n/a	NTFP strategy for Zanzibar developed, integrating climate concerns To review pasture and water strategy to include Miombo woodlands fodder and integrating climate concerns Horticulture development strategy for Zanzibar developed, integrating climate concerns CCA mainstreamed in 4 Joint VLUPs CCA mainstreamed in 10 District level Mid-Term Expenditure Frameworks	New or modified budgets and plans		PMU, VPO

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
Output 1.1.1: Support the establishment of a decision support system for of cross-sectoral/ cross-ministerial coordination mechanism at national and subnational levels to mainstream climate change adaptation in integrated landscape planning efforts. Output 1.1.2. Climate change vulnerability assessments conducted as a means for prioritizing and designing cost-effective adaptation solutions in the targeted regions and integrated into cross-sectoral decision support systems for Miombo woodlands and Zanzibar. Output 1.1.3. NTFPs, fodder, pasture and horticulture strategies developed in support of value chain development in the context of climate change Output 1.1.4. Climate change adaptation (technologies, innovations) integrated into Medium Term Expenditure Framework (MTEF), and landscape management plans							
Component 2. Supporting resilient production systems for resilient livelihoods							

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
Outcome 2.1: Increased resilience of production systems and landscapes	**Indicator 3:** # hectares of land under climate-resilient management (*contributing to GEF CCA Core Indicator 2*)	0	12,500 ha	25,000 ha[2]	Field verification Reports from capacity development programs. PIR	(i) District, area and village-level institutions, users? organizations, grassroot organizations, researchers, private sector, and other critical partners willing to join the works and adopt CCA technologies promoted by the project (ii) Any socio-cultural barriers to adoption are carefully addressed by the project (iii) ICT access and availability through mobile centers is stable (iv) The introduced innovative adaptation technologies and approaches are monitored and updated based on local feedback	PMU and district facilitation team

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
Output.2.1.1: Adaptation learning forums/platforms supported and equipped for key value chains (horticulture, beekeeping, fodder and pasture), including Farmer Field Schools (FFS/APFS) Output 2.1.2. Innovative water harvesting and irrigation systems (e.g. water use efficient technologies) for priority sectors introduced, tested and promoted in CCA-FFS/ producers? plots. Output 2.1.3. Improve and support access to digital extension services through ICT and availability of mobile services to smallholder producers, traders and end-users. Output 2.1.4. Introduce, support and promote digital and mobile based climate services and information sharing services targeting decision makers, agricultural insurance agencies and smallholder producers.							
Component 3. Scaling up adaptation technologies and practices in NTFPs and horticulture value chains through markets and investments							
Outcome 3.1. Climate resilient post-harvest technologies upscaled through local supply infrastructure and innovations in value addition	**Indicator 4:** Number and type of technologies introduced and out scaled	0	5	10	PIR Field observations Contracts and MoU between value chain actors. Video footage and pictures. Proof of purchase and effective use of equipment	Local communities, CBOs, and POs grasp the opportunities offered by CCA technologies, and are willing to invest the required time and energy to make their livelihoods more resilient	PMU and district facilitation team
	Indicator 5: Percentage of post-harvest losses	66% of SHARP respondents in Miombo woodlands and 34% in Zanzibar reported post-harvest losses of more than 10%-	n/a	Project beneficiairies report post-harvest losses of less than 15%	SHARP survey		

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
Output 3.1.1. Climate-resilient storage facilities (including cooling, warehouses and alternative packaging technologies such as canning and vacuuming) are introduced to improve preservation and quality, and reduce post-harvest losses. Output 3.1.2. Processing technologies for selected value chains introduced and producer organizations/SMEs trained in post-harvest handling. Output 3.1.3. Appropriate packaging technologies are introduced and collection centres are determined, established and/or improved.							
Outcome 3.2. Market systems and financial and incentive mechanisms developed and strengthened for diversification of activities to reduce vulnerability	**Indicator 6** Number of producers using ICT to access domestic and export market	0	100	500 producers using ICT to access domestic and export market	PIR Field observations Log of ICT users SHARP survey	(i) ICT access and availability through mobile centers is stable (ii) Private sector shows willingness to take leadership in order to generate sufficient financial response	PMU and district facilitation team
	Indicator 7: Percentage of farmers reporting profitable agricultural activities	41% in Miombo woodlands and 24% in Zanzibar (SHARP survey 2021)	n/a	At least 60% of project beneficiaries report profitable agricultural activities	SHARP survey		
Output 3.2.1. Actors trained on use of ICT in accessing NTFPs, fodder and pasture, NUS and horticulture markets (domestic and export) Output 3.2.2. SMEs and producer organization groups supported in the development of business plans and marketing strategies Output 3.2.3. SMEs and producer organization groups have access to microfinance and linked to domestic and export markets, supported by financial institutions including National Microfinance Bank Foundation (NMB Foundation) SAGCOT and others financial institutions							
Component 4. M&E and knowledge transfer							

Results chain	Indicators	Baseline	Mid-term target	Target	Means of verification	Assumptions	Responsible institutions
Outcome 4.1 Effectiveness of selected innovative approaches and technologies assessed and knowledge on climate change adaptation benefits widely disseminated.	**Indicator 8:** # knowledge and communication products developed, disseminated and accessed through relevant knowledge sharing platforms	0 knowledge products	5 knowledge products	10 knowledge products	Products and platform data	n/a	PMU
	Indicator 9: # of briefs presenting lessons learned shared and accessed by stakeholders	0	5	10	Project monitoring system		PMU
Output 4.1.1. Practical and applied training and communication material developed and disseminated to different target audiences (policy makers; forest and agricultural advisory services at local and National level; local communities) using print, radio, tv programs and social media, community video shows, exhibition, etc. Output 4.1.2. SADC`s Great Green Wall Initiative (GGWI) and SRAP structure as well as SAGCOT?s sectorial associations/platforms used to present innovative approaches and technologies to other countries (building upon the regional DSL IP structure). Output 4.1.3. Project M&E strategy developed and implemented							

[1] Global Climate Change Institutional Capacity Assessment Tool | NDC Partnership

[2] The total agricultural area of the four regions in Zanzibar (Kaskazini Unguja, Kusini Unguja, Chake Chake Pemba and Micheweni Pemba) and four regions of mainland Tanzania (Sikonge, Nsimbo, Tanganyika and Nkasi) is approximately 1.3 million hectares. Of this total only a fraction will be susceptible to being influenced by the project, namely the agricultural area of the direct beneficiaries. Secondly, only a part of the total agricultural area exploited by direct beneficiaries will likely be under climate resilient management. Consequently, it is estimated that the project will directly increase the

adoption of climate resilient management on approximately 2% of the total agricultural area in the target regions.

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comments from Canada

? The choice of rehabilitation techniques should be influenced by its costs and benefits to participating communities. In addition, such interventions should ensure availability of enabling forest policies in order to address issues of concern, including (1) the full and meaningful participation of communities, (2) clear land and tree tenure, and (3) equitable benefit sharing. We also recommend that the project embraces and promotes landscape and multidisciplinary approaches and avoids sector approaches that have led to present situations of degradation.

All proposed restoration techniques and initiatives proposed under component 2, were identified during the PPG process through consultations with local communities. There were selected for their cost-effectiveness and the benefits they will provide to participating communities. Furthermore, it should be noted that this LDCF project will be implemented hand in hand with the DSL IP child project in Tanzania which will specifically implement forest and landscape restoration actions and techniques in the targeted landscapes in Tanzania Mainland. Several consultations with local communities, including SHARP assessment, were conducted during the design of the DSL IP child project in Tanzania, making sure proposed restoration and forest regeneration techniques are feasible, cost-effective, context specific and adapted to local communities.

The two projects together (DSL IP Child Project and LDCF) will support the improvement of the forest and landscape management policy frameworks and enabling environment, by building capacities in terms land degradation assessment tools and approaches, generating and disseminating knowledge on Miombo ecosystem value, conducting specific participatory CC vulnerability assessments (LDCF), and finagling revising and strengthening the forest and land management strategic framework conditions by: i) supporting the implementation of National tree seed strategy (DSLIP Child project), ii) supporting the implementation of the national NTFPs strategy (DSLIP Child project); iii) assessing and reviewing the livestock development strategy and livestock master plan on improved farming taking into account sustainable rangeland management (DSLIP Child project); iv supporting the implementation of the Participatory Forest Management (DSLIP Child Project); and v) supporting the development of a Miombo woodland fodder development strategy (LDCF). Furthermore, the two projects will support participatory land use planning processes at local level with the development of Joint Village Land Use Plans and the integration of CCA into these Plans to promote a landscape approach (cross-boundary) in miombo woodlands (including DSL-IP target areas), as well as drylands of Zanzibar. Combined together, all these multidisciplinary interventions at landscape level will ensure 1) the full participation of local communities; 2) clear land and forest tenure at local and landscape level; and 3) equitable benefit sharing.

US Comments

? Consider whether additional civil society organizations should be brought into the project as advisers and/or implementers given their expertise on these issues and given the proposed consolidation of resources and activities in national and local government structures.

Civil society organizations involved are listed in Chapter 6 on Institutional arrangements and coordination. The work of the national consultants active in Tanzania consisted of consulting not only local communities but also civil society organizations who could be brought into the project. Those civil society organizations who have been consulted or will be involved are listed in the stakeholder engagement matrix.

? Consider the potential COVID-19 implications on this project in the context of other pressing issues government implementers (tourism authorities, forest service, etc.) will face in the short and medium term due to COVID-19, especially given the government?s refusal to share its COVID-19 cases, bringing accountability into question.

Text has been added in the relevant sections, including in the initial Project Description and alongside the Theory of Change.

? Explain how national and local government authorities implementing this project will be transparent and accountable, especially in the post-COVID-19 period.

Addressed in institutional arrangements.

Comments from Germany

? Climate projections and regional climate impacts: Germany welcomes that the Tanzania Meteorological Agency (TMA) is a cooperation partner of the project. In addition to Tanzania?s 2nd National Communication, which the proposal already refers to, the project could further strengthen its climate rationale by building on the comprehensive set of available climate projections for Tanzania, e.g., from the Future Climate for Africa project, which analysed 34 Global Climate Models for Tanzania in order to support identification of appropriate adaptation actions in each project region. The project could furthermore refer to the National Framework for Climate Services from 2018.

Information by Future Climate for Africa is used to further strengthen the climate rationale and provide for relevant and reliable climate change projections, in particular the Country Climate Brief of 2017 containing the Future Climate Projection for Tanzania.

Furthermore, the experience of two past projects of the Global Framework for Climate Services, being ?Global Framework for Climate Services Adaptation Programme in Africa (GFCS APA), Phase I, - Building Resilience in Disaster Risk Management, Food Security and Health? and ?Adaptation Programme in Africa (GFCS APA) Phase II: Building Resilience in Disaster Risk Management, Food Security and Health? are taken into account as past projects from which lessons can be learnt. Phase I is particularly relevant as it provided training on agro-meteorological information and introduced or upscaled radio and SMS services who share knowledge on the topic. The lower participation rate of

Tanzania in comparison to Malawi serves as an indicator that sufficient promotion and downscaled information is needed in order for the services to be successful. It also increased access to finance through Village Saving and Loans groups which is an approach that can prove to be interesting for this project. Phase II further emphasizes the need for training that accompanies digital services as often farmers have limited practice and knowledge, together with the need for information to be as downscaled as possible. This information is presented in a Table under the Knowledge Management section of the Project Document.

?Co-financing: Germany appreciates the close alignment with ongoing initiatives. Thus, the project shows a very high co-financing value of over USD 40 million and states that 50% of it ?will be new capital investments?. Germany requests to only count those proportions from the respective initiatives that are being spent in direct relation to the project.

Co-financings amounts secured during the PPG are reported in alignment with the GEF Policy on Co-financing.

? Adaptation actions and technologies: Germany appreciates the inclusion of the private sector. However, please specify more clearly component 3?s direct contribution to climate adaptation and consider revising indicators under 3.2 accordingly. Furthermore, Germany appreciates that the proposal refers to the Technology Needs Assessment (TNA) and recommends that it also refers to the newer Technology Action Plan Report on Agriculture and Water Sectors from 2018. Beyond that, Germany appreciates the promotion of NonTimber Forest Products as part of the addressed ecosystem services. In light of the high deforestation rates in Tanzania due to charcoal production, Germany suggests to also consider the promotion of sustainable firewood and associated livelihood opportunities.

As reflected under section 7, the project takes into account the conclusions and emphasis made by the Technology Needs Assessment and the Technology Action Plan Report on Agriculture and Water Sectors, especially regarding the possible improvements for irrigation and water-harvesting and the opportunities that solar power can offer for Tanzania. The promotion of sustainable firewood will however is beyond the scope of the project.

? Synergies with other development efforts: Germany welcomes the project?s link to NDC and NAP processes. Tanzania?s NAP process has been supported by German Development Cooperation from 2016-2019. Germany encourages the project to build on the respective cooperation structures like the National NAP Team.

One of the activities under Output 1.1.1. is a capacity needs assessment of institutions with key roles in climate change adaptation and landscape planning, among which but not limited to the national NAP team, the National Climate Change Steering Committee, Zanzibar Climate Change Steering Committee. This assessment will aim at mainstreaming climate change adaptation in integrated landscape efforts. Moreover, the project will work with subnational committees and put in place a mechanism for coordination between the committees.

STAP

? Confirm barriers with targeted communities

The SHARP report consulted the targeted communities and the identified root causes and barriers of the PIF were compared with the findings of the SHARP report (and other consultant report). Moreover, the SHARP gives the possibility for the targeted communities to share their opinion on the matter. Where necessary changes were applied.

? Mapping the relationships between population increase, unsustainable practices, climate change and livestock husbandry;

These relations are described in the project description section, and more precisely in the section on the root causes. As detailed in that section, the increasing population in the country is putting additional pressure on existing resources and the environment in general. The environmental resource base is being eroded by unsustainable subsistence practices and impacts from climate change which makes the situation more precarious. Livestock husbandry adds to the environmental stressors and can also lead to pastoralist-wildlife conflicts. However, integrated livestock-cropping systems can create opportunities for sustainable production which can help increase resilience while reducingpressure on the surrounding ecosystem.

? Describing how these relationships changed in the project area? There has long been livestock in these systems, as well as variable precipitation in the target sites. Are there constraints to the movement of animals? Define the existing capacity of land users to adapt to climate change. Farmers in this region are adapted to variable precipitation, and there is no clear trend toward changes in annual precipitation. Therefore, is the threat these farmers face related to climate?

Although farmers are in used to variable precipitation climate change is aggravating the extent of the variability and additional pressure is caused by water scarcity and the increase of pest outbreaks. As detailed in the problem statement, variable precipitation is only one factor that constrains production. Moreover, while subsistence farmers might be used to fluctuations in precipitation patterns, most are not adapted to it: production levels are low and most households have limited capacities to cope with the effects of (aggravating) precipitation variability. Regarding livestock, for Zanzibar no constraints regarding the movement of animals are present yet due to a higher population density than mainland this movement is in general more limited. For the Miombo region the situation is different: in the rainy season most of the livestock is known to circulate freely through the open areas as feed is abundant. In dry regions however the situation changes leading to problems for certain small-scale farmers and competition of the green spaces that are left.

? Additionally, STAP would like to see citations added for the climate projections in the document. STAP notes that figure 2 demonstrates no real change in annual precipitation, and declining variability. This information needs to be enhanced with more recent climate modelling information. A source for climate information is: https://climateknowledgeportal.worldbank.org/country/tanzania-united-republic/vulnerability

Climate projection in the Project Document are based on, among others, the climate knowledge portal of the World Bank. Citations and references have been added where relevant.

? Assign indicators to track outcomes in the theory of change. Tracking short-term outcomes can help monitor the long-term outcomes this project seeks to achieve.

Indicators have been defined in the Results framework.

? Develop a theory of change and expanding on the impact pathways by identifying the assumptions which underlie the causal connections between outcomes.

A Theory of change is included in the section ?Project theory of change?.

? Consideration of the various factors that might impact project implementation, and the ways in which the project might be adapted to manage them. Account for underlying drivers in the resilience assessment in component (e.g. lack of groundwater supply as a result of drought, or sea level rise; lack of good groundwater quality as a result of flooding) that may affect crop grass diversification needing a good supply of water, or irrigation, as well as the influence farmers? health.

The factors that might impact project implementation are described through various ways. They are present in the Theory of change (assumptions and drivers). A specific section in the problem statemen is also dedicated to the various barriers that have been identified as underlying drivers of a low resilience and that will be addressed by the project. Furthermore, Chapter 5 elaborates on the risks to the project and addresses how to deal with those risks.

? Describe the land tenure and policies influencing livestock management and agricultural production in the miombo drylands as part of the problem context. It also will be valuable to describe conflicts (if present in the target sites) over resource use between farmers and pastoralists. These issues could form part of the barrier analysis. Resources the project team could consult include: Masanja, G. ?Agropastoral Mobility and Rangelands Multiple Uses in the Miombo Frontier Ecozone of Tabora Region, Western Tanzania?(2017): https://www.ncbi.nlm.nih.gov/pmc/articles/PMC56 72148/ Ruvuga, P. et al. ?Ecological Sustainability: Miombo Woodland Conservation with Livestock Production in Sub-Saharan Africa? (2019) 7 https://link.springer.com/chapter/10.1007/978-3- 030-12974-3_11

The possibility of conflicts is described within the Project Document and reference is made to both sources that were delivered by the STAP.

? Carry-out a systems analysis with stakeholders to confirm the activities proposed in component 2 support the interventions needed to achieve the desired change. Developing a systems-based theory of change should help with this purpose. Link component 4 with the project?s theory of change (if one is developed) as they are complimentary. The theory of change can assist to monitor short-term outcomes, which are required to achieve the adaptation outcomes

This system analysis is carried out by the SHARP report. A Theory of Change has been developed as well. Component 4 is integrated within the Theory of Change. Moreover, the results framework addresses short-term outcomes.

? Consider uncertainty to cope with the level of change that may take place. Therefore, consider different time scales and spatial scales.

? Add maps on land use, flood, drought and storm surge hazards if possible.

The Project Document contains a map on the risk of droughts in Chapter 1a Project Description and more specific in the section on climate change and projected impact. The topic of floods and storms is treated as well, yet no maps have been included.

? Describe the role of each stakeholder

The role of each stakeholder in the project implementation is described in the Stakeholder engagement matrix which can be found in Annex H2.

? Analyze whether there will be any barriers that impede full participation of a certain stakeholder (group).

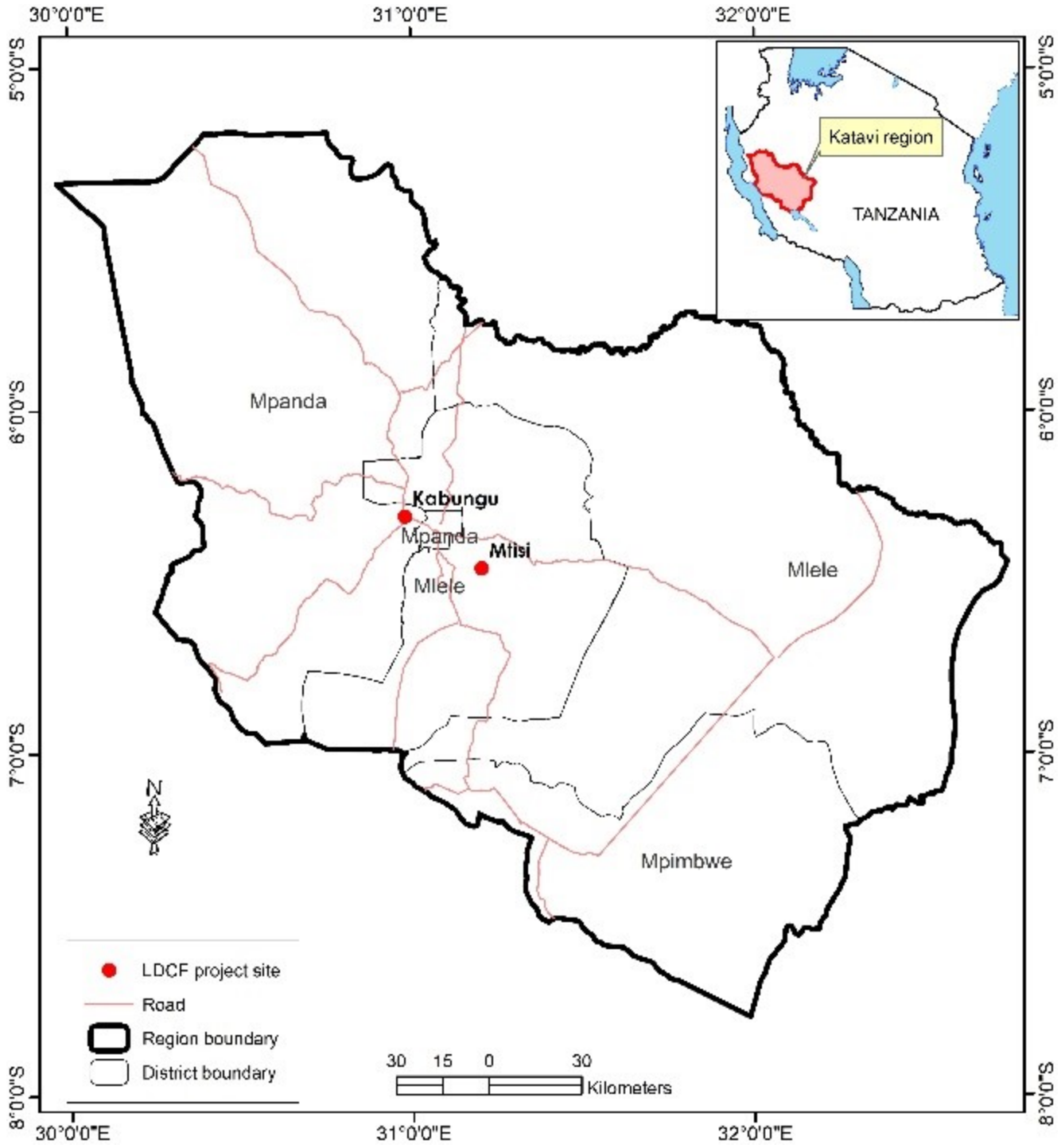
A specific gender analysis is performed by the national gender expert to identify and address any possible gender-specific barriers. Other barriers that could impede participation of a certain stakeholder group are described in Chapter 5 on the risks to the project and the approach of the project to deal with the barrier is given as well.

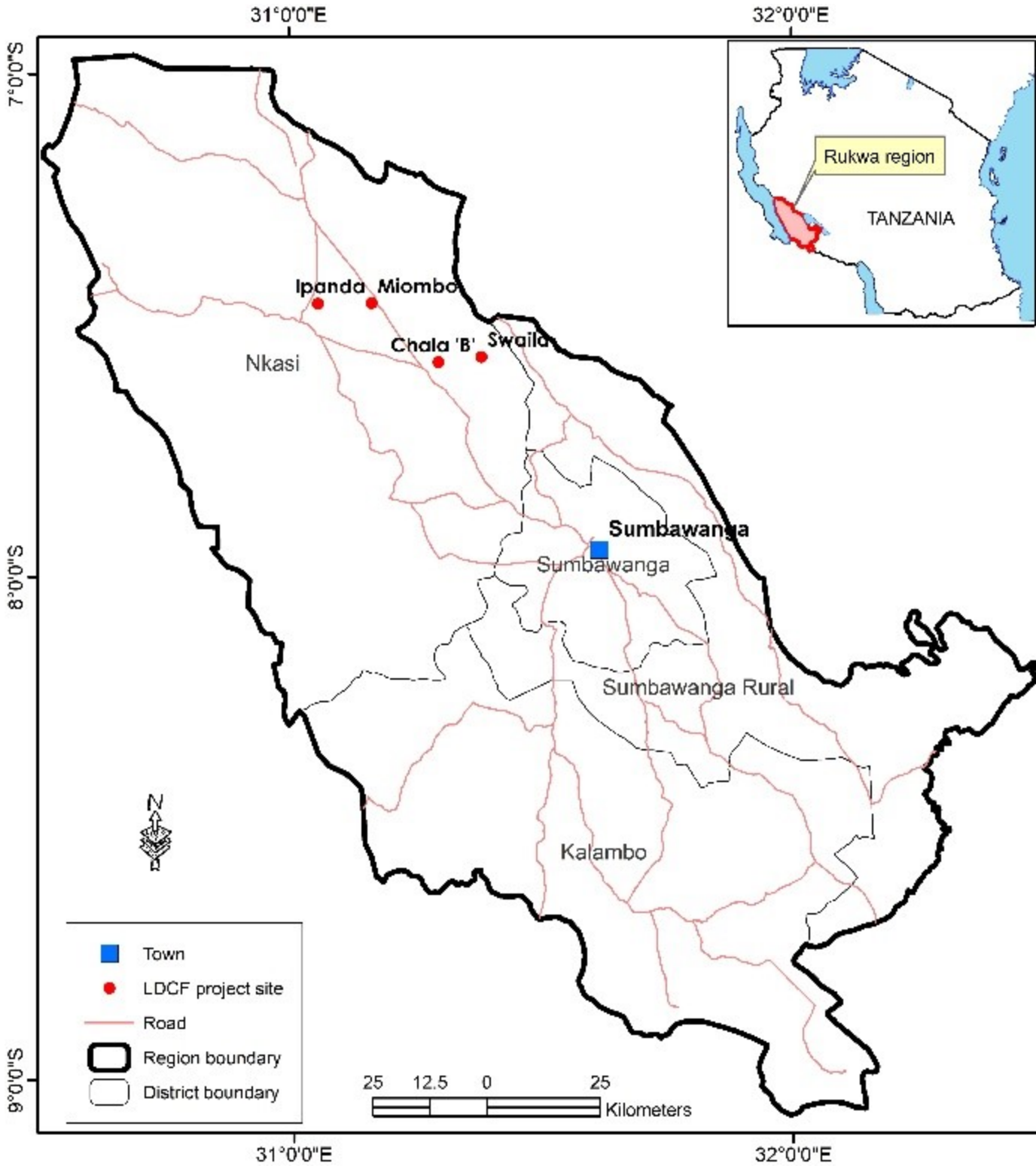
ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

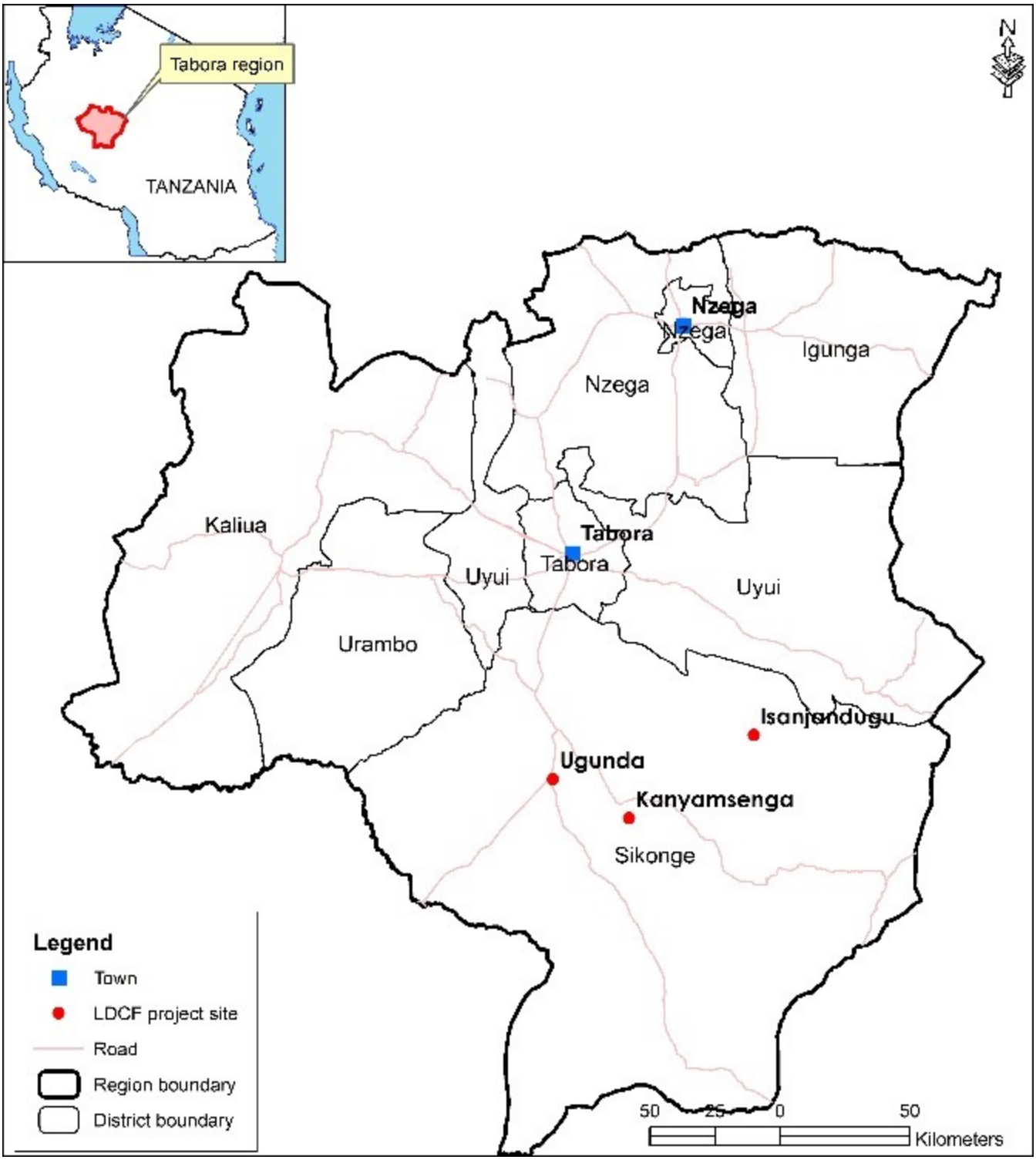
PPG Grant Approved at PIF: **USD 150,000**			
Project Preparation Activities Implemented	***GETF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent to date***	***Amount Committed***
Consultants	83,500	79,519	3,981
Contracts	7,000	4,335	2,665
Travel	42,730	43,036	(306)
Training	9,500	3,598	5,902
General Operating Exepnses	7,270	326	6.944
Total	150,000	130,814	19,186

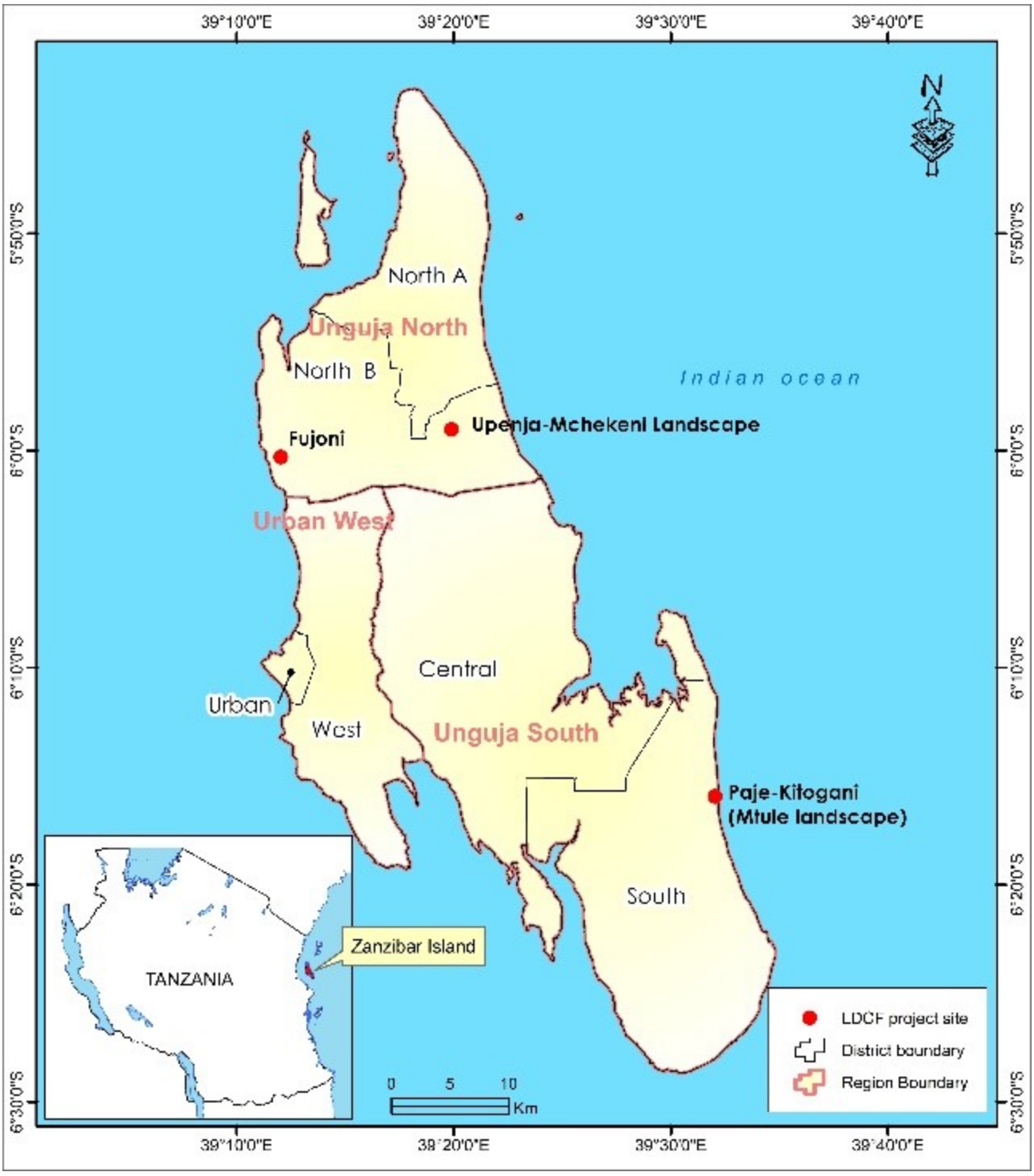
ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.


30°0'0"E
31°0'0"E
32°0'0"E
5°0'0"S
6°0'0"S
7°0'0"S
8°0'0"S
Katavi region
TANZANIA
Mpanda
Kabungu
Mpanda
Mlele
Mlele
Mpimbwe
N
LDCF project site
Road
Region boundary
District boundary
30 15 0 30
Kilometers


31°0'0"E
32°0'0"E
7°0'0"S
8°0'0"S
9°0'0"S
Rukwa region
TANZANIA
Ipanda
Miombo
Chala 'B'
Swaila
Nkasi
Sumbawanga
Sumbawanga
Sumbawanga Rural
Kalambo
N
Town
LDCF project site
Road
Region boundary
District boundary
25 12.5 0 25
Kilometers


Tabora region
TANZANIA
N
Nzega
Nzega
Nzega
Igunga
Kaliua
Tabora
Tabora
Uyui
Uyui
Urambo
Isanjandugu
Ugunda
Kanyamsenga
Sikonge
Legend
Town
LDCF project site
Road
Region boundary
District boundary
50
25
0
50
Kilometers


39°10'0"E
39°20'0"E
39°30'0"E
39°40'0"E
5°50'0"S
5°0'0"S
5°10'0"S
5°20'0"S
5°30'0"S
N
North A
Unguja North
North B
Indian ocean
Upenja-Mchekeni Landscape
Fujoni
Urban West
Central
Urban
West
Unguja South
Paje-Kitogani
(Mtule landscape)
South
TANZANIA
Zanzibar Island
0 5 10
Km
LDCF project site
District boundary
Region Boundary


39°30'0"E
39°40'0"E
39°50'0"E
5°0'0"S
5°10'0"S
5°20'0"S
5°30'0"S
N
Tumbe Magharibi
Micheweni
Pemba North
Wete
Indian ocean
Tibirinzi
Vitongoji
Chake Chake
Pemba South
Mkoani
TANZANIA
Pemba Island
0
5
10
Km
LDCF project
District bound
Region Bound

ANNEX E: Project Budget Table

Please attach a project budget table.

Justification for Vehicles: Given the size of the project area, road condition and terrain of most project areas, it will be difficult for project staff (PMU staff & project consultants) to participate in the fieldwork activities, as there will be no dedicated car for the fieldwork activities. Therefore, two vehicles are required to be funded by the project

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies? capacity and eligibility to administer NGI resources as

established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).