



Food and Agriculture Organization
of the United Nations

Annex 2

Feasibility Study

For the GCF-FAO Project “Ecosystems-based Adaptation for resilient Watersheds and Communities in Malawi (EbAM)”

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Executive Summary

1. Malawi is listed as a Least Developed Country (LDC) by the United Nations (UN), and one of the low development countries according to the UNDP Human Development Index, and ranks among the 20 most vulnerable countries in the World by the Notre Dame Global Adaptation Initiative Index 2021, which measures vulnerability to climate change. For the proposed project, climate vulnerability is defined as a function of climate exposure, climate sensitivity and climate adaptive capacity. Malawi's high exposure to climate change can be characterized by the rise of temperatures, intensification of aridity, rainfalls becoming more erratic, and increased frequency of climate-changed induced disasters, including droughts and floods. At the same time, the country is very sensitive to climate change because of its high population density and growth, seriously degraded landscapes and ecosystems, large rural population in deepening poverty, high food insecurity and precarious health situation. Adaptive capacity is constrained by the limited literacy rate and low human development. The 11 targeted districts (Dedza in the Centre; Zomba, Mangochi, Thyolo, Neno, Mwanza, Nsanje in the South ; Nkhata Bay, Rumphi, Karonga and Chitipa in the North) have all been selected in relation with their high climate vulnerability, with the South being extremely exposed to climate change, while Northern districts landscapes and ecosystem conditions are characterized by a severe climate sensitivity, in relation with extreme soil loss and degradation. In all targeted districts, the main climate effects will alter the onset of the rainy season, translate into limited and modified water availability, increased water stress, with negative impacts on both cash and subsistence crops, resulting in adverse effects on the overall rural socio-economy and livelihoods.

2. The proposed Project will address the negative impact pathways from increased temperatures and rainfall variability leading to climate-induced disasters, all resulting in heightened ecosystem degradation and reduced agricultural production and productivity. The project's objective is to increase climate-change resilience of rural communities at watershed level in Malawi. The project aims to be a catalyst for a broad shift for ecosystem, livelihoods and agriculture in the country, from their baseline state of very high vulnerability to an alternative paradigm in which watershed ecosystems are restored, well-functioning and sustainably managed, thus granting their adaptation to climate change and their supply of services to communities, people and their farming systems. To achieve this, EbAM will promote the Ecosystems-based adaptation (EbA) approach combined with Integrated Landscape Management (ILM) to repair degraded ecosystems, and to allow agriculture and other livelihoods to become resilient to climate change. The EbA approach – which is the core transformational driver of the project, involving use of biodiversity and ecosystem services to assist people to adapt to climate change - is fully aligned with Malawi's Updated Nationally Determined Contributions (NDC), 2021. EbAM will also follow a food system approach – that will aim to create linkages between farmers benefiting from EbA and national and regional/international value chains. Thus combined, ILM, EbA and food systems interventions would yield social sustainability, together with environmental sustainability and resilience – hence delivering on GCF impacts ARA1, ARA2, ARA4 and MR4.

3. EbAM's scalability, replicability and sustainability will be enabled by different factors, including: (i) the integration of EbA in village- and catchment-level planning processes, farmer field school (FFS) programs and national policies, contributing to the creation of an enabling environment around EbA, which will benefit other projects and programs, (ii) incentives to the private sector to partner with EbA producers through the public-private-producers partnerships approach, (iii) innovative financing mechanisms, such as support to local financing institutions to develop new products for financing EbA, with assistance from the MoF/Financial Access for Rural Markets, Smallholders and Enterprise (FARMSE) Programme, (iv) technical assistance to Malawi's National Climate Change Fund (NCCF) and national conservation trust funds, which can facilitate further mobilization of catalytic climate finance, in order to sustain, replicate and expand the scale of EbA investments in other districts/watersheds of the country.

4. The project objective is to increase the climate-change resilience of the most vulnerable rural communities at watershed level in Malawi. The Project will benefit a total of 574,855 people, target 267,500 hectares under EbA planning. Within these 267,500 ha, the project will support about 83,240 hectares over 6 years with direct restoration/ EbA management interventions and generate mitigation benefits of -

2,750,323 tCO₂eq, hence contributing to MR4 (emission reduction). The project will directly contribute to the following targeted results in alignment with the GCF's Updated Strategic Plan (USP-2); T4 Food (270,820 beneficiaries adopting low-emission climate-resilient agricultural practices) and T5 Ecosystems (267,500¹ hectares to be conserved, restored and sustainably managed) through T9 locally-led adaptation approach. The Project will also support dissemination of climate information to communities through SMS and community radios, directly contributing to T3 CIEWS. These impacts will be achieved through the implementation of three interlinked components (described in section B.2): (i) Integrated landscape management, (ii) Resilient livelihoods and food systems, and (iii) Enabling institutional and financial environment.

5. Component 1: The objectives of this component are to increase the climate resilience of watershed ecosystems (Outcome 1.2) and reduce GHG emissions from improved watershed ecosystems (Outcome 1.1). This component will aim at enhancing ecosystems' functions at a landscape (watershed) level large enough to facilitate climate change adaptation at scale. It will use EbA as the main tool to build climate resilience, which will be firmly integrated in local planning through integrated landscape management, at watershed and village levels. The component will improve communities' technical capacity, understanding and know-how, as well as increase stakeholders' engagement, including women, youth and other vulnerable groups', to plan the respective landscape restoration and climate-change adaptation interventions based on EbA (sub-component 1.1). Through the implementation of integrated management plans (sub-component 1.2), the project will contribute to generating public goods, most importantly thanks to well-functioning ecosystems, that are more adapted to extreme climate, and hence increase resilience of landscapes and livelihoods.

6. Component 2: The objective (Outcome 2) of this component is to stabilize productivity and farmers' incomes thanks to more resilient livelihoods and food systems. By enhancing extension services through farmers field schools - FFS (sub-component 2.1), the Project will increase farmers' understanding of technical responses to adapt to changing climatic conditions and enhance their capacity to integrate EbA into their farming systems. The component activities will support small and medium enterprises (SMEs), producers organisations (POs) and farmers' groups within the local food system to access markets (sub-component 2.2) and finance – such as village savings and loans associations, micro-finance institutions and banks (sub-component 2.3), which are some of the key barriers to EbA adoption. The component's interventions, by boosting nature-positive food production and building resilience to vulnerabilities shocks and stresses, will contribute to build more resilient food systems at local level.

7. Component 3: The objective (Outcome 3) of this component is to enhance the enabling environment (finance and policies) to sustain, replicate and scale-up climate resilient watershed ecosystems and agriculture practices. It will contribute to ensure the sustainability of interventions promoted under components 1 and 2. This component will address the financial and policy barriers of low and volatile investments in integrated landscape management, as well as the need to propose innovative solutions (support to the National Climate Change Fund, NCCF and local national conservation trusts; leveraging private sector experience on carbon credits with Climate Asset Management – CAM and the Restore Africa Program) to attract more climate finance (sub-component 3.1). The integration of EbA in national plans will allow replication and scale-up of EbA through other projects and programmes. In addition, interventions mainstreaming and deep-rooting EbA in national policies and investment plans (sub-component 3.2) will bring the EbA agenda at sectoral policies level – for massive-scale impact and sustainability.

8. The project will be executed by FAO, together with the Government of Malawi acting through: (i) the Ministry of Agriculture – MoA (through the Department of Land Resources Conservation - DLRC), (ii) the National Local Government Finance Committee (NLGFC) and, (iii) the Ministry of Finance and Economic Affairs (through the FARMSE Programme), in a co-execution modality to deliver the project activities. With FAO's technical support, MoA will implement technical activities at districts level, together with all the actors of the decentralized local government system. NLGFC, constitutional body with the mandate to support local governments, will provide the procurement services to the Project, for an increased sustainability and ownership by districts. MoF will execute component 2.3 on access to finance

through FARMSE. During implementation, in addition to the above executing entities (EE), the project will also engage relevant government counterparts from MoA, Ministry of Climate Change and Natural Resources (MoCCNR), NGOs, knowledge institutions and training centers, local non-profit conservation trusts, finance service providers and the private sector (e.g. Malawi Industrial & Agricultural Investment Corporation – MAIIC).

9. Total Project costs are 53.22 million USD, including: (i) 24.60 million USD for component 1, (ii) 22.50 million USD for component 2, (iii) 1.18 million for component 3, (v) 2.32 million for M&E and (vi) 2.62 million for project management. In addition to the 42.81 million USD grant requested, the Ministry of Finance and Economic Affairs (MoF), the Ministry of Agriculture (MoA), and FAO will provide co-financing for a total amount of USD 10.42 million.

10. This annex is the feasibility study and presents in detail the Project. It is divided in 6 parts, namely: (i) Context Analysis, (ii) Policy and Institutional Framework, (iii) Mapping of relevant Projects, (iv) Adaptation Barriers, (v) Project Justification, (vi) Implementation Arrangements. Three Appendices are attached to the Feasibility Study: (i) a list of EbA solutions (Appendix 1); (ii) a Market Assessment (Appendix 2); and (iii) an Excel summarizing beneficiaries calculations (Appendix 3).

Part 1. Context Analysis

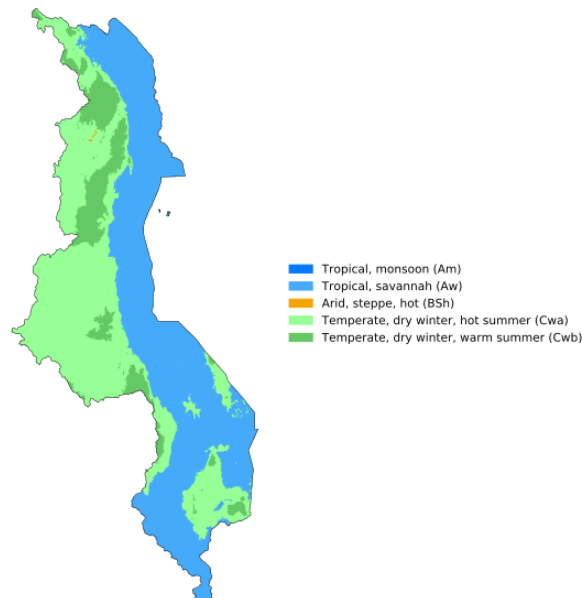
1.1. Climate change exposure in Malawi: observed and future trends

CLIMATE CHARACTERISTICS

11. Malawi has two climates, tropical and temperate. It also has two seasons, rainy (October-April) and dry (May-September).² The country is roughly divided into three zones by temperature and humidity, which are greatly influenced by altitude: semi-arid and warm south; sub-humid and cool north; and the intermediate central region.³ The climate in Malawi varies significantly over space, owing to the fact that it is in a climatic transition zone between East and Southern Africa⁴ and also because its landscape is wide ranging. According to Köppen-Geiger Classification, two climates dominate the country: tropical monsoon climate (Am); and temperate climate with dry winter and hot summer (Cwa) mottled with temperate climate of dry winter and warm summer (Cwb) (Figure 1).

12. Some important determinants of precipitation in Malawi are not well understood and hence not integrated in the Global Circulation Models. The El Niño-Southern Oscillation (ENSO)⁵ and the Indian Ocean Dipole (IOD)⁶ do not explain all rainfall, which implies that regional factors, such as the Angola Low are also important. Angola Low is a key feature of the Southern Africa wet season and influences precipitation across the continent.⁷ In spite of its importance, its inter-annual dynamics and relationship with ENSO are not well understood.⁸ The existing Global Circulation Models have not yet integrated local convection in southern Africa, which play a significant role in rainfall in the region⁹ and is one of the driving mechanisms of Angola Low.¹⁰ In addition, large waterbodies, such as Lake Malawi, are significant components of water cycle but not accounted for in regional climate models.¹¹ This state of the art has resulted in agreement on future temperature, but widely divergent rainfall scenarios.¹²

Köppen-Geiger climate classification map for Malawi (1980-2016)



Source: Beck et al.: Present and future Köppen-Geiger climate classification maps at 1-km resolution, Scientific Data 5:180214, doi:10.1038/sdata.2018.214 (2018)

Figure 1 - Köppen-Geiger Classification of Malawi (1980-2016)¹³

CLIMATE EXPOSURE

13. The Department of Climate Change and Meteorological Services under the Ministry of Natural Resources and Climate Change of Malawi used 20 Coordinated Regional Downscaling Experiment (CORDEX) models that were bias corrected.¹⁴ A simple delta method was employed to remove systematic errors emanating from limited spatial resolution, simplified physics and thermodynamic processes. The ensemble mean of the outcomes of the 20 CORDEX models was presented as the projection along each of two Representative Concentration Pathways 4.5 (an intermediate emission, reaching approximately 650 ppm CO₂-equivalent in the year 2100 without ever exceeding that value)¹⁵ and 8.5 (business as usual scenario). The trends and patterns of temperature and rainfall in the near century (2011-2040) and mid-century (2041-2070) obtained were compared with historical trends (1961-2020).

14. **Temperature is rising and aridity is intensifying¹⁶ with increasing variability in precipitation.** The mean annual temperature has increased by 0.2°C at an average rate of 0.04°C per decade since 1971, and the trend is gathering pace.¹⁷ Increases in mean temperature and extreme heat have been observed with medium to high confidence in East Southern Africa.¹⁸ The upward trend of the historical annual maximum temperature was the largest for Dedza and Kasunga districts¹⁹. Annual rainfall for the nation does not show statistically significant upward or downward trends.²⁰ The number of rainy days decreased in many districts and increased in some, while that of dry spells decreased in January and increased in February (Figure 2).²¹ The onset of the rainy season was delayed by 8-14 days and the cessation date had advanced in 1991-2020 (Figure 3 and Figure 4) relative to 1961-1990, with small areas exhibiting changes in the opposite direction.²² Decadal rainfall variability contributed to 19% of the overall variance in the Lake Malawi-Shire basin.²³ The likelihood of historical drought²⁴ was dominated by changes in the mean, not trends, in climate models.²⁵ Rainfall has been exhibiting increased spatial,²⁶ inter- and multi-annual variability.²⁷ The negative changes in historical standardized precipitation²⁸ were most significant in Nkhata Bay, Karonga and eastern Rumphi districts²⁹.

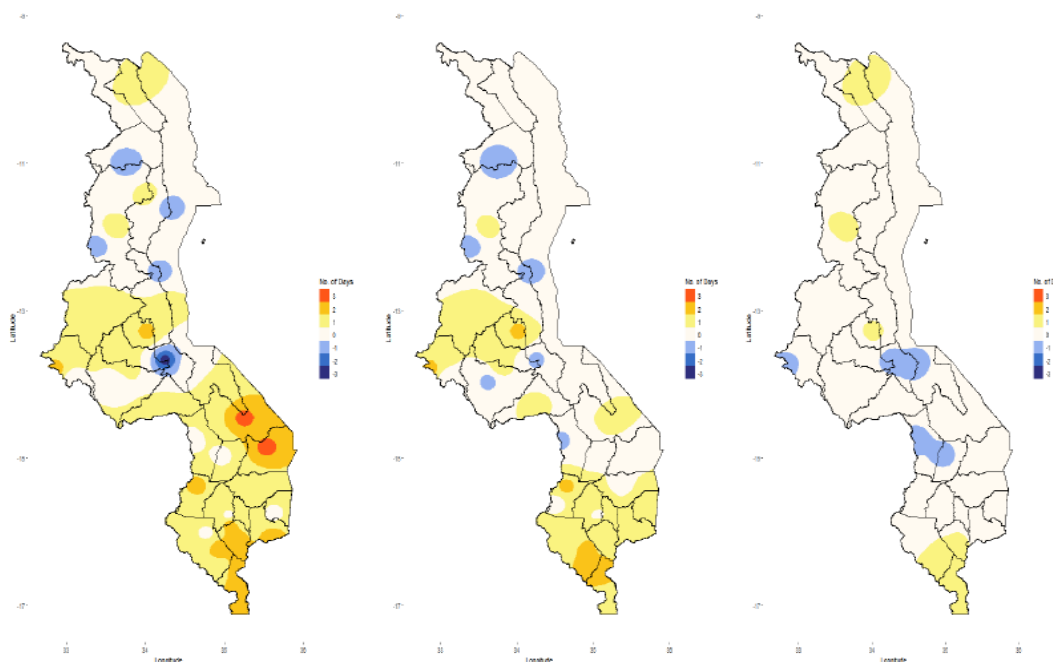


Figure 2 - Changes in Longest Dry Spells in February (1991-2020) Relative to 1961-1990 (left), 1971-2000 (center) and 1981-2010 (right)³⁰

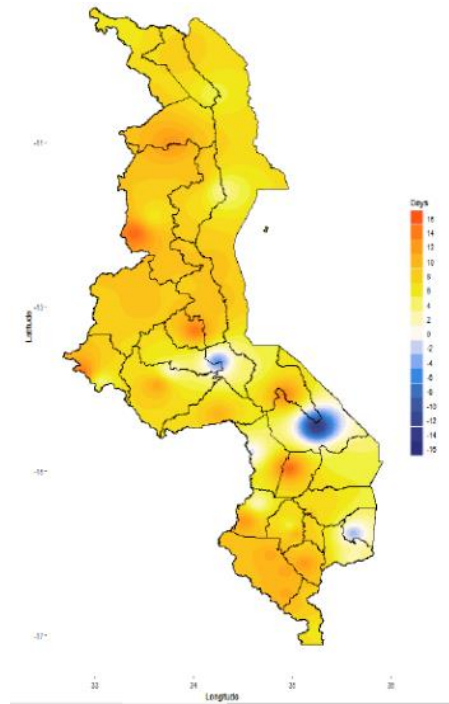


Figure 3 - Comparison of Mean Onset of Rainy Season (1961-1990 and 1991-2020)³¹

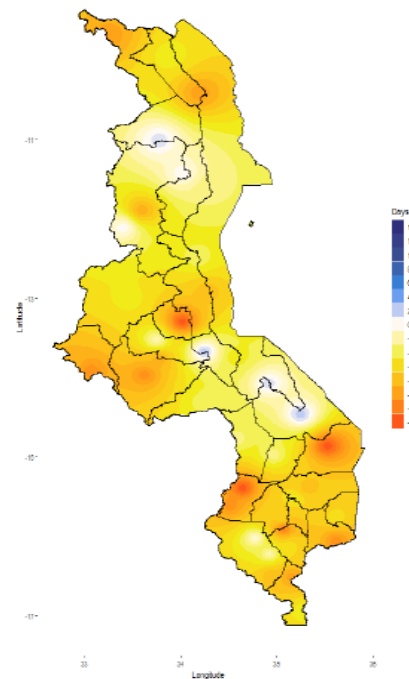


Figure 4 - Comparison of Mean Cessation of Rainy Season (1961-1990 and 1991-2020)³²

15. Further increases are projected for temperature and rainfall variability. The maximum temperature is expected to increase by 0.3-3°C under the Representative Concentration Pathway (RCP) 4.5, but can increase more than 4°C under RCP 8.5 by the end of the century (Figure 5 and Figure 6 show the changes in the absolute maximum and absolute minimum temperatures, respectively). A larger increase in maximum temperature is projected in winter than summer for both RCPs 4.5 and 8.5.³³ While the maximum

temperature will climb fastest in the central region, the minimum temperature increase in summer is faster and more pronounced in the south.³⁴ Rainfall variability is expected to increase in all time scales: daily, seasonal and inter-annual.³⁵ Delay in the onset of the rainy season by at least 10-12 days is foreseen in the near century (2021-2040) under RCP 4.5, with the largest effects in the southern highlands and lake shore areas.³⁶ The rainy months of December-March are to see about 5% rainfall increase in the entire country under both RCPs 4.5 and 8.5. Rainy season cessation may be delayed by 2-5 days by mid- and end-century under RCP 4.5, although some areas in the highlands may experience early cessation.³⁷ The dry spells in February in near century under RCP 8.5 (2011-2040) would be most numerous in Chikwawa and Nsanje, Thyolo, Mangochi and Machinga districts.³⁸

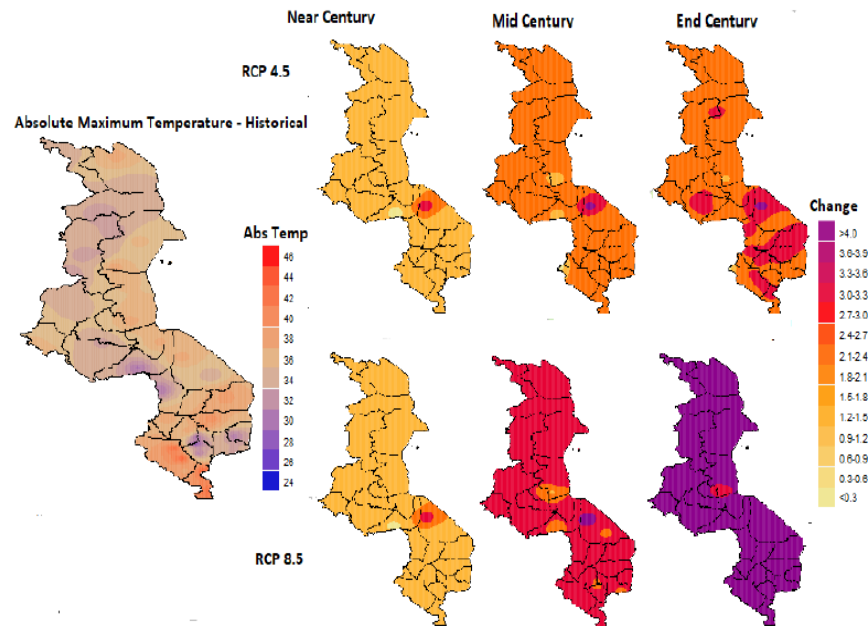


Figure 5 - Projected Changes in absolute Maximum Temperature (annual) ³⁹

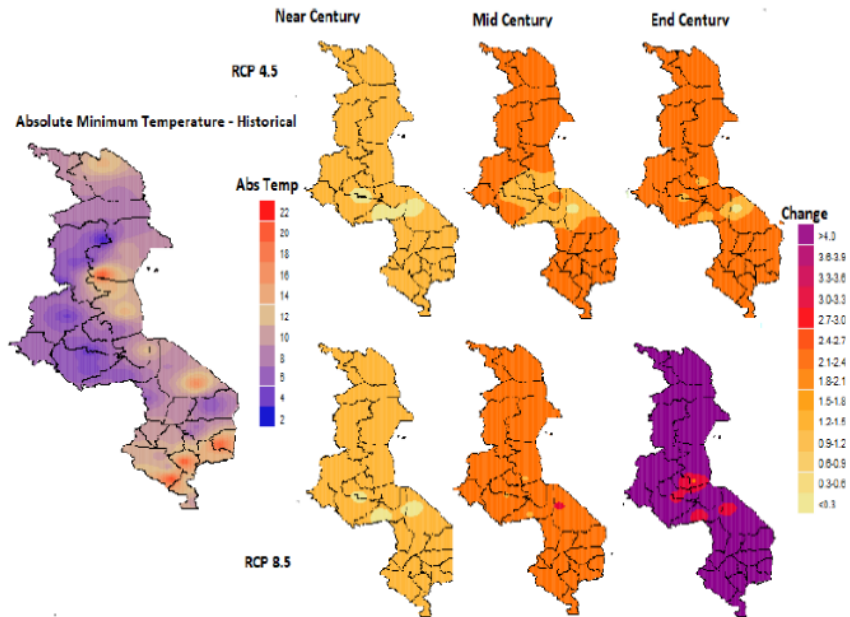


Figure 6 - Projected Changes in absolute Mean Minimum Temperature (annual) ⁴⁰

16. **Climate change is intensifying the potency of climate drivers (ENSO⁴¹ and IOD)⁴² and cyclones.⁴³** The ENSO effects appear to have been already compounded by warmer background state;⁴⁴ the ENSO variance in the last century was probably higher than in the distant past.⁴⁵ Occurrences of strong ENSO events may increase by the end of the century under the usual emission scenarios.⁴⁶ The mean state of IOD is changing in favor of increased frequency of wind and oceanic current reversal, which means more of extreme positive-IOD events.⁴⁷ This in turn suggests a higher frequency of extreme climate and weather events in the regions affected by the positive IOD,⁴⁸ about once every six years, which is almost three times as often as it was in the last century.⁴⁹ Droughts will continue to be more frequent and aridity to increase.⁵⁰ The rainfall variability in a warmer climate is likely larger even without accompanying changes in the sea-surface temperature;⁵¹ the higher the greenhouse gas emissions are, the greater the variability would be. Considering the inherent climate variations in the country, the effects of extreme weather could differ over short distances. Hydrological droughts have been less frequent than meteorological droughts thanks to Lake Malawi, but watershed degradation and climate change itself are threatening this function⁵².

17. **Climate-change induced disasters are rapidly increasing.** Disasters are expected to continue to increase due to climate change in Malawi,⁵³ one of the most impacted countries in the world. The number of climate-related disasters has been climbing significantly, and roughly 80% of 240 disasters since 1990 – floods, strong winds, droughts, etc. – have been attributed to climate change.⁵⁴ The Global Climate Risk Index 2017⁵⁵ ranked Malawi the 3rd most vulnerable, due to the worst floods in 50 years caused by a cyclone and a tropical storm in 2015.⁵⁶ The floods in 2015 were caused by two weather events: Cyclone Bansi and Severe Tropical Storm Chedza. The state of disaster was declared in 15 out of 28 districts in the country.⁵⁷ Roughly 638,000 people have been affected⁵⁸ and 230,000 displaced in Malawi,⁵⁹ with more than 170 000 still displaced months later.⁶⁰ Nearly 90,000 ha of crop land was destroyed, close to 40,000 fish lost, slightly less than 200,000 livestock perished.⁶¹ More than 500,000 houses and much of public infrastructure were damaged or destroyed.⁶² The same Index ranked Malawi the 5th most impacted in the world for 2019,⁶³ reflecting the damages by Cyclones Idai and Kenneth. More than half of 28 districts in the country were directly impacted by the Cyclones. It was estimated that over 60,000 hectares of crop land and approximately 23,000 livestock animals of more than 250,000 farming households were badly affected. The damages by the two Cyclones⁶⁴ in 2019 included: 125,400 displaced or rendered homeless; and nearly 85% of hydroelectric power capacity and other infrastructures lost. Health care for patients with chronic

illnesses such as HIV and tuberculosis were disrupted.⁶⁵ It is thought that IOD had a hand in the monsoon rainfall of 2019 and that the anomalies in the sea surface temperature of the Pacific Ocean were also essential.⁶⁶ The extreme intensities of recent cyclones are considered results of climate change.⁶⁷

18. The climate context in Malawi can be summarized as the confluence of spatial variations accentuated by climate change (Figure 7). The country's geography and location with respect to global circulation of atmosphere and oceans have resulted in patches of weather and climate throughout the country. In 2021, some districts experienced climate greatly favorable to agriculture, but some pockets in these districts experienced severe dry spells and earlier-than-normal tailing of rainfall.⁶⁸

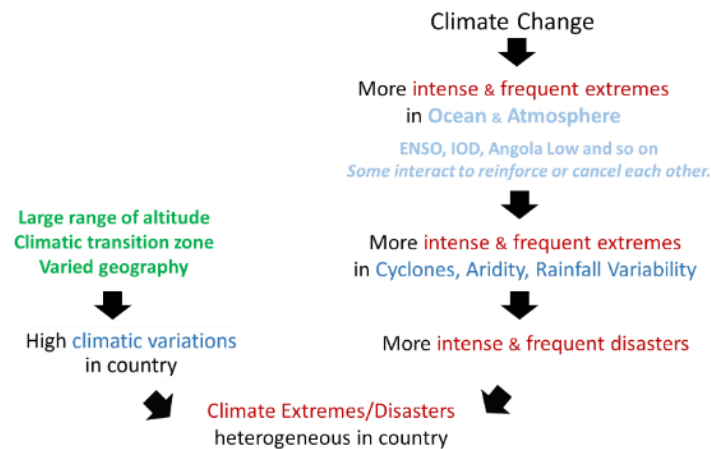


Figure 7 - Climate Change Context of Malawi

1.2. Country context and challenges: sensitivity and adaptive capacity to climate change

CLIMATE SENSITIVITY

19. Malawi is very sensitive to climate change because of high population density and growth, large rural population in deepening poverty, high food insecurity and precarious health situation. Malawi is a landlocked country with a population of 19 million, growing at the annual rate of 2.7% as of 2020. Population density is extremely high all over the country, averaging 203 persons/km², compared to 48 persons/km² in Sub-Saharan Africa. Less densely populated areas are found in: Rumphi (western part); Nkhhotakota; Kasuna; Machinga; Mulanje; Chikwawa; and Nsanje districts.⁶⁹ More than half of the total population was below the national poverty line in 2016, a bleaker situation than in 2010. Approximately 84% of the population live in the rural areas,⁷⁰ where poverty rates are the highest.⁷¹

20. The COVID-19 pandemic is estimated to have pushed an additional 1.6 million people into poverty, mostly in rural areas.⁷² According to the Global Hunger Index 2021, the country is ranked the 36th most serious in terms of hunger out of 116 countries.⁷³ The pandemic caused disruptions to agricultural input (fertilizer, seeds and labor) and output supply chains and raised the prices of transport, compounding the negative effects on agricultural production brought about by drought, flooding and pest invasion such as the fall armyworm.⁷⁴ By September 2021, Gross Domestic Product (GDP) declined by 6.1 -7.7%, of which more than one third originated from the food system, although food supplies were exempt from lockdown restrictions.⁷⁵ According to an IPC Chronic Food Insecurity Report in 2022, approximately 5.4 million people in Malawi in rural and secondary urban centres faced Moderate or Severe chronic food insecurity (IPC CFI Levels 3 and 4) due to poverty and recurrent shocks, among other drivers.⁷⁶ In terms of food security in rural Malawi, the impacts of natural disasters – which are projected to intensify in frequency and magnitude – are considered to dwarf those of COVID-19;⁷⁷ the rural areas are poorly connected to markets to the extent that lockdown restrictions mattered little to food security.⁷⁸

21. **Climate change will deepen the fragility of the health system and the vulnerabilities in Malawi.** In 2019, most deaths were caused by communicable, maternal/neonatal and nutritional diseases.⁷⁹ The incidence of these diseases is expected to increase with climate change, especially among the marginalized groups.⁸⁰ The cases of climate sensitive diseases, such as diarrhoea and malaria, are projected to climb in addition to those of malnutrition.⁸¹ Climate stresses and shocks will lead to displacements and migration from rural areas, which will likely exacerbate the state of health and sanitation in the cities.⁸² Women and girls are already more disadvantaged than men and boys in resources access and decision-making power; they will be disproportionately more affected by climate change, especially with respect to sexual and reproductive health and rights.⁸³ Hikes in child marriages and dropping out of schools among girls have been already observed and attributed to climate change, e.g., drying of Lake Chilwa.⁸⁴ Women are increasingly engaging in transactional sex, particularly during the times of food insecurity, and exposing themselves to HIV/AIDS; the prevalence rate among Malawi women was already high at 9.6% in 2021.⁸⁵ The incidence of gender-based violence and abuse is thought to have increased and to continue to increase due to climate change.⁸⁶

22. **The conflict between Ukraine and Russia has aggravated food insecurity and poverty through the price hikes of fertilizer and fuel.** Income inequality is expected to rise. The food exports of the two countries – Ukraine and Russia – amounted to more than one-tenth of total calories traded in the world, with most notable contributions in major cereals and oilseeds, including wheat, barley, sunflower and maize.⁸⁷ Due to the conflict, the exports from the concerned countries have been greatly interrupted to impact the food supply and prices worldwide.⁸⁸ As of April, planting of barley in Ukraine had been disrupted and that of maize, wheat and oilseeds was expected to follow.⁸⁹ The prices of imported wheat and edible oils are increasing, but they are not part of a consumption basket of a typical household in Malawi.⁹⁰ It is the price increases in fertilizer and fuel that are expected to affect the country's GDP and agriculture sector; of 2.3% contraction in real GDP of the agriculture sector envisaged, 2.1% is attributed to fertilizer and nearly all the rest to fuel.⁹¹ In April 2022, it was reported that farmers were paying 27,000 MKW (equivalent to USD 33.35 at the time) per 50-kg bag of fertilizer, which would reach 70,000 MKW in December of the same year.⁹² A 50-kg bag of urea that was priced at USD 21 in 2020 cost almost USD 55 in August 2022,⁹³ validating the prediction made in April. As the real GDP of the country falls, national household consumption is expected to shrink, with larger impacts on poorer and rural households and leading to an increase in inequality.⁹⁴

23. **Water availability depends on watersheds, which catch and retain rainwater on land and gradually release it to nearby waterbodies. They are seriously degraded in Malawi. As a consequence, the country's capacity to overcome ENSO effects, including those on agriculture, has diminished.** Main factors leading to watershed degradation include soil structure and erodibility; climate (rainfall intensity and temperature); reduction in land and vegetation cover-influenced by type of land use; and topography (influencing the speed carrying and capacity of runoff). Baseline statistics highlight that the country is rapidly losing two important elements of watersheds: 13% of tree cover was lost between 2000 and 2021⁹⁵ and soil loss occurred at the rate of 0.90-19.8 ton/ha/year in 2014.⁹⁶ The annual cost of land degradation in Malawi is estimated at 320 million United States dollars (USD). This is equal to 7% of the country's gross domestic product (GDP). In Malawi, 1.3 million people were living on degrading agricultural land, bringing the share of rural residents who inhabit degraded agricultural land up to 11% of the total rural population, as reported by UNCCD⁹⁷. Between 2000 and 2014, accelerating soil loss was observed mostly in the north.⁹⁸ According to the historical Average Revised Universal Soil Loss (RUSLE) 2021 (Figure 12),⁹⁹ the loss has been most prominent in Chitipa, Karonga, Rhumpi (eastern part), Nkhata Bay, Ntchisi, Dowa (eastern part), Dedza, Ntcheu, Thyolo, Mulanje and Zomba (western part) Districts (see baseline map in Figure 12). Heavy rains have contributed to soil loss¹⁰⁰ and are expected to contribute more under climate change according to a study based on Soil Loss Estimation for South Africa (SLEMSA).¹⁰¹ The three regions investigated (North, South and Central) differ in their topographical characteristics, but all indicated higher soil loss under the increased rainfall scenario than the land cover loss scenario.¹⁰² The predicted soil losses were the highest in the South and the lowest in Central in conformance with the observations. ENSO is one of the important

determinants of rainfall distribution and hence crop yield in East and Southern Africa^{103[66]}; their effects are expected to become more dipolar with the changing ¹⁰⁴¹⁰⁵

24. On the one hand climate change is posing difficulties to agriculture, and on the other hand agriculture itself is contributing to watershed degradation. The national dialogue on food systems underscored the importance of protecting watersheds. Soil moisture eases the drought effects on crops,¹⁰⁶ but has become increasingly unreliable with degradation of watersheds and soil in addition to intensification of aridity caused by climate change. At the same time agriculture has been causing degradation of forest landscapes; for their restoration, agricultural techniques are considered relevant to the largest proportion of the national land surface at 39%, and 36% of land could benefit from improved forest management techniques.¹⁰⁷ Soil and water conservation concerned 11% of land surface, community forest and woodlot management 8% and river and streambank restoration 0.4%.¹⁰⁸ A national dialogue on food systems in Malawi was held in 2021 to contribute to the United Nations Food Systems Summit in the same year.¹⁰⁹ It emphasized the importance of protecting ecosystems, especially watersheds and their soil functions, for sustainable food production.¹¹⁰ Degradation of watersheds has also affected nature's capacity to attenuate droughts and floods, which are more intense due to climate change. The government sees forest landscape restoration as essential in climate resilience, agricultural productivity and food security.¹¹¹

CLIMATE ADAPTIVE CAPACITY

25. Literacy rate and human development (UNDP Human Development Index) are low, both of which limit adaptive capacity.¹¹² A potential for dynamic climate adaptation exists, as the median age of the total population is 17 years¹¹³, and the youth are as a rule forward-looking and quite receptive to social changes. The literacy rates were 65.9% for women and 71.6% for men in 2018. The lowest rates were found in: Lilongwe, excluding the capital; Salima; Dezda; Mangochi; Machinga; Chikwawa; and Nsaje districts.¹¹⁴

26. Increasing emigration¹¹⁵ is indicative of limited adaptation to evolving socioeconomic conditions, notably due to climate change. Emigration and remittances from the diaspora are thought to be increasing rapidly;¹¹⁶ remittances from Malawians in diaspora is thought to have increased from 0.1% of GDP in 1994 to 0.67% in 2012,¹¹⁷ which is the latest information available on the subject. The emigration rate has been the highest in: Nkhata Bay; Mzimba; and Mangochi districts.¹¹⁸

27. A handful of crops on a small plot define most of Malawian agriculture (see section 1.3.2.). Productivity is low due to subsidies in place and insufficient adaptation to climate change. The adaptation strategies currently adopted by farmers are unsustainable. In 2020, agriculture, forestry and fishing were responsible for value-addition of over 20% of GDP.¹¹⁹ Roughly 90% of the population was estimated to be engaged in agriculture,¹²⁰ cultivating over 2.5 million hectares of land.¹²¹ The agriculture sector is comprised of two production systems: smallholder, which produced more than 70% of agricultural GDP in 2016; and estate.¹²² The smallholders grow staple crops (maize, rice, cassava, pearl millet, sorghum, sweet potato, potato and cowpeas) and cash crops (mainly tobacco, as well as tea, coffee, groundnuts and soybeans) (see Section 1.3.2 below for cropping systems). Land holdings averaged 0.61 ha per household in 2016.¹²³ Tobacco, the country's main cash crop and dominant export commodity for which smallholder farmers account for 95% of the total production, has had negative impacts on ecosystems, because of its contribution to deforestation¹²⁴, land degradation¹²⁵ and loss of biodiversity¹²⁶. The degree of diversification had decreased between the cropping seasons in 2004/05 and 2010/11,¹²⁷ and less than a third of farmers grew three or more categories of crops as of 2019.¹²⁸ Agricultural productivity has been below potential¹²⁹ due to input subsidies¹³⁰ and rain-fed agriculture without adaptation to the evolving climate reality; 65% of all households and 84% of rural households experienced food insecurity for one month or longer in 2013.¹³¹ Climate change has encouraged the prevalence of existing pests, diseases and weeds, as well as the emergence of new ones.¹³² The most common methods to control pests and weeds in Malawi are pesticides¹³³ and herbicides,¹³⁴ both of which result in soil degradation and fertility loss. Recent investments include those in high-value crops with irrigation, such as sugarcane and rice, among small and medium scale farmers.¹³⁵

28. Non-timber forest products (NTFP) are of significant importance in achieving food and nutritional security and also for income generation.¹³⁶ Their importance increases in times of socioeconomic or environmental shocks, including agricultural failure; for vulnerable households, the demand for NTFP is expected to increase with climate change. Fruits, vegetables, medicinal products, mushrooms and honey are consumed in southern Malawi.¹³⁷ Up to 75% of the population in southern Malawi used NTFP in 2014, some as food and others for various household needs, and nearly 40% of the households were involved in trading of one or more NTFPs with high return per labor input.¹³⁸ Forest degradation thus affects the rural livelihoods not only indirectly through water scarcity, soil degradation, less microclimate regulation and poor pollination, but also directly by reducing the sources of alternative food, livelihoods and additional income.

29. Watershed management and other adaptation measures have been scarce so far.¹³⁹ Farmers have adopted various strategies in the face of climate change, most of which are limited in nature, scope or both.¹⁴⁰ The ridge and furrow cultivation widespread in Malawi was introduced by the British colonial administration as a means to combat soil erosion¹⁴¹ and has been appreciated for its capacity to control erosion and weed.¹⁴² The Ministry of Agriculture has been promoting conservation agriculture (CA) as a tool for alleviating environmental and climate change impacts of agriculture,¹⁴³ with a focus on soil erosion.¹⁴⁴ As of 2016, the three CA principles – (i) continuous minimum tillage, e.g. no-ridging, (ii) permanent ground cover, and (iii) crop rotation/intercropping – have not been practiced concurrently as required.¹⁴⁵ The method applied was also contradictory, as herbicides were promoted to control weeds,¹⁴⁶ which in turn further degraded soil. Extension materials are currently not harmonized, causing confusion among the farmers.¹⁴⁷ At the same time, soil conservation should be tailored to each social and ecological conditions, but that has not been the case to date.¹⁴⁸ As of 2019, conservation agriculture had been applied to 1-2% of cultivated land despite its promotion at a national scale.¹⁴⁹

30. The political economy has created a challenging environment for private sector development, especially in the agriculture sector that is characterized by vulnerability to climate change and limited transformation policies. According to the World Bank Doing Business Report and Country Profile 2022, Malawi's economy is largely defined by:

- Agriculture sector with limited growth potential, high susceptibility to weather shocks and tendency to create food insecurity;
- Trade policies and a business environment that continue to impede investment and commercialization, as well as erratic electricity supply that limits value addition and slows economic diversification;
- Low public investment, offset by large subsidies to maize production;
- Weak fiscal management and economic policies that have contributed to recurring and increasing fiscal deficits, which have been largely funded by high-cost domestic borrowing and resulted in a surge in public debt.

The current economic and market situation in Malawi is largely defined by the impacts of COVID-19 mitigation measures and the Ukraine-Russia conflict on global trade. Both have constrained growth, further impoverished the consumers and exacerbated the price sensitivity of consumer markets. Without a convincing business case, the economy represents a 'high-risk' environment for private investors.

31. Smallholders and agri-MSMEs are almost exclusively dependent on community based organizations for funds. The formal financial sector with higher financial and technical capacities have recently started paying attention to these potential clients, including EbA investments under EbAM. The formal financial sector in Malawi comprises eight commercial banks, 41 financial cooperatives (SACCOs),¹⁵⁰ 66 microfinance Institutions (MFIs), two development finance institutions and 14 insurance companies, all regulated and supervised by the Reserve Bank of Malawi (RBM). According to the RBM 2021 report, the financial sector is overall sound and most of the institutions comply with the prudential ratios and regulatory requirements. The financial inclusion rate was estimated at 58% in 2019¹⁵¹ (with 37% of women and 32% of rural populations accessing formal financial services). Smallholder farmers and agri MSMEs are among the most underserved segments by the regulated formal financial institutions (FFIs); their main sources of funds are the informal community based financial organizations (CBFOs), which are

ubiquitous in rural areas and provide simple financial services in locations convenient to such clients. However, CBFOs have limited financial and technical capacities to provide agricultural loans adapted to the needs of smallholders and agri-MSMEs. FFIs have had scant interest in financing them, but the recent trend shows a growing appetite and loan portfolio for this clientele as long as: production and market risks are mitigated; clients' lack of business skills are addressed (which is resolved through partnerships with private and public sectors); and access to credit lines and/or guarantee schemes are secured. The FFIs in Malawi have little experience in climate adaptation financing, but many have expressed interest to develop adapted products to finance EbA investment needs of EbAM target groups, with technical support from the Project.

GREENHOUSE GAS EMISSION PROFILE

32. According to the Nationally Appropriate Mitigation Actions (NAMA) 2015, the category of Agriculture, Forestry and Other Land Use (AFOLU) was responsible for over 95% of total greenhouse gas emissions.¹⁵² The AFOLU emissions easily surpassed Energy (2.9%), Waste (1.7%) and Industrial Products and Other Products Use (0.3%).¹⁵³ The Business As Usual (BAU) scenario as of 2015 indicated that the dominance of AFOLU will be eclipsed somewhat by the two coal power plants to become operational in 2020, but still accounting for as much as 83% in 2030.¹⁵⁴ The NAMA acknowledged the gravity of deforestation and proposed forest regeneration and reforestation as mitigation actions based on existing governmental programmes. The efficacy of the programmes against continuing timber harvesting and forest conversion into agricultural land is unknown. The NAMA does not mention decaying biomass from land flooded by hydro reservoirs (the National Energy Policy 2018 envisions construction of eight reservoir hydroelectric power stations totalling 1092MW by 2023),¹⁵⁵ which is likely much more potent as an emission source in humid tropical climate.¹⁵⁶ Land use, other than agriculture, had turned from carbon sink to carbon source around 2014, emitting 1.96 million tCO₂e in 2017.¹⁵⁷ In sum, the BAU amount of emissions in 2030 is likely considerably higher than the latest available estimate from 2015 of 35 million tCO₂e.¹⁵⁸

33. The two major sources of emissions in FOLU are expansion of agriculture and settlements and unsustainable fuelwood extraction.¹⁵⁹ The potential of crop agriculture in mitigation is likely larger than currently estimated. The Updated Nationally Determined Contributions (NDC)¹⁶⁰ from 2021 did not include forestry and other land uses (FOLU) in its baseline and instead provided an indicative reduction contribution in 2040 through afforestation (18.44 million tCO₂e), agroforestry (9.14 million tCO₂e), sustainable forest management (31.38 million tCO₂e) and riparian restoration (0.55 million tCO₂e), a total of 34.61 million tCO₂e, covering an area of up to 2 million hectares. Nearly 80% of the funds needed for mitigation in FOLU is conditional on international support: 5% of BAU scenario in 2040 with unconditional funds and 51% with conditional funds. The NDC 2021 separated agriculture and FOLU and identified agriculture as the largest emitting sector with 5.07 million tCO₂e/year, 54% of total when FOLU is excluded: 39% of total from livestock and 15% from crop management. Under crop management, practices such as efficient use of fertilizer (including crop residue and manure), crop rotation and improved tilling were proposed for reducing 9.9 million tCO₂e BAU in 2040 to 1.6 million tCO₂e. The 2021 IPCC report¹⁶¹ emphasized the necessity to direct greater attention to non-CO₂ greenhouse gases with shorter-lives but higher warming effects for swift and efficient mitigation of climate change; the three key non-CO₂ drivers considered were methane, nitrous oxide and sulphur dioxide. As the target temperature set by the Paris Agreement approaches, the importance of gases with these characteristics has increased and will continue to do so, but the 100-year Global Warming Potential (GWP₁₀₀), which is widely used by UNFCCC and national governments, underestimates the climate change potential of such gases.¹⁶² Considering that nitrous oxide dominates the crop agriculture emissions, the potential of crop agriculture in mitigation is likely much larger than estimated in the NDC.

1.3. Vulnerability to the impacts of climate change

34. The main climate effects projected are increases in temperature, aridity, rainfall variability and extreme events, which will translate into limited and modified water availability, altering the onset of the


rainy season, increasing water stress and intensifying incidence of pests, diseases, weeds and mycotoxin contamination. Crop yields are dependent on climate in subtle ways, which differ from crop to crop as well as from location to location. A combination of parameters – rather than a single climate parameter – determines yields.¹⁶³ For example, beyond the amount of rainfall, the onset of the rainy season can have significant impacts.¹⁶⁴ The most common responses to climate change include intensification and use of greater amounts of inputs, such as reliance on water from external sources and increased application of fertilizers and other chemicals. Synthetic fertilizer application is becoming increasingly impractical due to its price increase caused by the Ukraine conflict.¹⁶⁵ Moreover, such measures are likely maladaptive,¹⁶⁶ as they can intensify soil erosion under extreme weather and cause eutrophication,¹⁶⁷ soil salinization and soil nutrient losses. Climate-change also exposes the water sector to increasing risks of flood and drought, in addition to changes in the timing of water flow.¹⁶⁸ Mycotoxins (aflatoxins, ochratoxins, fumonisins, etc.) are fungal secondary metabolites that contaminate various feedstuffs and agricultural crops and considered potential sources of major health and economic issues.¹⁶⁹ Aflatoxin-related hepatic diseases are reported in many African countries, and ochratoxin and fumonisin poisoning in humans and animals is widespread in the region.¹⁷⁰ Due to shorter lifespans, mycotoxigenic fungi (which produce various mycotoxins) will adapt faster to climate change than crops, making crops more vulnerable to mycotoxigenic fungi. The projected climate changes in Malawi are thought to render maize more susceptible to aflatoxin contamination.¹⁷¹




35. The impacts of droughts and floods on crop yields have been heavily damaging, especially when the intervals between extreme weather events are short. Pests and diseases are major constraints in agriculture, for which climate change has created a favorable environment.¹⁷² Erratic rains and prolonged dry spells in 2015-2016 delayed the start of the agricultural season by two to four weeks.¹⁷³ Consequently, the crop production in the southern and central regions was estimated 13.4% lower than the previous season 2014-2015, which was already 30% less than the season before due to the severe flooding in 2015.¹⁷⁴ Earlier major droughts (seven during 1980-2012) affected districts across the country; the major crops impacted were maize, potato, groundnut and beans.¹⁷⁵ Highly variable rainfall – heavy or too little rain – induces pest proliferation,¹⁷⁶ and precipitation variability in the country is projected to increase. Floods caused by cyclones and tropical storms have provoked a proliferation of weeds,¹⁷⁷ aphids' attack of kidney beans¹⁷⁸ and outbreak of fall armyworm.¹⁷⁹ Higher temperature and humidity have encouraged diseases among crops and livestock, weed growth and emergence of new pests, diseases and weeds.¹⁸⁰ The incidence of pests and diseases accompanies extreme weather events,¹⁸¹ and its increase is hence foreseen.





36. Crop yield models project varying ranges of impacts, as climate models on rainfall projections do. The climate impacts have differed¹⁸² and will continue to differ on small scales. Both cash and subsistence crops will be affected throughout the country, with varying extents from location to location. The studies on crop yield projections (FAO study based on water balance,¹⁸³ as well as IFAD and FAO studies using EcoCrop suitability model)¹⁸⁴ suggest that the impact will differ by crop (maize, rice, sorghum, cassava, beans, soybean, cowpea, pigeon pea and groundnut) and locality, possibly at a scale smaller than each Agricultural Development District (ADD).¹⁸⁵ The three studies show variations in predictions.¹⁸⁶ These studies and historical records indicate that maize, beans and cassava could be the most affected by climate change, while cowpea, sorghum and soybean could be the least affected (the details are given in Table 1). The methods often promoted for adaptation are intensification, higher reliance on inputs from external sources and grey infrastructure, which deal with one kind of problems at a time and do not have the built-in capacity to repair damages caused by extreme events. The reduced soil fertility – consequence of chemical input use and top soil nutrient loss – is thought to have diminished the ecological resilience in agriculture.


Table 1 - Effects of Climate Change on Major Crops in Malawi

Crop	Predicted Impact on Productivity					
	RCP 2.6	RCP 4.5		RCP 8.5		

	FAO GEAZ (2021) ¹⁸⁷	FAO MOSAICC (2020) ¹⁸⁸		FAO MOSAICC (2020)		FAO GAEZ (2021)	IFAD (2019) ¹⁸⁹
	Yield Change (%)	Yield Anomaly ¹⁹⁰ (ton/ha/year)				Yield Change (%)	Productivity Change (%)
	Mid Century	Near Century	Mid Century	Near Century	Mid Century	Mid Century	Mid Century
Maize 	Slightly positive +5.6	Unsuitability widespread. Low-yielding areas most affected.				Slightly positive +4.0	Moderate (short-maturing) -7.1 Substantial (long-maturing) -21.1
		Slightly negative anomalies, except for a few ADDs (hybrid) Projection range: -1.2~+0.10 Slightly negative anomalies, except for a few ADDs (composite) Projection range: -0.20~+0.10 Slightly to moderately negative anomalies (local) Projection range: -0.20~+0.30	Moderately to substantially negative anomalies in wider areas (hybrid) Projection range: -1.2~+0.10 Slightly to moderately negative anomalies, except for a few ADDs (composite) Projection range: -0.20~0.30 Slightly to moderately negative anomalies (local) Projection range: -0.20~+0.30	Slightly negative to substantially negative, except for a few ADDs (hybrid) Projection range: -1.2~+0.10 Slightly negative anomalies, except for a few ADDs (composite) Projection: -0.05~+1.50 Slightly to moderately negative anomalies (local) Projection range -1.20~+0.30	Slightly to substantially negative anomalies in wider areas (hybrid) Projection range: -1.2~+0.10 Slightly to moderately negative anomalies, except for a few ADDs (composite) Projection: -0.20~+0.30 Slightly to Substantially negative anomalies (local) Projection range -1.20~+4.00		
Rice	N/A	Sensitive to rainfall. High-yielding areas also affected by higher seasonal rainfall variability.				N/A	N/A

	FAO GEAZ (2021) ¹⁸⁷	FAO MOSAICC (2020) ¹⁸⁸		FAO MOSAICC (2020)		FAO GAEZ (2021)	IFAD (2019) ¹⁸⁹
	Yield Change (%)	Yield Anomaly ¹⁹⁰ (ton/ha/year)				Yield Change (%)	Productivity Change (%)
	Mid Century	Near Century	Mid Century	Near Century	Mid Century	Mid Century	Mid Century
		<p>Slightly to moderately negative anomalies, except for a few ADDs (early maturing) <i>Projection range: -1.20~+4.00</i></p> <p>Slightly to moderately negative anomalies, except for a few ADDs (late maturing) <i>Projection range: -1.20~+1.50</i></p>	<p>Slightly to substantially negative anomalies in a wider area (early maturing) <i>Projection range: -1.20~+1.50</i></p> <p>Slightly to substantially negative anomalies in wider areas (late maturing) <i>Projection range: -1.20~+0.50</i></p>	<p>Slightly to moderately negative anomalies, except for a few ADDs (early maturing) <i>Projection range: -1.20~+3.00</i></p> <p>Slightly to moderately negative anomalies, except for a few ADDs (late maturing) <i>Projection range: -0.20~+1.50</i></p>	<p>Slightly to substantially negative anomalies in a wider area (early maturing) <i>Projection range: -1.20~+2.00</i></p> <p>Slightly to substantially negative anomalies, except for a few ADDs (late maturing) <i>Projection range: -1.20~+3.00</i></p>		
Sorghum 	Moderately positive +8.1	Performs well compared to other crops.				Slightly positive +6.6	Slightly negative -7.4
		<p>Slightly negative anomalies <i>Projection range: -0.05~+0.10</i></p>	<p>Slightly negative anomalies <i>Projection range: -0.05~+0.10</i></p>	<p>Slightly negative anomalies <i>Projection range: -0.05~+0.10</i></p>	<p>Slightly to moderate negative anomalies <i>Projection range: -1.2~+0.10</i></p>		
Cassava 	N/A	N/A	N/A	N/A	N/A	N/A	Substantial -25.0
Beans	N/A	Marked by climate resilience.				N/A	Substantial

	FAO GEAZ (2021) ¹⁸⁷	FAO MOSAICC (2020) ¹⁸⁸		FAO MOSAICC (2020)		FAO GAEZ (2021)	IFAD (2019) ¹⁸⁹
	Yield Change (%)	Yield Anomaly ¹⁹⁰ (ton/ha/year)				Yield Change (%)	Productivity Change (%)
	Mid Century	Near Century	Mid Century	Near Century	Mid Century	Mid Century	Mid Century
			Slightly negative anomalies Projection range: -1.2~+0.10	Slightly negative to moderate anomalies Projection range: -1.2~+0.30	Slightly negative anomalies Projection range: -0.05~+0.30	Slightly negative anomalies Projection range: -0.05~+0.50	
Soybean 	Slightly negative -2.4	Marked by climate resilience.				Slightly negative -5.8	N/A
		Slightly negative anomalies Projection range: -0.20~0.00	Slightly negative to moderate anomalies Projection range: -0.20~+0.10	Slightly negative anomalies Projection range: -0.10~+0.10	Slightly negative anomalies Projection range: -0.10~+0.10		
Cowpea 	Slightly negative -4.6	N/A	N/A	N/A	N/A	Slightly negative -9.1	Slightly negative -1.6
Pigeon Pea 	Slightly negative -3.8	N/A	N/A	N/A	N/A	Slightly negative -5.2	Substantial -23.5
Groundnut	Slightly negative	Climate resilient at national level.				Slightly negative	Slightly negative

	FAO GEAZ (2021) ¹⁸⁷	FAO MOSAICC (2020) ¹⁸⁸		FAO MOSAICC (2020)		FAO GAEZ (2021)	IFAD (2019) ¹⁸⁹
	Yield Change (%)	Yield Anomaly ¹⁹⁰ (ton/ha/year)				Yield Change (%)	Productivity Change (%)
	Mid Century	Near Century	Mid Century	Near Century	Mid Century	Mid Century	Mid Century
	-3.7	Slightly negative anomalies, except for a few ADDs <i>Projection range:</i> -0.20~+0.10	Slightly to moderately negative anomalies, except for a few ADDs <i>Projection range:</i> -0.20~+0.10	Slightly negative anomalies, except for a few ADDs <i>Projection range:</i> -0.05~+0.10	Slightly to moderately negative anomalies, except for a few ADDs <i>Projection range:</i> -0.20~+1.50	-8.5	-0.7

37. The effects of climate change are likely to trigger a downward spiral in agriculture and of the rural socio-economy: reduced agricultural productivity will spill over to food and nutritional security, livelihoods, human health and social fabric, all of which are intertwined. The most common methods to control pests and weeds in Malawi are pesticides¹⁹¹ and herbicides,¹⁹² without which sufficient yields are unattainable under the conventional agricultural regimes. They are detrimental to soil fertility, but their use is expected to increase in response to climate change which has led to higher incidence of pests, diseases and weeds.¹⁹³ Climate change will negatively affect the health of the population,¹⁹⁴ which will in turn limit climate change adaptation: the smallholder households in Malawi with no chronically sick person were 3.2 times more likely to adopt both short-term and long-term sustainable land management practices compared to those with chronically sick persons.¹⁹⁵ These developments will affect agricultural productivity, and hence security in food and nutrition as well as livelihoods. As is the case for all socioeconomic shocks, the most vulnerable rural communities, female-headed households, women and children, persons with HIV/AIDS, displaced people and the elderly will be the hardest hit by the changing climate and plunged into more severe poverty to widen the social inequality gaps. The drying of Lake Chilwa is already associated with more cases of early marriages for girls and transactional sex is expected to increase.¹⁹⁶ The political and governance shocks that weaken the country are now aggravated by climate shocks.¹⁹⁷

1.3. Project area and targeting strategy, including watershed/site selection

1.3.1 Project area targeting strategy

38. **Catchment, Watershed, Water Resources Area and Water Resources Unit.** *Catchment* is the word used for Water Resources Areas (WRAs) and Water Resources Units (lower-level catchments of WRAs), which are defined for water resources management purposes by Malawi government. Various policy documents also employ the term *watershed* for the same concept. Given this situation, the funding proposal and associated documentation considers the two words, *catchment* and *watershed*, as interchangeable. Where WRAs and WRUs are concerned, however, the government has consistently used *catchment*, and the proposal follows this rule. A catchment can almost always be subsumed into a larger one or divided into smaller catchments; a catchment can be a sub-catchment at the same time of a larger catchment. This feature of catchments/watersheds is a source of confusion, and the project sets the focus of the catchment/watershed at the WRU level, which is the level chosen by the government for strategic planning of water resources management. WRUs are smaller than Districts and their sizes vary from 18,000 ha to 380,000 ha. WRUs are the smallest catchments officially delineated by the government.

39. **Sub-Catchment and Micro Catchment.** When the proposal refers to a sub-catchment, it means a sub-catchment of a WRU catchment. Under EbAM, the boundaries of sub-catchments will be determined by hydrology (more specifically stream order), using the Hydrological Tool of Arc GIS 10.4.1 so that each sub-catchment consists of 3,000-40,000 ha of land with some exceptional cases outside the range. Sub-catchment delineation in Malawi has been carried out by various technical and financial partners, and EbAM ensures that the WRU sub-catchment delineation is at the same scale as the common technical and financial partners' practice in the country. The wide range of catchment size results from the variety in hydrological conditions in the country. Micro-catchment (sub-catchment of WRU sub-catchment) is also a hydrological concept, delineated with a stream order lower than that for sub-catchments so that each micro-catchment consists of up to about 12 villages or 500-3,000 ha. In exceptional cases where village density or river flow is quite sparse, the surface area may be larger.

40. **Geographic Targeting.** The project bases its intervention on integrated landscape management of watersheds, applying ecosystem-based adaptation techniques. A landscape approach prevents dispersion of activities and has the potential for greater impacts on the beneficiary population (detailed advantages of a landscape approach are found under 5.2 *Detailed description of components and activities* of this document). Geographic targeting of watersheds/catchments consists of several stages. The multi-stage selection process is necessary to scale-down the smallest government defined catchments (WRUs) into sizes at which the project can effectively intervene. For the most effective choice of intervention sites,

hydrologically coherent areas (sub-catchments and micro-catchments) were considered and the selection was based on climate change vulnerability, supplemented by socioeconomic and cultural factors. The six stages of the targeting are: (i) identification of target Districts based on climate vulnerability (which includes socioeconomic potential as exposed below) ; (ii) identification of target Water Resources Units (WRUs) within target Districts based on climate vulnerability (which includes socioeconomic potential as exposed below); (iii) delineation of selected WRU catchments into WRU sub-catchments based on hydrology and in line with the sub-catchment delineation of other technical and financial partners in Malawi; (iv) identification of target WRU sub-catchments based on hydrological, ecological and social considerations; (v) delineation of WRU sub-catchments into WRU micro-catchments based on hydrology and number of villages contained; and (vi) identification of target WRU micro-catchments based on hydrological, ecological and social considerations. The last three stages of the targeting will be carried out during project implementation to ensure participation of local stakeholders, interest and consent.

Stage 1 Identification of Target Districts: Climate Vulnerability Analysis. The International Panel on Climate Change (IPCC) defines vulnerability as “[t]he propensity or predisposition to be adversely affected,” adding that it “encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.”¹⁹⁸ For the proposed project, climate vulnerability was defined as a function of climate exposure, climate sensitivity (two components to represent susceptibility to harm) and climate adaptive capacity (a component to express the capacity to cope and adapt). More specifically, climate exposure consists of type and intensity of climate hazard affecting a system, climate sensitivity represents predisposition of a system to suffer from harm, loss or damage as a consequence of climate hazards, and climate adaptive capacity is “the ability of a system [human or natural] to adjust to climate change [...] to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.”¹⁹⁹ In order to identify the areas most vulnerable to climate change in Malawi, a climate vulnerability analysis was conducted for the whole country. This targeting process was based on Malawi government data,²⁰⁰ supplemented by data from other sources.²⁰¹ The indicators shown in Table 2 were used to define the three Indices of climate vulnerability: Exposure Index; Sensitivity Index; and Adaptive Capacity Index. The results of three Indices were aggregated to obtain Climate Vulnerability Index values. The parameter values of each index were standardized using the software R Project before summing them up as a value of the index.

Table 2 - Indicators of Climate Vulnerability Indices

EXPOSURE INDEX	SENSITIVITY INDEX	ADAPTIVE CAPACITY INDEX
<ul style="list-style-type: none"> • Annual Mean Maximum Temperature Change (near century, RCP 8.5) • February Dry Spell Length (near century, RCP 8.5) • Trends of Standardized Precipitation (1981-2020) 	<ul style="list-style-type: none"> • Average Revised Universal Soil Loss –RUSLE (based on Precipitation (1981-2020), Vegetation Index (NDVI), Soil types and Slopes) • Population Density • Poverty Rate 	<ul style="list-style-type: none"> • Literacy Rate • Access to Markets • Youth Presence • Emigration Rate

41. **Stage 1 Identification of Target Districts: Exposure Index.** Exposure Index was defined as a composite of: annual mean maximum temperature change for the near century (2040) under RCP 8.5; February dry spell trends for the near century (2040) under RCP 8.5; and trends of standardized precipitation (1981-2020). Figure 8 shows the mean-maximum temperature change for the near century (2040) under RCP 8.5. The areas colored yellow to red show significant increases of temperatures in the near future.

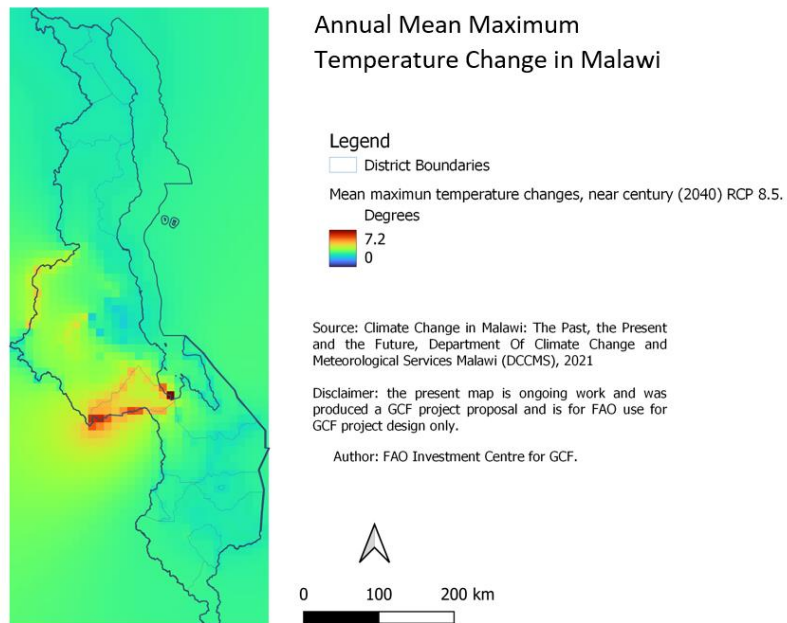


Figure 8 - Projected Changes in: Annual mean maximum temperature (between trend (historical and near century future for the Representative Concentration Pathway (RCP) is 8.5)
Source: Climate Change in Malawi: The Past, the Present and the Future, Department Of Climate Change and Meteorological Services Malawi (DCCMS), 2021.

42. Figure 9 shows the estimated trends of dry-spell length in February, one of the months which historically has been characterized with above average monthly precipitation. Increase in the number of dry days is apparent in almost every part of the country, with particular intensity in the south.

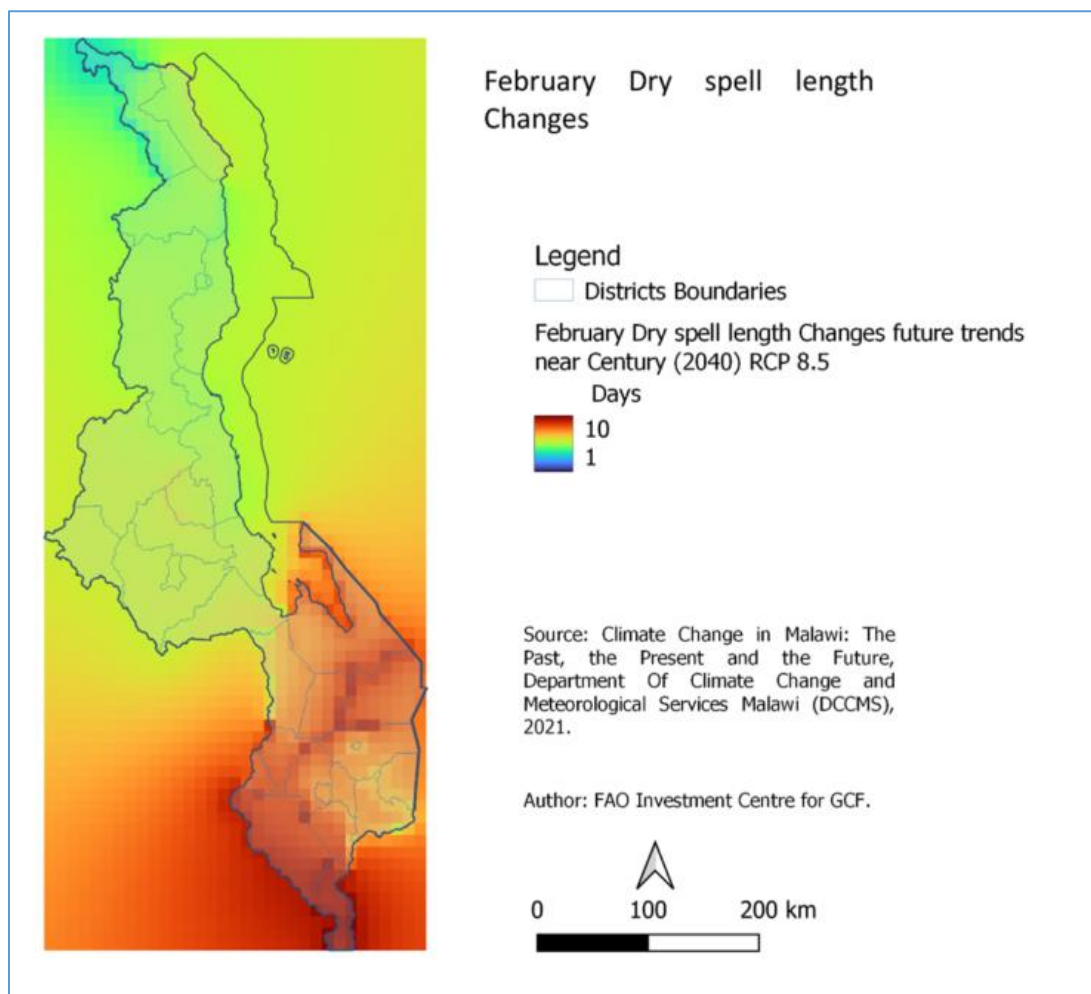


Figure 9 - Projected Changes in Mean Dry Spell Length in February (between historical and : February mean longest dry spells future trend for the near century Representative Concentration Pathway 8 (RCP8.5)
Source: Climate Change in Malawi: The Past, the Present and the Future, Department Of Climate Change and Meteorological Services Malawi (DCCMS), 2021.

43. Figure 10 shows the trends of standardized precipitation (1981-2020). Nkhata Bay District in the north and several Districts in the south (in particular Neno, Thyolo and Mulanje) show important decreases in precipitation. The central region as well as Chitipa and Karonga Districts in the north are expected to experience increases in rainfall.

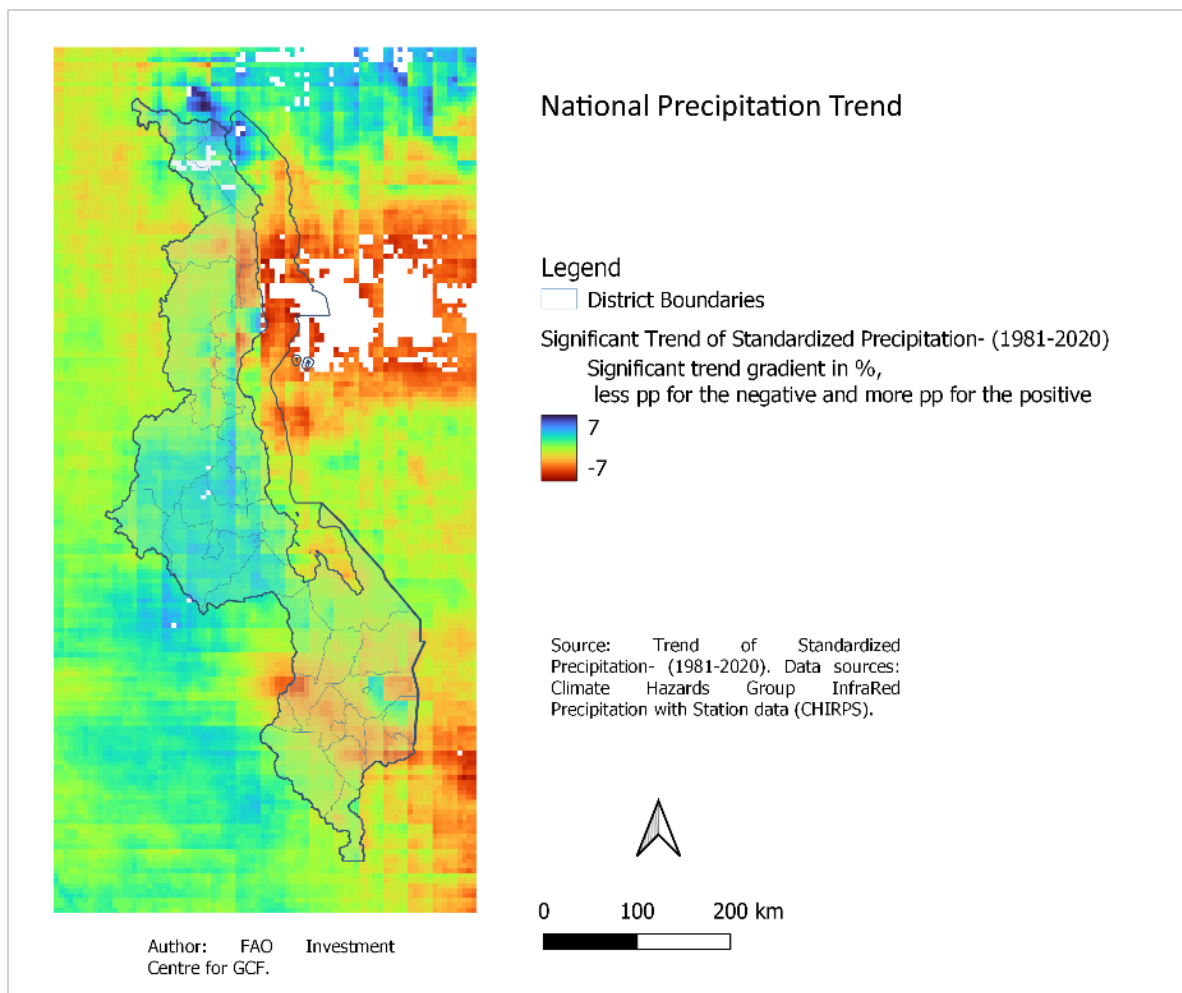


Figure 10 - Standardized Precipitation Trend- (1981-2020)
Source: Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS) <https://www.chc.ucsb.edu/data/chirps>.

44. Figure 11 shows the geographical distribution of Exposure Index values, composed of projected changes in: annual mean maximum temperature change (near century, RCP 8.5); February dry spell length (near century, RCP 8.5); and standardized precipitation (1981-2020). It indicates higher exposure in the southern region and in the Districts of Dedza (central region), Rumphi (northern region) and Nkhata Bay (northern region).

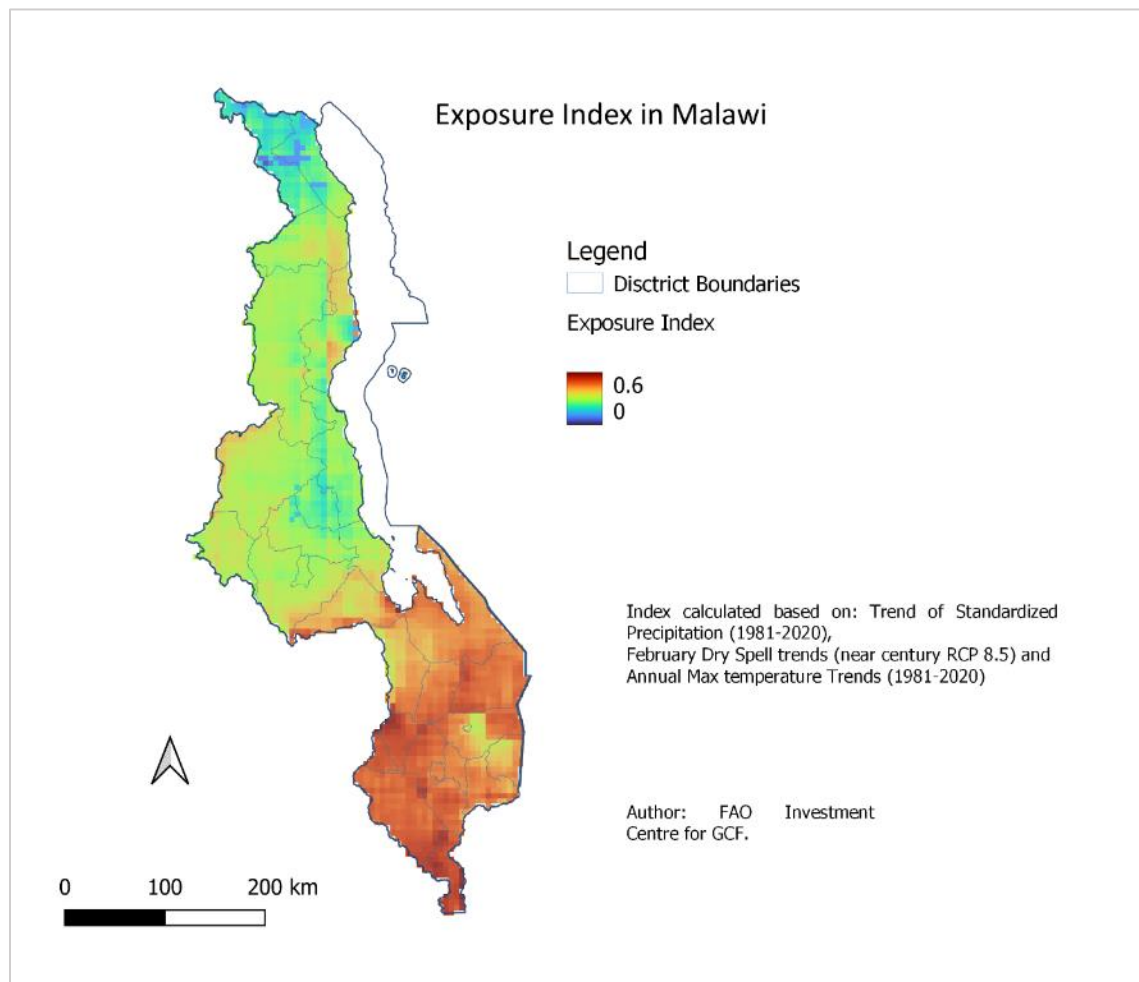


Figure 11 - Exposure Index Values in Malawi

45. **Stage 1 Identification of Target Districts: Sensitivity Index.** The sensitivity Index was defined by: the Average Revised Universal Soil Loss (RUSLE, which is based on precipitation during 1981-2020, Vegetation Index (NDVI), and soil types and slopes); population density; and poverty rate. Figure 12 shows the RUSLE results expressed in tons soil/ha/year. Darker areas correspond to higher soil loss. The northern Districts are particularly affected.

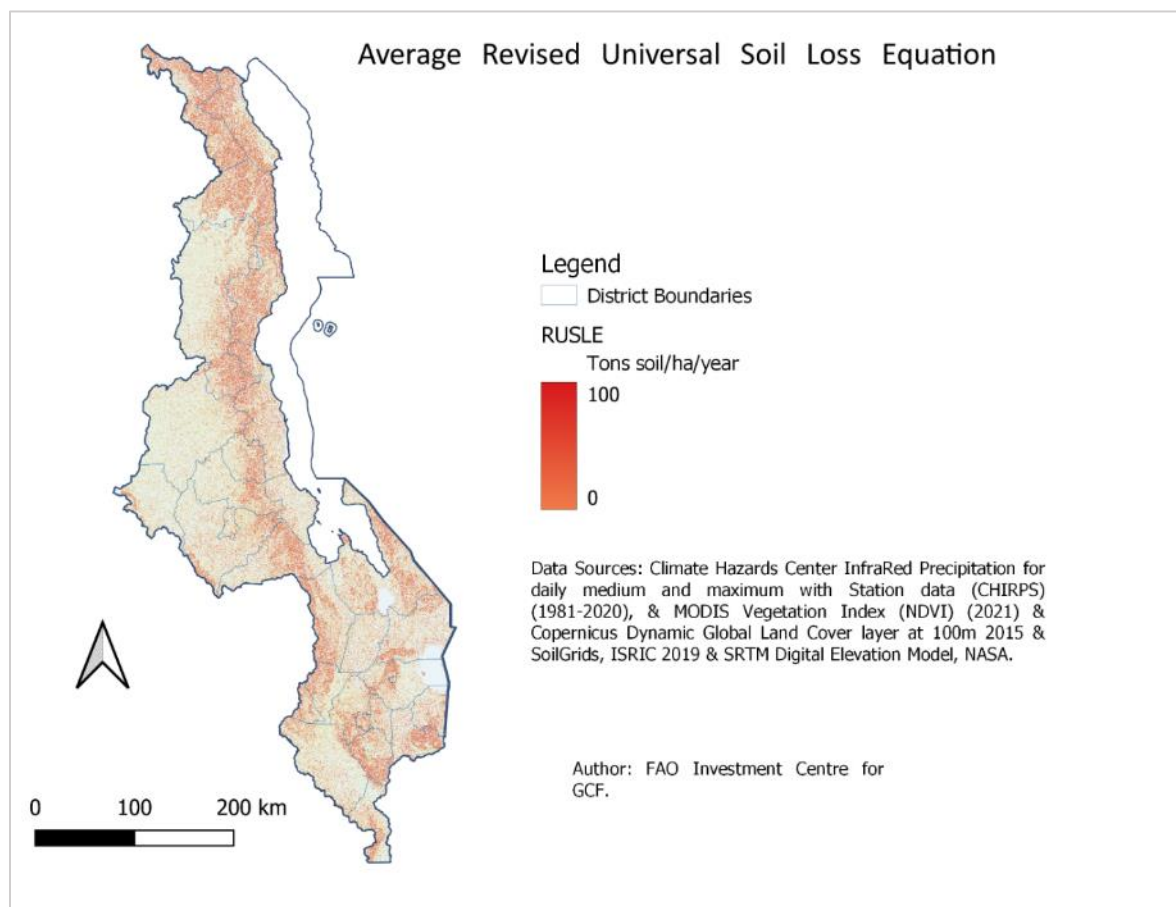


Figure 12 - Soil Loss based on: Average Revised Universal Soil Loss Equation (RUSLE)
Source: Climate Hazards Center InfraRed Precipitation for daily medium and maximum with Station data (CHIRPS) (1981-2020), MODIS Vegetation Index (NDVI) (2021), Copernicus Dynamic Global Land Cover layer at 100m (2015), SoilGrids, ISRIC (2019) and SRTM Digital Elevation Model, NASA.

46. Population density was considered as an indicator of climate sensitivity; rural areas with higher density are more prone to severe degradation and low resilience due to higher pressure on resources. Figure 13 shows high population densities in most rural areas, in particular in the south and center. Some Districts in the north – Karonga, Chitipa and Mzimba Districts – are also quite densely populated.

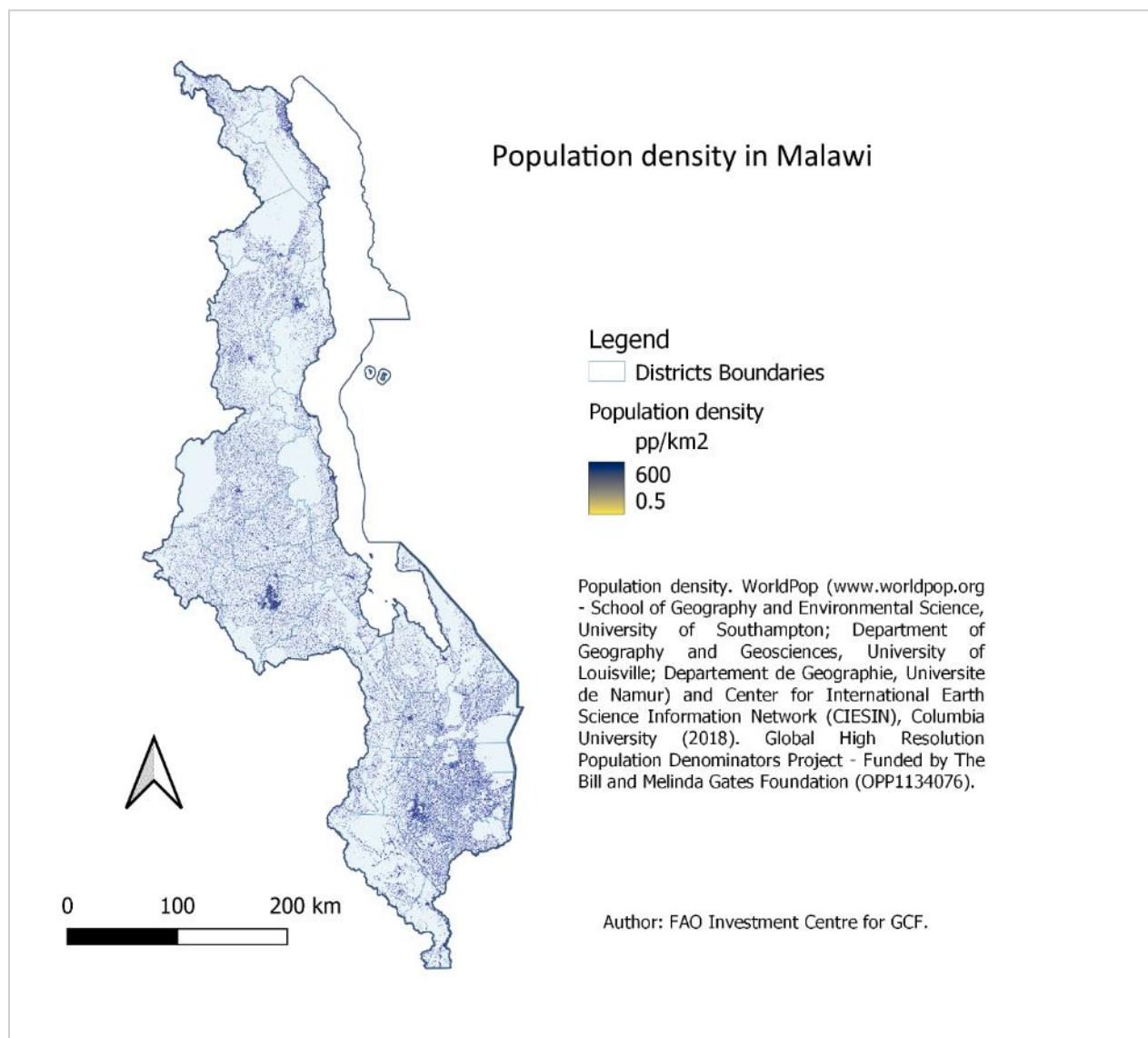


Figure 13 - Population density (Source: WorldPop (www.worldpop.org, 2018))

47. Figure 14 shows the poverty levels by location in Malawi. Particularly high poverty is seen in the three northern Districts (Chitipa, Karonga and Rumphi) and in the south (in particular, Nsanje, Chikwawa Neno, Machinga, Zomba and Mangochi).

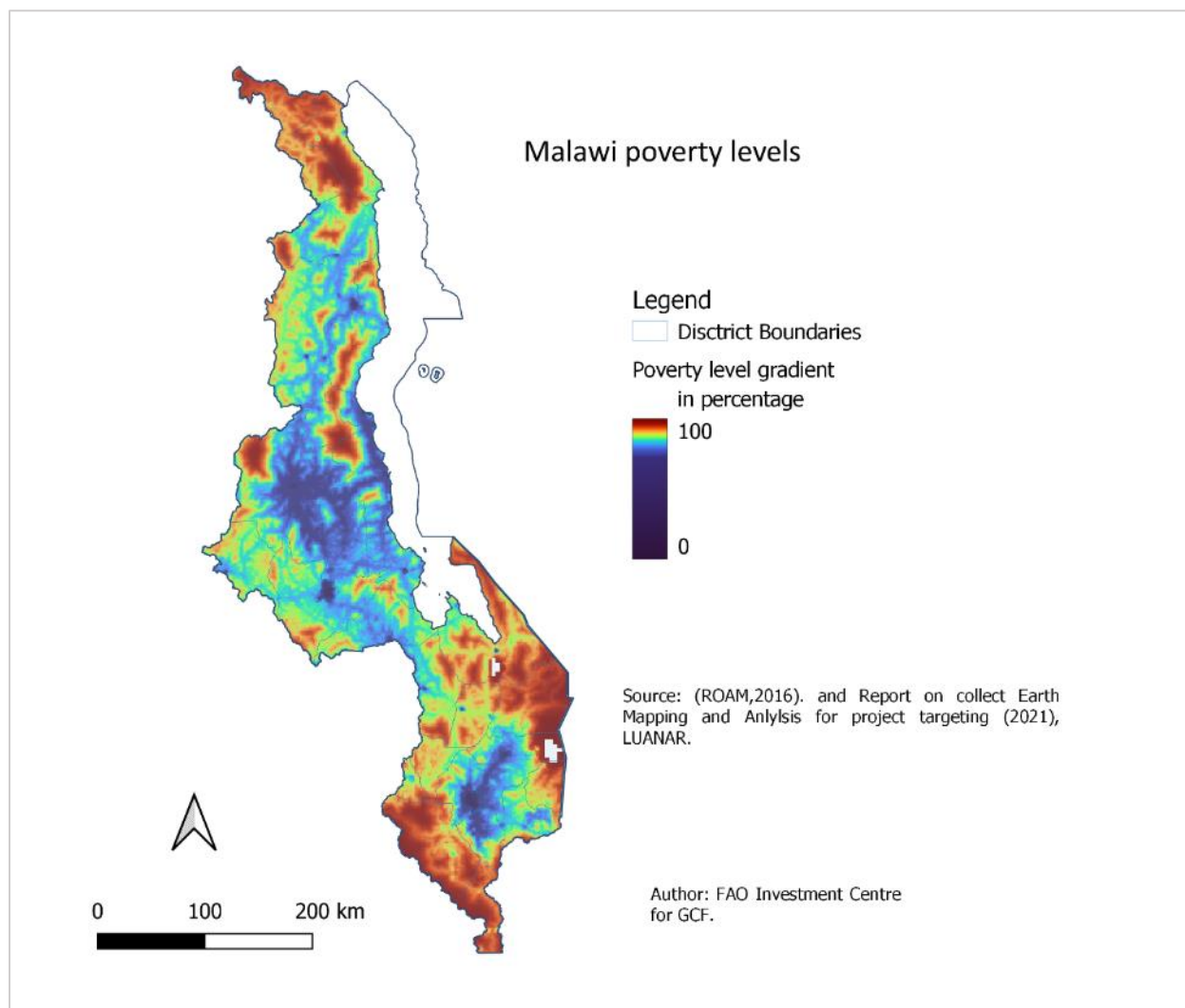


Figure 14 - Poverty Levels
Source: ROAM (2016) and Report on collect Earth Mapping and Analysis for project targeting (LUANAR, 2021).

48. Figure 15 aggregates the results of three indicators and reveals that the most climate sensitive areas in Malawi are four Districts in the north (Chitipa, Karonga, Rumphi and Nkhata Bay) and the two southern west Districts (Mangochi and Machinga).

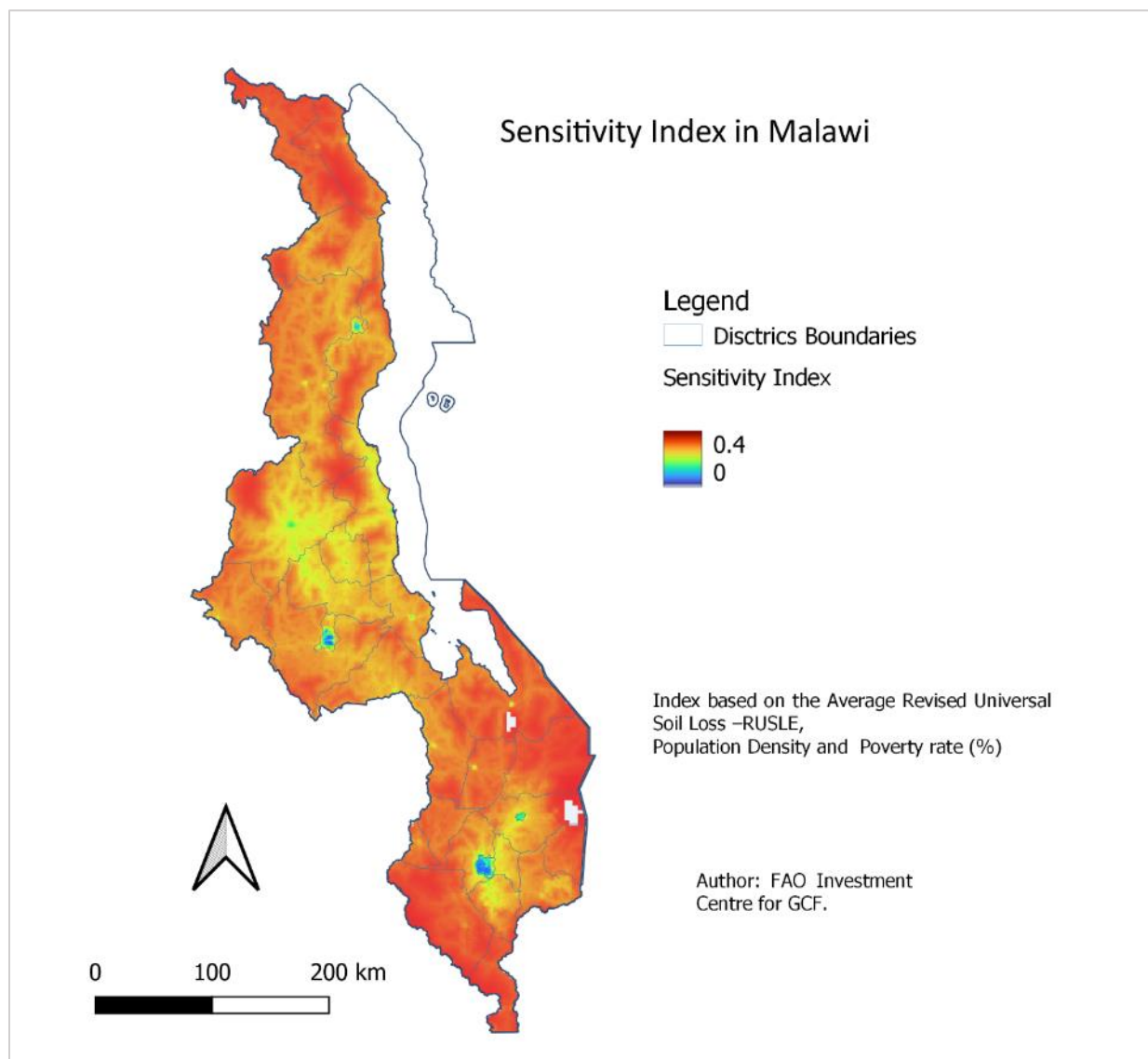


Figure 15 - Sensitivity Index Values

49. [Stage 1 Identification of Target Districts: Adaptive Capacity Index](#). Adaptive Capacity is defined by: literacy rate; access to markets; youth presence; and emigration rate. Figure 16 on literacy rate by District shows that the urban areas are in general more literate.

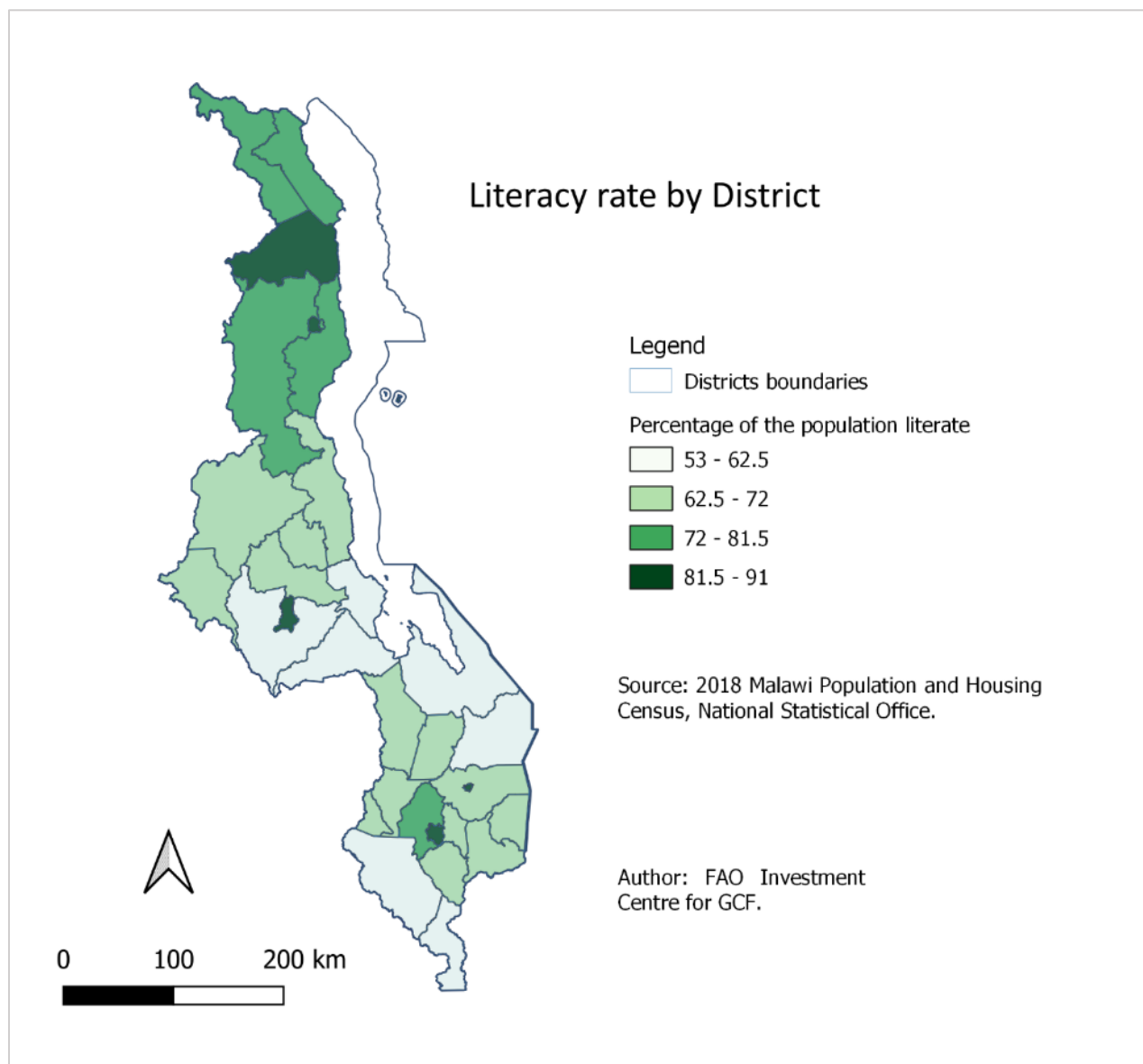


Figure 16 - Literacy rate by District
Source: 2018 Malawi Population and Housing Census, National Statistical Office.

50. Market accessibility is considered an important indicator not only for adaptive capacity, but also for sustainability of project interventions. The project targets climate vulnerable areas, while taking into account the significance of market accessibility for development of SMEs and 4Ps which support EbA adoption. Figure 17 shows that access to markets is highly dependent on transportation infrastructure.

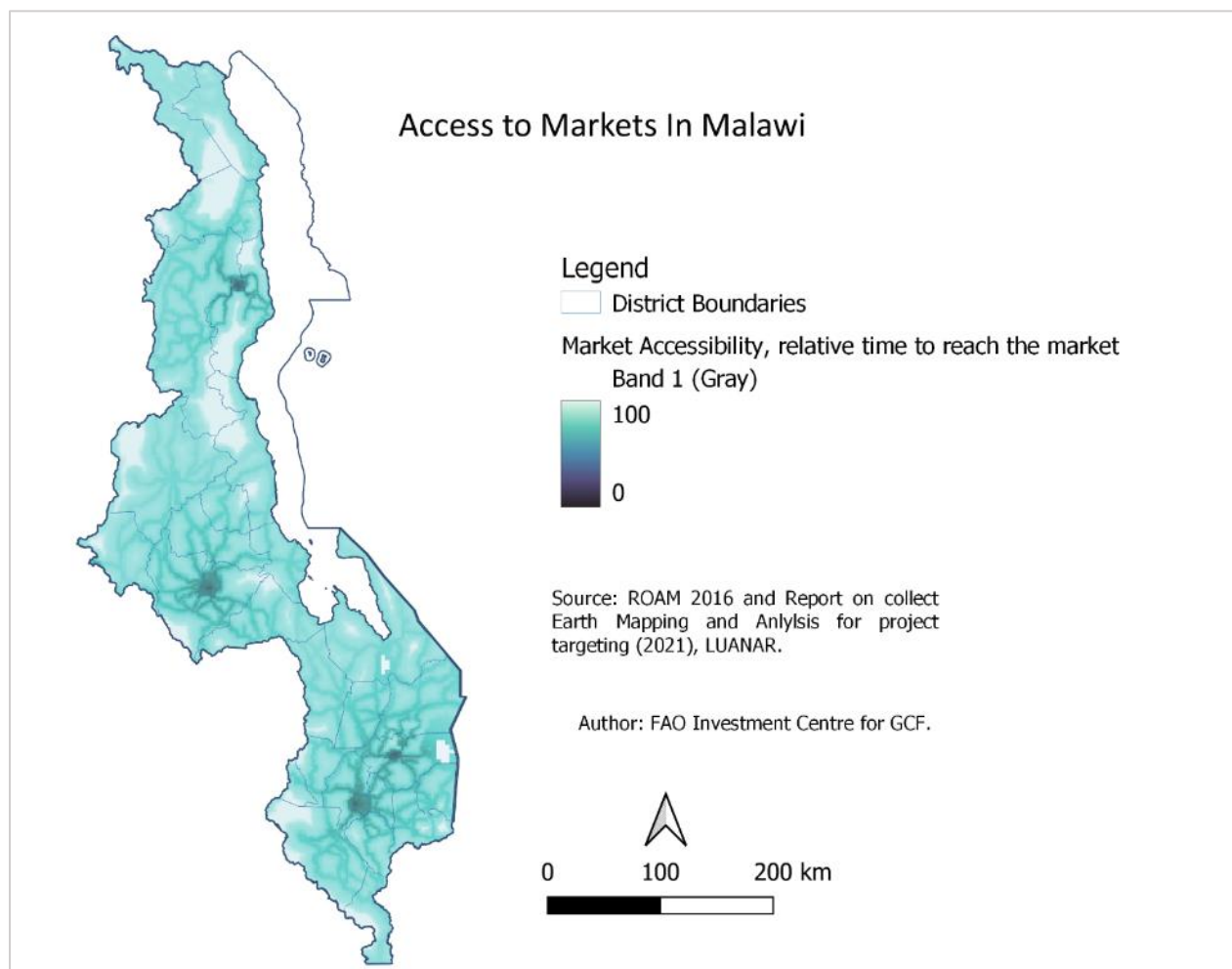


Figure 17 - Market Access
Source: ROAM (2016) and Report on collect Earth Mapping and Anylisis for project targeting (LUNAR, 2021)

51. The presence of youths (age 15-35 years) in rural areas increases opportunities for innovation, employment generation and rural development. The national population is very young; according to the 2018 Household Census, the median age of the population in Malawi was 17 years old. Comparing the maps of population density and presence of youth (Figure 13 and Figure 18), they appear positively correlated.

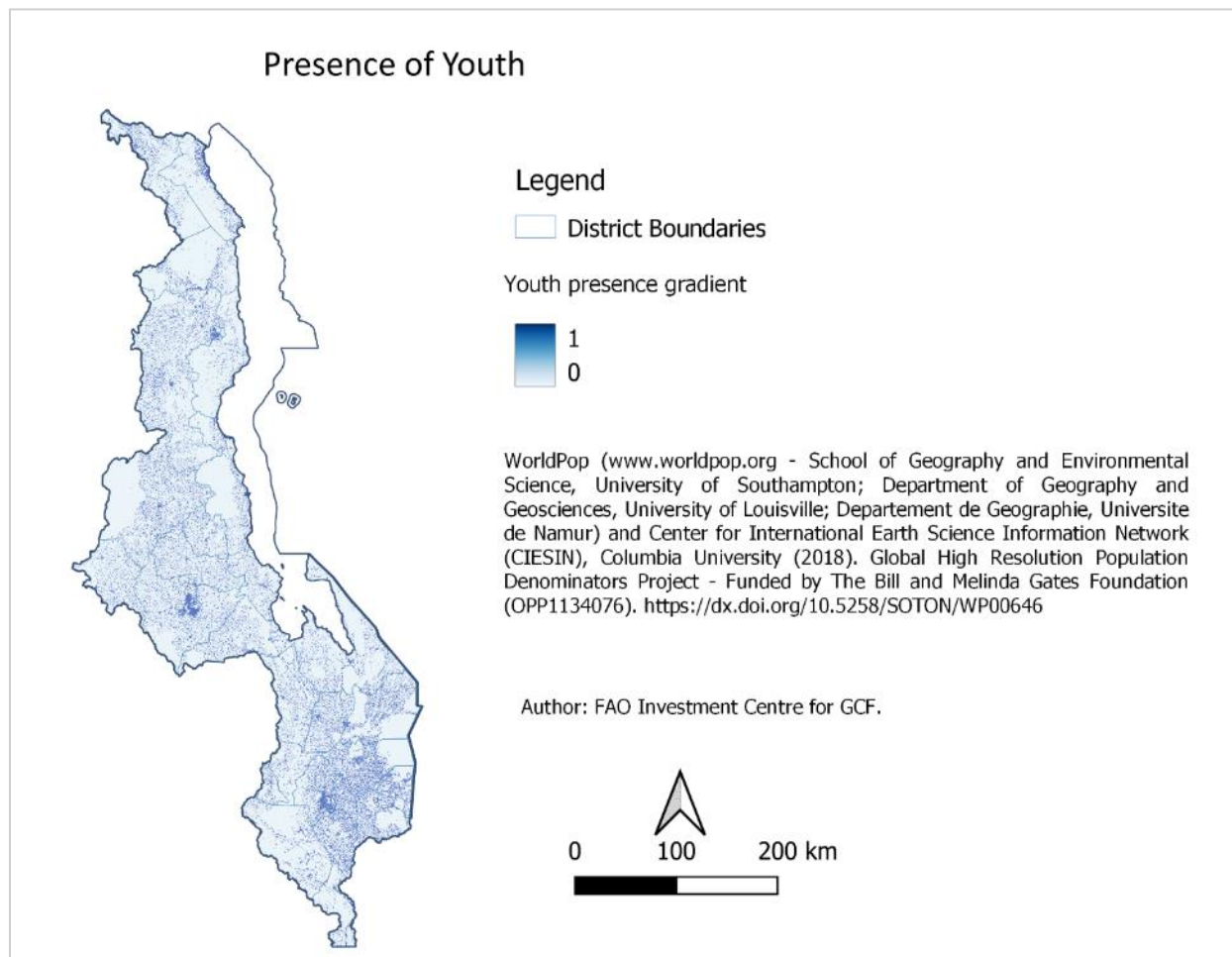


Figure 18 - Youth Population
Source: WorldPop (www.worldpop.org, 2018). <https://dx.doi.org/10.5258/SOTON/WP00646>.

52. According to Figure 19, the emigration rates are the highest in Nkhata Bay, Mangochi and Mzimba Districts, implying considerable lack of livelihood opportunities for the Districts' population. Thyolo, Machinga and Balaka are the Districts with the second highest emigration rates.

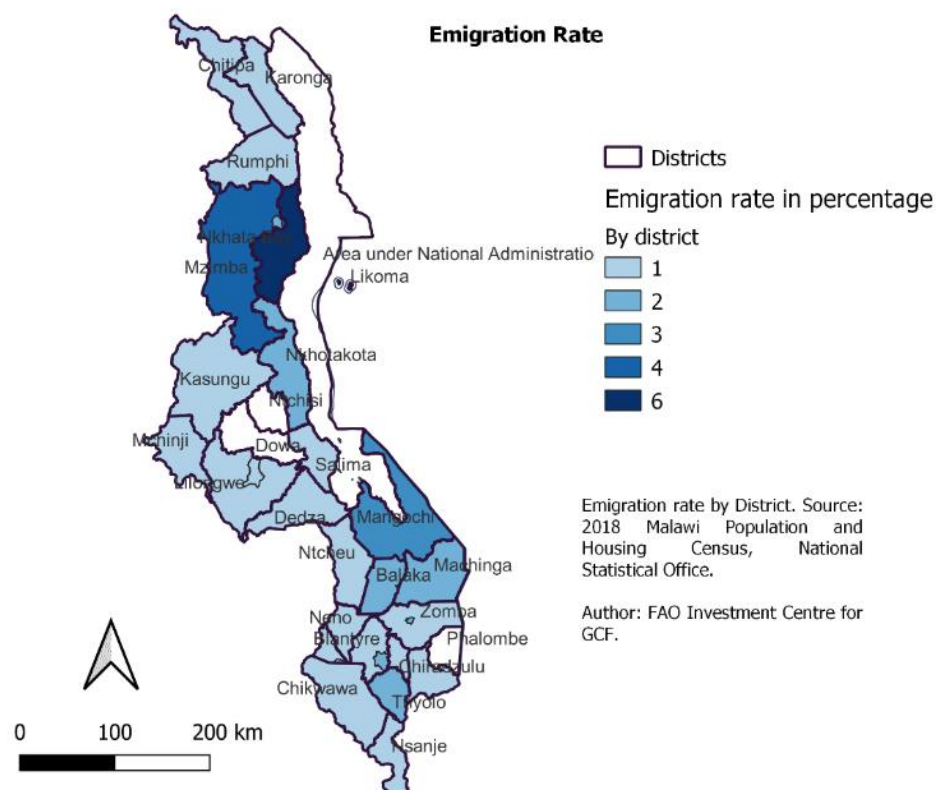


Figure 19 - Emigration rate
Source: 2018 Malawi Population and Housing Census, National Statistical Office.

53. Figure 20 shows the distribution of Adaptive Capacity Index values defined by the four indicators examined above. The areas with high adaptive capacity are characterized by high literacy rate, good market accessibility, high presence of youths and low emigration rate.

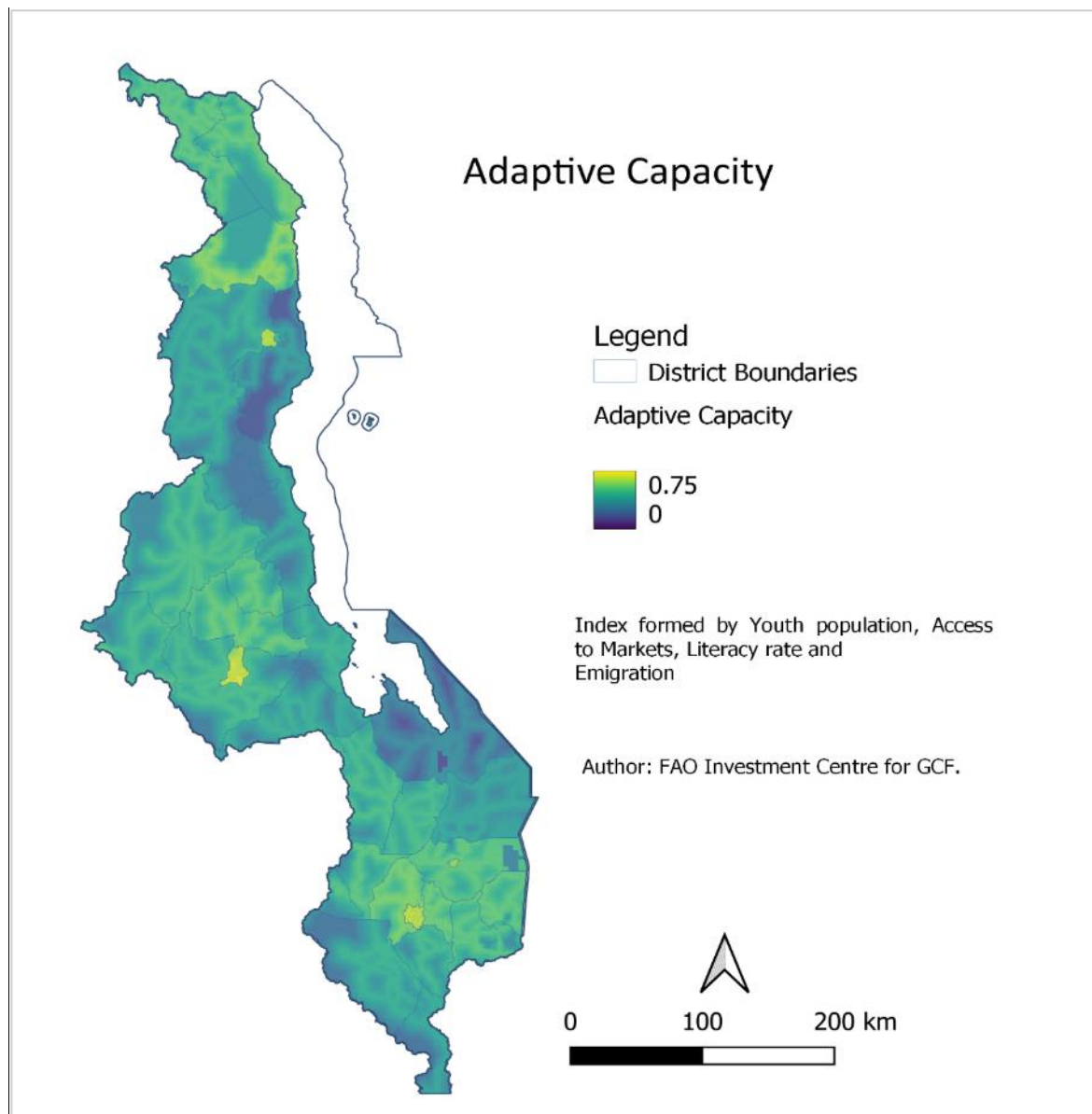


Figure 20 - Adaptive Capacity Index Values

54. **Stage 1 Identification of Target Districts: Climate Vulnerability Index.** The values of three indices (Exposure, Sensitivity and Adaptive Capacity) were aggregated to generate Climate Vulnerability Index values. High vulnerability to climate is seen in the south and also in some districts in the center and north, in particular Detza and Nkatha Bay Districts (Figure 21).

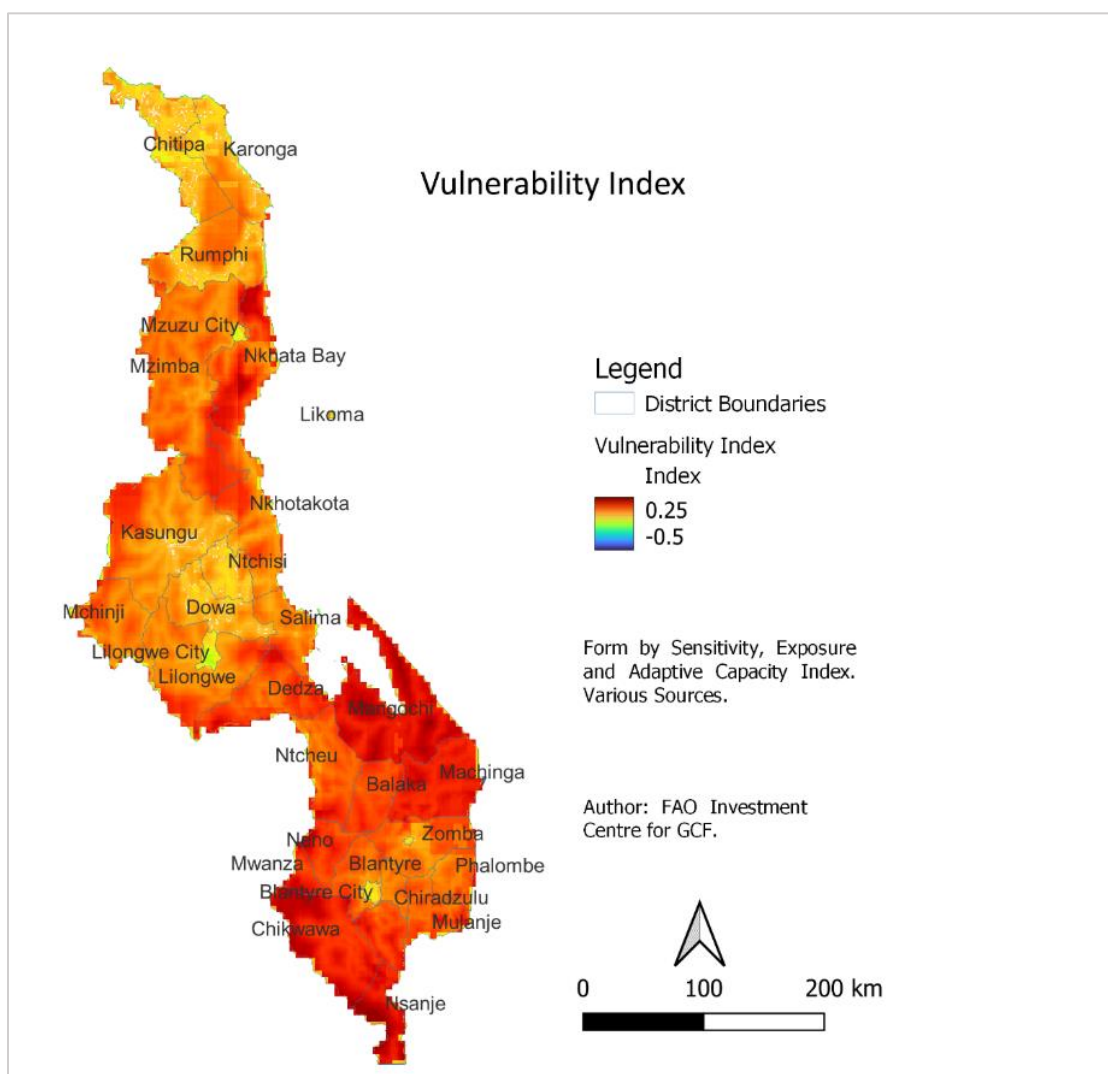


Figure 21 - Climate: Vulnerability index Values

Stage 1 Identification of Target Districts: Climate Vulnerability with Emphasis on Exposure, Soil Degradation and Socioeconomic Potential – as part of the sensitivity and adaptive capacity indexes. The target Districts were chosen based on the Climate Change Vulnerability Index values. In order to give sufficient considerations to land degradation in the selection process, an additional step was undertaken, further analysing RUSLE values. Indeed, Northern watersheds have the highest degradation rate in the country (Figure 12), which makes them particularly vulnerable to climate change. In line with the project's local and overall watershed management approach, these northern watersheds received particular consideration, based on their upstream location with respect to Lake Malawi, and considering the important hydrological functions that they play in the rest of the country.²⁰² The main determining factor for targeting remained high Climate Vulnerability throughout the process, which included several consultations for confirmation by national stakeholders. Table 3 shows the list of 11 selected Districts and selection justification. Figure 22 shows in blue the Districts for project intervention.

Table 3 - List of Identified Districts

Region	District	Selection Justification and vulnerability index
South	Zomba	<ul style="list-style-type: none"> - Very high Climate Vulnerability Index value (0.05- 0.18) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o High poverty levels o High youth presence o Good market accessibility
	Mangochi	<ul style="list-style-type: none"> - Highest Climate Vulnerability Index value (0.15 - 0.25) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o High poverty levels o Highly positive trends in the number of dry spell days in February
	Thyolo	<ul style="list-style-type: none"> - Highest Climate Vulnerability Index value (0.10 - 0.20) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o High Climate Exposure o Good market accessibility
	Neno	<ul style="list-style-type: none"> - High Climate Vulnerability Index value (0.15 - 0.25) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o High Exposure Index value o High poverty levels
	Mwanza	<ul style="list-style-type: none"> - Highest Climate Vulnerability Index value (0.10 - 0.20) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o High Exposure Index value o High youth presence
	Nsanje	<ul style="list-style-type: none"> - Highest Climate Vulnerability Index value (0.10 - 0.25) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o High Exposure Index value o High poverty levels
Central	Dedza	<ul style="list-style-type: none"> - High Climate Vulnerability Index value (0.10- 0.18) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o High Exposure Index value (in particular highly positive annual mean maximum temperature trend) o Good market accessibility
North	Nkhata Bay	<ul style="list-style-type: none"> - Highest Climate Vulnerability Index value (0.10- 0.18) <ul style="list-style-type: none"> o Significant presence of highly degraded areas, according to soil loss analysis (RUSLE) o Very high emigration rates o Good market accessibility
	Rumphi	<ul style="list-style-type: none"> - High Climate Vulnerability Index value (0.05- 0.18) <ul style="list-style-type: none"> o Significant presence of highest degraded areas, according to soil loss analysis (RUSLE) o Upstream of Lake Malawi, affecting the centre and south o High poverty levels
	Karonga	<ul style="list-style-type: none"> - High Climate Vulnerability Index value (0.05- 0.18) <ul style="list-style-type: none"> o Significant presence of highest degraded areas, according to soil loss analysis (RUSLE) o Upstream of Lake Malawi, affecting the centre and south o High poverty levels
	Chitipa	<ul style="list-style-type: none"> - High Climate Vulnerability Index value (0.05- 0.18) <ul style="list-style-type: none"> o Significant presence of highest degraded areas, according to soil loss analysis (RUSLE) o Upstream of Lake Malawi, affecting the centre and south o High poverty levels

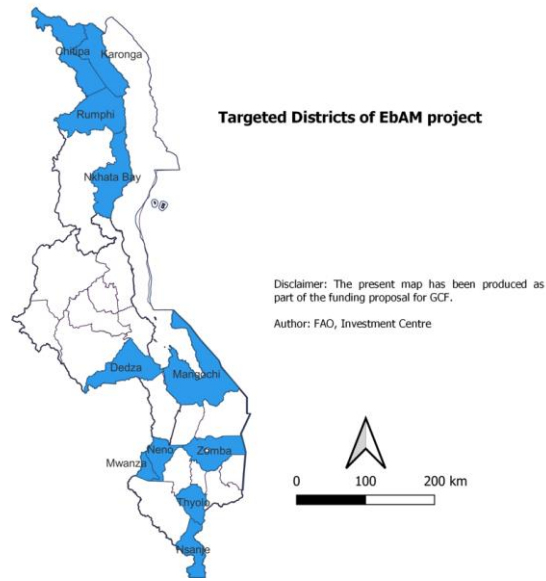


Figure 22 - Targeted. Selected Districts

Stage 2 Identification of Water Resources Units. Corresponding Water Resources Units (WRUs) were identified for the 11 selected Districts. The WRUs and Districts of Malawi are shown in figures below (Figure 23 and Figure 24). The target WRUs were then chosen based on the indicators that compose Climate Vulnerability Index and whether FAO KULIMA project²⁰³ has laid some groundwork in some parts of WRU (Table 4). Figure 25 shows the locations of the selected WRUs.

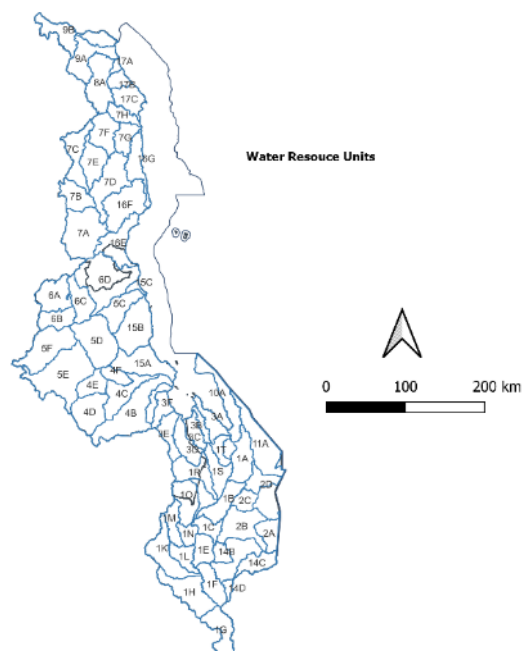


Figure 23 - Water Resources Units

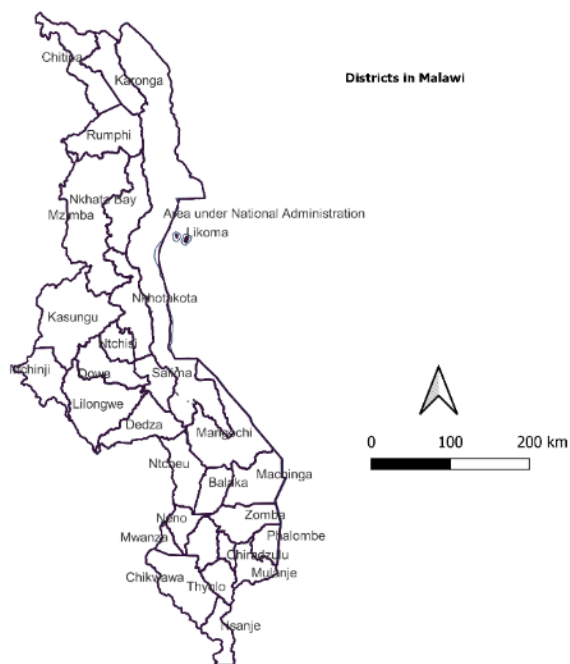


Figure 24 - Districts

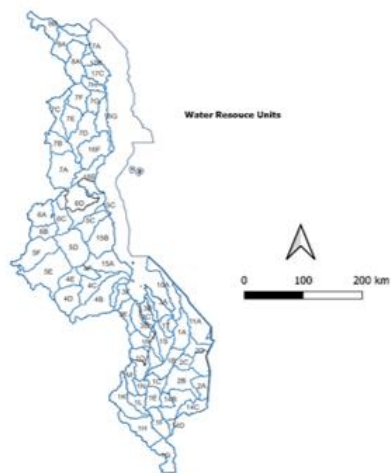
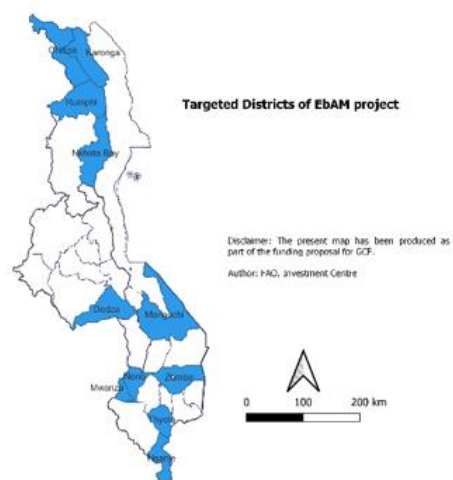


Figure 25 - Selected WRUs (right) within selected districts (left)

Table 4 - Selected WRU and general characteristics

Region	District	Water Resources Unit (WRU)	Area (ha)	Traditional Authority in WRU
South	Neno, Mwanza	1M	88,022	TA Dambe, TA Ngozi, TA Kandunko, TA Mlauli,
South	Nsanje	1G	146,653	TA Mbenje, TA Ndamera, TA Nyachikadza, TA Gambo, TA Chibombo, TA Nsange Boma, TA Malemia, TA Tengani,
South	Mangochi	1T	57,140	TA Chimwala, TA Mpomba
South	Zomba	1B	198,358	TA Nkapita, TA Melemia and TA Mlumbe
South	Thyolo	14D	24,533	TA Mlolo, TA Nsabwe
Central	Dedza	4A	57,673	TA Kasumbu, TA Tambala,
North	Nkhataka Bay, Rumphi	16G	132,009	TA Musisiya, TA Boghoyo, TA Mwamlowe
North	Chitipa, Karong, Rumphi	8A	208,826	TA Kyungu, TA Nthalire
		Total	913,214	

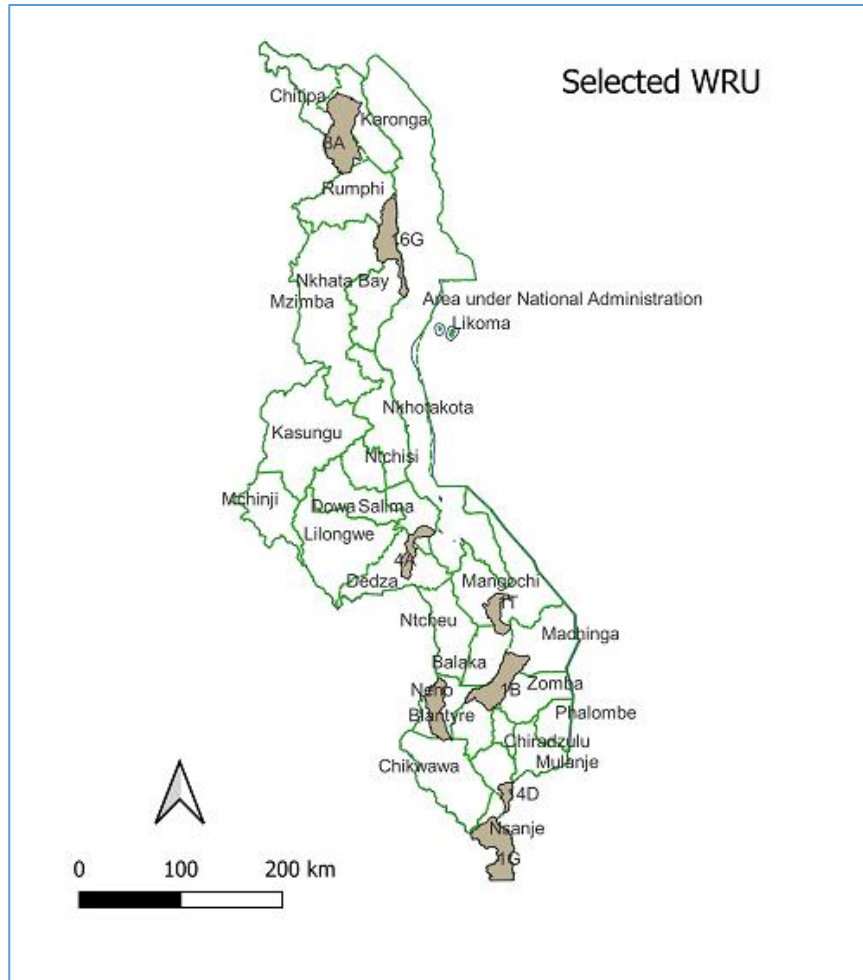


Figure 26 - Targeted WRUs

55. **Stage 3 Delineation of Target WRU Catchments into WRU Sub-Catchments.** The eight figures below (Figure 27 to Figure 34) show the results of delineation of some selected WRUs into sub-catchments. The filter for delineation applied is in line with the prevailing practices of other technical and financial partners in the country, as evidenced by satisfactory correspondence of sub-catchments defined by the project and those supported by others. The sub-catchments smaller than 500 ha were not considered for targeting to maximize the effectiveness of investments. Those of the size between 500 ha and 1,500 ha were considered together with micro-catchments for targeting.

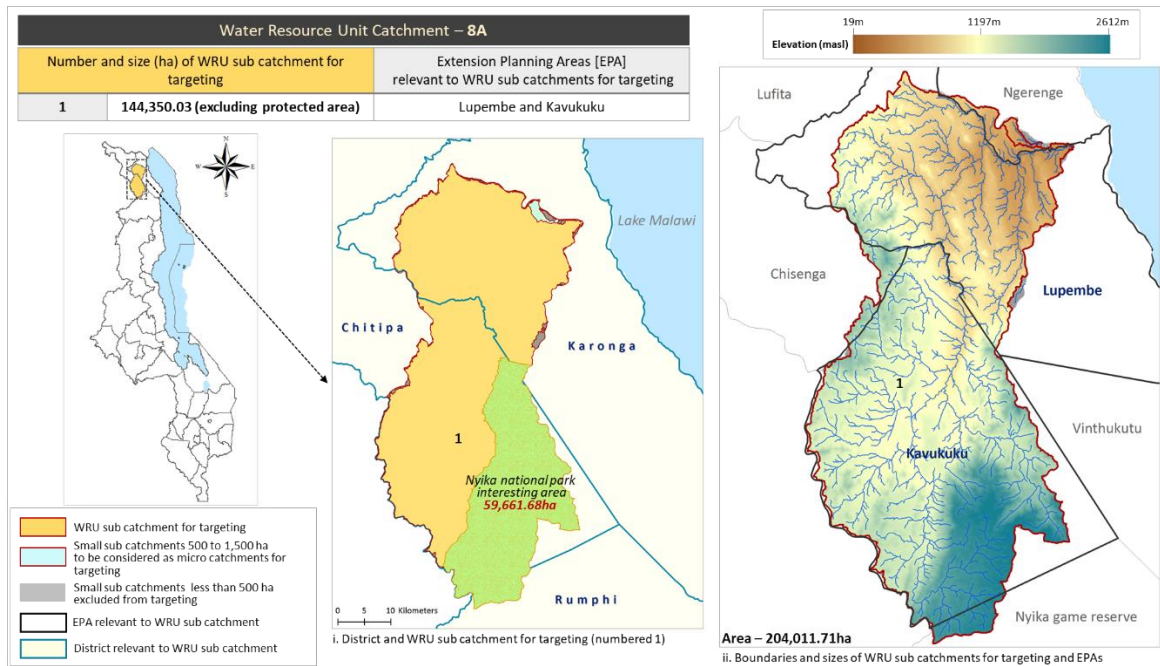


Figure 27 - Delineation of Water Resource Unit WRU 8A into Sub-Catchments

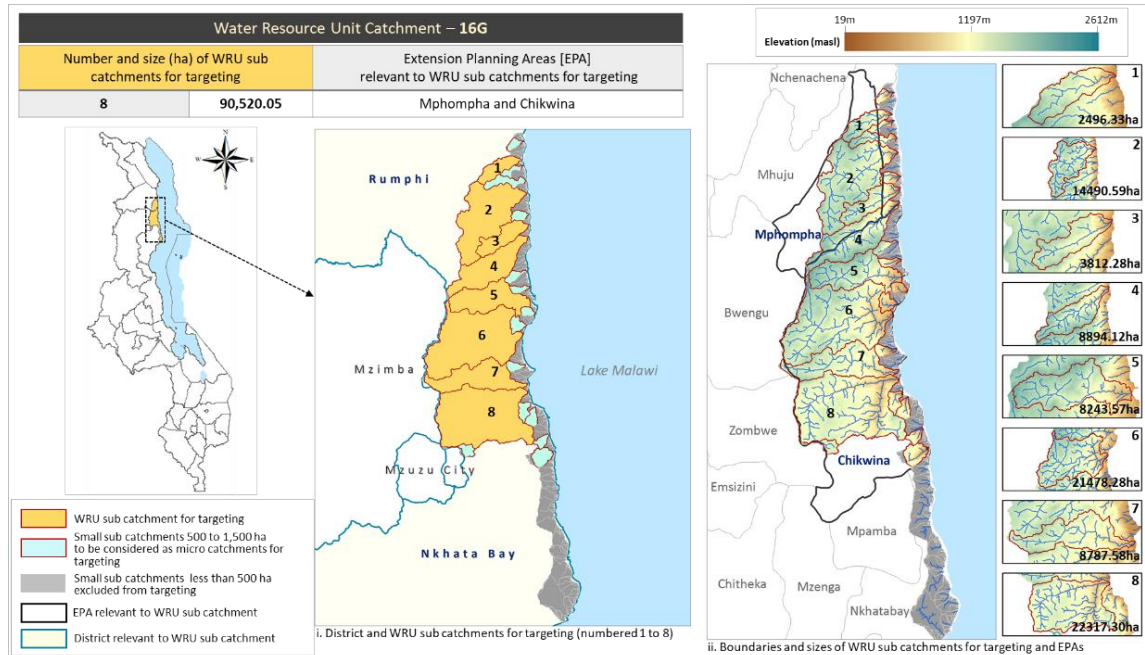


Figure 28 - Delineation of Water Resource Unit 16G into Sub-Catchments

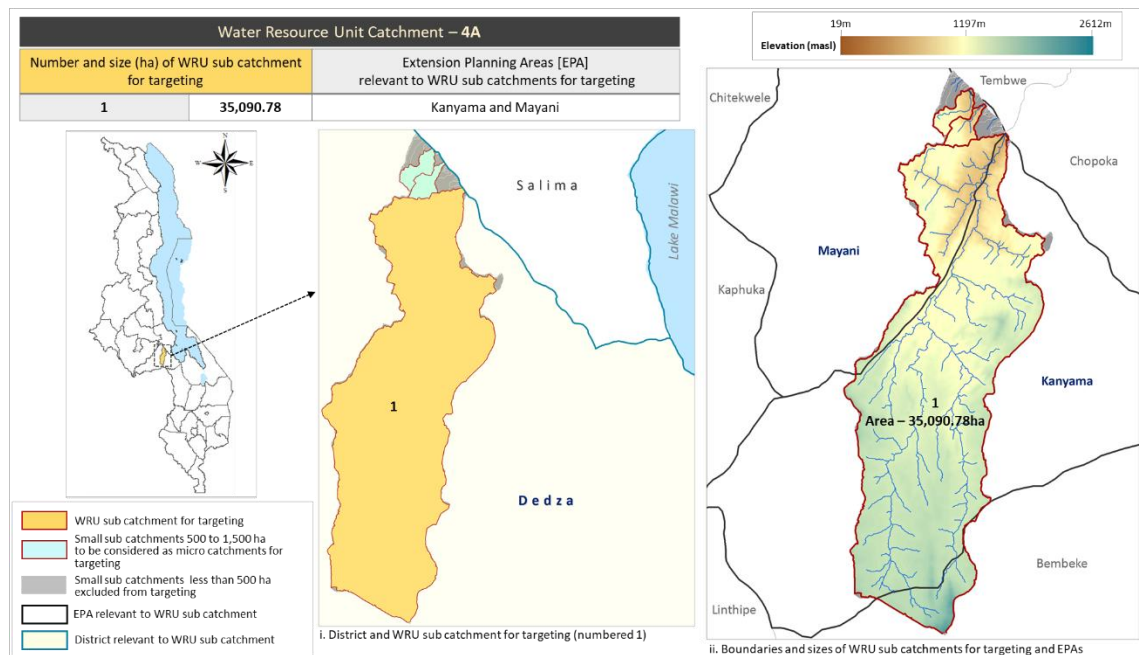


Figure 29 - Delineation of Water Resource Unit 4A into Sub-Catchments

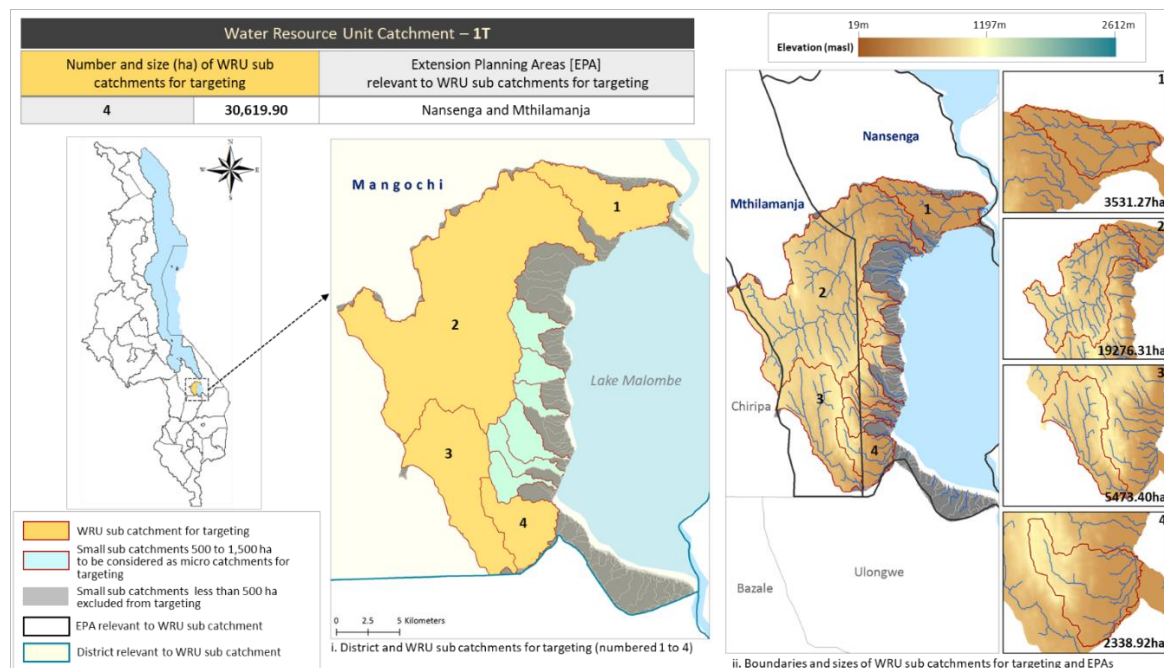


Figure 30 - Delineation of Water Resrouces Unit 1T into Sub-Catchments

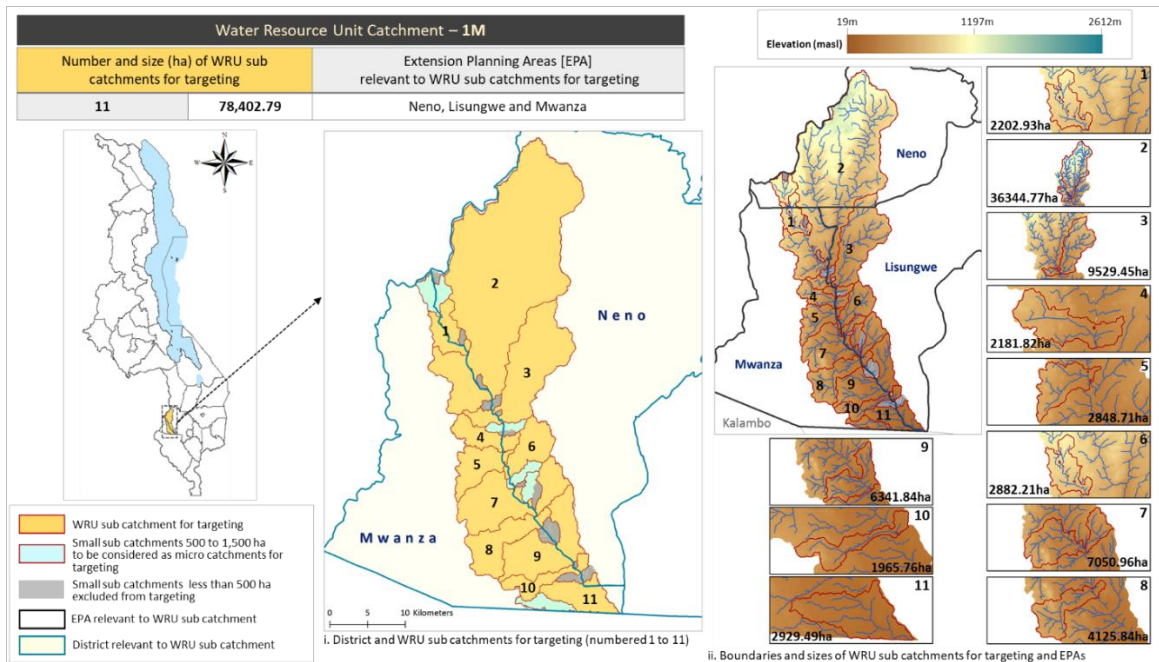


Figure 31 - Delineation of Water Resources Unit 1M into Sub-Catchments

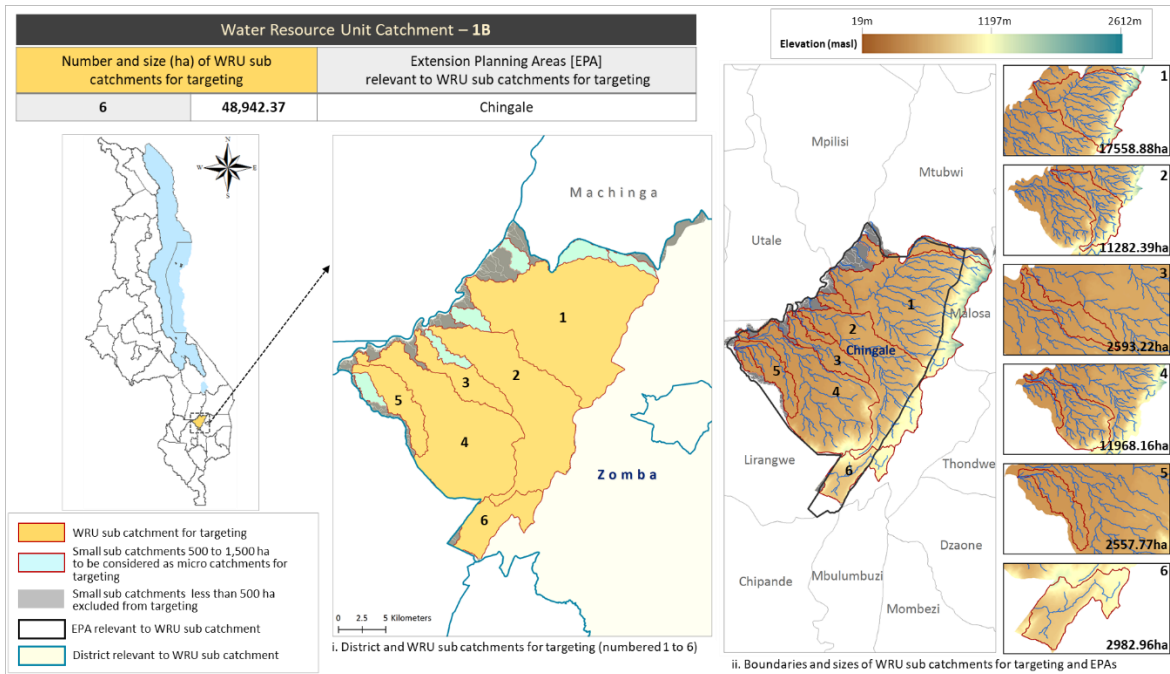


Figure 32 - Delineation of Water Resources Unit 1B into Sub-Catchments

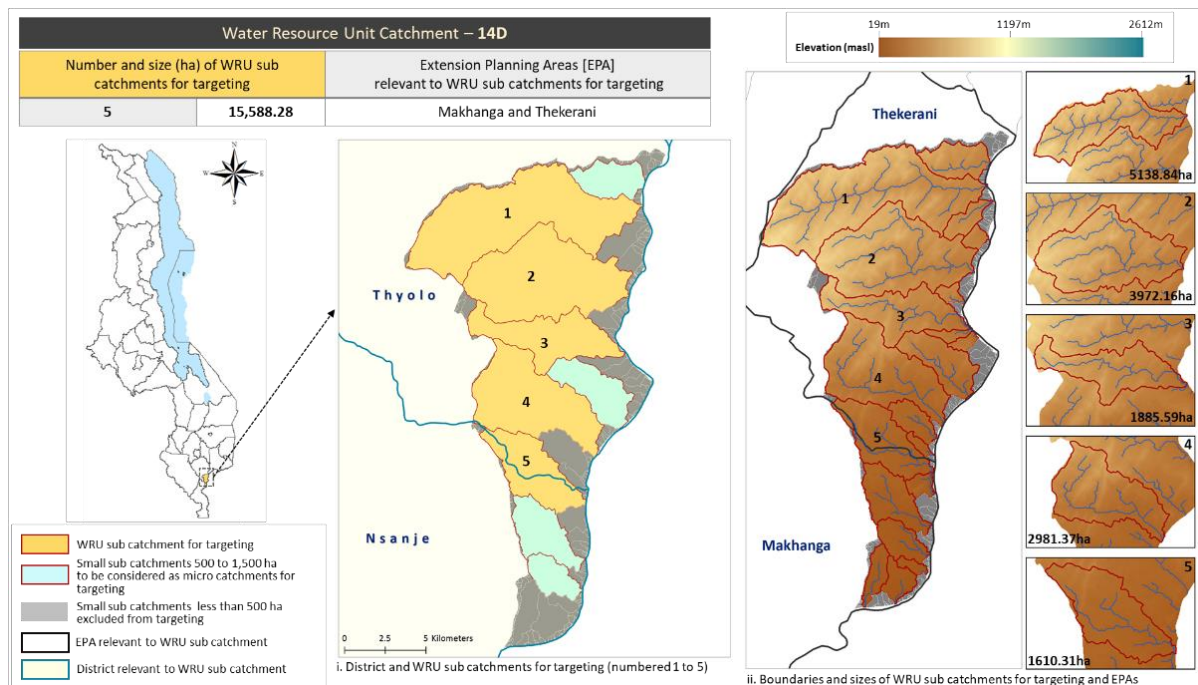


Figure 33 - Delineation of Water Resource Unit 14D into Sub-Catchments

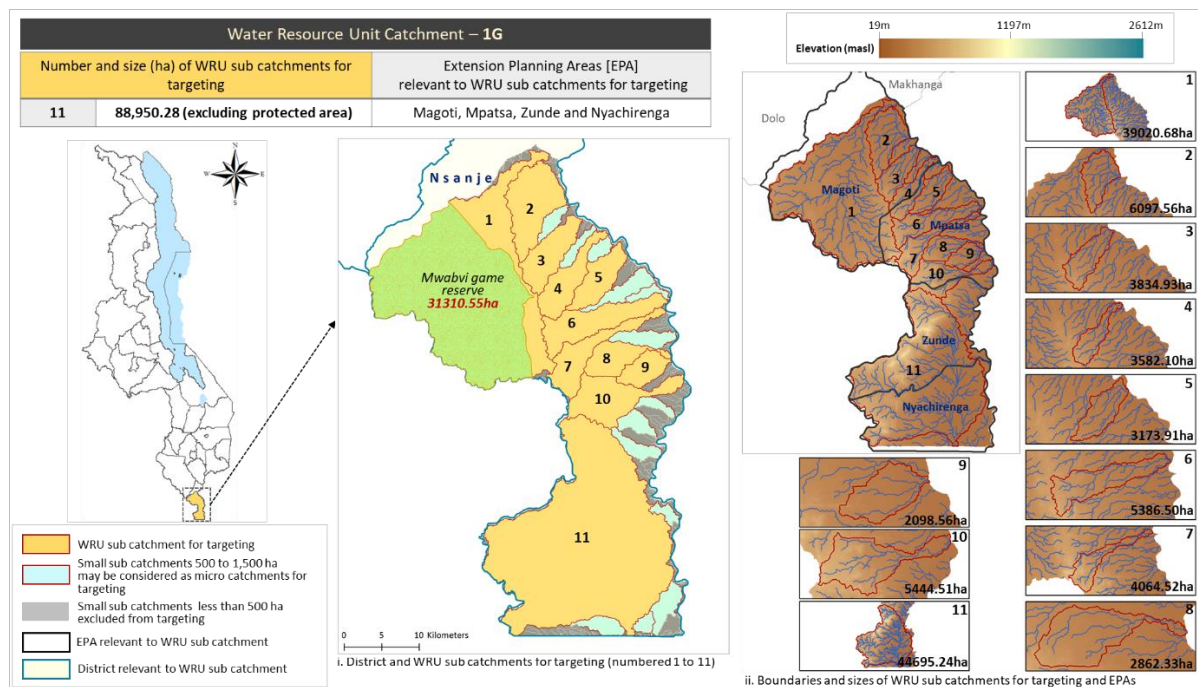


Figure 34 - Delineation of Water Resources Unit 1G into Sub-Catchments

Stage 4 Selection of Target WRU Sub-Catchments (during project implementation). The first step of sub-catchment targeting consists in hydrological analyses (including upstream-downstream linkages). In order to avoid the pitfall of working at an optimal hydrological level at the expense of social considerations or at an optimal social level at the expense of hydrological considerations,²⁰⁴ targeting of sub-catchments defined by hydrology will be supplemented by ecological/environmental (including agro-climatic vulnerabilities), socioeconomic and cultural factors. For that purpose, a rapid GIS hotspot assessment and ground-truthing for all delineated sub-catchments is planned, with the participation of MoA/DLRC, FAO and relevant Traditional Authorities under Component 1, Activity 1.1.1 Targeting and Phasing of Sub-Catchments and Micro-Catchments (See Part 5. Project justification). Thirty sub-catchments to target will be chosen at this stage.

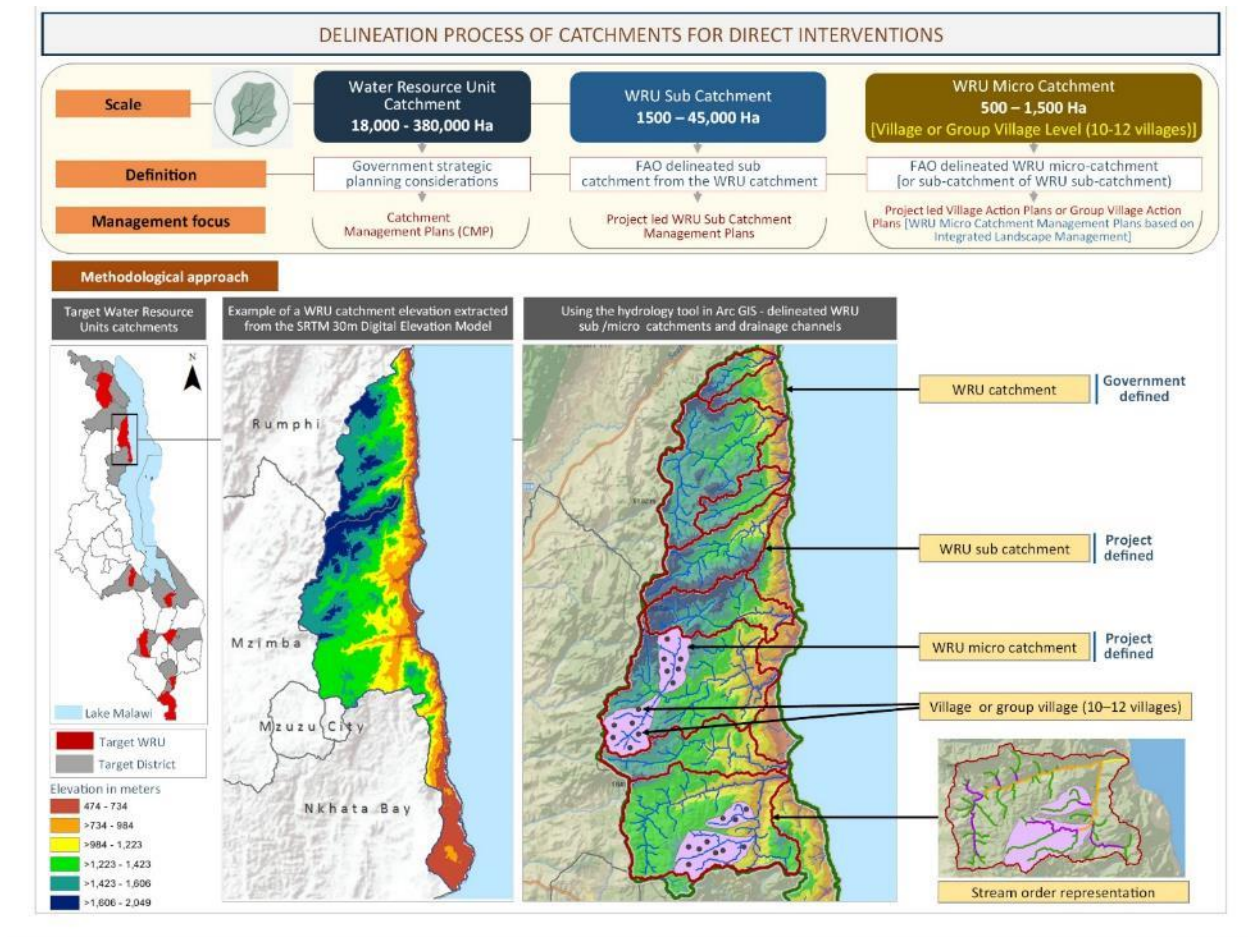
56. **Stage 5 Delineation of Target WRU Sub-Catchments into WRU Micro-Catchments (during project implementation).** Each selected sub-catchment will be further delineated into micro-catchments according to hydrology. Micro-catchment contains 10 villages on average. Table 5 summarizes the various catchment levels and their characteristics. Figure 35 is a visual presentation of the delineation process for micro-catchments.

Table 5 - Catchments of Various Levels and Characteristics

Catchment Unit	Indicative Size (ha)	Responsible Party for Delineation	Primary Stakeholders	Government Defined Management Tools	EbAM Interventions
Catchment (Water Resources Unit)	18,000-400,000	Malawi Government	Communities, farmers (including pastoralists), other land users Local government officials, including higher-level officials than those for sub-catchments Traditional authorities, NGOs, private sector, etc.	Catchment Management Committee (CMC) Catchment Management Plan (CMP)	None
Sub-catchment (WRU sub-catchment)	1,500-45,000	EbAM taking other donor delineation into account	Communities, farmers (including pastoralists) Other land users Local government officials, including higher-level officials than those for micro-catchments Traditional authorities, NGOs, Farmers organisations, private sector, etc.	Sub-Catchment Management Committee (SCMC) Sub-Catchment Management Plan (SCMP)	Strengthening/ Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchments Management Plans (SCMPs) (Activity 1.1.4)
Micro-catchment (sub-catchment of WRU sub-catchment)	500-1,500	EbAM	Communities (farmers, pastoralists, etc.) Other land users Local government officials and traditional authorities	Village Natural Resources Management Committee (VNRMC) Village Level Action Plan (VLAP) or Group VLAP (about 10 villages, in case their resources are commonly managed)	Strengthening/ Formation of Village Natural Resources Management Committees (VNRMCs) and formulation of EbA-based Village Level Action Plans (VLAPs) (Activity 1.1.3)

Catchment Unit	Indicative Size (ha)	Responsible Party for Delineation	Primary Stakeholders	Government Defined Management Tools	EbAM Interventions
Catchment (Water Resources Unit)	18,000-400,000	Malawi Government	Communities, farmers (including pastoralists), other land users Local government officials, including higher-level officials than those for sub-catchments Traditional authorities, NGOs, private sector, etc.	Catchment Management Committee (CMC) Catchment Management Plan (CMP)	None
Sub-catchment (WRU sub-catchment)	1,500-45,000	EbAM taking other donor delineation into account	Communities, farmers (including pastoralists) Other land users Local government officials, including higher-level officials than those for micro-catchments Traditional authorities, NGOs, Farmers organisations, private sector, etc.	Sub-Catchment Management Committee (SCMC) Sub-Catchment Management Plan (SCMP)	Formulation/ strengthening of SCMCs in targeted sub-catchments (Activity 1.1.4) Formulation of SCMPs in targeted sub-catchments (Activity 1.1.4)
Micro-catchment (sub-catchment of WRU sub-catchment)	500-1,500	EbAM	Communities (farmers, pastoralists, etc.) Other land users Local government officials and traditional authorities	Village Natural Resources Management Committee (VNRMC) Village Level Action Plan (VLAP) or Group VLAP (about 10 villages, in case their resources are commonly managed)	Formulation/strengthening of VNRMCs in targeted micro-catchments (Activity 1.1.3) Formulation of VLAPs or Group VLAPs in targeted micro-catchments (Activity 1.1.3)

Figure 35 - Micro-Catchment Delineation Process



57. **Stage 6 Selection of Target WRU Micro-Catchments (during project implementation).** The micro-catchments for intervention will be identified by MoA/DLRC, FAO, relevant Traditional Authorities and project personnel assigned to the sub-catchment in question. The first screening will be based on hydrology, including upstream-downstream linkages. The second and final selection will take into account: rapid GIS hotspot assessment and its ground-truthing results; ecological/environmental (including agro-climatic vulnerabilities); socioeconomic and cultural factors; interests of micro-catchment inhabitants in EbA-based integrated landscape management; and absence of competing interventions to avoid any duplication. Selection of micro-catchments for phased implementation will be based on the ease of project implementation and conducted by MoA/DLRC, FAO, relevant Traditional Authorities and project personnel assigned to the sub-catchment: roughly 11 in Project year 1, 70 in Project year 3 and 30 in Project year 4. The examples of indicators for micro-watershed targeting and those for phasing are provided below.

Table 6 - Examples of Indicators for Micro-Catchment Targeting and Phasing

Targeting	Phasing
<ul style="list-style-type: none"> • Hydrological importance of micro-catchment in sub-catchment. • Degradation level of downstream micro-catchments. • Extent of natural resources degradation, e.g. soil erosion, destabilized slopes, absence of vegetation. • Frequency and magnitude of natural disasters. • Presence ecosystems with significant ecosystem services that are under pressure. • Food and nutritional insecurity risks. • Poverty level. • Population density. • Number of potential beneficiaries. • Dynamism and motivation of local institutions, community organizations and user groups. • Interests and commitment of local population to participate. • Possible synergies with other projects and initiative. • Potential for visibility and replication. 	<p>Micro-catchments with the following characteristics will be implemented earlier than other targeted micro-catchments:</p> <ul style="list-style-type: none"> • Awareness/concerns for ecosystem conservation. • Good practices of communal resources management, e.g. water sharing, rotational grazing. • Potential to improve social equity. • Support from technical line agencies and non-community-member local stakeholders. • Resource allocation for natural resources management by local government. • Potential in successful intervention. • Physical accessibility.

1.3.2 Agroecological Zones, Livelihood Systems of Project Areas

58. There are two distinct seasons in Malawi: a single rainy season from October to April; and a dry season from May to September. Its climate differs with altitude and on small scales.^{205 206} The country is divided into four agro-ecological zones that are mainly delineated by altitude: Lower Shire Valley (<200 m), Lakeshore, middle and upper Shire (200–760 m), Mid-elevation Upland Plateau (760–1300 m), and Highlands (>1300 m). The difference in altitude gives rise to three climates: semi-arid, with an annual rainfall of around 600mm (Shire Valley and some parts along the Lakeshore Plain); semi-arid to sub-humid, with annual rainfall of 700-900 mm per year (Medium Altitude Plateaus); and sub-humid with annual rainfall at 1,000-1,100 mm (High Altitude Plateaus and hill areas). The mean temperature during 1981-2010 varied from place to place; with the low-lying and lakeshore areas recording 20-25°C and the highlands 12-15°C. Winter rains are more common in high altitudes, while the central plains are largely dry but warm in winter. These climate characteristics have resulted in the delineation of agroecological zones as indicated in Figure 36 and Table 7.

59. The decentralized extension system of the Ministry of Agriculture is organized around eight Agricultural Development Divisions (ADDs) – which are roughly in accordance with agroecological zones – and Extension Planning Areas (EPA) – which are bases for frontline extension staff and in general are smaller than a Traditional Authority area. These administrative structures inform the project counterparts on the ground.

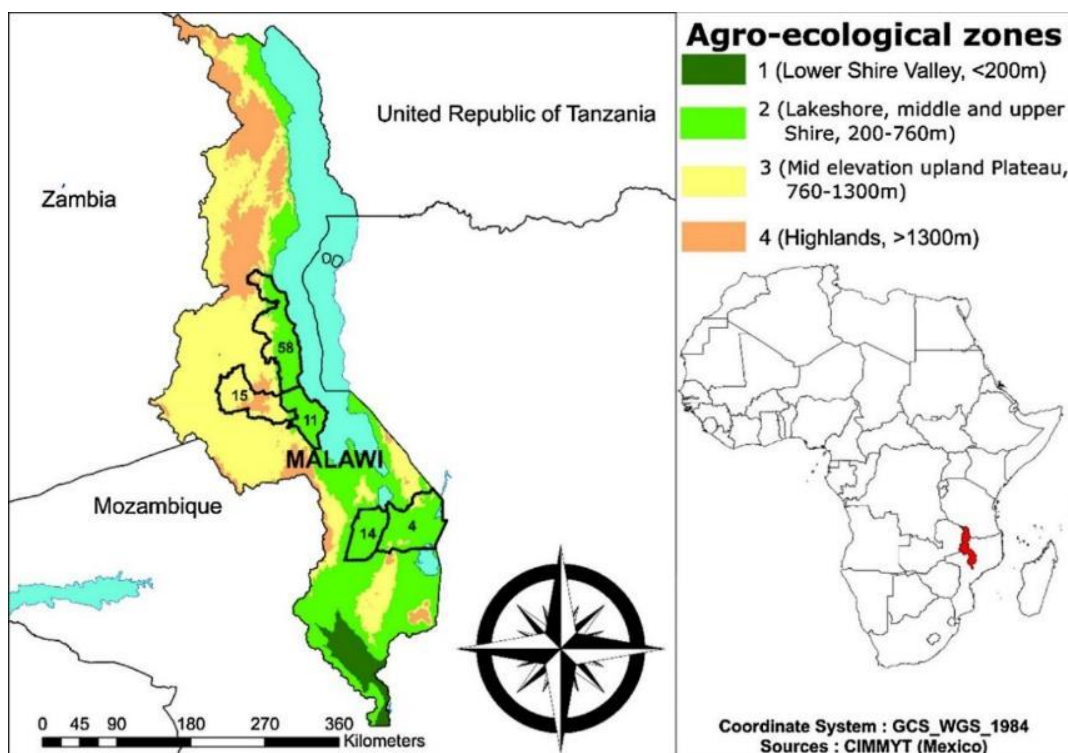


Figure 36 - Agroecological. Agro-ecological zones in Malawi
Source: Berre et al.,2017. "Thinking beyond agronomic yield gap: Smallholder farm efficiency under contrasted livelihood strategies in Malawi."

Table 7 - Description of Agroecological Zones in Malawi based on "Cost-Benefit Analysis of Food and Nutrition Security in Malawi - Technical Report. National Planning Commission Report" (2021).

Agro-ecological Zones	Characteristics	Challenging conditions	Enabling factors
Lower Shire Valley	Rainfall:<600mm Slope: Gentle to medium Soil type: Alluvial Soils (Hydromorphic in the marshlands) Soil texture: Sandy Clay Loam Soil loss average: 0.4-10.3 t/ha/yr Average temperature: 25°C	Dry spells Low rainfalls for most crops Flood Hazards High temperatures	Young alluvial soils, fertile Vast marshes and wetlands for livestock grazing Low slope Relatively good soil water retention
Lakeshore, Middle and Upper Shire	Rainfall:600-800mm Slope: Gentle to medium Soil type: Cambisol and luvisol Soil texture: Sandy loam Soil loss average: 0.-39.3 t/ha/yr Average temperature: 24°C	Dry spells Low rainfalls for most crops Flood Hazards High temperatures Poor water holding capacity of soils	Medium soil fertility Flat areas with appropriate water drainage

mid-elevation upland Plateau	Rainfall: 800-12000 mm Slope: Gentle to medium Soil type: luviosol, lixisols and leptisols Soil texture: Sandy Loam Soil loss average: 0.48-20.3 t/ha/yr Average temperature: 19°C	Lixisols are not adapted for agriculture, more suited for grazing Declining soil fertility Dry spells	Moderately good average rainfall Leptisols have a high cation-exchange capacity, fertile Good water holding capacity Moderately good average temperature, especially for livestock
Highlands	Rainfall: >1200mm Slope: medium to steep Soil type: Cambisols lixisol Soil texture: Clay Loam Soil loss average: 0.4-39 t/ha/yr Average temperature: 17°C	High soil erosion, surface runoff High rainfall	Optimal temperatures, grasses and shrubs for livestock grazing

Table 8 - Agroecological Zone, Agricultural Development Division and Extension Planning Area in Areas Covered by the Project

Region	District	Water Resource Unit (WRU)	Area (ha)	Traditional Authority and Game Reserves in WRU	Agroecological zone	Agricultural Development Division (ADD)	Extension Planning Area (EPA)
South	Neno, Mwanza	1M	88,022	TA Dambe, TA Ngozi, TA Kandunko, TA Mlauli, Majete Game Reserve Mwanza (not targeted)	Lakeshore, Middle and Upper Shire	Shire Valley	Mwanza Lisungwi Neno
South	Nsanje	1G	146,653	TA Mbenje, TA Ndamera, TA Nyachikadza, TA Gambo, TA Chibombo, TA Nsange Boma, TA Malemia, TA Tengani, Mwabvi Game Reserve (not targeted)	Lakeshore, Middle and Upper Shire Lower Shire	Nsanje	Magoti, Zuende, Nyachirenga Magoti
South	Mangochi	1T	57,140	TA Chimwala, TA Mpomba	Lakeshore, Middle and Upper Shire mid-elevation upland Plateau	Machinga	Mnthiramanja Nasenja
South	Zomba	1B	198,358	TA Nkapita, TA Melemia and TA Mlumbe	Lakeshore, Middle and Upper Shire mid-elevation upland Plateau	Blantyre	Chingale
South	Thyolo	14D	24,533	TA Mlolo, TA Nsabwe	Lakeshore, Middle and Upper Shire	Blantyre	Thekerany
Central	Dedza	4A	57,673	TA Kasumbu, TA Tambala	Highlands	Lilonwge	Kanyama Mayani

Region	District	Water Resource Unit (WRU)	Area (ha)	Traditional Authority and Game Reserves in WRU	Agroecological zone	Agricultural Development Division (ADD)	Extension Planning Area (EPA)
North	Nkhata Bay, Rumphi	16G	132,009	TA Musisiya, TA Boghoyo, TA Mwamlowe	mid-elevation upland Plateau Highlands	Karonga	Chikwina Mphompha
North	Chitipa, Karonga, Rumphi	8A	208,826	TA Kyungu, TA Nthalire, Nyika National Park (not targeted)	Lakeshore, Middle and Upper Shire mid-elevation upland Plateau	Karonga	Kavukuku Lupembe
		Total	913,214				

60. **Land Tenure.** Access to land and land tenure is quite unequal in Malawi, where the wealthy own more land and have better tenure security. Land tenure is classified into customary, public and private lands, and accounted for 68%, 20% and 12% of the land, respectively, in 2012.²⁰⁷ The estates held 13% of total land in 1998;²⁰⁸ the biggest estates were located in Thyolo, Mulanje and Nsanje districts in the south (for tea production) and some areas in the central and northern regions (for tobacco production). Smallholders own 69% of the land and are mostly subsistence farmers who cultivate maize, rice, cassava, legumes and sweet potato. The average holding size is 0.61 ha nationally. Only 32% of agricultural landholders are women.

61. **Cropping System: Maize.** Maize-based farming systems are dominant across the country, although the crop is not suited to all of the country's diverse agroecological conditions. One of the most common narratives about agriculture in Malawi has been "maize is life," indicating strong cultural attachment of people to the crop. Malawian farmers believe that they have been growing maize – introduced by the Portuguese in the late 18th century²⁰⁹ and replaced sorghum and millet in the beginning of the twentieth century²¹⁰ – as their primary crop for hundreds of years and to replace this crop would be defiance of cultural practices and associated ideas. The global rise of industrial agricultural systems, including the promotion of monocropping and fertilizer, has greatly influenced farming in Malawi.²¹¹ Maize is of low drought tolerance and limited nutritional benefits, but the recent efforts for diversification have not changed the low crop diversity in the country, and maize monoculture continues to reign. Stunting among children is common, particularly in rural areas in relation with monoculture and the volume of production being reduced by climate change, and only a minority of the population is consuming adequate foods from all the food groups.²¹² Food shortages in the "lean season" (pre-harvest months, typically January-March) is a significant cause of labor loss and revenue, which have been described as an issue encountered on a yearly basis.²¹³ A household survey indicated that 40 % of households were too hungry to work in their fields, losing an average of 10.6 days of labor in 2016.²¹⁴

62. **Cropping System: Rice.** Rice provides food and income to many households in Malawi. It is an important food crop second to maize and mostly consumed in urban areas. In rural communities, rice consumption is significant along the lakeshore of Lake Malawi. The crop is grown by smallholder farmers under irrigation schemes and in wetlands during the rainy season. Most of these farmers have a land holding size averaging 0.5 hectares.²¹⁵

63. **Cropping System: Tobacco.** In 2015, Malawi was one of the largest tobacco (burley) producers in Africa.²¹⁶ At that time, the country devoted more than 5% of its farming land to the crop – the highest percentage globally – and recorded the fourth fastest deforestation rate in the world.²¹⁷ The percentage of deforestation caused by agriculture expansion (driven by tobacco farming) is very high—it reached 26% by the early 2000s²¹⁸. Tobacco is also ranked as the highest user of wood among non-household users in Malawi. It involves the use of wood and twigs in construction of barns for air-cured tobacco and firewood for fuel-cured tobacco. The tobacco growing is practiced as a form of contract farming, which helps smallholder farmers by providing access to the market, inputs, and extension services. That is, tobacco companies provide loans, expertise, and transportation of the farm produce to the tobacco market.

Combined with a higher average annual price than maize, groundnuts or soybeans, tobacco production has resulted in an increase in the number of tobacco farmers despite its impact on the forests and environment²¹⁹. Apart from the environmental impacts of this monoculture crop, several health disorders are directly associated with its production. Child labor is also an issue that characterizes this sector. Lately, Malawi has been seeking to switch from tobacco to other more environmental, less health affecting crop productions; in the past years tobacco production has been reduced, but the farmers have found themselves without a replacement cash crop.

64. **Cropping Systems: Pearl Millet and Sorghum.** Pearl millet originated in Western Africa and has been naturalized widely in Africa, including Malawi. It has a short life cycle of three months. It is drought tolerant, disease resistant and can be stored for long periods without insect damage, making it an important food during periods of drought. It is the third most important food grain in semi-arid regions of Africa and Asia.²²⁰ Finger millet has traditionally been grown as part of a shifting cultivation system, known locally as *visoso*. Sorghum is grown in central and southern Malawi, as part of an intensive rain-fed cropping system, planted at the start of the rainy season and intercropped with cowpea and sometimes with maize and finger millet. It is grown as part of an annual cropping system. Compared to millets, sorghum requires more weeding, more fertilization and ways to reduce bird damage (typically by having children posted in the fields to chase away birds during the growing period). Both grains perform better than maize under drought conditions and in storage. Unlike maize, which has a leafy cover, both grains are unprotected from bird damage in the field.²²¹

65. **Livestock Production.** Livestock production is concentrated in the northern region and practiced mostly with extensive grazing on pastures in communal lands. The most common livestock animals are cattle, goats, pigs and poultry. Approximately 51% of households nationally own livestock. It is mostly female-headed households that keep goats across the country, while cattle are kept in 10 livelihood zones (see below), mostly by the wealthy, who use them for milk and, in the case of oxen, for draft power.²²²

66. **Crop Calendar.** A complete common crop calendar for the central region of Malawi is shown in Figure 37,²²³ including leguminous, tobacco and sweet potatoes. It indicates that main farming activities such as planting, coincide with the beginning of the rainy season in October/November. Figure 38²²⁴ shows a similar crop calendar, but for southern Malawi, which includes cassava production. In the southern region, the planting season starts in October, one month before than in the center, and cassava is planted even earlier in July; the crop season in the south is longer and more varied than in the center. Figure 39 and Figure 40 show the crop calendar for the North (Nkhata Bay and Karonga districts). The main crops cultivated are cassava, sweet potatoes and beans.

Crops	June	July	August	September	October	November	December	January	February	March	April	May
Maize	Harvesting		Clearing and ridging	Planting <i>dimba</i> Clearing and ridging		Planting, weeding, and fertilizing (1)		Fertilizing (2) and weeding (2)	Weeding (2) and bunding			Harvesting
Groundnuts	Harvesting and clearing					Planting		Weeding				
Tobacco			Nursery activities			Planting, fertilizing (1) and (2), weeding (1), and bunding			Picking, processing, and uprooting stems			Clearing
Sweet potatoes	Harvesting							Planting				
Chickpeas						Planting						Harvesting
Beans						Planting					Harvesting	

Figure 37 - Central Region General Crop Calendar Source: Kamanga (2002)

Crops	June	July	August	September	October	November	December	January	February	March	April	May
Maize	Incorporation of residues (clearing)		Incorporation of residues and ridging			Ridging, planting, weeding (1), and fertilizing (1)		Weeding (2) and fertilizing (2)	Weeding (2) and bunding	Harvesting		
Groundnuts	Harvesting and clearing					Planting		Weeding				Harvesting
Pigeon peas			Harvesting			Planting and weeding		Weeding				
Cassava			Planting and ridging									
Sweet potatoes	Harvesting							Planting				
Mucuna						Planting at low population densities						Harvesting
Chick peas						Planting						Harvesting
Beans						Planting				Harvesting		

Figure 38 - Southern region General Crop Calendar - Source: Kamanga (2002)

	April	May	June	July	August	September	October	November	December	January	February	March
Rainy season												
Crops												
Maize rainfed	Harvest/thresh						Land preparation	Sowing		Weeding		
Maize irrigated			Land preparation	Sowing		Weeding	Harvest/thresh					
Rice		Harvest/thresh					Land preparation		Sowing		Weeding	
Cassava	Weeding				Harvest/thresh		Land preparation		Sowing			
Pigeon Pea				Harvest/thresh			Land preparation	Sowing		Weeding		
Ground nuts	Harvest/thresh							Land preparation	Sowing	Weeding		
Sweet potatoes irrigated	Land preparation	Sowing	Weeding	Harvest/thresh								
Bananas	Harvest/thresh							Sowing				

Figure 39 – Northern Region Crop Calendar (Northern Karonga)- Source: Malawi Livelihoods Profile (2016).

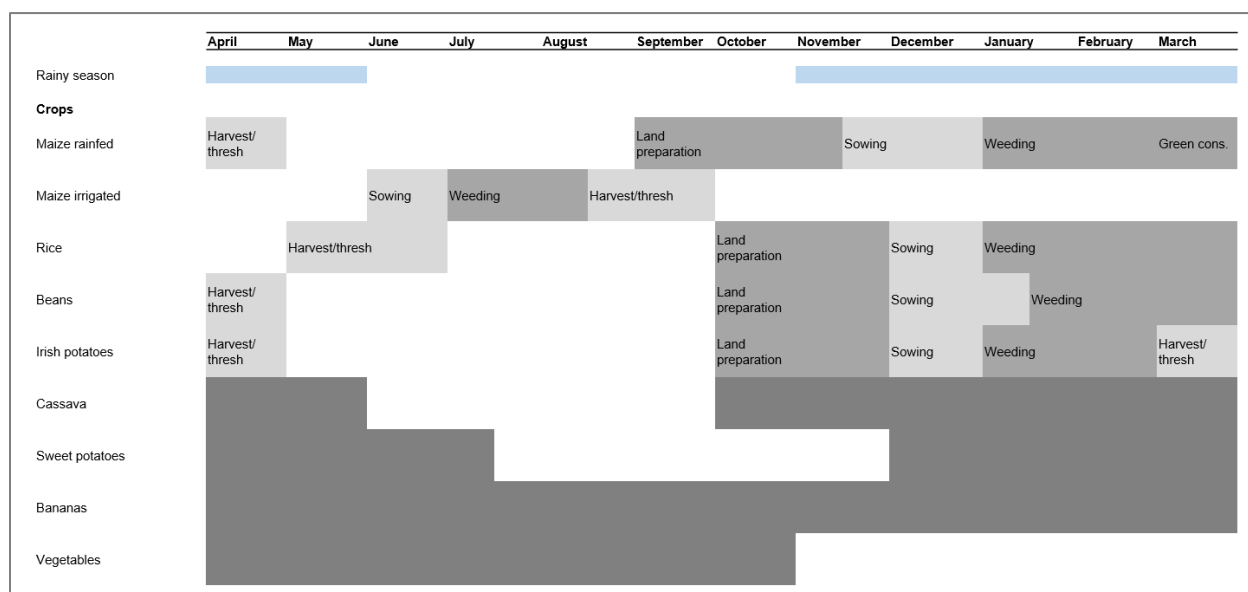
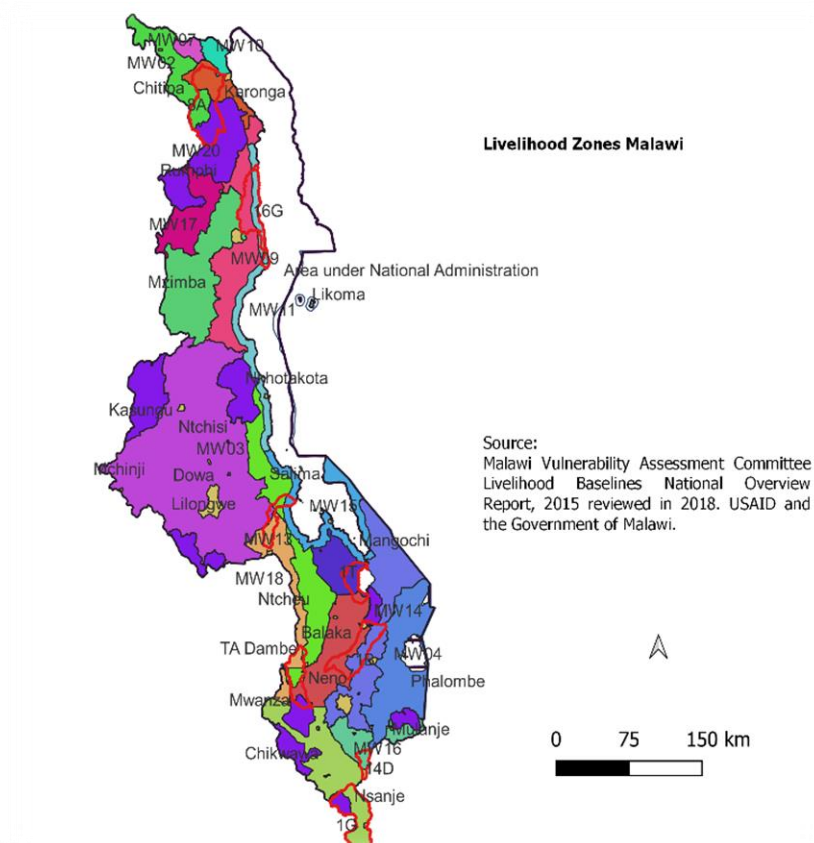


Figure 40 – Northern Region Crop Calendar (Nkhata Bay)- Source: Malawi Livelihoods Profile (2016)

67. **Livelihood Systems.** A livelihood zone analysis was carried out during 2015-2016,²²⁵ describing 18 livelihood zones, within which people broadly shared the same patterns of access to food and markets. Table 9 summarizes the livelihood types within the WRUs targeted by EbAM. Figure 41 shows the livelihood zones in Malawi.

Table 9 - Livelihood zones in Targeted WRU

Selected WRU	Livelihood Zone Name	Districts
8A	Central Karonga	Chitipa, Karong, Rumphi
	Chitipa Millet & Maize	
16G	Northern Lakeshore	Nkhata Bay and Rumphi
	Nkhata Bay Cassava	
4A	Border Productive Horticulture	Dedza
1T	Phirilongwe Hills	Mangochi
1B	Middle Shire Valley	Zomba
	Shire Highlands	
1M	Border Productive Horticulture	Neno, Mwanza
	Rift Valley Escarpment	
	Middle Shire Valley	
	National Park	
14D	Thyolo Mulunje Tea Estates	Thyolo
	Lower Shire	
1G	Lower Shire	Nsanje



68. Two main farming systems prevail in Malawi and in selected districts: (i) one in zones with temperate weather conditions and higher rainfalls (Chitipa, Karonga, Rumphi, Nkhata Bay, Dedza, Mwanza), and (ii) another in dry areas, with high average temperatures (Mangochi, Neno, Zomba, Thyolo, Nsanje). Common characteristics of the two farming systems include: (i) home gardens, (ii) croplands (depending on the area, it can be upland and/or lowland) and (iii) mixed-farming with livestock (chickens, goats, cattle mainly). In temperate weather and higher rainfalls zones, farming systems either do not have home gardens or have few crop varieties, such as cassava, sweet potatoes, tomatoes, and peppers. Croplands always produce maize under mono-cropping or can be intercropped with legumes (groundnuts, soya, pigeon pea, etc.) and/or cassava. Rainfed, conventional agriculture with no soil cover is practiced. In lowlands areas, rice is produced through mono-cropping, with large-scale sugar cane plantations. The use of fertilizer is reserved to people who have access to the Affordable Inputs Program (AIP – which replaced the earlier Farm Input Subsidy Program FISP in 2020), and AIP beneficiaries vary from a year to another. Little or no manure is added, and when added is not composted. Livestock (mainly small ruminants and chickens) is part of the livelihood system but it is poorly integrated to the farming system. For instance, the use of manure for agriculture is not extended and it is normal for farmers to leave livestock free-grazing, particularly during the dry season. In dry areas, farming systems and practices are very similar with the addition that agriculture yields are lower as weather conditions are more difficult. In croplands, maize and cassava are the main crops, with some legumes intercropped. Home gardens are not very common or produce little amount (with few varieties of crop), and operate mainly in rainy season due to low water availability. When home gardens are present, sweet potato, cassava, tomatoes and peppers are found.

Table 10 - Main Existing Farming Systems in Malawi

Agro ecological Zones, Districts and Livelihood Zones	Farming System		
	Home Garden/Crop Land/Livestock	Crops and Animals	Farming Practices
<p>Mid-elevation upland Plateau and Highlands</p> <p>Rainfall: 800-1300mm</p> <p>Districts (and WRU)</p> <p>Karonga (8A)</p> <p>Chitipa (8A)</p> <p>Nkhata Bay (16G)</p> <p>Thyolo (14D)</p> <p>Rumphi (16G)</p> <p>Nsanje (1G)</p> <p>Mwanza (1M)</p> <p>Mangochi (1T)</p> <p>Dedza (4A)</p> <p>Livelihood zones</p> <p>Central Karonga</p> <p>Chitipa Millet & Maize</p> <p>Northern Lakeshore</p> <p>Nkhata Bay Cassava</p> <p>Border Productive Horticulture</p> <p>Shire Highlands</p> <p>Border Productive Horticulture</p> <p>Phirilongwe Hills</p> <p>Thyolo Mulunje Tea Estates</p>	Home Garden	<p>Not always present</p> <p>If present: cassava, sweet potatoes, tomatoes, peppers are grown.</p>	<p>Use of hand or hoe</p> <p>Plowing with oxen or with hoe</p> <p>2 weeks of land preparation by one person for 1 ha</p> <p>No soil cover</p> <p>Low diversity of crops and foods produced</p> <p>Rained mostly, only watering of home gardens</p> <p>Use of synthetic fertilizer only when obtained through the government subsidy program.</p>
	Crop Land	<p>Maize mono-cropping</p> <p>Or maize intercropped with legumes (groundnuts, soya, pigeon pea, etc.) and/or cassava</p>	
	Lowland (if present)	Rice during rainy season	
	Livestock	<p>Goats</p> <p>Chickens</p> <p>Cattle</p> <p>Few agropastoralists, concentrated in the north</p>	<p>No integration of livestock with the cropping system</p> <p>Uncontrolled and free grazing in dry season</p>
<p>Lower Shire Valley</p> <p>Lakeshore, Middle and Upper Shire</p> <p>Rainfall: 400-800mm</p> <p>High temperatures above 25°C</p> <p>Districts (and WRU)</p> <p>Neno (1M)</p> <p>Thyolo (14D)</p> <p>Zomba (1B)</p>	Home Garden	<p>Not always present</p> <p>If present: some cassava, sweet potatoes, tomatoes, peppers</p>	<p>Use of hand or hoe</p> <p>Plowing with oxen or with hoe</p> <p>2 weeks of land preparation by one person for 1 ha</p> <p>No soil cover</p> <p>Low diversity of crops and foods produced</p>
	Crop Land	<p>Maize monocropping</p> <p>Or maize intercropping with leguminous (groundnuts or soy, or beans, like pigeon peas)</p>	

Livelihood zones Lower Shire Middle Shire Rift Valley Escarpment			Rainfed mostly, only watering of home gardens Use of synthetic fertilizer only when obtained through the subsidize program.
	Livestock	Goats Chickens	No integration of livestock with the cropping system Uncontrolled and free grazing in dry season

Table 11 – Characterization of WRU/Basin

Selected WRU	LVHZ code	LVHZ Name	Description
8A	MW01	Central Karonga	Main crops: Maize, rice, cassava, cotton and tobacco / Livestock: Cattle, goats, pigs and chickens General zone description: A relatively productive maize and cassava zone that attracts migrant labor from other parts of the country in most years. Less dependent on maize than other northern zones. Livestock holdings, especially of cattle, are high by national standards. Households in the zone earn their income from the sale of cash crops (tobacco and cotton), food crops (especially rice) and livestock (cattle and pigs). Rice is an important cash-earning food crop for all wealth groups in the zone. In addition to crops and livestock, the very poor and poor depend heavily upon ganyu and self-employment (firewood, mat-making etc.).
	MW02	Chitipa Millet & Maize	Main crops: Maize, millet, cassava, beans, pigeon peas, ground nuts, sweet potatoes, bananas, soya, sunflower, sugarcane and tobacco Livestock: Cattle, goats, pigs and chickens General zone description: The zone lies on a mid-altitude plain with a number of hills around its rim. The zone receives an average rainfall of 1,200 mm annually. A large number of crops are grown, and both rainfed and dimba (winter) cropping are important. Food crops include a balanced mix of maize, cassava and millet, along with a range of pulses and oil crops. This is the only zone where sunflower is grown for consumption and sale, and one of only two zones where sugarcane is grown by smallholders. The main cash crops are tobacco (but only for the top two wealth groups), sunflower and sugarcane. Significant cash income is also generated from selling all the food crops, along with livestock and milk to Chitipa town, Karonga and Zambia. Animal husbandry plays a significant role, and cattle, goats, pigs, chicken and guinea fowl are kept. Finger millet used to be a central crop here, but tobacco and cassava are taking its place.
16 G	MW11	Northern Lakeshore	Main crops: Maize, rice, cassava, sweet potatoes, ground nuts and beans Livestock: Cattle, goats, sheep, pigs and chickens General zone description: The zone covers a thin strip of land with a width of approximately 5 to 6 km, extending from the lakeshores from Chiweta in Rumphi to the Nkhosha-Salima boundary. Crop production, fishing and livestock form the foundation of the local household economy. The combination of relatively fertile soils, high rainfall levels, and access to irrigated land in the dry season makes this an area where food surpluses are generally expected on an annual basis. Households have the particular advantage of balancing out the year with maize and cassava, depending on cassava when maize harvests run out, and replacing cassava with maize when the April maize harvest starts. Petty trade is a reliable source of cash in this zone. This is one of only two zones where sheep are kept and sold.
	MW09	Nkhata Bay Cassava	Main crops: Maize, cassava, sweet potatoes, Irish potatoes, ground nuts, rice, beans, bananas and tobacco Livestock: Cattle, goats, pigs and chickens General zone description: With high rainfall but poor soils, the zone can be characterized as food- and cash-sufficient. The zone has a generally high crop production; a larger diversity of crops; and a good balance between drought-vulnerable crops (maize) and drought-resistant crops (cassava and bananas). Furthermore, irrigated crops help offset the risk of rainfall failures, while perennial crops like bananas and cassava ensure food availability year round, thus limiting the lean season. Tobacco is the only cash crop grown by middle and better-off households. Given its drought-resistance, cassava plays a key role in ensuring zonal food security, with the zone attracting migrant labor from other zones when these are affected by food shortages. In addition to crops sales, livestock sales and petty trade provide significant income, contributing to the cash sufficiency of the zone.
1T	MW12	Phirilongwe Hills	Main crops: Maize, sorghum, cassava, pigeon peas, groundnuts, sweet potatoes, cotton and tobacco Livestock: Goats and chickens General zone description: This is one of the zones where remittances play a role. The zone receives quite significant amounts of rainfall (in the range of about 800 mm to 1000 mm), causing water-logging and flooding problems in some years. Maize is the main staple food, while tobacco and cotton are important cash crops for the area, but these cash crops are only grown by the upper two wealth groups. Groundnuts also serve as an important source of cash, especially for the poor households, whose ability to grow tobacco is limited by lack of inputs, fertilizer in particular. Winter crop production is not very significant in the zone. Local labor and petty trade are significant sources of cash income here, and firewood sales account for a large portion of cash income for very poor households.
1B	MW14	Shire Highlands	Main crops: Maize, sorghum, ground nuts, pigeon peas, sweet potatoes, tomatoes, and rice Livestock: goats and chickens General zone description: General zone description: This is a densely populated zone, characterized by small landholdings and low livestock ownership. The zone produces roughly enough to feed itself in most years and on average has the lowest level of cash income when compared to other livelihood zones. Income-generating opportunities are limited and very poor, poor and middle households sell a high proportion of their production just after their harvest in order to obtain cash, becoming heavily dependent on the market later in the year. Crop production is relatively undiversified, with a heavy dependence on maize. Other sources of cash besides the sale of crops are goat and chicken sales, ganyu (for very poor, poor and middle households), petty trade and grass sales. Compared to other zones, the proportion of those in very poor and poor household groups is very high.
1M	MW18	Border Productive Horticulture	Main crops: Maize, beans, pigeon peas, Irish potatoes, cassava, sweet potatoes, groundnuts, tomatoes and tangerines Livestock: Goats, pigs, and chickens General zone description: This is a unique upland area that borders a zone of highly productive agricultural land in Mozambique. The road network running along most of the border has resulted in a high level of cross-border trade between Malawi and Mozambique for all wealth groups. Nevertheless, this is relatively poor zone, with one of the lowest cash income levels in the country. The zone is one of only two zones in Malawi where Irish potatoes are grown, and tangerines are a primary cash crop. In addition, beans, cabbage, tomatoes, fruits (e.g. peaches, lemons, apples, plums and watermelons) and other vegetables are grown. Cross-border trade (often done by the upper two wealth groups) and casual labor during the lean period in Mozambique are a source of income among poorer households. There are also cases of some people doing their cultivation across the border.
	MW13	Rift Valley Escarpment	Main crops: Maize, pigeon peas, cow peas, sweet potatoes, groundnuts, soya, cotton and tobacco Livestock: Cattle, goats, pigs and chickens General zone description: Among the poorer zones in Malawi, this is a food-deficit area that is somewhat rocky and less productive than the surrounding zones. Production potential is low, yet few other cash income options (outside of crops) are exploited. Maize is the main food crop, although small amounts of tubers and pulses are also grown. A portion of all the food crops is sold. The main cash crops include cotton and tobacco, although tobacco is only grown by the upper two wealth groups. Livestock holdings in the zone are relatively low, and the common types include chickens, goats and pigs. Better-off households also own cattle. Local labor and migratory labor are the most important sources of cash for poorer households. Brick sales, construction labor and charcoal and firewood sales are among the other self-employment options pursued by poorer households.
	MW06	Middle Shire Valley	Main crops: Maize, pigeon peas, sweet potatoes, groundnuts and cotton / Livestock: goats General zone description: This is a relatively dry mid-lowland area with limited winter cropping and fishing along the Shire River. The zone is among the lowest in terms of cash income compared to other zones. It is similar to some of the other southern zones in that total production for the zone is normally just enough for self-sufficiency. It is common for some households to sell high proportions of their harvest to cover their immediate needs, only to buy similar quantities of food later in the year when their food stocks run out. Food purchases are financed by charcoal sales and other bush-based collection activities, which are abundantly available from the nearby woodlands. The demand for bush-based products is fueled by the ever-growing Southern Region's urban centers. A range of crops are grown, including cotton, which provides households with 10 percent to 27 percent of their annual income. Other sources of income for very poor and poor households are ganyu, petty trade, firewood and charcoal sales. Quarry and sand mining are emerging strategies in the zone.
14D	MW16	Thyolo Mulunje Tea Estates	Main crops: Maize, cassava, pigeon peas, sweet potatoes and sugar cane / Livestock: goats, pigs and chickens General zone description: This zone is dominated by large tea estates, which generate both formal employment and casual labor for a majority of households. Landholdings are very small and the zone is a food production-deficit area with a high dependence on food purchases. The zone benefits from good access to neighboring Mozambique, a source of relatively cheap maize in both good and bad years. This is one of only two zones in Malawi where sugar cane is grown and sold by smallholders, and this brings in significant income for middle and better-off households. A range of other crops are sold here, such as maize, cassava, sweet potatoes and pigeon peas, as well as horticultural crops (sugarcane, avocado, pears, vegetables and tomatoes).
1G	MW05	Lower Shire	Main crops: Maize, sorghum, millet, cowpeas, sweet potatoes and cotton Livestock: Cattle, goats, pigs and chickens
	MW05	Lower Shire	General zone description: This hot, dry lowland zone is nonetheless relatively productive by the standards of southern Malawi. A variety of cereal crops are grown (maize, sorghum, and millet) during both the main and winter seasons, with maize and beans cultivated in wetlands beside the Shire River, using residual moisture or irrigated in the winter months. By growing drought-resistant crops like sorghum and millet alongside maize, households here reduce the risks associated with a heavy reliance on maize. Cotton is the zone's major cash crop. Cattle holdings are significant, although concentrated in the hands of the better-off. Overall, roughly one third of the zone's income comes from sale of food crops, one third from the sale of cotton and one third from the sale of livestock (mainly cattle and goats). The zone benefits from good access to neighboring Mozambique, a source of both ganyu and relatively cheap maize in both good and bad years.

Table 12 - Types of Farming Households in Project Areas

Type of Farmer Household	General Characteristics	Land Owned per Household (ha)	Land Cultivated per Household (ha)	Livestock per Household
Ultra-poor	Small sizes of land No livestock or very little Few or no tools Not food secure during lean period Dependence on off-farm income Renting of their land to better off Low yields due to low input and less time to work on own fields not rented to others	0.3-1.5	0.3-1	0-2 goats 0-1 pigs 2-10 chickens
Poor	Small landholdings Few livestock Food insecure during lean season Off-farm labour	0.3-1.7	0.3-1.5	1-4 goats 0-5 pigs 3-20 chickens
Middle	Livestock and plough oxen Larger sizes of land without renting to others. Possession of resources for hiring labor.	0.8-2	0.8-1.5	2-8 goats 2-8 pigs 2-4 oxen 2-5 cattle 1-3 sheep 7-15 chickens
Better off	Food secure (low purchasing of food, enough production to cover self-consumption) High production of cash crops.	1.5-2.42	1.5-3.2	4-15 goats 2-10 pigs 2 oxen 6-18 cattle 3-5 sheep 10-25 chickens

Part 2. Climate Change Policy framework

69. This section presents the policy framework by analysing how relevant policies and strategies address key points around climate change i.e. (i) Climate Change, Environment and Future of Malawi, (ii) Climate Change, Water and Watershed Management, (iii) Climate Change and Forests, (iv) Climate Change and Agriculture, (v) Climate Change, Biodiversity and Agrobiodiversity, (vi) National Priorities in Climate Change Adaptation and Mitigation, (v) Climate Change and Financial Needs and, (vi) Climate Change and Human Resources.

70. *Climate Change, Environment and Future of Malawi.* Malawi has ratified the [UNFCCC](#), the [Kyoto Protocol](#), the [Paris Agreement](#) and most recently the [Glasgow Leaders' Declaration on Forests and Land Use](#). The [National Climate Change Policy 2016](#) and the [National Adaptation Plan 2020 \(NAP\)](#) see climate change as a major impediment to development that needs to be overcome. [Malawi 2063](#) – the country's latest overarching vision – includes environmental sustainability among its seven *Enablers*. The National Climate Change Policy 2016 lists environmental degradation, together with climate change, as a major development issue that frustrates the efforts to improve livelihoods and “aims to promote climate change adaptation, mitigation, technology transfer and capacity building for sustainable livelihoods.” The [Third National Communication of the Republic of Malawi to the Conference of the Parties of the UNFCCC](#) recognizes that climate change has contributed negatively to the socioeconomic growth of the country through its dependence on natural resources and agriculture. The mandates of the National Adaptation Plan 2020 include: enhance sustainable utilization of natural resources especially forest, water, fisheries and wildlife resources; and improve environmental management especially soil and land management. The [National Land Policy 2002](#) recognizes the centrality of land as a basic resource required by all people of Malawi for their social and economic development and seeks to optimize utilization of land resources for development. The [National Environment Policy 2005](#) promotes the rights of every person to a clean environment, while advocating that every person has a duty to promote sustainable utilization and management of the environment and natural resources. One of the major objectives of the [National Wildlife Policy 2000](#) is to ensure adequate protection of representative ecosystems and their biological diversity by managing land and water sustainably. Reduction of underlying risks is one of the priority areas of the [National Disaster Risk Management Policy 2015](#), which involves, among others, sustainable management of the environment and natural resources and aligning disaster risk reduction to climate change adaptation. The [National Forest and Landscape Restoration Strategy 2017](#) acknowledges the twin forces of climate change and land degradation which invite food insecurity and increased vulnerability of affected areas to climate change by way of natural disasters. [EbAM](#) enhances the country's adaptation to climate change by improving ecosystems services and biodiversity, and hence aims for sustainable use of land and other resources. Its ESMF considers the potential impacts of EbAM on the environment and proposes mitigation measures to minimize any negative impact.

71. *Climate Change, Water and Watershed Management.* The [National Water Policy 2005](#) advocates for proper management of water resources to prevent water depletion. It tasks the Ministry responsible for agriculture services to attend to: good land husbandry to prevent water resources degradation; good watershed management; water harvesting and conservation, etc. It also tasks the Ministry responsible for irrigation services to promote good watershed management, water harvesting and management and so on. The [National Environment Policy 2005](#) asserts that an ecosystem based approach is necessary for the aquatic environment and states under its Guiding Principles for agriculture and livestock sector that “[w]atershed management activities will be accorded highest priority to conserve water, prevent further soil degradation and to improve soil fertility.” The Policy 2005 states under the Guiding Principles for water sector that “[i]ntegrated watershed management practices are essential for water conservation at all levels of management.” For the sake of biodiversity, [National Biodiversity Strategy and Action Plan 2015-2025](#) includes actions to develop guidelines and programmes on integrated watershed management. The [National Forest and Landscape Restoration Strategy 2017](#) counts natural forest management and watershed and protection among its main strategies. The [NDC 2021](#) includes in its priorities integrated watershed management, riparian restoration and other watershed related actions (soil and water

management, sustainable forest management, etc.). One of the seven national goals of the [National Forest and Landscape Restoration Strategy 2017](#) is to improve water quality and supply. One objective of the [National Wildlife Policy 2000](#) is to manage land and water sustainably for maintaining biodiversity. [EbAM](#) focuses on restoring and strengthening watersheds and their ecosystem services, which involves soil and water management. One of the important ecosystem services of watersheds is provision of clean water; EbA is quite valuable as adaptive measures to climate change in Malawi characterized by increasing aridity.

72. *Climate Change and Forests.* The [National Land Policy 2002](#) prohibits cutting of trees on steep slopes, hilly areas and watershed areas unless conducted under strict control and guided by selective pruning for sustainable management. The [National Environment Policy 2005](#) acknowledged the contribution of deforestation to climate change. Climate change and land degradation are the imminent issues to be tackled, according to the [National Forest and Landscape Restoration Strategy 2017](#) and the [National Forest Policy 2016](#). The Forest Policy 2016 emphasizes the importance of forests for soil and water resources and prioritizes payment for ecosystem management, among others. It points out the contribution of forests to agriculture and the economy through controlling soil erosion, improving soil fertility and regulating water resources. In 2016, Malawi joined the [AFR100](#) (African Forest Landscape Restoration Initiative, which aims to restore 100 million hectares of degraded land in Africa by 2030) and formally committed to restore 4.5 million hectares of deforested and degraded land. [EbAM](#) strengthens the forest ecosystems, which are crucial parts of watersheds, for adaptation to increasing aridity and rainfall variability caused by climate change.

73. *Climate Change and Agriculture.* The [Malawi Growth and Development Strategy 2017-2022](#), the [National Agricultural Policy 2016](#) and the [National Agricultural Investment Plan 2017-2023](#) put agriculture and climate change at the center of their agenda. The Malawi Growth and Development Strategy 2017-2020 recognizes the intertwined relationships among agriculture, climate change and water. According to the [Third National Communication to the Conference of the Parties of the UNFCCC](#), climate change is one of the largest threats to the agriculture dependent country, and the TNC recommends climate resilient agriculture and strong engagement of local communities. It sees that the lack of diversity has made the agricultural sector vulnerable to market and climate induced shocks. The Communication attributes the slow improvement in agricultural productivity to climate change. As long-term strategies, it recommends climate resilient agriculture, reforestation and soil and water conservation, and so on. It also emphasizes the importance of active engagement of communities in science, technology and innovation to facilitate co-generation of community-owned and sustainable adaptation options. One of the mandates of the [National Adaptation Plan 2020](#) is to improve community resilience to climate change through enhanced agricultural production. [Malawi 2063](#) includes under its first Pillar agricultural productivity, improved and sustainable land management practices, optimal utilization of land resources, climate smart and resilient agriculture and diversification of the agriculture sector. The National Agricultural Investment Plan 2017-2023 identifies 16 intervention areas, which include: public agricultural services delivery; food and nutrition security; disaster risk management; natural resources management and climate change; and access to financial services. The [National Land Policy 2002](#) sees land degradation due to improper agricultural techniques as leading to extensive use of land at the expense of forests, watersheds and protected areas. The [National Agriculture Extension and Advisory Services Strategy 2020-2024](#) refers to Farmer Field Schools (FFSs) as the main measure to compensate for the limited number of extension staff; a lead-farmer manages a FFSs, while one extension agent can overlook and supervise several lead farmers. The Strategy acknowledges FFS as the approach that is most widely used and as extremely effective to increase farmers' outreach. [EbAM](#) enhances the country's adaptation to climate change by conserving soil and water with a focus on agriculture, forests and other land uses of watersheds. EbAM also uses FFS to introduce various agricultural techniques, and facilitates smallholders' access to finance.

74. *Climate Change, Biodiversity and Agrobiodiversity.* The [National Biodiversity Strategy and Action Plan 2015-2025](#) warns that Malawi's biodiversity is being threatened by habitat loss and fragmentation, invasive alien species, overexploitation, pollution and climate change. It stresses the importance of agrobiodiversity for economic, socio-cultural and ecological purposes; agrobiodiversity was estimated

indispensable to about 40% of the Gross Domestic Product (GDP) and more than 90% of employment and merchandise export earnings in 2010. Genetic diversity as part of agrobiodiverse farming systems is essential for their climate resilience, including production stability, as it is what allows plants and animals to adapt to the ever-changing environment around them. Malawi's plant diversity is important also in terms of traditional medicine, as well as pharmaceutical and cosmetic ingredients and agricultural products. In addition, the Action Plan promotes cultivation of indigenous plant species for their preservation as well as active use of landraces by establishing gene banks at community and provincial levels. The Plan aims to be able to maintain and safeguard the genetic diversity of wild and domesticated plants and animals by 2025. The seven national goals of the [National Forest and Landscape Restoration Strategy 2017](#) include conservation and restoration of biodiversity, for which climate change and land degradation are some of the major responsible factors. The objectives of the [National Wildlife Policy 2000](#) include protection of biological diversity by managing land and water sustainably. EbAM is powered by enhancing biodiversity and agrobiodiversity with a focus on native species; it is in full accordance with the Action Plan.

75. *National Priorities in Climate Change Adaptation and Mitigation.* The [Updated Nationally Determined Contribution 2021](#) (NDC) includes in its priorities the development of adaptation planning tools, EbA, integrated watershed management, crop diversification and soil and water management, afforestation, agroforestry, sustainable forest management and riparian restoration. The strategic adaptation actions mentioned in the NDC 2021 follow the National Adaptation Plan mandates, but also adds, among others, elaboration of adaptation priority actions, using nature-based solutions and ecosystems-based adaptation. The NDC puts integrated watershed management under “*accessible and harmless water*”; watersheds are composed of crop lands, forests, grasslands/rangelands and various waterbodies. The long list of NDC actions on agriculture, livestock and fisheries includes: promotion of: farm-based disaster risk reduction and management practices (crop and diet diversification, integrated pest management, etc.); soil and diet improving crops; farmer managed natural regeneration; drought resilient water, soil and catchment conservation; climate adaptation capacity among smallholder farmers; reforestation; community participation in seed selection, storage and management; rainwater harvesting; drought resilient and early maturing crop varieties; and soil fertility improvement. These actions are all relevant to EbA-based integrated landscape management for watersheds, which is community driven and at the core of EbAM.

76. *Climate Change and Financial Needs.* The [NDC 2021](#) includes the following priorities (amounts in brackets indicate conditional funds required for the entire country in 2020-2040): farmer-managed natural regeneration of catchments (USD 30 million); water, soil and catchment conservation for drought resilience (USD 20 million); soil/water conservation and soil fertility improvement (USD 10 million); crop/diet diversification and use of drought tolerant crops (USD 12 million); integrated pest management (USD 30 million); cultivation of legumes for soil health/diet (USD 30 million); climate resilient agronomic practices (USD 20 million); integrated crop-livestock-aquaculture-forest production systems (USD 30 million); drought tolerant or early maturing crops (USD 10 million); and integrated land use management policies (USD 25 million). EbAM directly contributes to these priorities. As for mitigation, EbAM is aligned with NDC's agroforestry measures (USD 6 million in conditional financing). The [National Adaptation Plan 2020](#) envisions to establish the [National Climate Change Fund \(NCCF\)](#) to finance climate-resilient investments (see Box 25 – NCCF - A National Climate Change Fund for Long-Term Financial Sustainability). The NCCF will facilitate mobilisation, blending, coordination of and disbursing for climate finance. The Fund will be capitalized by private, bilateral and multilateral sources and national public finance. EbAM will provide technical assistance to NCCF and national conservation trust funds for catalyzing climate finance, which in turn will sustain and expand the scale of EbA investments in the country.

Box 1 - Malawi NDC financing needs

The NDC 2021 of Malawi puts the estimated funding requirements for climate change adaptation at USD 1.23 billion – of which 656 million rely on external sources – for the period of 2020-2025 and USD 1.56 billion – of which 818 million are to be supplied by external sources – for 2025-30.²²⁶ For agriculture, livestock and fisheries, roughly USD 600 million from external sources are deemed necessary for adaptation in 2020-2040, of which more than half concern climate resilient agriculture and soil/water/watershed management.²²⁷ In 2019, it was estimated that USD 55 million would be required per District for adaptation of climate change resilient agriculture and that access to climate change funds was meagre compared to the size of the problem.²²⁸ With respect to mitigation, USD 4.21 billion are necessary for 2020-2025, of which 2.55 billion are to be found, while USD 7.34 billion are needed for 2025-2030, of which 5.39 billion are yet to be secured.²²⁹ Mitigation through crop management requires some USD 11 billion during 2020-2040, half of which are to depend on the international community. The situation is similar for forestry and land use, as close to half of more than USD 1.41 billion for the same period is to come from external sources.

77. *Climate Change and Vulnerable Groups.* According to the [National Gender Policy 2015](#), climate change management is important in the lives of women. The Policy identifies seven priority areas: education and training; health; agriculture, food security and nutrition; natural resources, environment and climate change management; governance and human rights; economic development; and gender based violence (GBV). In relation to the Policy published in 2005, the latest recognizes new major challenges: HIV and AIDS; GBV; human trafficking; increased environmental degradation and climate change; and high poverty level. As for agriculture, the Policy aims to ensure to women and other vulnerable groups access to and control over agricultural resources, technologies and markets for cash crops. Under natural resources management, environment and climate change management, the Policy sees that the impacts of deforestation are amplified by gender inequality in decision-making power and in access to information. The Policy aims to mainstream gender in natural resources management. Youth, women and vulnerable groups are one of the eight priority areas of the [National Agriculture Policy 2016](#), and the [National Biodiversity Strategy and Action Plan 2015-2025](#) aims to safeguard and restore supply of important ecosystem services, taking into account gender roles and responsibilities of the youth, the poor and the vulnerable. The [National Forest and Landscape Restoration Strategy 2017](#) considers gender equity and equality as essential, and the preparatory exercise for NAP identified inclusion of marginalized groups as important in climate adaptation. Among the seven national goals that the Strategy 2017 puts forth, is “ensure gender equity and equality”. One of the thirteen thematic areas recommended by preparatory stocktaking on NAP was inclusiveness of gender, disability and other socially excluded vulnerable groups in the implementation of climate change adaptation intervention, but the thematic is not incorporated in the NAP mandates. [EbAM](#) mainstreams the needs and concerns of women and youth throughout by building their capacity in ways that are tailored to them. [EbAM](#) also integrates women and youth in sufficient numbers in all decision-making processes. It makes their participation meaningful by reinforcing their capacity and discussing watershed management from their points of view in addition to men’s. [EbAM](#) also sensitizes its personnel, relevant decision makers (such as Traditional Authorities and local government officials, preferably including District Forestry Officer) and other beneficiaries on gender and social inclusion.

78. *Climate Change and Human Resources.* Inadequacy of human resources in the country has been noted and motivated many policies outside the realm of education to rectify the situation. Three of the seven *Enablers* of [Malawi 2063](#) touch upon human resources: effective governance systems and institutions; private sector dynamism, and human capital development. The [National Land Policy 2002](#) attributes the cause of land degradation to, among others, lack of knowledge on agroecological zone. The [National Climate Change Policy 2016](#) promotes capacity building for sustainable livelihoods. The [Third National Communication to the Conference of the Parties of the UNFCCC](#) characterizes the smallholder farmers, constituting 80% of the total population,²³⁰ as resource poor and with little capacity to buffer shocks, and hence, prone to food insecurity. The list of [NDC](#) actions on agriculture, livestock and fisheries includes climate adaptation capacity among smallholder farmers. The [National Agriculture Policy 2016](#) chose institutional development, coordination and capacity strengthening among its eight priority areas. [EbAM](#)

effectively strengthens the capacity of watershed stakeholders by adopting: an inclusive, holistic and participatory process for planning and implementing watershed management decisions; Farmer Field Schools; and various trainings (e.g., EbA, climate change, gender and social inclusion and financial literacy).

Part 3. Mapping of Relevant projects (completed and underway)

Project / Programme title	Description	Best practice, lesson learnt, additionality and/or complementarity with the Project
<p>GEF-7. Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme - DSL IP, (2021-2026, USD 6.3 million). <i>Transforming landscapes and livelihoods: A cross-sector approach to accelerate restoration of Malawi's Miombo and Mopane woodlands for sustainable forest and biodiversity management.</i></p> <p>Implementing Entity: FAO</p> <p>Co-financing Project (at the level of EbAM sub-component 3.2)</p>	<p>The programme focuses on three target landscapes in the Districts of Mangochi, Ntcheu and Balaka.</p> <p>The Development Objective of the project is to "Improve livelihoods and economic diversification of rural communities in two productive landscapes of the Upper Shire River Basin of Southern Malawi by promoting best land management practices and green value chains for key agriculture and woodland commodities". The Project Objective is "Sustainable management of the Miombo and Mopane productive landscapes of the Districts of Balaka, Ntcheu and Mangochi, contributing to national land degradation neutrality targets".</p> <p>The programme has three components: (i) Effective governance support on LDN at the national level and in the targeted Mopane/Miombo landscapes; (ii) Scaling out SLM and SFM best practices at the landscape level to support the development of environmentally sound, socially beneficial and economically viable green value chains; and (iii) Effective knowledge management.</p>	<p>The programme leverages the GEF experience, more particularly on:</p> <ul style="list-style-type: none"> • Implementation of Integrated Landscape Management (ILM) in 3 landscapes • Training of farmers through farmer field schools (FFS) to implement climate-adaptive and SLM practices • Promotion of agrobiodiversity: Seeds and seedlings production • Testing of long-term financial sustainability to implement ILM: pilots on Payment for Environmental Service (PES) • Development of "green value-chains" targeting neglected and underutilized species (NUS – sorghum and pigeon peas) and non-timber forest products (NTFPs – moringa, baobab and honey). Broker business relationships with traders and national buyer companies who operate nationally and internationally. • Policy dialogue with Malawi's National Committee on Climate Change and Disaster Risk Management (NCCC&DRM) to promote LDN at national level and in targeted landscapes
<p>GCF (AE: UNDP). Scaling up the use of Modernized Climate information and Early Warning Systems in Malawi (2015-2023, USD 16.3 million)</p> <p>Implementing Entity: Department of Disaster Management Authority (DoDMA)</p>	<p>The objective of the project is to reduce vulnerability to climate change impacts on lives and livelihoods, particularly of women, from extreme weather events and climate change. The expected Fund level impact is increased resilience and enhanced livelihoods of the most vulnerable people communities and regions. The primary measurable benefits include approximately 1.4M direct and 0.7M indirect beneficiaries (total 12% of the population) who will gain access to critical weather information.</p>	<p>The project closes in 2023. Activities put at scale are:</p> <ul style="list-style-type: none"> • Development and dissemination of climate/weather products (rainfall forecasts) for smallholder farmers' communities. • Short-term area and crop specific agro-met advisories to c.a. 25,000 smallholder farmers in 10 districts through SMS. • Agro-weather information and farm advisories broadcasted through community radio stations in 5 districts that reached over 1 million people.
<p>Adaptation Fund (Implementing Entity: WFP). Adapting to Climate Change Through Integrated</p>	<p>The objective of the project is to enhance climate adaptation and food security of households through access to integrated climate risk management strategies and structured market opportunities. The</p>	<p>Opportunities to be leveraged by the project are:</p>

<p>Risk Management Strategies and Enhanced Market Opportunities for Resilient Food Security and Livelihoods (5 years, USD 9.9 million)</p> <p>Implementing Entity: Ministry of Agriculture</p>	<p>Project will be implemented in the Balaka, Zomba, and Machinga districts.</p> <p>The project seeks to achieve this goal through three main outcomes, i.e. (i) Improved access to insurance as a risk transfer mechanism for targeted farmers affected by climate change and food insecurity; (ii) Climate-resilient agricultural practices adopted among targeted farmers contributing to the integrated climate risk management approach; and (iii) Strengthened market access strategies and approaches for smallholder farmers</p>	<ul style="list-style-type: none"> • Access to integrated risk management packages, including index micro-insurance product for drought and dry spells to cover farmers' needs at scale • Promotion of climate-resilient agriculture (CRA) practices, including conservation agriculture and small-scale irrigation. Promotion of minimum soil disturbance and crop diversification (crop rotation and/or associations) with a focus on drought-tolerant and nutritious crops • Training through the Participatory Integrated Climate Services for Agriculture (PICSA) approach • Promotion of community assets supporting water harvesting, work with Land Users Associations and Water User Associations • Climate services for risk-informed agricultural decision-making. Dissemination of the climate services through the SMS and radio platforms.
<p>European Union. KULIMA: Revitalising Agricultural Clusters and <i>Ulimi wa Mdandanda</i>²³¹ through Farmer Field Schools in Malawi (2017-2022, EUR 30 million)</p> <p>Implementing Entity: FAO.</p>	<p>The Objective of the Project is "promoting sustainable agricultural growth and incomes to enhance food and nutrition security in Malawi within the context of a changing climate". Targeted districts are: Chitipa, Karonga, Nkhata Bay, Mzimba, Kasungu, Nkhosakota, Salima, Chiradzulu, Thyolo and Mulanje. The main Project outputs are: (i) Institutional framework to regulate & harmonise FFS in the District Agricultural Extension Services System operationalized and (ii) Quality assurance framework for FFS programming established and operationalized and (iii) training of 600 extension service providers and community based FFS facilitators.</p>	<p>Opportunities to be leveraged by the project are:</p> <ul style="list-style-type: none"> • Integration of the Farmers Field Schools (FFS) and Farmer Business School (FBS) approach in the public agricultural extension system for skills development on climate change adaptation practices. • 600 FFS Master Trainers trained • 8,000 Community Based Facilitators
<p>European Union, Greening and Growing Malawi - Ulimi ndi Chilengedwe m'Malawi, UCHI (2021-2027, EUR 56.5 million)</p> <p>Implementing Entities: Districts</p>	<p>The Overall Objective (Impact) of the Project is to contribute to sustainable and inclusive transformation of food systems in Malawi. The Specifics Objectives of this Project are: (i) Better preservation, restoration and regeneration of natural resource base and its diverse ecosystems, (ii) More inclusive, sustainable and territorial relevant value chains; (iii) To improve dietary intake and diversity of targeted Malawi population; (iv) To enhance evidence-based and gender-sensitive decision making and knowledge dissemination. Selected districts and phasing of activities are not known <i>ex-ante</i> (districts will develop their expression of interest during implementation).</p> <p>The Project will take a two-pronged approach, working at district level and developing and implementing territorial relevant activities, both for natural resource management as well as agricultural commercialisation. At the same time, it will strengthen the central capacities to coordinate the transformation of food systems of Malawi. The</p>	<p>Opportunities to be leveraged by the project are:</p> <ul style="list-style-type: none"> • Improvement of land use planning, watershed management and soil conservation/regeneration at district level; • Training in agricultural practices (focus on agro ecology); • Promotion of diversified and nutrient dense foods consumption based on Malawi six food groups, promoting food safety and hygiene, and culturally acceptable sound nutrition practices • Explore Payment for Ecosystem (PES) with forestry and agriculture sector (irrigation), the power sector, the town water authorities and tourism sector as main clients

	two components of the Action will be implemented in the same districts, with priority given to those districts where there is need to unlock the growth potential of past EU funding.	
<p>Climate Asset Management (CAM), Ever Greening Alliance (GEA), <i>Restoring Landscapes and Livelihoods in Malawi</i> (2021 – 2026). Programme dates: 2022-2027. Crediting period: 2026-2051. US\$17.5 Million</p> <p>Implementing Entities: consortium of NGOs (see on the left), under leadership of CRS.</p>	<p>The Programme's goal is to improve livelihoods, food security and resilience to climate change in Malawi through restoring ecosystem services and improved management of agricultural, pastoral and forest areas contributing to emissions reductions. This programme will enable and build substantial carbon sinks and sequestration opportunities, allowing viable returns to both farmers and investors.</p> <p>The Project will operate in three region i.e. Northern region (Mzimba, Chitipa, Rumphi), Central region (Ntchisi, Dedza), Southern region (Zomba, Neno, Chikwawa, Balaka, Machinga, Mwanza).</p>	<p>Opportunities to be leveraged by the project are:</p> <ul style="list-style-type: none"> • Learning from carbon/ climate finance (PES scheme) through carbon credit, as a possible exit strategy for EbAM • Promotion of EbA, Evergreening Agriculture (EGA), Farmer Managed Natural Regeneration, Landscape/catchment approaches, Market based Natural Resources Management • Will work with a consortium of NGOs that could be similar to EbAM (many of these NGOs are part of MoA's Malawi Climate Smart Agriculture Alliance - MCSAA). Total Land Care, Self Help Africa (SHA), World Vision, World Agroforestry Centre (ICRAF), CARE, Blantyre Catholic Development Commission (CADECOM), Organisation for Sustainable Socio-Economic Development Initiative (OSSEDI).
<p>International Fund for Agricultural Development (IFAD). Ministry of Finance and Economic Affairs. Financial Access for Rural Markets, Smallholders and Enterprise Programme – FARMSE (2018-2025, USD 57.7 million)</p> <p>Additional financing under design (2025-2028, USD 30 million tentative)</p> <p>Implementing Entity: Ministry of Finance and Economic Affairs</p> <p>Co-financing Project (at the level of EbAM sub-component 2.3)</p>	<p>The overall goal of FARMSE is to reduce poverty, improve livelihoods and enhance the resilience of rural households on a sustainable basis. The programme's development objective is to increase access to, and use of, a range of sustainable financial services by rural households and micro, small, and medium enterprises (MSMEs).</p> <p>The project has a national coverage and three components: (i) Ultra poor graduation model development and scaling up, (ii) Support to Financial Innovation and Outreach, (iii) Strategic Partnerships, Knowledge Generation, and Policy.</p>	<p>Opportunities to be leveraged by the project are:</p> <ul style="list-style-type: none"> • Financial inclusion and sustainability: linking farmers and MSMEs with informal and formal financial (and non-financial) institutions supported by MoF/FARMSE • Market-based mechanisms (CBFOs/VSLAs, SACCOs, MFIs, Banks) for sustainable access to finance • Access to new financial products (warehouse receipt system, weather-based insurance) and digital solutions (mobile money)
<p>IFAD, Africa Rural Climate Adaptation Finance Mechanism (ARCAFIM) for East Africa and Southern Africa regions – to be submitted to GCF.</p>	<p>Regional Project (East Africa: Kenya, Uganda, Tanzania, Rwanda; Southern Africa: Zambia, Malawi, Lesotho, Angola)</p> <p>ARCAFIM objective is to deploy innovative financial products along with TA to scale up climate change adaptation (CCA) finance through the local private</p>	<p>Opportunities to be leveraged by the project are:</p> <ul style="list-style-type: none"> • Access to concessional resources and risk management schemes for formal financing institutions (FFIs) to finance climate adaptation investments by farmers and agri SMEs

<p>US\$ 300 million (GCF funding requested: USD 82.5 million)</p> <p>Implementing Entities: FFIs</p> <p>Project under design, (passed GCF CIC2 in September 2022).</p>	<p>financial sector in selected East and Southern Africa (ESA) countries to address the unmet needs of this market segment. The Programme will cover ESA, but the ambition is to scale it up and replicate it later in other African regions, making it a leading co-investment platform for CCA targeting rural poor in Africa. ARCAFIM will be a pioneer initiative addressing the recommendations of the Food System Summit 2021 and the COP26 Glasgow Climate Pact.</p>	
<p>World Bank. Watershed Services Improvement Project – MWASIP (2020-2026, USD 78.5 million) and the Shire River Basin Management Program Phase 1 – SRBMP (2014-2019, USD 136 million).</p> <p>Implementing Entity: Ministry of Irrigation and Water Development</p>	<p>The objective of the Watershed Services Improvement Project for Malawi is to increase adoption of sustainable landscape management practices and improve watershed services in targeted watersheds. The project is implemented in the Shire River basin, in the districts of Blantyre, Balaka, Ntcheu, Neno, Mangochi, Machinga and Zomba. The project's geographic targeting approach identifies priority river basins with the largest restoration needs only, and does not adopt a climate vulnerability approach.</p> <p>The project has three components: (i) Scaling up Landscape Restoration component will scale up landscape restoration interventions in the middle and upper Shire River Basin, (ii) Improving Watershed Services component will maximize the benefits people and communities obtain from managing watersheds sustainably and, (iii) Technical and Project Management Support component.</p>	<p>The programme works to leverage the past experience on:</p> <ul style="list-style-type: none"> Integrated catchment management through Catchment Management Committees (CMC), Village Natural Resources Management Committees (VNRMC) and Village-Level Action Plans (VLAPs), introduced under the SRBMP. Under SRBMP: development of national guidelines for "Integrated Catchment Management" were developed and piloted for the development of Catchment Management Plans in four landscape units in the lower and middle Shire River basin.
<p>World Bank. Agricultural Commercialization Project (AGCOM1.0) (2017-2024, USD 95 million)</p> <p>Implementing Entities: Ministry of Finance, Ministry of Trade, Ministry of Agriculture</p>	<p>The Project Development Objective (PDO) is to increase commercialization of agriculture value chain products selected under the project. The PDO refers explicitly to value chain products selected under the project because the value chains to be supported, are not determined in advance; AGCOM is purposely designed to allow the market to decide which value chains and buyers have strong prospective commercial linkages. This approach prevents the project from confining its impact at the outset to a small number of producers in particular value chains.</p> <p>The project has national coverage and has four components: (1) Building Productive Alliances, (2) Support Investment Enabling Services, (3) Contingency Emergency Response Component, and (4) Project Coordination and Management.</p>	<p>Activities put at scale are:</p> <ul style="list-style-type: none"> Horizontal and productive alliances with 255 active subprojects 27 supported value chains 276 approved PO business plans
<p>World Bank. Second Agricultural Commercialization and Resilience Enhancement Project (AGCOM2.0) (Project under design, 2023-2029, USD 250 million)</p>	<p>The objective of AGCOM2.0 is to increase the commercialization of primary and value-added agricultural products and enhance the resilience of the food system. The project is nationwide, building on and scaling up the inclusive value chain development approach called 'productive alliances' of AGCOM1.0</p>	<p>Opportunities to be leveraged by the project are:</p> <ul style="list-style-type: none"> Building and strengthening farmer organizations that work collectively to improve market linkages Supporting productive alliances based on climate resilience, adopting CSA and

Implementing Entities: Ministry of Finance, Ministry of Trade, Ministry of Agriculture	The proposed interventions are clustered in five components. Component 1 will scale up and upgrade the inclusive value chain approach effectively tested under AGCOM (1.0). Component 2 will finance public infrastructure that supports commercial agriculture and climate resilience, including irrigation systems and their associated landscape approaches. Component 3 will strengthen research services, expand the capacity of pivotal institutions and support policy reforms. Component 4 will finance the costs of project management and cross-cutting functions. Component 5 will be a Contingent Emergency Response Component (CERC).	risk-mitigation such as climate insurance <ul style="list-style-type: none"> • Business plan development in an effort to access commercial loans, such as those offered by the Financial Inclusion and Entrepreneurship Scaling Project (FINES, P168577), to help SMEs mobilize private sector financing • Strengthening public service delivery and policy environment
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Green Innovation Centres for the Agriculture and Food Sector (GIAE) (2014-2022, USD 18 million) Implementing Entity: GIZ	The objective of the global programme "Green Innovation Centres for the Agriculture and Food Sector" is to increase the income, production, and productivity of smallholder farmers, enhance employment with an emphasis on women and youth and to improve regional food supply. In accordance with the national government's priorities, the Malawi country package supports the development of three value chains, being soybean, groundnut, and cassava to sustainably diversify Malawi's agriculture sector. The project geographic targeting includes the Central Region and selected districts in the Northern and Southern Region The project works in four fields of actions: (1) Increasing capacities of smallholder enterprises, (2) Improving the business of up and downstream enterprises (3) Strengthening of special interest groups and (4) Supporting the transnational knowledge exchange between value chain actors.	Opportunities to be leveraged by the project are: <ul style="list-style-type: none"> • Over 7000 SH farmers trained in farming as a business in the soybean value chain, in partnership with the private sector.
World Bank. Financial Inclusion and Entrepreneurship Scaling Project (FINES). (2020 – 2024, USD 86 million) Implementing Entity: Reserve Bank of Malawi (RBM)	The Project Development Objective is to increase access to financial services, promote entrepreneurship and capabilities of MSMEs in Malawi including addressing Coronavirus Disease 2019 (COVID-19) implications. The project comprises of four components. C1: Liquidity enhancement for MSMEs aims at increasing the supply of wholesale financing to the project's participating financial intermediary (PFIs) and scaling lending and or investments to MSMEs. SC 1.1: Credit line and special support for COVID-19 response for MSMEs, and technical assistance to PFIs; SC 1.2: De-risking financing to MSMEs through a partial credit guarantee scheme. C2: Scaling entrepreneurship and building firm capabilities aims at facilitating the building of firms' capabilities, with measures to enhance the quality of business support provided by private and public business development service (BDS) providers. SC 2.1: Building firm capability for SMEs; SC 2.2: Developing capacity of SME Development Institute (SMEDI). C3: Enhancing the enabling environment for supporting the financial inclusion and growth of entrepreneurs. SC 3.1: Improving financial	Opportunities to be leveraged by the project are: <ul style="list-style-type: none"> • Linking EbAM and MoF/FARMSE partner FFIs to concessional credit line and credit guarantee scheme. • Partnering with RBM for the design and dissemination of financial literacy training modules integrating climate resilient elements.

	<p>infrastructure and regulatory framework; SC 3.2: Increasing financial literacy and consumer protection.</p> <p>C4: Project management and coordination.</p>	
<p>German Federal Ministry for Economic Cooperation and Development (BMZ).</p> <p>Promotion of agricultural finance for agri based enterprises in Rural areas. Implemented by GIZ: "GIZ Agfin" Project. (2020 – 2026 in Malawi)</p> <p>Implementing Entity: GIZ</p>	<p>Objective is: "The provision of financial services to agricultural and agri-based enterprises in rural areas that are tailored to their business models has improved". The Project is part of the One World – No Hunger Initiative and is implemented Malawi and other countries (Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Mali, Nigeria, Togo and Zambia).</p> <p>The Project advises and supports the expansion of financial institutions into the agricultural sector and assists them with developing adapted financial services. Particular attention is paid to the needs of businesses owned by women and young people, and innovations that promote the environmentally aware transformation of agricultural systems.</p> <p>The Project provides training to enterprises in the agriculture sector to acquire business management and financial skills.</p> <p>The Project also gives specific attention to the development of digital applications to reduce the transaction costs of financial services, which are very high in rural areas.</p>	<p>Opportunities to be leveraged by the project are:</p> <ul style="list-style-type: none"> • Leveraging on technical assistance provided to potential FFIs partners of MoF/FARMSE and EbAM for the development of innovative financial services: FDH, Mybucks and NBS Banks; CUMO, Microloan Fund and COMSIV MFIs; and 7 SACCOs through MUSSCO.

79. The table below summarizes the lessons learned from past experiences with the Village Natural Resources Management Committees (VNRMCs) and how they were integrated in EbAM.

Lesson Learned ²³²	Lesson Application to EbAM	Note
Active participation of villagers in community managed forest project is likely when:		
Opportunities exist for villagers to understand what they are managing and how they are going to harvest and benefit.	Activity 1.1.2 Capacity Development of ILM Stakeholders on Ecosystem-based Adaptation Activity 1.1.3 Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and Formulation of EbA-based Village Level Action Plans (VLAPs)	Component 1 is a beneficiary-driven activity, including landscape demarcation, resource inventorying and analysis, which will be used as a basis for VLAP.
Community efforts are recognized and supported.	Component 1: Integrated Landscape Management	Component 1 is a beneficiary-driven activity, supported by external experts, the government and FAO.
Different communities are coordinated, and opportunity exist to exchange their experiences.	Activity 1.1.4 Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchment Management Plans (SCMPs)	The villagers involved in formation of different VLAPs will be part of SCMC and use their experience on various VLAPs to formulate SCMPs.
Interests in their forests exist.	Sub-activity 1.1.1.2: Free, prior informed consent (FPIC) and environmental and social assessment for 30 sub-catchments and 111 micro-catchments	Villagers will not decide through FPIC to participate in the project if there is little interest in forests.
Community based forest management is well linked to livelihoods.	Activity 2.1.1 EbA Agriculture Extension Support Through FFS Activity 2.1.2 Knowledge and Innovation Activity 2.1.3 Agrobiodiversity Promotion Activity 2.2.1 Public-Private Producer Partnerships (4Ps) Establishment Activity 2.2.2 Micro, Small and Medium Enterprises (MSMEs) Development Activity 2.2.3 Market Development Through "EbA Production System" Brand Creation Activity 2.3.1 Consolidation/Expansion of Community Based Financial Organizations Activity 2.3.2 Development and Delivery of Climate Adaptation Financial Services by Formal Financial Institutions Activity 2.3.3 Linkage of Partner FFIs to Financial Instruments Providers Activity 2.3.4 Linkage of Agri SMEs to Impact Investment Funds	Component 2 Resilient Livelihoods and Food Systems links the management plans under Component 1 to livelihoods.
Good support is given to community capacity building, including forest monitoring.	Activity 1.1.2 Capacity Development of ILM Stakeholders on Ecosystem-based Adaptation Sub-activity 1.1.3.2 VNRMC Capacity Development for EbA Implementation Sub-activity 1.1.4.2 SCMC Capacity Development for EbA Implementation	The villagers are trained as individual farmers. Some of them are trained as committee members of watershed management committees (VNRMCs and SCMCs). Forest monitoring is part of adaptive management, one of the topics for farmers as well as VNRMC and SCMC members.
VNRMC as a village-owned institution is likely when:		
Communities are allowed to define their own institutional arrangement, with clearly defined and locally suitable rules, based on existing institutions and power structure.	Sub-activity 1.1.3.1 VNRMC charter revision and member selection Sub-activity 1.1.4.1 SCMC charter revision and member selection Sub-activity 1.1.3.3 Drafting and Finalizing EbA-based VLAP	Charter revision and member selection will be conducted by the villagers with the guidance of ILM Facilitators for transparency and fairness. Local Officers, preferably including District Forestry Officer, and Traditional Authority of an area including the target

	Sub-activity 1.1.4.3 Drafting and Finalizing EbA-based SCMP	village will participate in the discussions on VLAPs and SCMPs.
VNRMC is supported by the ownership of traditional/local community leaders.	Sub-activity 1.1.1.2: Free, prior informed consent (FPIC) and environmental and social assessment for 30 sub-catchments and 111 micro-catchment Activity 1.1.3 Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and Formulation of EbA-based Village Level Action Plans (VLAPs) Activity 1.1.4 Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchment Management Plans (SCMPs)	If traditional community leaders are not interested, project approval through FPIC is very unlikely. Clan structure is all encompassing, including concerns beyond forests, and hence, more effective ^[xvi] and sustainable. Without it, VNRMC may simply invite open access, leading to deforestation. ^[xvi] Associate members of VNRMCs and SCMCs include: local officials, preferably including District Forestry Officers, Traditional Authority whose territory includes the VNRMC/SCMC in question and religious leaders. They will participate in the discussions on VLAPs and SCMPs, but not in the final decision making.
Authority of different institutions and individuals are clarified.	Sub-activity 1.1.3.1 VNRMC charter revision and member selection Sub-activity 1.1.4.1 SCMC charter revision and member selection	The sub-activities include mapping of existing VNRMCs/SCMCs.
Adequate time is spent to conduct a careful process of community institution strengthening.	Activity 1.1.2 Capacity Development of ILM Stakeholders on Ecosystem-based Adaptation Activity 1.1.3 Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and Formulation of EbA-based Village Level Action Plans (VLAPs)	The capacity building topics include gender and social inclusion, which will be promoted using Dimitra Clubs and household methodology (see Annex 2, Box 7 Dimitra Clubs and Box 9 Household Methodology). Elite capture is avoided. ^[xix] ^[xx]
Trust is built between villagers and the Department of Forestry staff, and the staff is sufficiently motivated to lead when necessary.	Activity 1.1.3 Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and Formulation of EbA-based Village Level Action Plans (VLAPs) Activity 1.1.4 Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchment Management Plans (SCMPs)	Associate members of VNRMCs and SCMCs include: local officials, preferably including District Forestry Officers, Traditional Authority whose territory includes the VNRMC/SCMC in question and religious leaders. They will participate in the discussions on VLAPs and SCMPs, but not in the final decision making.
Consideration is given beyond forestry.	Component 1 Integrated Landscape Management.	The most important output of this process is a common vision of the villagers for the future of the village (see Annex 2, Component 1).
Women are included in planning activities.	Activity 1.1.3 Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and Formulation of EbA-based Village Level Action Plans (VLAPs) Activity 1.1.4 Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchment Management Plans (SCMPs)	Gender and youth are mainstreamed throughout the project.
Tenure arrangements and usufruct rights are discussed and clarified.	Sub-activity 1.1.3.3 Drafting and Finalizing EbA-based VLAP Sub-activity 1.1.3.4 Drafting and Finalizing EbA-based SCMP	(i) The discussion on Pillars and Elements of VLAP/SCMP as EbA strategy will include discussions and clarification on tenure arrangements and usufruct rights.
Differing interests among villagers and other local stakeholders are made clear and recognized.	Activity 1.1.2 Capacity Development of ILM Stakeholders on Ecosystem-based Adaptation	Activity 1.1.2 includes training of Traditional Authorities and local officials on gender and social inclusion among

	<p>Sub-activity 1.1.3.2 VNRMC Capacity Development for EbA Implementation</p> <p>Sub-activity 1.1.4.2 SCMC Capacity Development for EbA Implementation</p> <p>Sub-activity 1.1.3.3: Drafting and Finalizing EbA-based VLAP.</p> <p>Sub-activity 1.1.4.3: Drafting and Finalizing EbA-based SCMP.</p>	<p>others. (see Annex 2, Sub-activity 1.1.2.2 Gender and Social Inclusion).</p> <p>Training for VNRMC/SCMC members will have gender and social inclusion mainstreamed in all topics with the support of Gender and Social Inclusion specialist.</p> <p>ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition.</p>
Benefit sharing mechanism is agreed among the villagers.	<p>Sub-activity 1.1.3.3 Drafting and Finalizing EbA-based VLAP</p> <p>Sub-activity 1.1.3.4 Drafting and Finalizing EbA-based SCMP</p>	(i) The discussion on Pillars and Elements of VLAP/SCMP as EbA strategy will include discussions and clarification on benefit sharing schemes.
Adequate technical, financial and moral support, local political will exist.	<p>The project is technically supported by Ministry of Agriculture and FAO, financially by GCF, FAO and IFAD, and morally by Ministry of Agriculture, FAO, IFAD as well as ILM Facilitators on the ground.</p> <p>Political will exists as the project idea comes from the Ministry of Agriculture. The expression of local political will is through accepting the project through FPIC (Sub-activity 1.1.1.2).</p>	
An energy source that excludes deforestation is proposed.	<p>Sub-activity 1.1.3.2 VNRMC Capacity Development for EbA Implementation</p> <p>Sub-activity 1.1.4.2 SCMC Capacity Development for EbA Implementation</p>	The topics of training include (iv) ecosystems and ecosystem-based adaptation will cover the importance of woodlots maintained for fuel.

Part 4. Adaptation barriers

4.1. Key barriers and adaptation needs

80. [The key barriers to adaptation in Malawi are of planning, technical/knowledge, social, financial and institutional.](#) For successful adaptation to climate change, the barriers must be overcome, and hence, present the needs that the Project must address. The planning barrier is the currently insufficient integration of climate-resilient landscape perspective in catchment management and village-level action plans. Limited technical capacity to adapt to changing climatic conditions by the farmers is a barrier in technology and knowledge, and so is weak capacity and delivery of agricultural extension services. Important social barriers are limited access to information, markets and services for resilient livelihoods, especially for women, and limited access to technology, including digital. The key financial barrier is the limited farmers' access to finance for EbA. Institutional capacity is limited for climate mainstreaming, mobilizing innovative finance and integrating EbA into national policies.

81. (i) [Planning – Insufficient integration of climate-resilient landscape perspective in catchment management and village-level action plans.](#) Long-term planning is rare at the community level due to poverty and lack of information, which is aggravated by weak long-term management/coordination and limited knowledge among the stakeholders on climate change adaptation solutions. These problems have led to disaster relief rather than prevention²³³ and unsatisfactory results.²³⁴ The most important concerns of farmers – food, water and fuel – are in a sharp conflict with one another under the natural resource management scheme in practice. In order to increase food production to feed the growing population, forests and wetlands are converted into agricultural lands. Fuel demand is a major cause of deforestation in a country where 98% of the rural and 90% of the urban populations depend on wood and charcoal as the primary fuel.²³⁵ This energy situation has endured in spite of the population increase and accompanying hike in fuelwood needs; the pressure on forests is expected only to rise as the population continues to

grow.²³⁶ Use of forests and wetlands in such ways inevitably affect water regime as well as soil retention and fertility, which in turn negatively influence food production.

82. Farmers are well aware of the undesirable and multi-faceted nature of impacts caused by land-use change and exacerbated by climate change: declining soil fertility; soil erosion; poor water quality; increased negative effects of floods and droughts; and water shortage.²³⁷ The socioeconomic effects of land-use changes have been identified as: food insecurity; poverty; limitations to income sources; limitations to energy sources; increased-burden on women-led households; reduced availability of timber products; and limitations to land-holding size.²³⁸ The intertwined nature of causes and effects calls for planning based on integrated landscape management, but policies affecting landscapes are only partially aligned and streamlined.²³⁹ There is no effective mechanism to bring the local stakeholders together to plan for climate resilient management of watersheds.

83. (ii) **Technical/Knowledge – Limited technical capacity to adapt to changing climatic conditions by the farmers. Weak capacity and delivery of agricultural extension services.** Farmers have not been able to sort out their own competing demands (e.g., food, fuel) and end up favouring degradation.²⁴⁰ The various strategies adopted by farmers to cope with climate change have been unsatisfactory²⁴¹; they are limited in nature, scope or both. Detailed information of local ecosystems necessary for successful adaptation, including weather forecasting,²⁴² exists as local/traditional knowledge,²⁴³ and its utility for adaptation has been acknowledged by the government, while underlining the inadequate skills and expertise in the agricultural sector.²⁴⁴ Local/traditional knowledge has not been fully integrated into interventions²⁴⁵ or supplemented by western science for maximum efficacy in adaptation.²⁴⁶ Knowledge on EbA exists and is put in practice in Malawi, but in pockets and dispersed across different levels and stakeholders, from the government (including MoA staff) to NGOs and farmers. Little awareness exists at any level on the importance of agrobiodiversity, including genetic diversity and its advantages. This has had significant impacts on the availability of diverse and locally-adapted food crops, in addition to trees and shrubs varieties and species of multiple-use.

84. According to the interviews conducted during project formulation,²⁴⁷ under 48% of Malawi public extension staffing is fulfilled, of which less than 20% are female extension workers. Staffing of decentralized extension officials is hence quite limited. The professionals in the country involved in climate change adaptation²⁴⁸ and sustainable land management²⁴⁹ have differing perspectives and discourage farmers' adoption of new techniques. Limited outreach coverage is also to blame.²⁵⁰ Besides salaries, small portions of budget and priorities concern operation. As a consequence, many activities depend on the ongoing projects financed by various donors. Insufficient extension capacity²⁵¹ and its role in stagnating productivity and national development²⁵² have been noted. The capacity to produce and manage quality climate-data is also weak,²⁵³ and experts on climate change adaptation are scarce at the district level.²⁵⁴

85. (iii) **Social – Limited access to information, markets and services for resilient livelihoods, especially for women. Limited access to technology, including digital.** Awareness regarding climate change is considered low in all segments of the society.²⁵⁵ The literacy rate of the general population is low (lower among women at 65.9% than among men at 71.6%) which limits access to information.²⁵⁶ Insufficient access to markets, services and technology (including digital) further impedes transforming livelihoods into climate resilient ones. Community adaptation capacity is unsatisfactory, especially among women²⁵⁷ and other vulnerable groups. For example, fetching water for household use is the task of women and girls, which has become onerous due to higher frequency of dry spells.²⁵⁸ Although women are as likely to adopt new practices when given access to tailored extension services through appropriate information channels, men are the default target group for interventions.²⁵⁹ Information relevant to women is scarce in a society where tasks are often assigned by gender. Local communities are not in the position to benefit from watershed/landscape restoration,²⁶⁰ and hence not motivated to manage related natural resources effectively. These constraints are borne and compounded by unequal distribution of decision making power within the household and society.²⁶¹ Farmers, especially the marginalized one, are not well incentivized to make sustainable strategic decisions on climate adaptation.

86. The vulnerability to climate change at individual level can be said to originate from: social exclusion, lack of access to resources and lack of assets and economic opportunities, as these are the very factors that constitute vulnerability to various shocks and stresses.²⁶² Four of the five most unequal countries worldwide in terms of Gini Index are found in Africa, where higher social inequality seems to lower interests in climate adaptation and mitigation.²⁶³ Inequality among Malawians can be traced to the colonial era and has been growing since then.²⁶⁴ In the past decades, economic inequality has significantly worsened;²⁶⁵ the richest 10% of the population consumed 22 times more than the poorest 10% in 2004, which grew to 34 times in 2011.²⁶⁶ In 2015, it was reported that the Gini Index evolved to put the country on a par with the Democratic Republic of Congo and place half of the population under poverty line.²⁶⁷ The increasing inequality is also seen in: access to good education, high-quality health services and other public services; endowment of political power; and gender.²⁶⁸ As of 2020, discrimination and violence toward women, minority groups and people with albinism remained problematic.²⁶⁹ In this socio-economic context, overall consumer awareness of the links between climate change, production systems and human food security and safety is very low²⁷⁰. This poses a demand barrier that impacts the ability to offer economic incentives through market linkages for EbA production transformation on the ground.

87. According to interviews conducted during project formulation with key retailers and food companies²⁷¹, there is currently no discussion among consumer groups and civil society on the issue of food production systems and impacts on the natural and social environment, as well as resilience towards climate change. The more affluent urban consumer market is relatively small, and according to the main food retail companies like Shoprite and Chipiku, limited awareness and interest in issues such as 'chemical free' or 'nature positive' production currently results in limited demand which is largely satisfied through imports. Domestic food demand is price sensitive, formal retail as well as agri-food processing is primarily concerned with price, volumes and all-year round supply, over issues of resilience, sustainability and health of food production-systems.

88. Digital outreach, especially that in rural areas, is currently faced with several challenges:²⁷² (i) low access to electricity; (ii) sparse ICT infrastructure; and (iii) low access to digital devices. The access rate to electricity was low at 14.9% in 2020,²⁷³ down from 18% in 2018, due to the imbalance between population increase; 54% of urban population²⁷⁴ and 6.6% of rural population²⁷⁵ had access in 2020. The rapid growth of 3G and 4G coverage over the past decade put mobile coverage at 99.6% of the population in 2016,²⁷⁶ while internet access remains low at 14.6%, with 40% in urban areas and 9.3% in rural areas.²⁷⁷ Only 37% of Malawians owned a mobile device accessible to all household members in 2019: 61% of urban, 32% of rural, 7% of female and 40% of male populations.²⁷⁸

89. (iv) **Financial – Limited farmers' access to finance for EbA.** Farmers' access to finance, while recognized as a crucial factor in the adoption of climate resilient agriculture, remains unsatisfactory.²⁷⁹ Malawians have comparatively low access to financial institutions compared to neighbouring countries.²⁸⁰ One of the significant barriers to agricultural lending is the internal capacity of financing institutions (FIs).²⁸¹ FIs lack information about their clients (more particularly farmers' ability to produce crops to repay loans), do not integrate climate risks into credit risk assessments and lack the capacity to develop digital credit scores.²⁸² The agriculture sector continues to be seen as high risk, because of its weather dependent nature, and high cost, because of poor infrastructure in the rural areas, making it difficult to reach potential customers. Hence, the farmers experience a not-yet-mature finance market with limited scope and offerings.²⁸³

90. As for the smallholder farmers as clients, they are largely characterized by insufficient understanding of formal financial services to make informed and appropriate choices, which often results in mistrusts in and misunderstanding of foreign financial institutions (FFIs). As a result, the smallholder farmers rely almost exclusively on CBFOs for their financial needs, such as Village Savings and Loan Associations (VSLAs), which cannot cater to all financing needs of the farmers, especially those related to commercial farming. Smallholder farmers also lack financial management skills – bookkeeping, financial planning, etc. – as well as business acumen. Such weakness in financial skills is compounded by their insufficient capacity to produce marketable products according to the conditions required by respective

markets and to self-organize among themselves for providing an attractive lending channel for FFIs. The SMEs in the agriculture are saddled with the weakness of similar kind. They lack skills to conduct business in a modern economy, which requires business planning, bookkeeping, financial reporting, business management and marketing.

91. High transaction costs, financial products ill-suited for EbA, limited income, insufficient collateral, inadequate repayment schedules and low financial literacy have prevented smallholder farmers from using financial services, particularly women. However, the perception in the financial sector is gradually changing and the sector is now considered potentially profitable as long as effective risk mitigation strategies are implemented. Commercial banks and to a lesser extent saving and credit organizations (SACCOs) and microfinance institutions (MFIs) are increasingly engaging in business with smallholders and agri SMEs in Malawi.

92. **Institutional – Institutional capacity is limited for climate mainstreaming, mobilizing innovative finance and integrating EbA into national policies.** The impacts of village level committees on watershed management have been rather small because of weak capacity. More than half of the country's fiscal means for climate adaptation are dependent on external sources.²⁸⁴ The roles and responsibilities of climate-related institutions are unclear and inter- and intra-institutional coordination unsatisfactory.²⁸⁵ Funding to these institutions is limited.²⁸⁶ The Nationally Determined Contributions include EbA, but other policies do not clearly recognize it as the most sustainable solution. Climate related policies do not see marginalized groups separately, although they are different from others in their needs and strengths different.

4.2. Maladaptation risks

93. IPCC defines maladaptation as “actions or inaction that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future.”²⁸⁷ Broadly speaking, maladaptation occurs “not only from inadvertent badly planned adaptation actions, but also from deliberate decisions where wider considerations place greater emphasis on short-term outcomes ahead of longer-term threats, or that discount, or fail to consider, the full range of interactions arising from the planned actions.”²⁸⁸ At the same time, it directs our attention to the complexity of the issue, which is amply demonstrated by the wide range of actions and circumstances categorized as maladaptation.²⁸⁹ Communities highly vulnerable to climate change have a strong need to adapt, but their risks of adopting inappropriate interventions are also significant,²⁹⁰ as high vulnerability results from a combination of high exposure, high sensitivity²⁹¹ and low adaptive capacity.²⁹² When interventions for adaptation are inadequate, or unsuccessful adaptation (maladaptation) occurs, vulnerability is further elevated to create a vicious cycle.²⁹³

94. IPCC identified 12 broad types of maladaptation. Although not exhaustive, they serve as a screening test for EbAM. Table 13 below indicates how the project avoids falling into any of these maladaptation types.

Table 13 - IPCC Selected Types of Maladaptive Actions and Proposed Project

IPCC Broad Type of Maladaptation	Proposed Project
<ul style="list-style-type: none"> Failure to anticipate future climates. Large engineering projects that are inadequate for future climates. Intensive use of non-renewable resources (e.g., groundwater) to solve immediate adaptation problem. 	<ul style="list-style-type: none"> Project hinges on EbA, which builds ecological resilience as an adaptation measure. Ecological resilience is applicable to all climate scenarios. EbA does not include large engineering interventions. Unsustainable solutions do not strengthen or restore ecosystems, and hence are not EbA. Use of natural resources is considered in an integrated manner at two landscape levels of the same Water Resource Unit catchment (sub- and micro-catchments).

IPCC Broad Type of Maladaptation	Proposed Project
<ul style="list-style-type: none"> Engineered defences that preclude alternative approaches such as EbA. 	<ul style="list-style-type: none"> EbA is the guiding principle of project.
<ul style="list-style-type: none"> Adaptation actions not taking wider impacts into account. 	<ul style="list-style-type: none"> Integrated landscape/watershed management (ILM) takes a holistic approach for holistic solutions. Use of natural resources is considered in an integrated manner at two landscape levels of the same Water Resource Unit catchment (sub- and micro-catchments).
<ul style="list-style-type: none"> Awaiting more information, or not doing so, and eventually acting either too early or too late. Awaiting better “projections” rather than using scenario planning and adaptive management approaches 	<ul style="list-style-type: none"> Adaptive management of ILM assures good alignment with evolving climate situations. EbA techniques are fully applicable to all types of projections.
<ul style="list-style-type: none"> Forgoing longer term benefits in favor of immediate adaptive actions; depletion of natural capital leading to greater vulnerability 	<ul style="list-style-type: none"> Preference for immediate adaptive actions at the expense of longer-term benefits is minimized through guided formulation of ILM plans by communities, guided access of community members to various information on natural resource management, capacity building on water resources management for community members and awareness raising/capacity building on social inclusion.
<ul style="list-style-type: none"> Locking into a path dependence, making path correction difficult and often too late. 	<ul style="list-style-type: none"> Adaptive management of ILM plans allows alignment with evolving situations.
<ul style="list-style-type: none"> Unavoidable ex post maladaptation, e.g., expanding irrigation that eventually will have to be replaced in the distant future. 	<ul style="list-style-type: none"> EbA is based on biodiversity and restoring/strengthening ecosystems, and thus does not include any action that must be undone in the future.
<ul style="list-style-type: none"> Moral hazard, i.e., encouraging inappropriate risk taking based, e.g., on insurance, social security net, or aid backup. 	<ul style="list-style-type: none"> Capacity building on ILM planning includes training on financial management and fund raising, most notably payment for ecosystem services.
<ul style="list-style-type: none"> Adopting actions that ignore local relationships, traditions, traditional knowledge, or property rights, leading to eventual failure. 	<ul style="list-style-type: none"> While the first screening of micro-catchments to intervene is based on hydrological considerations, the final selection is based on the interests of communities and their Traditional Authority. Local/traditional knowledge and discussions among local stakeholders with community members at the driver's seat is the base for ILM planning.
<ul style="list-style-type: none"> Adopting actions that favor directly or indirectly one group over others leading to breakdown and possibly conflict. 	<ul style="list-style-type: none"> The Project includes awareness raising/capacity building on social inclusion with examination of decision-making power through dialogues at household and community levels.
<ul style="list-style-type: none"> Retaining traditional responses that are no longer appropriate. 	<ul style="list-style-type: none"> Insistence on traditional, but inappropriate responses, is minimized through guided formulation of ILM plans by communities, guided access of community members to various information on natural resource management, capacity building on adaptive management for community members and awareness raising/capacity building on social inclusion.

IPCC Broad Type of Maladaptation	Proposed Project
<ul style="list-style-type: none"> Migration may be adaptive or maladaptive or both depending on context and the individuals involved. 	<ul style="list-style-type: none"> Migration is not envisaged by the project.

95. Frameworks have been proposed by researchers in sustainable development and related disciplines based on adaptation experiences to avoid maladaptation,²⁹⁴ and EbAM follows strategies recommended under these frameworks: “Pathways”; “Precautionary”; and “Assessment”.²⁹⁵ “Pathways” refer to certain activities that lead to maladaptation, namely those that: accelerate climate change; increase socioeconomic inequality; entail high economic/social/ environmental cost; dampen adaptation incentives; and are without room for adaptive management. As one of the key additionalities, the project will build upon and learn from the other projects in Malawi, which have introduced solutions for climate change adaptation (see Part 3 Mapping of Relevant projects (completed and underway)).

Table 14 - Maladaptation Risk Frameworks and Proposed Project

Framework	Strategies to Limit Risks of Maladaptation	Proposed Project
Pathways	No contribution to climate change	<ul style="list-style-type: none"> Restoration of landscapes/watersheds through integrated landscape management (C1) and adoption of EbA (C1 and C2) – both with local/traditional knowledge and emphasis on native plants and animals – improve land use and minimize synthetic chemical use. Activities to enable institutional and financial environment (C3) do not engage in or encourage those that increase greenhouse gas emissions. They also allow EbA to be implemented at a larger scale, which reduces/sequesters/avoids greenhouse gas emissions
	Economic and social equitableness	<ul style="list-style-type: none"> Equitable sharing of decision-making power among social groups is provided as awareness raisings/training activities at household and community levels (C1) and promoted by all components. Strong stakeholder engagement with particular attention to vulnerable groups is incorporated in all components.
	Low economic/social/ environmental costs	<ul style="list-style-type: none"> Economic: The proposed project is financed by GCF grants and hence minimizes the economic cost to the society. Economic: Smallholders' access to markets is promoted (C2). Social: Social inclusion is promoted by bringing different social groups together for dialogues and cooperation, thus lowers risks of social conflicts and costs (C1). Social: Technical capacity enhancement builds on existing knowledge and skills to lower social costs (C1 and C2). Environmental: EbA is the guiding principle of the proposed project. All: Financing of and incorporation in policies of high economic/social/environmental-cost activities are excluded (C3).
	Increase in adaptation incentives	<ul style="list-style-type: none"> Integrated landscape/watershed management with EbA, which is an adaptation measure, is financially and technically supported (C1). Smallholders' capacity to practice EbA, which acts as adaptation incentives, is strengthened (C1 and C2). The same holds for extension workers (C2).

Framework		Strategies to Limit Risks of Maladaptation	Proposed Project
			<ul style="list-style-type: none"> EbA is to be integrated in policies at various levels. Policy dialogue will consider adaptation incentives (C3).
		Built-in flexibility	<ul style="list-style-type: none"> The plans for landscape/watershed management are elaborated and revised by communities (C1). Adoption of particular EbA techniques are left to local communities (C1) and farmers (C2). Incorporation of EbA in policies is based on stakeholder engagement and participation (C3).
Precautionary		Benefits with or without climate change	<ul style="list-style-type: none"> All components aim to restore and conserve ecosystems, which bring benefits even without climate change.
		Reversible and flexible actions	<ul style="list-style-type: none"> Plans for integrated landscape/watershed management (C1), implementation of specific EbA practices (C1 and C2), and policy changes (C3) are reversible and flexible with respect to the overall goal of CCA. Social flexibility is ensured by strong stakeholder engagement throughout the lifetime of the project for all components.
		Safety margins with acceptable economic/social/environmental costs	<ul style="list-style-type: none"> Technical components (C1 and C2) have large safety margins; their efficacy is not dependent on a particular climate scenario, since EbA is the guiding principle. Ecosystem-restoring/strengthening solutions (which are known to generate higher benefits holistically than grey solutions) are promoted to increase the CCA capacity of the society (C3); safety margins are much larger than relying on engineering solutions alone. For costs, see “Low economic/social/environmental costs” above.
		Consideration of non-technical and non-engineering solutions	<ul style="list-style-type: none"> All components are based on EbA, which is a non-engineering solution. Social inclusion, a non-technical solution, is mainstreamed so as not to create further exclusion and undermine the overall CCA efforts. CCA is considered also in relation to social inclusion (including gender and youth for all Components), livelihood (C2) and policies (C3).
		Mix of short-term and long-term investments	<ul style="list-style-type: none"> Quick-maturing species (trees and crops) along with slow-maturing ones are considered (C1 and C2). Financial solutions of short- and long terms are considered (C1 and C2). Capacity building at various levels of the society (C1, C2 and C3) is promoted by the proposed project, which translates into on-the-ground effects in various timeframes.
		Consideration of conflicts and synergy with on-going initiatives	<ul style="list-style-type: none"> The proposed project seeks synergy with on-going projects (see Part 3 Mapping of Relevant projects (completed and underway). The proposed project resolves conflicts regarding CCA through integration of EbA in local plans (C1) and various policies (C3).
Assessment	Environmental	Minimum environmental degradation	<ul style="list-style-type: none"> All components are based on EbA, which inflicts by definition minimum environmental degradation.
		Minimum shifting of environmental stress	<ul style="list-style-type: none"> EbA hinges on minimum input from outside the ecosystem of concern and strengthening its ecosystem services: minimum shifting of environmental stress.

Framework		Strategies to Limit Risks of Maladaptation	Proposed Project
		Support to protective roles of ecosystems	<ul style="list-style-type: none"> • EbA is based on use of biodiversity and restoring/strengthening ecosystem services.
		Integration of environmental uncertainties	<ul style="list-style-type: none"> • EbA restores and strengthens ecosystem resilience, including ecosystem capacity to weather various climate conditions.
		Clarify adaptation and mitigation measures	<ul style="list-style-type: none"> • Communication with stakeholders, including technical support and capacity building (all components), incorporates the differentiation between adaptation and mitigation measures.
	Socio-cultural	Integration of local socioculture	<ul style="list-style-type: none"> • All technical activities build on local/traditional knowledge and skills. • The social inclusion element of the project does not prescribe actions to be taken, but creates space for dialogues and allow integration of new sociocultural ideas.
		Build on local knowledge and skills	<ul style="list-style-type: none"> • See “Integration of local socioculture” above
		Integrate new skills within the community’s capacities	<ul style="list-style-type: none"> • Facilitators of landscape/watershed management guide stakeholders through discussions to realization of capacity gaps and adoption of locally appropriate capacity building (C1). Trainings are participatory and their curricula are adjusted as the training proceeds (C1). Integration of new crop cultivation skills are based on Farmer Field Schools, which are participatory methods (C2). • Which techniques to apply/adopt is the final decision of the communities (C1) and farmers (C2).
	Economic	Reduction of socioeconomic inequalities	<ul style="list-style-type: none"> • See “Economic and social equitableness” above.
		Diversification of economic/subsistence activities	<ul style="list-style-type: none"> • EbA by definition leads to diversification of agricultural goods and services to support diversified economic/subsistence activities.
		Integration of changes in economic/ subsistence activities from climate change	<ul style="list-style-type: none"> • Provision of access to public-private-producer partnership is of wide-range to accommodate changes in economic/subsistence activities.

Part 5. Project justification

5.1 Theory of Change: project objective against baseline

96. **The theory of change** is based on the present and future scenarios described in the **climate analysis**. The latter evidenced: (i) the impacts of current (observed) and projected climate change (increased temperatures and aridity, changing temporal distribution of precipitation, increased frequency and intensity of extreme weather events) on agriculture production and livelihoods, and (ii) the degrading impacts of climate change on landscapes and watershed ecosystems, which further reduce the supply of ecosystem goods and services for livelihoods, and consequently increase communities' vulnerability. The main climate effects will alter the onset of the rainy season, translate into limited and modified water availability, increasing water stress, with negative impacts on both cash and subsistence crops, resulting in adverse impacts on livelihoods and the overall rural socio-economy. As a consequence, climate-change puts smallholders and their communities under increased pressure to resort to a vicious cycle of maladaptation, unsustainable ecosystem use and management, further constraining ecosystems' capacity to deliver services.

97. The push factor to transform this baseline trend, and promote a more virtuous dynamic of climate-resilient socio-ecological systems, will be driven by mutually connected investments under each of the 3 components presented below (and further described in section 5.2). Overall goal, outcomes, outputs and activities are presented in the theory of change diagram (see Figure 42).

98. Component 1. The objectives of this component are to **reduce GHG emissions from improved watershed ecosystems (outcome 1.1)** and to **increase climate resilience of watershed ecosystems (outcome 1.2)**. These outcomes will be attained by enhancing ecosystem functions at a landscape (watershed) level large enough to facilitate climate change adaptation and mitigation at scale: under EbAM, farmers will positively adapt, by safeguarding the natural resource base, and providing better *services to ecosystems* (reciprocal relationship between farmers and nature), a paradigm shift brought by EbA & ILM. The component will indeed use the ecosystem-based adaptation (EbA – described in section B.3 and Annex 2) approach which involves use of biodiversity and ecosystem services to assist catchment and village communities to adapt and become more resilient to climate change. EbA will be firmly integrated in local planning through integrated landscape management (ILM), at catchment and village levels. The EbA approach integrated in ILM is the core transformational driver and innovation of the component. The approach will improve communities' technical capacities as well as increase stakeholders' engagement, including women, youth and other vulnerable groups, to plan landscape restoration and climate-change adaptation interventions based on EbA (output 1.1). With the implementation of integrated management plans (output 1.2), the project will strengthen communities' capacity to protect and restore public goods, such as well-functioning ecosystems, which are more adapted to extreme climate and continue to provide goods and services (e.g., carbon sequestration and storage, water infiltration and retention and soil fertility) under the changing climate. This will mitigate, in turn, the impact of projected increased temperature, erratic rainfalls and increased occurrence of extreme weather events impacting the fertile top soil. These benefits will directly support sustainable agricultural production and local livelihoods.

99. Component 2: The objective (**outcome 2**) of this component is to **stabilize productivity and farmers' incomes thanks to more climate resilient livelihoods and food systems**. The project will boost the efficacy of EbA in food systems through the adoption of EbA at all scales, including production systems, and an enhanced and sustainable access to markets, business opportunities, as well as finance. This shift will support farmers to stabilize and increase their income, hence making their livelihoods more resilient in the context of climate change. By combining the promotion of EbA through Farmers' Field Schools (FFS) with an enhanced access to biodiversified, native and/or well-adapted seeds and seedlings (output 2.1), the Project will increase farmers' understanding of technical responses, and improve their capacity to adapt to changing climatic conditions. Through a Food System approach, the Project will support farmer groups, producers organisations (POs) and small and medium enterprises (SMEs) to access (i) markets through public-private producers partnerships (output 2.2) and (ii) finance – such as village savings

and loans associations, micro-finance institutions and banks (output 2.3), which are two of the key barriers to climate-change adaptation. The component's interventions, by boosting nature-positive food production and building farmers' resilience to shocks and stresses, will in turn contribute the increased resilience of food systems at local level.

100. **Component 3:** The objective (**outcome 3**) of this component is to **enhance the enabling environment (in terms of finance and policies) with the purpose to sustain, replicate and scale-up climate resilient watershed ecosystems and agriculture practices**, ultimately facilitating mobilization, blending, and disbursing of catalytic climate finance, and contribute to expanding the scale of the Project climate-resilient investments, while EbA will be mainstreamed and deep-rooted in national policies and investment plans. Strengthened capacities of national institutions (National Climate Change Fund - NCCF, and local national conservation trusts) to mobilize innovative public and private finance, together with leveraging private sector experience on carbon credits as part of the exit strategy (output 3.1), complemented by improved sectoral policies/ investment plans with EbA integrated (output 3.2) will contribute to sustainably crowd-in public and private investment flows towards climate resilient watershed ecosystems and agricultural practices, for massive-scale impact and sustainability.

101. The below diagram illustrates the relationship and complementarity between the three components, as described in the paragraph below:



102. Component 1 protects and restores public goods, such as ecosystem services, hence improving i.a. water infiltration, the soil water holding capacity and fertility. Well-functioning ecosystems are more adapted to extreme climate and will also make farming systems resilient. Farmers, having access to knowledge, climate-resilient inputs, markets, technologies and financial services (component 2), will positively adapt, safeguard the natural resource base, and provide better services to ecosystems (reciprocal relationship between farmers and nature) and thus contributing to component 1 objectives. Component 3 will enhance component 1 and 2 by developing the enabling environment, and by increasing investment flows towards climate resilient watershed ecosystems, and resilient livelihoods and food systems. Component 1 and 2 will inform policy, decision making and investment strategies. EbAM will be a catalyst for a broad shift and new sustainable equilibrium for ecosystem, livelihoods and agriculture across Malawi, from their baseline state of very high vulnerability, to an alternative paradigm in which watershed ecosystems are restored and well-functioning, and more sustainably managed, thus granting their adaptation to climate change, and their supply of services to climate-resilient farming systems, people and communities. Together, the 3 components will generate co-benefits that will directly contribute to Sustainable Development Goals such as No Poverty (SDG1), Good Health and Well being (SDG3), Gender Equality (SDG5) and Life on Land (SDG15).

103. The Goal Statement is “1) landscapes and watershed ecosystems are sustainably managed with the involvement of vulnerable groups, 2) farmers’ capacity to implement climate-resilient agriculture is increased, and 3) policies conducive of climate change adaptation and sustainable climate finance are in place, then a new sustainable equilibrium for ecosystem, livelihoods and agriculture across Malawi will be attained, because vulnerable rural communities will have more climate resilient livelihoods, with reduced GHG emissions”.

104. These results and goal are subject to the following assumptions: (i) catchment and village committees embrace integrated landscape management; (ii) farmers (including women and youth) adopt ecosystem based adaptation (EbA) measures; (iii) socio-cultural barriers do not prevent women and youth from participating in “climate-responsive” FFS and practicing new techniques; (iv) extension workers effectively lead FFS (iv) financial service providers willingly serve clients with characteristics different from conventional ones; (v) the private sector is interested in 4Ps and is ready to act upon it; (vi) no major socio-political shocks occur; and (vii) recovery from COVID-19 is confirmed. Results are also conditional to risks – which are described in section F.1 of the Funding Proposal, and highlighted in the ToC diagram below.

105. The project interventions respond to the multifaceted barriers to climate change adaptation in Malawi, which include:

- I. *Planning barriers: climate-resilient landscape management for watersheds is not well integrated into Village-Level Action Plans (VLAPs).*²⁹⁶ Long-term planning for climate-change adaptation is rare at the community level due to poverty and lack of information; and this is aggravated by weak long-term management/coordination and limited knowledge on climate change adaptation solutions among the stakeholders. These issues have led to disaster relief rather than prevention²⁹⁷ and unsatisfactory results.²⁹⁸ **This barrier will be addressed by supporting/ training Catchment Management Committees (CMCs) and Village Natural Resources Management Committees (VNRMCs) to prepare EbA-based Catchment Management Plans (CMPs) and Village Level Action Plans (VLAPs) through ILM (activity set 1 in the ToC).**
- II. *Technical / Knowledge: technical capacity to adapt to the changing climate is limited among farmers and extension workers.* Insufficient extension capacity²⁹⁹ has been correlated with stagnating productivity and national development³⁰⁰. The various strategies adopted by farmers to cope with climate change have not been satisfactory³⁰¹; they are limited in nature, scope or both. The professionals involved in climate change adaptation³⁰² and sustainable land management³⁰³ in the country have differing perspectives and discourage farmers’ adoption of new techniques. Limited outreach coverage is also to blame.³⁰⁴ Farmers are unable to sort out their own competing demands (e.g., food, fuel) and end up contributing to forest degradation.³⁰⁵ Detailed information of local ecosystems which is necessary for successful adaptation, including weather forecasting,³⁰⁶ exists as local knowledge³⁰⁷ and its utility for adaptation is acknowledged by the government. However, it has not been fully integrated into interventions³⁰⁸ or supplemented by western science for maximum efficacy in adaptation.³⁰⁹ **This barrier will be addressed under activity sets 1.2 and 2.1, through the implementation of VLAPs and EbA agriculture extension support through FFS.**
- III. *Social barrier: Community adaptation capacity is unsatisfactory due to low access to information, markets, services and technology required for climate resilient livelihoods, especially among women³¹⁰ and other vulnerable groups.* Farmers, especially the marginalized ones, are not well incentivized to make sustainable strategic decisions on climate adaptation. The literacy rate of the general population is low (lower among women at 65.9% than among men at 71.6%), which limits access to information.³¹¹ Combined with insufficient access to markets, services and technology (including digital), these factors greatly impede the climate resilience of livelihoods. Men are the default target group for information, services and innovations;³¹² information relevant to women is scarce in a society where tasks are often assigned by gender. Women’s access to land and credit is also limited. These constraints are borne and compounded by unequal distribution of decision making power within the household and society.³¹³ **This barrier will be addressed under activity sets 1.1, 2.1, 2.2 and 2.3, through the implementation of ILM and VLAPs, FFS and 4Ps, and through the improvement of financial inclusion with community-based financial organisations (CBFOs/VSLAs).**

- IV. *Financial barrier: Farmers have poor access to financial resources and their managerial capacity in finance is limited for uptake of EbA. Farmers' access to finance, while recognized as a crucial factor in the adoption of climate resilient agriculture, remains unsatisfactory.*³¹⁴ Malawians have low access to financial institutions compared to neighboring countries³¹⁵, and experience a less mature finance market with limited scope and offerings³¹⁶. High transaction costs, financial products ill-suited for EbA, limited income, insufficient collateral, inadequate repayment schedules and low financial literacy prevent smallholder farmers from accessing financial services, particularly women. Another significant barrier to agricultural lending is the internal capacity of financial institutions (FIs). For example, FIs lack information about their clients (more particularly farmers' ability to produce crops to repay loans), they do not integrate climate risks into credit risks assessments and lack capacities to develop digital credit scores³¹⁷. **This barrier will be addressed under activity set 2.3, that will result in financial service providers being incentivized to invest in climate-resilient agriculture; hence enhancing farmers' financial inclusion.**
- V. *Institutional barrier: Institutional capacity is limited for climate mainstreaming, mobilizing innovative finance and integrating EbA into national policies.* The impacts of village level committees on watershed management have been rather small because of weak capacity. More than half of the country's fiscal means for climate adaptation are dependent on external sources. The roles and responsibilities of climate-related institutions are unclear and inter- and intra-institutional coordination is unsatisfactory.³¹⁸ Funding to these institutions is limited.³¹⁹ The Nationally Determined Contributions include EbA, but other policies do not clearly recognize it as the most sustainable solution. Climate related policies do not see marginalized groups separately, although they are different from one another in their needs and strengths. **This barrier will be addressed under activity sets 3.1 and 3.2, that will result in (i) more sustainable and innovative public and private climate financing through NCCF and local trusts being in place, and (ii) EbA and ILM integrated in national policies and investment plans.**

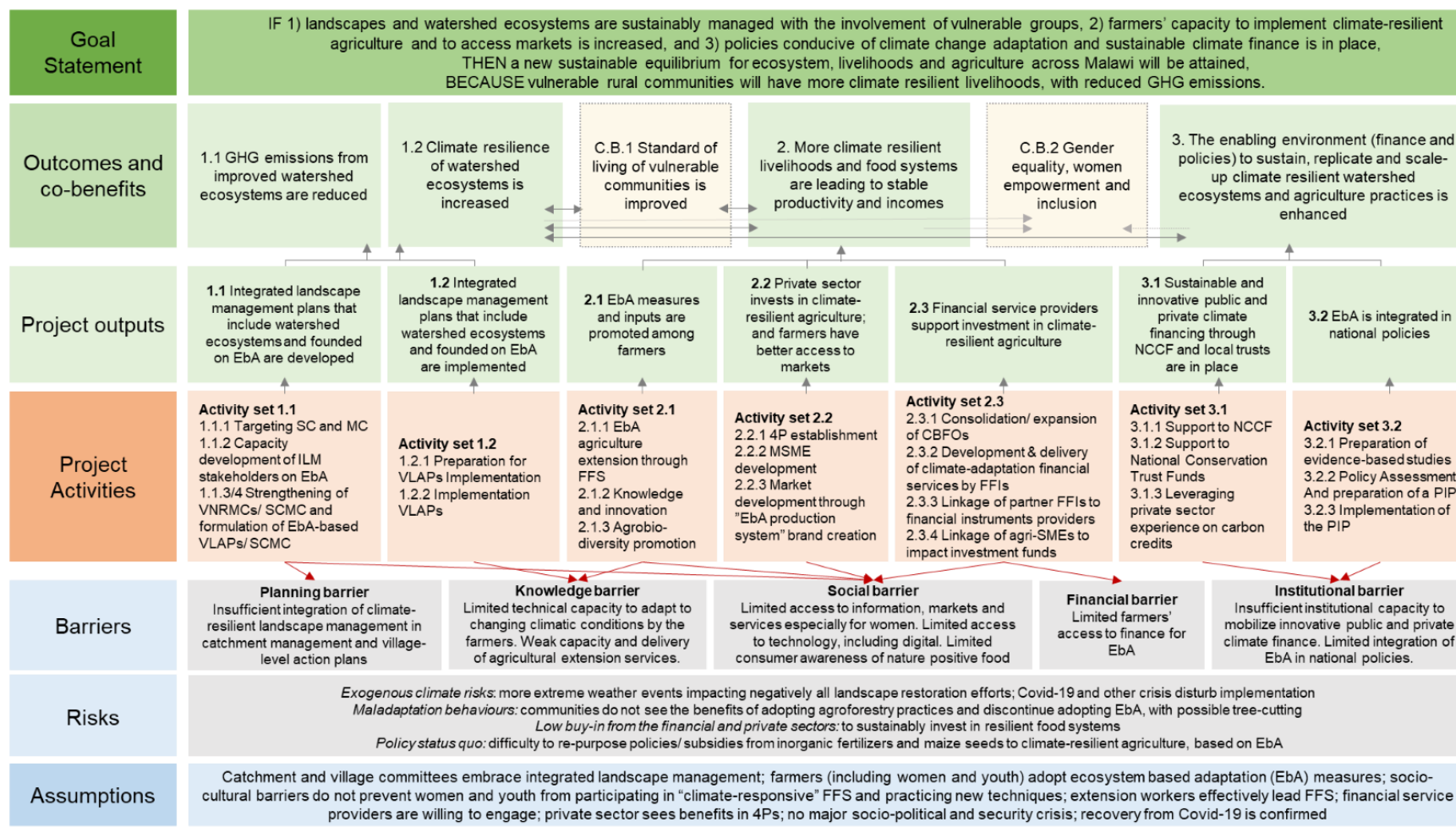


Figure 42 - Theory of Change Diagram

5.2 Detailed description of components and activities¹

106. The project objective is to increase the climate-change resilience of the most vulnerable rural communities at watershed level in Malawi. This objective will be achieved through the implementation of three interlinked components. The proposed project is expected to directly benefit around 270,820 individuals (about 1.47% of total Malawian population) vulnerable to climate-change in 11 pre-identified districts and 30 main sub-catchments. Indirectly, the project will benefit about 304,035 people (1.57% of total Malawian population). Total number of beneficiaries will reach 574,855.

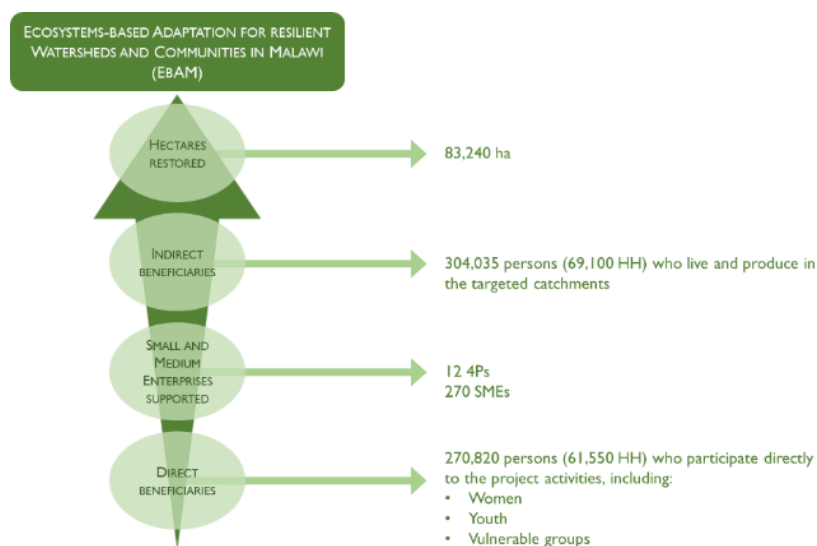


Figure 43 - Project beneficiaries. See section 5.22 for details on the calculation of beneficiaries

107. **Technical Principle of EbAM: Ecosystem-based Adaptation (see more details in Appendix I to the present annex).** Ecosystem-based adaptation (EbA) is the compass of EbAM, a climate change adaptation project. EbA uses biodiversity and ecosystem services to assist people to adapt to climate change,³²⁰ and EbA interventions are comprised of actions to restore and strengthen ecosystems so that biodiversity and ecosystem services are maximized and climate-change adaptation is most effective. While the government's *Malawi National Guidelines: Integrated Catchment Management and Rural Infrastructure 2015*³²¹ and *Forest Landscape Restoration Opportunities Assessment for Malawi 2017*³²² promote mostly EbA without explicitly employing the word, the *Updated Nationally Determined Contributions 2021*³²³ proposes EbA as one of its ten Strategic Adaptation Actions and also urges identification of community-based adaptation options.

108. EbA with respect to watershed ecosystems means restoring, strengthening and sustainably managing them.³²⁴ As for agriculture, EbA aims at creating an assemblage of crops and livestock to resemble ecosystems in functions and biodiversity while minimizing disturbances that are damaging to the surrounding ecosystems. These actions are hence in full accordance with the NDC. Agriculture is one of the major land uses in watershed, and agricultural practices consistent with EbA are to be included in the landscape management plans. EbA boosts the ecological resilience³²⁵ of the area where it is applied, and resilient ecosystems are equipped with self-healing and adapting capabilities, which render EbA measures effective in a wider range of climate situations than other adaptation strategies.

109. EbA is considered more cost effective in climate change adaptation than grey infrastructure when economic, social and environmental benefits are included.³²⁶ When local/traditional knowledge³²⁷ (holistic

¹ This portion has been redacted in accordance with the GCF Information Disclosure Policy, as the portion is confidential under the disclosure policy of the Accredited Entity.

socio-ecological knowledge, practices and beliefs) is integrated, EbA has good chances of avoiding maladaptation.

110. **Technical Principle of EbAM: Promotion of Native Species and Landraces.** Native species evolved in the local environment for over thousands of years or more. They tend to thrive with less inputs than exotic species and are much more adept at maintaining local ecology and biodiversity, together with landscapes and culture unique to locality.³²⁸ Robust and healthy ecosystems are the foundation of EbA, and it is the native species that confer such characteristics the most. In other words, they are key to preventing maladaptation³²⁹ and building ecological resilience against extreme weather events.³³⁰ Climate change weakens ecosystems and eases establishment of invasive exotic species.³³¹ The resultant low biodiversity creates environments more favorable to invasive species, leading to further reduced resilience to climate change and to invasive species.³³² The readily available genetic diversity needed for climate change adaptation is higher for native species than for an exotic species introduced, whose genetic cousins are found in their own native range. Hybrids perform very well provided that the required external inputs are available and that the seeds are purchased every year from a qualified seed supplier. These characteristics deprive farmers of opportunities to select seeds more adapted to the changing climate and also create financial dependence. With native and landrace varieties and breeds, climate resilience of the agricultural system can be maximized, but hardly any agriculture consists solely of native plants. The project acknowledges that quite a few crops have naturalized in their adopted lands to become part of the economy and culture. For this reason, the project considers use of non-native crops, except when they are invasive, while promoting native species for their often unsurpassed ability to improve the resilience of local ecosystems. The technical details and feasibility of EbA are provided in the Appendix 1 of this Feasibility Study.

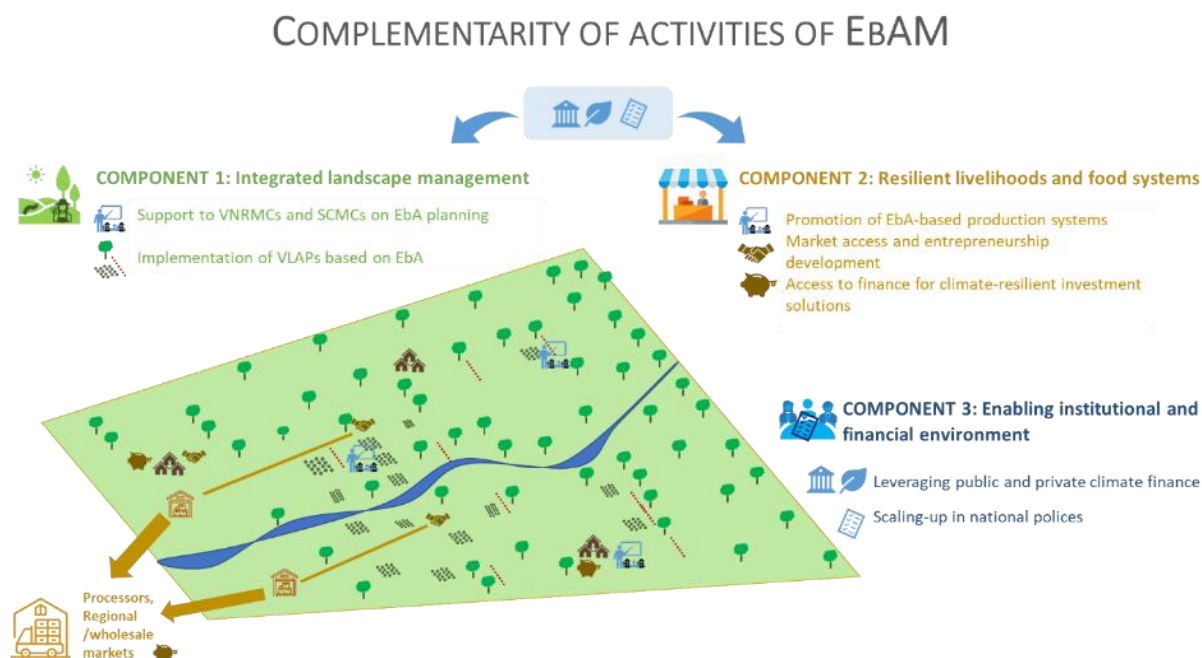


Figure 44 - Complementarity of activities and components of EbAM at watershed level

111. **Social principles of EbAM: Landscape Approach.** The term *landscape* is part of daily vocabulary and immediately conjures up various images and memories. In natural resources management, landscape is an area for which a community sees the necessity of long-term collaboration of various stakeholders in order to realize multiple objectives. The landscape approach aims at maximizing the locals' voice in determining the fate of the entire set of resources (i.e., integrated) found in a determined social unit (i.e., landscape) for its common future; it traces its origin to the widespread dissatisfaction with top-down

development paradigms.³³³ The approach is mentioned in several projects, including in Malawi, most notably: *Transforming landscapes and livelihoods: A cross-sector approach to accelerate restoration of Malawi's Miombo and Mopane woodlands for sustainable forest and biodiversity management* (2021-2026, USD 6.3 million financed under GEF-7 Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme); and *Malawi Watershed Services Improvement Project* (MWASIP, 2020-2026, USD 78.5 million financed by the World Bank). The landscape approach for the FAO/GEF-7 project is “about balancing competing land use demands in a way that is best for human well-being and the environment.”³³⁴ MWASIP uses an “integrated landscape management approach that emphasizes livelihood improvement and careful consideration of trade-offs from different land uses through an inclusive and participatory planning process.” The landscape approach was chosen among other natural resources management strategies based on the past experiences in the discipline, in which incomplete involvement of beneficiaries has led to disappointing results.³³⁵

112. The approach adopted by EbAM encompasses the definitions of FAO/GEF-7 and the World Bank projects above and hence builds on their experiences. In addition, EbAM puts stronger emphasis on climate vulnerability, community involvement in planning and subsequent management; it fulfils the NDC's goal to adopt community-based adaptation options. As described in Part 1, Section 1.3 of this Feasibility Study, watersheds/catchments are results of hydrological delineation, while landscapes will be delineated by the communities taking their resources' use into account. In other words, a watershed is a hydrological concept, while a landscape is a natural-resources-based concept modified by socioeconomic and cultural considerations. In Malawi, the strong concern in the rural areas for the situation regarding water and soil indicate that watersheds at certain scales more or less match with what the residents consider landscapes.

113. **Component 1: Integrated Landscape Management.** The objectives of this component are (i) to reduce GHG emissions from improved watershed ecosystems (outcome 1.1) and, (ii) to increase the climate resilience of watershed ecosystems (outcome 1.2). This Component will contribute to GCF ARA2 “Health, well-being, food and water security”, GCF ARA4 “Ecosystems and Ecosystem Services” and GCF MRA4 “Forestry and Land Use”. The Component will address the negative climate impact pathways from increased temperatures and rainfall variability leading to droughts and floods³³⁶ and contributing to accelerated ecosystem degradation. It will use ecosystem-based adaptation (EbA) as the main tool to build climate resilience, which will be firmly integrated in local planning through integrated landscape management at WRU sub-catchment and village levels. The Component will improve the technical capacity and engagement of stakeholders, including women, youth and other vulnerable groups on planning and implementing watershed restoration and climate-change adaptation based on EbA and landscape approach (Sub-component 1.1). Integrated management plans (product of Sub-component 1.1) will be implemented (Sub-component 1.2) to restore and strengthen the functionality of public goods, in particular watershed ecosystems, so that they are more adapted to extreme climate and their resilience is enhanced.

114. **The component addresses the planning, knowledge, social and financial barriers.** *The planning barrier* is addressed by assisting watershed stakeholders with watershed management planning and establishing watershed management committees responsible for planning, both at two watershed levels. *The knowledge barrier* is addressed by including various capacity building activities necessary for planning and technical advice on plan implementation. *The social barrier* is addressed by providing various information through capacity building. It also sensitizes and strengthens the capacity of local stakeholders on gender and social inclusion, while capacity development prioritizes women and youths. Integrated landscape management (ILM) is an approach that is holistic, participatory and integrated in local planning, including discussions and agreement on management of common lands; ILM promotes equitable and inclusive land tenure in local communities. *The institutional barrier* is addressed by improving the institutional capacity of the Ministry of Agriculture by way of: bolstering watershed management committees at two watershed levels; and supporting formulation and implementation of plans which is one of the responsibilities of the committees. The project promotes EbA as an overarching technical principle.

115. **The integrated landscape management (ILM) interventions are innovative.** EbAM follows the most comprehensive definition of landscape approach: territorial management to achieve multiple environmental, economic and social objectives through processes that recognize, reconcile and synergize interests, attitudes and actions of relevant stakeholders and are driven by local stakeholders.³³⁷ A landscape approach thus defined requires that a landscape unit be determined by local stakeholders³³⁸ and that its community collectively wishes to sustainably manage the landscape. EbAM is innovative in that it accompanies local communities through establishment of integrated landscape management as an EbA strategy; the Project employs a landscape approach (holistic, participatory and integrated in local planning) to watershed management with explicit activities for landscape stakeholder involvement and EbA as a technical guide. Although landscape approach appears in many titles of investment projects, it is not easily supported by common project implementation practices. EbAM envisages strong involvement of beneficiaries on the ground by implementing ILM in an unencumbered form; it is based on the pioneering work of FAO/GEF-7 and World Bank projects mentioned above, while ensuring deeper involvement of landscape stakeholders in the planning and subsequent processes. EbAM also differentiates itself from other projects on sustainable land and water management, such as “Land use planning and sustainable land and water management for improved agricultural productivity in Kasungu and Mzimba Districts” of FAO, by focusing on climate change adaptation and creation of an enabling environment at all levels for holistic and systemic transformation.

116. **ILM promotes collective management of landscapes and collaboration across sectors.** Landscapes as defined by the beneficiaries may consist of not only customary land, but also public and private land. In case public land is included in the target landscape, insufficient cooperation with the relevant public authority (e.g., Ministry of Tourism, Culture, and Wildlife) would result in ineffective results. The ILM process proposed by the project involves local government officials as associate members of landscape

management committees (named Village Natural Resources Committees and Sub-Catchment Management Committees) to inform the local communities and to be informed by them, thereby providing coordination across sectors. If private land is part of the target landscape and sizeable with respect to the total target area, the owner may end up with larger decision-making power than for others, leading to a Village Level Action Plan (VLAP) for the landscape with lower overall ownership/effectiveness. Some local beneficiaries may be triggered by the project to claim private ownership of a certain parcel of land which had previously been recognized as community property; such a move would negatively affect overall social cohesion, in addition to intervention ownership/effectiveness. These possibilities are forestalled by capacity building on social inclusion for the beneficiaries and the ILM Facilitators who guide the local beneficiaries in their discussion and formulation of VLAPs with an emphasis on social inclusion, sincere exchange of opinions and solidarity.

117. The proposed interventions are enabled by ownership. EbAM transforms watershed communities by creating strong ownership of interventions. The Project puts the local residents at the driver's seat and guides the local stakeholders through discussions so that they reach a common vision for what they see as their landscape. Landscape approach signifies that no solution is imposed on the stakeholders, but that they are guided by facilitators (see Box 2) who provide basic information on ILM and EbA as well as links to various technical and socioeconomic information sources, experts, suppliers and executing entities. The facilitators pose questions that the community needs to consider at appropriate moments and ensure meaningful and equal participation of various social groups, especially women and youth. The numerous dialogues among landscape stakeholders, which may not have immediate tangible results, are at the foundation of community cohesion required for collective actions: sustainable management of watersheds and adaptation to climate change. Dialogues also engender social inclusion, without which communal management and transformation are much less effective. Landscape approach not only unites the local inhabitants, but also connects them to administrative personnel and legal structures of the area, e.g., Village Development Committee (VDC), District Council, Area Development Committee (ADC) at Traditional Authority level; and District Executive Committee (DEC); landscape stakeholders are comprised of local residents and non-resident stakeholders at the local level, including members of watershed management committees at the landscape level, which are part of the government's watershed management structure, in addition to Traditional Authorities and local government officials, notably the District Forest Officer. Through guided dialogues, the stakeholders recognize the needs of capacity building, integrated landscape management planning and plan implementation and decide on the details of activities, which will be integrated into their planning and execution. In line with its mission to reduce land degradation and act as a key player for climate change adaptation within the Ministry of Agriculture (MoA), the Department of Land Resources Conservation (DLRC) will also be deeply engaged as Executing Entity (EE), through the mobilization of its decentralized staff (Principal Conservation Officer, Chief Land Resources Conservation Officer etc. – see section 6 of the feasibility study) based in each of the 8 Agricultural Development Districts (ADD) offices.

118. The process thus endows the stakeholders with solid ownership of interventions. The facilitators engaged for the Component ensure effective organization of trainings, together with the EEs. They also ensure that the participation of women, youths and the very poor, is meaningful and satisfactory with respect to their share in participants' composition. Information on all Activities is shared at the village level before and after each event by Dimitra Clubs (a social organization to be established by the project at village level).

119. Interventions are inclusive and increase the chances of systemic transformation. In order to strengthen the social structure at the village level, EbAM adopts FAO's Dimitra Clubs (see Box 7 for details on Dimitra Club), which are local groups for female and community empowerment in rural sub-Saharan Africa.³³⁹ Six thousand Clubs with 180,000 members have been established by FAO in the past ten years in Burundi, Burkina Faso, Central African Republic, Democratic Republic of Congo, Madagascar, Mali, Niger and Senegal,³⁴⁰ indicating the Club's wide applicability and replicability. Establishment of the Clubs is facilitated by FAO through training³⁴¹ of Club Caretakers, who are residents of the village covered by the Club and selected to lead Club discussions and activities. Each Club functions as a flexible social

organization structure at community level, and the Club's primary tool is dialogues as is the case with landscape approach. Dimitra Clubs were introduced to the country by FAO in May 2022 and have been reported a great success after a few months; they have brought together different local Committee members – which is essential for effective ILM – and resolved many of community grievances. Dimitra Clubs embed ILM Facilitators, who share the facilitation skills with Dimitra Club Caretakers, who lead the Club activities. Once set up, Dimitra Club requires no external funds for organizing community-wide meetings, and the mode of meetings are set by the members. For coherent intervention at the village level, ILM Facilitators will be trained on relevant topics (ILM, climate change, EbA, payment for ecosystem services water resources management, adaptive management and gender and social inclusion) and in turn train Dimitra Club Caretakers and local residents.

Box 2 - ILM Facilitators under EbAM Component 1

ILM Facilitators (two per sub-catchment), are national experts on community development. They will be engaged through NGOs and assigned to each targeted sub-catchment to guide the landscape stakeholders of micro-catchments through planning, and plan implementation. They will ensure good understanding of ILM process among stakeholders and guide the communities through various trainings and planning. They will also ensure participation of women and youths. The micro-catchment inhabitants will engage in landscape demarcation, resources inventorying within the landscape defined and landscape stakeholders identification with the assistance of ILM Facilitators.

NGOs will provide ILM Facilitators (a team of two persons for each targeted sub-catchment; one ILM Facilitator who is a national expert on community development with experience at a national scale and one ILM Co-Facilitator who is another community development expert knowledgeable about the relevant sub-catchment area) to accompany ILM stakeholders through Component 1, leading to strengthening/ establishment of committees and ILM plans at micro-catchment/landscape (Activity 1.1.3) and sub-catchment levels (Activity 1.1.4): Village Natural Resources Management Committee (VNRMC) and Village Level Action Plans (VLAP); and Sub-Catchment Management Committee (SCMC) and Sub-Catchment Management Plan (SCMP). The Facilitators will also be embedded in Dimitra Clubs (social organization set up by the project – see Box 7 and Sub-Activity 1.1.2.2) and ensure that the facilitation skills are shared with Dimitra Club Caretakers (Club members who lead the Club activities – see Box 7). The two ILM Facilitators present in each sub-catchment will divide tasks between one facilitator focusing more heavily on the ILM and EbA process, while the other will lead the gender and social inclusion activities. An ILM coordinator will be nominated by NGOs for every group of 10 facilitators (5 sub-catchments).

The tasks of ILM Facilitators include:

- I. Ensuring good understanding of ILM process among landscape stakeholders;
- II. Guiding communities through training, planning and implementation to enable self-determination in landscape management;
- III. Ensuring participation of women and youths (age 15-35) in ILM that is meaningful and satisfactory with respect to their share in participants' composition, roughly 60% and 30%, respectively (the target for female youths will be 18% of participants);
- IV. Connecting landscape stakeholders to various technical and socioeconomic information sources, experts, suppliers and executing entities;
- V. Participating in selection of target sub- and micro-catchments as observers to understand hydrological connections of the micro-catchments that they are in charge of (Sub-activity 1.1.1.1. and 1.1.1.2);
- VI. Participating in training in order to act as trainers on ILM, climate change, water resources management, ecosystems-based adaptation, payment for ecosystem services, adaptive management and gender and social inclusion (Sub-activities 1.1.2.1 and 1.1.2.2);
- VII. Providing training on the above subjects to local residents with emphasis on residents involved in Dimitra Club operations;
- VIII. Participating in trainings to act as facilitators of Dimitra Club and household methodology (activity 1.1.2);
- IX. Providing training on Dimitra Club to future Dimitra Club Caretakers;
- X. Organizing household methodology meetings at village level;

- XI. Ensuring mobilization of local residents together with Dimitra Club Caretakers (in particular activities 1.1.3 and 1.1.4).
- XII. Coordinating sub-catchment level activities (sub-activity 1.1.4.3); and
- XIII. Reporting per sub-activity to the Executing Entity and quarterly to PIU and MoA/DLRC.

The existence of capacity in the country to assist community development is proven by the number of members of the Association of Environmental Professionals in Malawi, which is about 1,400, and that of the Society of Community Development Practitioners, a Malawi NGO, which is around 2,700. The Council for Non-Governmental Organisations in Malawi (CONGOMA) counts NGOs competent in community-led development, and FAO/GEF-7 Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme has identified NGOs with capacities in development and environment suited for their project in Malawi, which include Center for Environmental Policy and Advocacy (CEPA), Concern Worldwide, Welthungerhilfe (WHH), WeEffect, Christian Aid, Wildlife and Environmental Society of Malawi (WESM) and African Institute of Corporate Citizenship (AICC). NGOs such as Action Aid; CARE; Community Savings and Investment Promotion (COMSIP); DAPP; Heifer International; Opportunity International; OXFAM; Save the Children; and World Relief also have very good community development specialists.

120. **The interventions proposed are sustainable and replicable.** Component 1 bolsters the watershed management structure and processes defined by the government (Table 15) by strengthening existing watershed management committees at two levels (Sub-Catchment Management Committee and Village Natural Resources Management Committee, or SCMC and VNRMC – see Box 10) and by establishing them where they do not already exist (see Box 10 for the legal background of the committees). SCMCs and VNRMCs have been promoted under the World-Bank funded SRBMP (Shire River Basin Management Programme Phase 1, SRBMP, 2014-2019) that sponsored and developed *Malawi National Guidelines: Integrated Catchment Management and Rural Infrastructure 2015*. The Shire River Transformation Project (S RTP, 2017-2023) and the Malawi Watershed Services Improvement Project (MWASIP) promote these water management structures. The EbAM Project will assist watershed communities at the two levels – WRU sub-catchment and village levels –in formulating watershed management plans (Sub-Catchment Management Plan and Village Level Action Plan, or SCMP and VLAP) as ILM plans for EbA. In order to avoid ending up with an infeasible plan, the works implied are discussed, and responsibilities negotiated and shared among the landscape stakeholders. ILM Facilitators ensure that the stakeholder discussions aim at sustainable landscape in the long term.

Table 15 - Catchments of Various Levels and Characteristics

Catchment Unit	Indicative Size (ha)	Responsible Party for Delineation	Primary Stakeholders	Government Defined Management Tools	EbAM Interventions
Catchment (Water Resources Unit)	18,000-400,000	Malawi Government	Communities, farmers (including pastoralists), other land users Local government officials, including higher-level officials than those for sub-catchments	Catchment Management Committee (CMC) Catchment Management Plan (CMP)	None
Sub-catchment (WRU sub-catchment)	1,500-45,000	EbAM taking other donor delineation into account	Communities, farmers (including pastoralists) Other land users Local government officials, including higher-level officials than those for micro-catchments. Varying whether upstream or downstream, a sub-catchment may contain more than one Traditional Authority.	Sub-Catchment Management Committee (SCMC) Sub-Catchment Management Plan (SCMP)	Strengthening/ Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchments Management Plans (SCMPs) (Activity 1.1.4)
Micro-catchment (sub-catchment of WRU sub-catchment)	500-1,500	EbAM	Communities (farmers, pastoralists, etc., including Village Heads, Committee members at the village level) Other land users Local government officials, e.g., Ministry officials at the lowest level in charge of water resources, forestry, and local governance.	Village Natural Resources Management Committee (VNRMC) Village Level Action Plan (VLAP) or Group VLAP (groups of about 10 villages, in case their resources are commonly managed)	Strengthening/ Formation of Village Natural Resources Management Committees (VNRMCs) and formulation of EbA-based Village Level Action Plans (VLAPs) (Activity 1.1.3)

121. As highlighted in section 1.3.1, Identification of catchments within selected districts will follow a rigorous selection process. The six stages of targeting are: (i) identification of target Districts based on climate vulnerability and socioeconomic potential (as described in Part 1 of this Study); (ii) identification of target Water Resources Units (WRUs) within target Districts based on climate vulnerability, socioeconomic potential and complementarity with other Projects (e.g., EU-funded, FAO implemented KULIMA); (iii) delineation of selected WRU catchments into WRU sub-catchments based on hydrology and in line with the sub-catchment delineation of other partners in Malawi (e.g., World Bank-funded MWASIP); (iv) identification of target WRU sub-catchments based on hydrological, ecological and social considerations; (v) delineation of WRU sub-catchments into WRU micro-catchments based on hydrology and number of villages contained; and (vi) identification of target WRU micro-catchments based on hydrological, ecological and social considerations. The last three stages of targeting will be carried out during project implementation under Sub-component 1.1 for ensuring participation of local stakeholders, interest and consent. Figure 45 is a graphical presentation of targeting process.

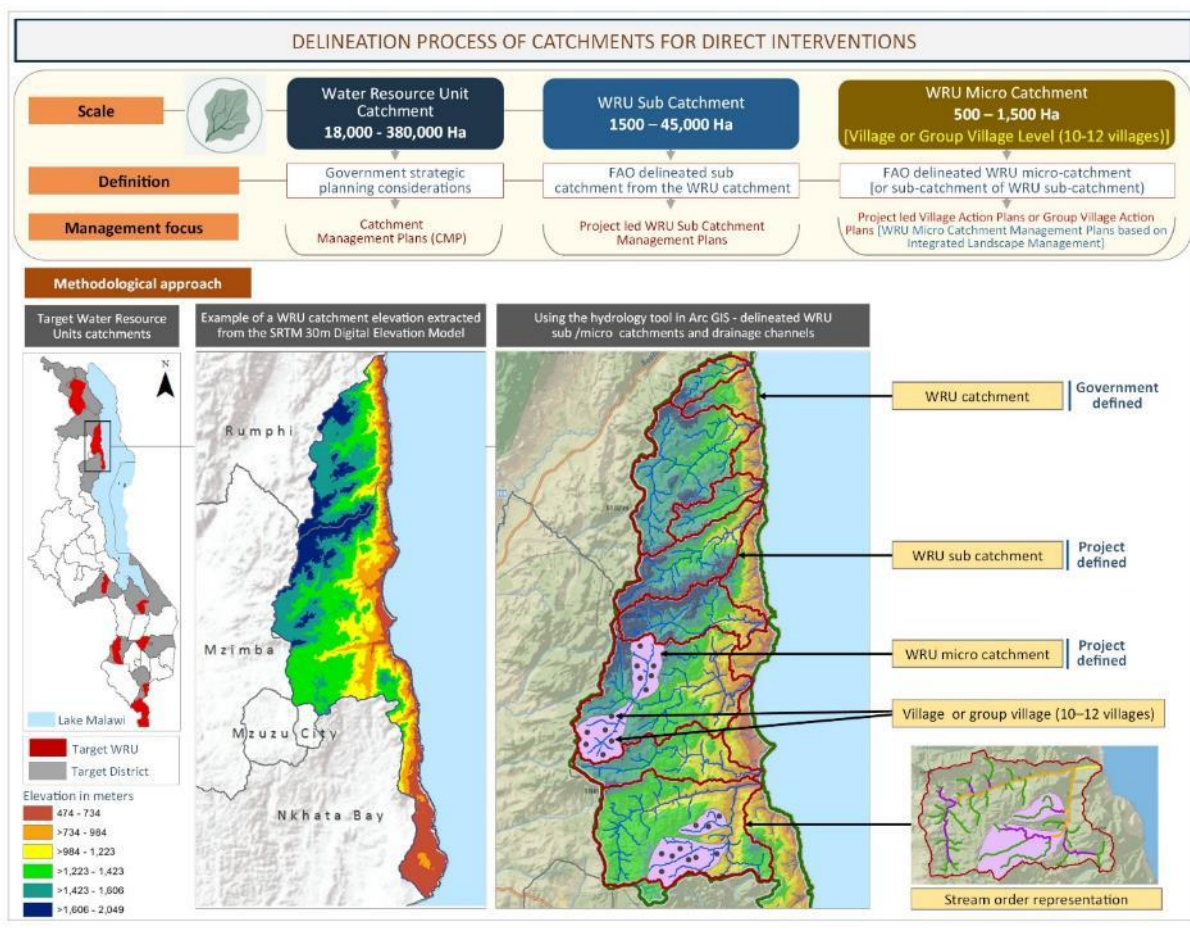


Figure 45 – Example of delineation process of WRU Sub-Catchment into Micro-Catchments

122. **Sub-component 1.1 Support to Village Natural Resources Management Committees (VNRMCs) and Sub-Catchment Management Committees (SCMCs) on EbA Planning. (Output 1.1.: Integrated landscape management plans that include watershed ecosystems and founded on EbA are developed).** The Sub-component will support the development of integrated landscape management plans for watersheds with ecosystems-based adaptation principles: Village Level Action Plans (which are plans for micro-catchments contained in targeted sub-catchments) and Sub-Catchment Management Plans (see Table 15). VNRMCs (Village Natural Resources Management Committees, which are committees for micro-catchments) and SCMCs (Sub-Catchment Management Committees) will be established in areas where they do not yet exist and strengthened where they are already in place. This sub-component will be implemented through DLRC (i.e. decentralized staff within each of the 8 ADD offices) and FAO as Executing Entities.

123. **Activity 1.1.1. Targeting and Phasing of Sub-Catchments and Micro-Catchments.** This activity will support the selection of 30 target WRU sub-catchments for phased intervention. The activity will also support the selection of 111 micro-catchments contained in 30 targeted WRU sub-catchments for village-level intervention. The detailed targeting process is found in this Feasibility Study, Part 1. Phased implementation of the activities will create opportunities to benefit from lessons learned under the project.

124. Sub-activity 1.1.1.1: Identification and Assessment of 30 Sub-Catchments and 111 micro-catchments (financed by GCF, executed by MoA/DLRC). The sub-catchments and micro-catchments for EbAM intervention will be chosen based on climate vulnerability, taking into account hydrological, ecological/ environmental, socioeconomic and cultural factors. Rapid assessment of catchments using

GPS/GIS data has been conducted extensively under FAO-implemented KULIMA Project (see part 3 of this Feasibility Study for details about the Project), and EbAM will build on the same methodology (see Box 3) for targeting purposes. A rapid assessment will be conducted for all delineated sub-catchments (see Part 1 of the present Feasibility Study) by a national GIS and water-resources-management expert (consultant) with the support of MoA/DLRC staff. For effective conduction of assessments, the decentralized staff of MoA/DLRC will be trained by the national consultant on GPS/GIS rapid assessment of watershed climate vulnerability and land degradation for hotspot mapping and analysis. The training will take place at WRU level, four days each, including field visits. Fifteen MoA/DLRC staff members at ADD level will participate, and MoA/DAES staff will be invited to promote cross fertilization with the MoA/DAES staff trained under FAO KULIMA. The assessment will consist of GPS/GIS data preparation by the national consultant (ten days at sub-catchment level and ten days at micro-catchment level), followed by ground-truthing done by the consultant together with MoA/DLRC (Principal LRC Officer and Senior Assistant LRC Officer) with the assistance of MoA/DAES officials trained under KULIMA, where possible (ten days for each sub-catchment) under the supervision of the consultant (30 days). Each sub-catchment will be delineated into micro-catchments by adjusting the stream order criteria so that each micro-catchment contains one village or several villages where resources are managed collectively (usually 10 villages). A total of 30 sub-catchments will be selected for intervention and phasing. About 1,100 villages will be targeted within 111 micro-catchments from the selected 30 sub-catchments.

125. MoA/DLRC as the Executing Entity (more particularly the Chief and Principal Land Resources Conservation Officers at ADD level), will carry out the actions necessary to ensure timely and effective engagement of a national consultant on GIS and water resources management as well as organization of rapid assessments, including: (i) ToR elaboration for a national consultant; (ii) selection and on-boarding of the consultant; (iii) ToR elaboration for and engagement of decentralized MoA/DLRC and MoA/DAES officers participating in rapid assessment; (iv) connecting the national expert and decentralized MoA officers participating in rapid assessment; (v) organization of training and rapid assessment on the ground (including venue, catering, travel and lodging where necessary); (vi) evaluation of national consultant and (v) report elaboration on rapid assessment exercise. MoA/DLRC will be the ultimate responsible party for documenting the processes and results of the event planned under this Sub-Activity.

Box 3 - Rapid Assessment using Geographical Positioning and Information Systems (GPS and GIS) for Watershed Land Degradation Hotspot Identification and Analysis

The absence of reliable location-based information on land degradation as well as that of vulnerability assessment of affected communities hinder effective targeting of intervention in addition to satisfactory implementation, monitoring and evaluation. The prevailing situation is compounded when the geographical scope is large and the corresponding transportation network is fragile, as is the case with many projects in Malawi, including the EbAM project. In recent years, concerted efforts have been made by the FAO Malawi Country Office and the Government of Malawi to create an enabling environment within the Government's extension system: strengthened national capacity to use digitalized geo-data collection systems (such as GPS and GIS technologies); and increased access to mobile systems (such as tablets and smart phones).

With the financial support of the European Union and other donors, FAO Malawi continues to reinforce the country's georeferenced decision support system relating to the state of and vulnerability to land degradation. Such efforts include the KULIMA project (*Revitalising Agricultural Clusters and Ulimi wa Mdandanda through Farmer Field Schools in Malawi*, 2017-2022, EUR 30 million). The system concerns much more than a collection of location-based information of land degradation hotspots; its establishment has been accompanied by creation of a pool of Trainers of Trainers (ToTs), who are professionals drawn from the Government's extension system and equipped with solid knowledge of integrated catchment management and vulnerability assessment mapping. EbAM project will leverage on this pool of human resources in undertaking a rapid GIS assessment of sub-catchments and micro-catchments.

The rapid GIS assessment will employ an interactive interpretation with participation of relevant national and District specialists on the subject matter. Remotely sensed high-to-medium resolution satellite imagery of relevant sub-catchments will be divided into image sections with differing geographic characteristics. Using the remote sensed imagery as the base layer and triangulating with existing GIS secondary information (climatic, meteorological, hydrological, topographic and socioeconomic data), land degradation vulnerability levels will be mapped for each zone represented by an image section. The subsequent zoning validation process will involve ground-truthing by the

extension system professionals who have been trained on land degradation assessment using GPS and GIS and are knowledgeable about the target WRUs.

Some of the ground truth data will be used as a guide for image interpretation (such locations are called “training sites”). In case of land degradation, they will include land cover classes such as: soil erosion (gully and non-gully surfaces); deforestation; land disturbance by mining; crop cultivation along river and stream banks; crop cultivation on hill slopes; siltation in rivers and streams; overgrazing; water pollution; poor sanitation and waste management; and so on. The image classification software uses the training sites to identify the land cover classes in the entire image, i.e., supervised classification of remote sensed imagery. The rest of the ground truth data will be used for information validation.

126. Sub-activity 1.1.1.2: Free, prior informed consent (FPIC) and environmental and social assessment for 30 sub-catchments and 111 micro-catchment (financed by FAO, implemented by FAO). This sub-activity will finance FPIC implementation³⁴² for all potential beneficiary communities to ensure their strong engagement and adequate participation of youth, women and other vulnerable groups when targeting sub-catchment and micro-catchments. FPIC facilitators (15 in total) will be trained (3 days) by an international expert.

127. The process will abide by the FAO's³⁴³ and Cultural Survival's³⁴⁴ FPIC Manuals as closely as possible. ILM Facilitators will accompany the FPIC expert as an observer of FPIC meetings. During FPIC, Forest Act 1997 and Forest (Amendment) Act 2019 of Malawi will be explained. These include aspects related to e.g. activity 1.1.3, the nature of Village Natural Resources Management Committee (VNRMC); affiliated government body of VNRMC; responsibilities of village heads, traditional authorities and VNRMC; possible relationship with community-based organization (if one exists already); procedure of VNRMC's legal registration; relationship among forest management plans, forest management agreements and authority to manage forests; difference between statutory law and customary law, including access to non-farmland in the villages;³⁴⁵ harvesting authority and use of forest products; movement of forest produce, licensing and right to sale; and other issues raised by the villagers. FPIC will also address questions and clarifications related to the other Project activities (gender and social inclusion, SCMPs, implementation of VLAPs, FFS, access to finance etc.).

128. An assessment of environmental and social baseline and potential impacts will be also prepared, based on the micro-catchments identified. International safeguards specialist, national safeguards specialist and additional national ESS specialist will conduct the assessment of environmental and social baseline in the target micro-catchments based on literature review, any findings from FPIC implementation above, as well as data to be collected by national ESS specialist. These consultants will also assess the potential negative and positive impacts of the project in target micro-catchments. Based on institutional capacity development gaps identified in the assessment, the project will provide trainings on environmental and social risk assessment and monitoring to relevant government staff (e.g. MoA/DLRC officers, Environmental District Officers). The assessment of environmental and social baseline and impacts will be used as a basis for the preparation of the project ESMP.

129. FAO (more particularly key CPIU staff, i.e. Environmental and social safeguards International Technical Assistance, National Environmental and social safeguards specialist) will carry out the actions necessary to ensure timely implementation of the sub-activity and effective engagement of potential beneficiary communities. The District Officer and the Traditional Authority will be informed of the purpose of FPIC and the rights of self-determination of villagers. The District Forest Officer and the Traditional Authority of a larger area containing the target village candidate are informed in case the village decides to participate in the project.

130. Sub-activity 1.1.1.3: Validation and Phasing of 30 Targeted Sub-Catchments and 111 Micro-Catchments (financed by GCF, executed by MoA/DLRC). Then, phasing in terms of project implementation of sub-catchments will be decided by MoA/DLRC, assisted by MoA/DAES together with PIU staff (Natural Resources Management Specialist and M&E/GIS Specialists) during a 1-day meeting at the central level (Lilongwe). Phasing will be based on the ease of implementation per sub-catchment represented by

delineated micro-catchments (see Table 6 in Part 1 of this Feasibility Study) so that sub-catchment wide planning may take place in an orderly manner. Staggered implementation by sub-catchments will consist of three phases; implementation in 11 micro-catchments will start in Project Year 2, that in 70 catchments in Project Year 3 and 30 catchments in Project Year 4.

131. Target micro-catchments will be validated by MoA/DLRC, assisted by MoA/DAES together with PIU staff (Natural Resources Management Specialist and M&E/GIS Specialists) pertinent to sub-catchment in question, Traditional Authorities whose jurisdictions overlap with each targeted sub-catchment and ILM Facilitators (see Box 2) assigned to the sub-catchment in question during a 2-day meeting at each WRU. The beneficiaries are the same as Sub-Activity 1.1.1.1.

132. MoA/DLRC as the Executing Entity (more particularly the Chief and Principal Land Resources Conservation Officers at ADD level) will carry out the actions necessary to ensure timely and effective selection and phasing of catchments, including: (i) ToR elaboration for meetings (one central and eight at WRU levels) and participants; (ii) organization of meetings (including venue, catering, travel and lodging where necessary); (iii) appointment of MoA/DLRC officers to act as a chair and a notetaker for each meeting; (iv) evaluation of national consultant and MoA officers involved: report elaboration on selection and phasing exercise and its results; and so on.

133. **Activity 1.1.2 Capacity Development of ILM Stakeholders on Ecosystem-based Adaptation (financed by GCF, executed by FAO).** This Activity will support awareness raising and capacity building of landscape stakeholders on technical and social matters for effective integrated landscape management (ILM) founded on ecosystem-based adaptation (EbA). It will support capacity development of local residents with emphasis on Dimitra Club Caretakers (see details below). The members of Central PIU and Regional PIUs will be also trained on gender and social inclusion together with ILM facilitators.

134. The Activity will also establish a social organization structure at village level for facilitating collective actions, the *Dimitra Clubs* (see Box 7 and Sub-Activity 1.1.2.2), which are local groups for female and community empowerment.³⁴⁶ ILM is founded on meaningful participation, which requires examination of decision-making power parity. Gender empowerment has been widely recognized as an essential element in climate change adaptation and mitigation. Hence, EbAM employs a household methodology (participatory methodology for family members to work together to improve their relations, decision-making and share of workloads related to household, all ultimately for strengthening the overall well-being of the household and its members) to examine decision-making power parity at the household level, which will be scaled up to the village level by Dimitra Clubs, for meaningful participation of women and youths in ILM.

135. *Sub-activity 1.1.2.1: Capacity Development for EbA Implementation.* ILM Facilitators' training as trainers will be provided by national experts in each of the following fields: (i) integrated landscape management (ILM) – four days; (ii) climate change – one day; (iii) water resources management (WRM) – one day; (iv) ecosystem services and ecosystem-based adaptation – two days (detailed information on EbA and its techniques are given in Appendix I of the present Feasibility Study); (v) payment for ecosystem services – one day (PES – see Box 4 and Box 5); (vi) adaptive management – one day. In the case of climate change, the training will be provided by the Department of Climate Change and Meteorological Services (DCCMS), who has been trained on climate prediction modelling by FAO (through other initiatives e.g. training on MOSAICC), and through other GCF-funded Projects (*Scaling Up The Used of Modernized Climate Information and Early Warning Systems in Malawi* - GCF FP002). The first six topics will constitute a 10-days training at WRU level. Gender and Social Inclusion will also be mainstreamed throughout the training thanks to the participation of the PIU Gender and Social Inclusion Specialist. The climate change expert from DCCM will join for two days in total to make the link between climate change and EbA. ILM Facilitators will be trained in Project Year 1 through a series of 8 trainings (at WRU level), each covering 10 ILM Facilitators and some PIU Staff.

136. After being trained as trainers, ILM Facilitators will build local residents' capacity at each micro-watershed on the same topics as their training as trainers: (i) ILM; (ii) climate change; (iii) ecosystem service and EbA; (iv) payment for ecosystem services and; (v) adaptive management. ILM Facilitators will ensure the good organization of this Sub-Activity, together with Central PIU (Natural Resources Management Specialist, Agroecology & EbA Specialist, Gender and Social Inclusion Specialist M&E/GIS and Agribusiness & Finance Specialist), Regional PIU (Natural Resources Management Specialists, Agroecology & EbA Specialists; and M&E associates) pertinent to each sub/micro-catchment and other Facilitators. FAO (as Executing Entity) and ILM Facilitators will lead the search for six trainers (one expert for each topic – including one from DCCMS), supported relevant PIU staff. Information on the sub-activity will be shared at the landscape level through the village-level social organization (Dimitra Club- see Sub-Activity 1.1.2.2) before and after each event. ILM Facilitators will record the processes and results of trainings and submit them to FAO in the agreed timeframe.

137. The details of capacity development topics are as follows:

- I. *Integrated Landscape Management*. Subtopics may include: (i) landscape approach and its principles – including landscape demarcation, resources inventorying and stakeholder identification; (ii) examples of unsustainable landscapes – ecological/environmental, socioeconomic and cultural aspects; (iii) social inclusion, participatory approach and sustainability; (iv) importance of participatory planning; (v) differentiating guiding, teaching and dictating; and (vi) living the process with stakeholders.
- II. *Climate Change*. Sub topics may include: (i) climate vulnerability, (ii) climate change adaptation and mitigation; (iii) traditional climate/weather prediction; (iv) modern climate/weather prediction; (v) traditional information dissemination system; and (vi) modern climate/ weather information services/ systems.
- III. *Water Resources Management (WRM)*. Sub-topics may include: (i) water cycle; (ii) floods and droughts; (iii) interactions of water, soil and vegetation; (iv) waterbodies and their contribution to drinking water, vegetation and climate; and (v) role of forests in water cycle and soil fertility.
- IV. *Ecosystem Services and Ecosystem-Based Adaptation*. Sub-topics may include (i) ecosystems; ecosystem goods and services; (ii) genetic diversity for climate change adaptation; biodiversity and agrobiodiversity; (iii) native and exotic species; invasive species; landraces; (iv) agroecology; (v) EbA techniques for croplands; (vi) EbA techniques for forests; (vii) EbA techniques for grasslands/ rangelands; (viii) EbA techniques for water regime management; (viii) seed banking, seed/seedling nursery; and seed exchange.
- V. *“Community-based” Payment for Ecosystem Services*. Box 4 presents the principles of PES, and Box 5 a viable example of “community-based” PES, “leasing trees and forest space for honey production”. This case has a strong potential for replication in the country, and EbAM will scale-up this simple community-based PES scheme. Sub-topics may include: (i) principles of PES; (ii) operationalization of PES; (iii) examples of simple, replicable and sustainable PES in Malawi and neighbouring countries – what worked and what did not.
- VI. *Adaptive Management*. Sub-topics may include: (i) utility and various forms of M&E; (ii) reporting, analysis and activity adjustment; (iii) planning and adaptive management; (iv) climate change and adaptive management; (v) practical responsibility sharing for M&E based adaptive management; and (vi) forest monitoring.

138. The direct beneficiaries of the Sub-Activity are about 25 inhabitants per targeted micro-catchment, or 2,775 persons, of which 60% are female and 30% youths (age 15-35). Other beneficiaries are 60 ILM Facilitators. The service providers are ILM Facilitators and one national trainer each for the six technical topics.

Box 4 – Payment for Ecosystem Services

The foundations of EbA are the use of biodiversity and ecosystem services, which are usually available at no direct cost despite their significance for humans. As such, payment for ecosystem services (PES) enters the picture as a means with good potential to improve financial incentives and sustainability of EbAM. PES targets the local actors who own or manage the natural resources to provide financial incentives for their conservation.³⁴⁷ Straightforward in theory, but its practice has been rife with difficulties as much as with potential.³⁴⁸ Most schemes tend to neglect the fact that it is a context-dependent incentive scheme to induce behavioral change.³⁴⁹ The schemes observed in Malawi by the project formulation team were: hydropower station pays to the government for forest conservation and river silt reduction; sugarcane estate pays to local farmers for its riverbank reforestation; and beehive keepers pay to forest owners for use of trees and forest space. The first two were not considered to have a strong replication potential by EbAM; they did not appear to have created effective incentives for the agents on the ground. The payment by the hydropower station was not linked to actions or results. The payment for riverbank reforestation was on the basis of harvested biomass generated by reforestation, and hence did not promote permanent reforestation. The participating farmers were to benefit also from stabilized riverbanks, but the stabilization was unsatisfactory and the connection between stable riverbanks and water availability was not easily felt. In contrast, tree and forest space leasing by owners to beehive keepers has been effective to the extent that the villagers have started planting trees. The leasing agreement and payment observed in Mitundu were yearly, negotiable and averaged 100,000 MKW/year (see Box 5). The project formulation team also noted that beekeeping is one of the preferred economic activities around the country. EbAM will promote such simple, community led and effective PES for financial incentives and sustainability of EbA-based ILM. Sub-Activity 1.1.2.2 informs and trains ILM facilitators and villagers on PES so that they may formulate viable PES schemes.

Box 5 –Leasing Trees for Honey Production: A Simple and Effective PES Model in Mitundu, Malawi

Tree-cutting for charcoal production is widespread in Mitundu as a source of income, but it puts pressure on local forest ecosystems and the services that they provide to the immediate communities and beyond (e.g., watershed protection and carbon sequestration).

Arnold Kasumbu, a beekeeper from Chankhutha Village in the Mitundu Extension Planning Area (EPA), grew up in a farming family appreciating wild animals and nature. The family used to grow tobacco, but with the decline of the tobacco market he decided to take a new turn. In 2005, he engaged in irrigated farming, aquaculture and honey production. Peculiar Honey Bee Production was born as one of his enterprises, and a Payment for Ecosystem Service (PES) scheme was established between the private tree owners (ecosystem service providers or sellers) and Arnold as the beekeeper (the primary buyer) with the assistance of the Department of Fisheries (DoF) and Lilongwe University of Agriculture and Natural Resources (LUANAR).



Tree Leased to Local Honey Producer with Beehives (1)



Tree Leased to Local Honey Producer with Beehives (2)



Tree Leased to Local Honey Producer with Beehives (3)



Traditional beehive

Photos credits: Julien Vallet (taken during the project formulation mission in September-October 2022).

A payment mechanism was worked out based on “leasing” trees from the local tree owners for hanging beehives on them. The arrangements were made through the local chief as a credible intermediary, who mediated the contracts

and provided the framework to adhere to in accordance with customary law. The leasing fees were negotiated fairly with the tree owners based on a cost-benefit analysis, which demonstrated the monetary benefits of conserving trees over cutting them down for charcoal sales. The payment for the “leasing” is annual, and the contract may be renewed or renegotiated. For leasing and maintenance of 50 trees, the owners are compensated with MKW 100,000/year (USD 960) or MKW 5,000,000 (USD 4,800) over five years. The trees are monitored, and only in exceptional circumstances can trees be cut down with the consent of the parties of the contract.

The payment scheme has been attractive enough to prevent deforestation and detrimental uses of the forest ecosystems. To date, Arnold, along with a network of other beekeepers whom he supports, have distributed approximately 2,000 beehives across their local forests. Honey is harvested every six months, processed and packaged in 250 ml and 500 ml containers. In 2021 and 2022, the beehives yielded 10 tons and 12 tons of honey and sold at MKW 6,000/kg (USD 5.80/kg) and MKW 7,000/kg (USD 6.75/kg), respectively. His entrepreneurial ambition coupled with heartfelt environmental concerns gave rise to an innovative approach to forest regeneration, conservation and biodiversity improvement, from which his honey production endeavour directly benefits.

*Box 6 – Landscape at Micro-Catchment Level
– EbAM’s Smallest Unit for Intervention –*

Planning under EbAM concerns two hydrological levels: micro- and sub-catchments. Planning at micro-catchment level will be conducted for each landscape defined at that hydrological level. Each micro-catchment will contain one to 12 villages; where multiple villages are found, they often manage resources together, allowing consideration of the group of villages as one large village for resource management purposes. Thus, for EbAM, micro-catchment level is the same as village level and the smallest unit of intervention.

The targeted micro-catchments defined are purely hydrological concepts, but the boundaries of natural resources used by local residents is not determined by hydrological aspects alone. Residents of targeted micro-catchments will be asked to define their landscape, which is more in accordance with what they consider as their land and supports holistic and integrated natural resources management. Working with landscapes, whose boundaries are based on micro-catchments as a unit for watershed management planning, allows taking both hydrological and social aspects into account and avoids relying on only one of the two aspects in defining the intervention unit, which has been found to lead to unsatisfactory results.³⁵⁰

Considering the importance of watersheds in the rural livelihoods of Malawi, micro-catchments and landscapes are expected to coincide; major watershed projects in the country – such as FAO/GEF-7 Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme and the World Bank’s MWASIP – implicitly assume that landscapes and watersheds are synonymous.

139. *Sub-activity 1.1.2.2: Gender and Social Inclusion.* The vulnerability of individuals to climate change largely originates from social exclusion, which engenders lack of access to resources and lack of assets and economic opportunities: the very factors that constitute vulnerability to various shocks and stresses. Gender and social inclusion are paramount for satisfactory stakeholder engagement and successful implementation of ILM (see Box 6). ILM Facilitators, Dimitra Club “Caretakers” (see Box 7), and micro-catchment residents will be sensitized and trained on the subject.

140. 30 of the 60 ILM facilitators will act as facilitators of Dimitra Club and household methodology. ILM Facilitators’ training as trainers will be provided by international experts in each of the main following fields: (i) Dimitra Club facilitation; (ii) household methodology and (iii) gender and social inclusion. A particular focus will be put on: gender and sex; advantages and disadvantages of gender-specific roles and tasks; gender-based violence (GBV) and Sexual exploitation, abuse and harassment (SEAH), including masculinity and patriarchy; origin/history and merits/demerits of social inclusion; examples, motives and results of gender discrimination and social exclusion in our lives; and gender and social inclusion in community development and welfare. Some Traditional Authorities, District government officials, religious leaders and other key figures as well as project staff will also attend these trainings. An initial 6-days training on Dimitra Clubs will be organized during the first year of implementation for all ILM facilitators, local authorities and relevant project staff (three trainings of 30 people each). The training will be led by an international expert, and a 5 day refresher training will be organized each of the following three years

(covering 30 people each time). During the follow-up trainings, the international expert will also participate in field visits to provide more direct support.

141. Further to the training received, the 30 ILM Facilitators focusing on Gender and Social Inclusion will promote Dimitra Clubs in all their villages of intervention, with the target of 1,100 Dimitra Clubs created over the following 2 years. ILM facilitators will specifically identify and support Dimitra Club caretakers, providing them with training on the principles and operations of Dimitra Club, gender and social inclusion, gender-based violence, and HIV/AIDS.

142. In line with the approach adopted for Dimitra Clubs, an initial 6-days training on Household Methodology will be organized during the second year of implementation for all ILM facilitators, local authorities and relevant project staff (three trainings of 30 people each). The training will be led by an international expert, and a 5 day refresher training will be organized each of the following three years (covering 30 people each time). During the follow-up trainings, the international expert will also participate in field visits to provide more direct support. 30 ILM facilitators will then be responsible for organizing household methodology meetings at village level. Household methodology is a participatory approach involving family members (including women, men, female and male youth, boys and girls) to collectively improve relations, decision-making and division of household workloads, ultimately for strengthening the overall well-being of the family as a whole and its members (see Box 9). Dialogues between household members (wife and husband) are facilitated by ILM Facilitators: one 1-2-hour meeting every two weeks for one year, followed by one 1-2 hour meeting per month for one year in each village. Dialogues among household members involving youths are also facilitated by the same Facilitators: one 1-2-hour meeting per six weeks for one year, followed by one 1-2 hour meeting per 1.5 month for one year in each village. Dimitra Club meetings for community-wide discussions on gender and social inclusion will scale-up the household level awareness to community level.

143. ILM Facilitators will record the processes and results of capacity building on gender and social inclusion (household methodology, Dimitra Club) and submit to FAO CPIU in the timeframe agreed. FAO will lead the search for Dimitra and household methodology trainers.

144. The direct beneficiaries of the sub-activity are about 100% (Dimitra Club), 40% (household methodology for wife and husband), 30% (household methodology for youth) of 380,000 inhabitants of targeted micro-catchments, of which 60% will be female and 30% youths (age 15-35). Additional beneficiaries are: 60 ILM Facilitators, 1,100 Dimitra Club Caretakers, and Traditional Authorities and local government officials (preferably including District Forestry Officers).

145. FAO as the Executing Entity (EE) will carry out the actions necessary to ensure timely and effective engagement of experts and organization of trainings, including: (i) ToR elaboration for experts to be engaged in training on Dimitra Club and household methodology; (ii) selection and on-boarding of experts; (iii) organization of trainings (including venue, catering, travel and lodging where necessary); (iv) oversight and evaluation of experts ; (v) report elaboration on trainings.

Box 7 – Dimitra Clubs

Dimitra Club consists of self-managed groups of various gender compositions, which organize meetings to discuss common problems and determine ways to address them by acting together and using local resources.³⁵¹ The meetings are organized by Dimitra Club Caretakers (or Supervisors) who are chosen among the village residents for each Club. Agriculture, climate change, education, health, infrastructure, nutrition and women's status are some of the most common topics dealt with by the Clubs.³⁵² Six thousand Clubs with 180,000 members have been established in the past ten years in Burundi, Burkina Faso, Central African Republic, Democratic Republic of Congo, Madagascar, Mali, Niger and Senegal,³⁵³ indicating the Club's wide applicability and replicability. They have had success in: reconciling long-standing political disputes; mobilizing to adapt to climate change; establishing credit cooperatives to avoid debt; and improving nutritional security by challenging dietary taboos.³⁵⁴

In May 2022, the system was introduced to Malawi for piloting in 20 villages in the Districts of Mangochi and Kasungu. The changes observed so far in the involved communities are initiatives to: actively participate in natural resource and catchment management and engage in open discussions with other social groups (i.e., dialogues among

women, men and youths). The Clubs have been considered a success beyond expectations by the Malawi press,³⁵⁵ and EbAM will put this successful approach at scale.

Box 8 – Integrated Landscape Management and Gender

Integrated landscape management is founded on meaningful participation, which requires examination of decision-making power parity. Gender empowerment has been widely recognized as an essential element in climate change adaptation and mitigation, and more broadly in sustainable development. Many interventions for empowerment focus exclusively on women and aim to bolster their economic opportunities and decision-making capacities. While these interventions tackle what women lack compared to their male counterparts in the society, such interventions by themselves do not create an environment that allows women to make effective use of the new opportunities and capacities. Women usually devote much more time than men to daily household management and subsistence activities. They do not have any spare time to accommodate a new task in their demanding schedule, unless other members in the household shoulder some of their unpaid work. Neither can women exercise their decision-making skills, if others do not value their opinions and are not willing to listen to them. Actions to empower women have been carried out at various governance levels, such as national, regional and local, but many have not had sufficient effects or been sustainable. It is rather unlikely for men to formulate policies, plans and legislations that successfully meet the needs and constraints of women when they entrust all household chores and caregiving to women in the family. Men who are reluctant to share decision-making power with women at home are unlikely to do so at the community level or at work. The experiences in the field indicate that the parity at the household level is the foundation of parity at higher levels. Hence, EbAM employs a household methodology to examine decision-making power parity at the household level, which will be the building block for meaningful participation of women in ILM.

Box 9 – Household Methodology

Culturally prescribed roles along gender lines drive women and men to pursue different household strategies, often disjointed. The household methodology shifts our focus from what women do not possess to what the family members aspire to, in particular, what they want to become, what they want to be engaged in and how they can achieve these goals. The methodology's objective is for family members to create a common vision for the household through guided dialogues among them, which allow women and men to understand and challenge gender norms and their connection to poverty. The methodology facilitates reflection, behavioral change and household planning through gender-sensitive participation.

One of the tools for such participation is a roadmap for realizing the family vision. The exercise of elaborating a map brings family members together to share ideas on what a better life consists of and how they can work together to escape poverty. It includes analysis of the present and the past, as well as opportunities and challenges that the family faces. Another tool is a gender balance tree. Collective tree drawing by family members directs their attention to household roles and responsibility related to production, reproduction, assets and decision-making, in addition to the benefits that the arrangement accords to each member. A social empowerment map invites participants to analyze the relationships of the stakeholders with the family vision and to identify the flow of power, money and love. For ensuring effective results, implementation of the methodology typically lasts three years or more.

The methodology has been adopted by various agencies, including IFAD, Oxfam Novib, World Food Programme, UN Women and FAO, in Uganda, Zambia, Sierra Leone, Malawi, Nigeria, Rwanda, Congo, Tanzania, Kyrgyzstan, Nicaragua and so on.³⁵⁶ The results obtained include not only gender empowerment, but also diversification of income, acquisition of household assets, improvement in education, decrease in conflicts and increase in savings.³⁵⁷

Household methodology is widely used in Malawi and reported quite successful. Some of the most prominent cases are: Ministry of Finance and Economic Affairs' Financial Access for Rural Markets, Smallholders and Enterprise Programme (FARMSE; 2018-2025, USD 57.7 million); and FAO/IFAD/WFP's Joint Programme on Gender Transformative Approaches for Food Security, Improved Nutrition and Sustainable Agriculture (JP GTA; 2019-2022, EUR 5 million). At the same time, informal reporting indicates that there is room for improvement in implementation in Malawi, e.g., engage household members in dialogues, instead of raising awareness of just one household member. The Sub-Activity fills this gap.

146. Activity 1.1.3 Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and formulation of EbA-based Village Level Action Plans (VLAPs) (financed by GCF; executed by FAO). In line with the Forestry Act 2019, and building on previous interventions from the World Bank, the Activity will establish Village Natural Resources Management Committees (VNRMCs,

or village-level entities for the government's water resources management strategy), or strengthen their functions where they already exist, in order to establish an operational watershed management structure at landscape level. The Activity will support mapping of existing VNRMCS and VNRMCS charter establishment or its review and revision where it already exists. ILM Facilitators will guide the discussions so that EbA, village by-laws and other concerns at village-level are well reflected, also from the viewpoint of gender and social inclusion. Through guided dialogues, the inhabitants will analyze the trade-offs of different landscape management choices and make a collective decision on the pathway for the future. A natural resources management expert (consultant) will provide technical support to the process. Building on the processes described in the *Malawi National Guidelines: Integrated Catchment Management and Rural Infrastructure 2015*, the Activity will also support formulation of EbA-based VLAPs and obtaining their approval from the local government system entities, i.e. Village Development Committee (VDC). The Plans will then be submitted to the District Council for inclusion in the Local Development Plans, after approval from the Area Development Committee (ADC) at TA level; and finally to the District Executive Committee (DEC), as illustrated in Figure 46 below.

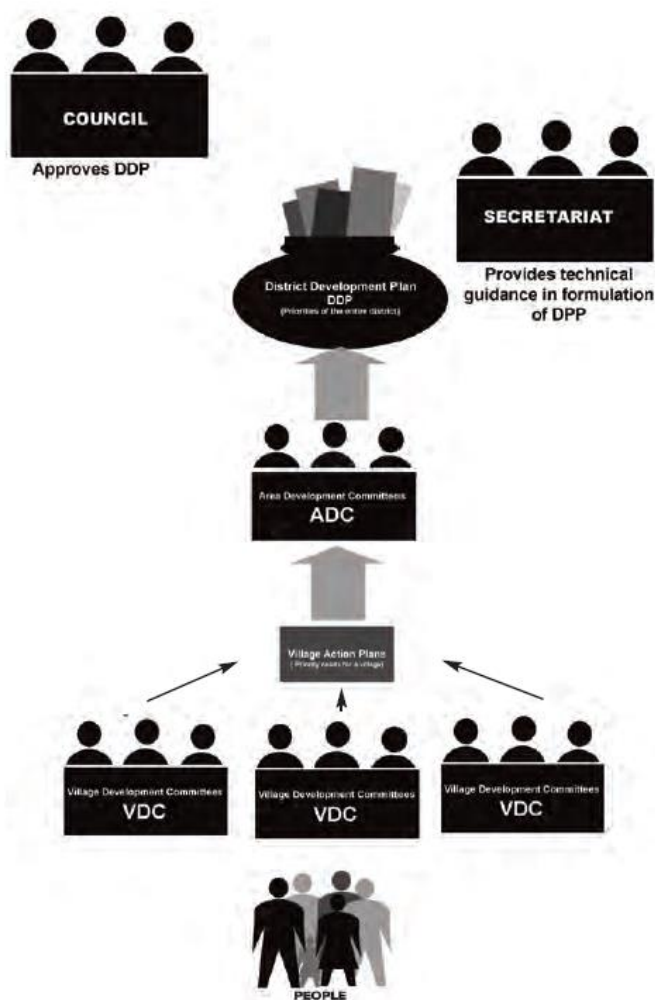


Figure 46 – District Development Planning Process. Source: Guidebook on the Local Government System in Malawi

147. Micro-catchments as identified under activity 1.1.1 bring together an average of 10 villages that are geographically close enough to collectively manage the common natural resources. For such groups of villages, one VNRMCS will govern one group. According to *National Guidelines: Integrated Catchment Management and Rural Infrastructure 2015*, Village Level Action Plans (VLAP) are “plans for managing the

resources and infrastructure at village level, and provide for in-field activities. One of the most important aspects is for village members to participate in the planning process so that people have both input into and a clear understanding of what their responsibilities are. The focus of village plans is on the maintenance and sustainable utilisation of the ecosystem that provides resources in support of village livelihoods. Part of the plan addresses the rehabilitation or restoration of damaged ecosystem services needed to support the village”³⁵⁸. EbAM will use VLAPs as an entry point to identify priorities for Ecosystem based Adaptation in its targeted micro-catchments (at landscape and farm level). VLAP elaboration will be carried out in phases, in accordance with the phases of project implementation at micro-catchment level (which is the hydrological level for landscapes): roughly 11 in Project Year 1, 70 in late Project Year 2, and 30 in the beginning of Project Year 3.

148. *VLAP and EbA.* ILM Facilitators will ensure that landscape residents anchor EbA in VLAPs, based on the knowledge and skills gained through trainings, landscape inventory of natural, socioeconomic and cultural resources and guided discussions. The viability of strong reliance on maize, especially under climate change, is the one of the important questions to be addressed through guided dialogues. The requirements of climate change adaptation and sustainable agriculture necessarily lead to ecosystem-based agriculture, or agroecology. Among the EbA techniques (listed in Appendix I of the present FS), landscape residents choose what may be most easily adopted to their crop fields, grasslands/rangelands and other parts of watersheds for short-term and long-term benefits. Applying new ideas in individual fields becomes easier when debated among the farmers and agreed what would be best for the landscape.

*Box 10 – Village Natural Resources Committee
and Sub-catchment Management Committee*

A Village Natural Resources Committee (VNRMC) is a body elected by the stakeholders of village forest areas. Such committees are allowed to set their own rules regarding forest management, although the Minister in charge of forest matters may impose some in view of watershed conservation.³⁵⁹ They were established with the purpose of managing and utilizing village forest areas by the Forest Act 1997. According to the *National Guidelines on Integrated Catchment Management and Rural Infrastructures 2015*, VNRMCs are responsible for the protection of water catchment. VNRMCs were designated as the village-level entities for catchment management, most notably by the World Bank-funded projects on watershed management in Malawi (SVTP, 2019-2023; MWASIP, 2020-2026). Sub-activity 1.1.3 concerns watershed management at this level. The natural resources management plan with a focus on water and soil conservation – two of the major elements that unite forest and water resources – is to be formulated by the villages with the leadership of VNRMC, and has been named *Village Level Action Plan (VLAP)* by these projects and the *National Guidelines on Integrated Catchment Management 2015*.

At the higher WRU (Water Resources Unit) Level, Catchment Management Committees (CMCs) advise the National Water Resources Authority³⁶⁰ through its regional offices on water resources (conservation, use and allocation and other issues on water resources management)³⁶¹ CMC members are representatives of various public bodies, regional development authorities, local authorities, farmers, business community, NGOs and so on, who are stakeholders of the catchment in question.³⁶² Other practices that have evolved are to create SCMCs at the sub-catchment level (Sub-Catchment Management Committees, SCMCs) and corresponding plans (Sub-Catchment Management Plan, SCMP), most notably by the World Bank funded projects mentioned above. The watershed management tools at the sub-catchment level are Sub-Catchment Management Committee and Sub-Catchment Management Plan. Sub-activity 1.1.4 builds on the capacity built and plans elaborated under sub-activity 1.1.3 and concerns watershed management at a higher sub-catchment level.

149. *Sub-activity 1.1.3.1: VNRMC charter Revision and Member Selection.* Under this sub-activity, ILM Facilitators will identify existing VNRMCs, assess their operational status, map them and document the findings (3-week exercise). ILM Facilitators will also oversee and guide landscape stakeholders through VNRMC establishment: charter elaboration (describing VNRMC functions in a written form) and member selection (average about 18 members per committee). Where a VNRMC has already been established, ILM facilitators will guide landscape stakeholders through charter revision and member selection under the revised charter. Past experiences of applying ILM indicate that occasional participation of relevant administrators (i.e., leaders from the “modern system”) can be informative and useful. Local officials (preferably including District Forest Officer) as well as traditional authorities who oversee a territory larger

than, but including the VNRMC area, will participate as associate members of the VNRMC, that is without participating in the very final decision making. ILM Facilitators will oversee elaboration/review/revision and selection processes for transparency and fairness; awareness raising on gender and social inclusion, including SEAH and GBV, will be integrated in this process. FAO, as EE, and ILM Facilitators will ensure that no associate member dominates the debate, co-opts the local residents or is co-opted by a handful of residents. Discussions among VNRMC members and other landscape stakeholders on the matters of charter and member selection will take place five hours perweek for four consecutive weeks at each landscape unit. ILM Facilitators will ensure that about 60% of stakeholders participate in the discussions and that the VNRMC Charter in effect is documented. ILM Facilitators will see to it that: discussions on inclusive and meaningful membership take place; and 60% of participants in discussions are female and 30% are youths. ILM Facilitators will encourage female and female youth members so that 35% and 20% of the members will be female and female youths, respectively. The writing responsibilities of new/revised VNRMC charter will rest with the selected VNRMC members. The activities are conducted at sub-catchment level for VNRMC mapping and others at micro-catchment (landscape unit) level.

150. ILM Facilitators will ensure the good organization of the sub-activity, together with Central PIU (Natural Resources Management, Agroecology & EbA, Gender & Social Inclusion and Agribusiness & Finance Specialists), Regional PIU (Natural Resources Management, and Agroecology & EbA Specialists) pertinent to each landscape and other Facilitators, and most importantly Dimitra Club Caretakers for stakeholder mobilization. ILM Facilitators will also involve MoA/DLRC's decentralized staff at the ADD level (Chief and Principal and Resources Conservation Officers) relevant to each landscape in VNRMC mapping. ILM Facilitators will guide landscape stakeholders through review or formulation of VNRMC charters so that EbA is integrated and the principles of gender and social inclusion are respected. ILM Facilitators will encourage discussions among landscape stakeholders on VNRMC member functions and responsibilities as well as member selection criteria to select the most appropriate VNRMC members. ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. ILM Facilitators will also ensure that the VNRMC member selection criteria are well understood by all and selection is fair and transparent. ILM Facilitators will alert landscape stakeholders of the activities on SCMC and SCMP to follow. ILM Facilitators will record the processes and results of charter review and member selection and submit to FAO in the agreed timeframe. Information on the Sub-Activity will be shared at landscape level through Dimitra Club before and after each event. The direct beneficiaries are approximately 60% or more of landscape inhabitants, or 168,000 residents, if the same persons participate in review and member selection.

151. FAO as the Executing Entity will ensure timely and effective organization of VNRMC mapping, charter review and documentation and member selection by establishing ToRs for each of these event together with ILM Facilitators.

152. *Sub-activity 1.1.3.2: VNRMC Capacity Development for EbA Implementation.* Five-days training for VNRMC members will be provided by national experts (consultants) covering the following fields: (i) ILM (two days); (ii) climate change (half a day, with full day participation of the trainer to ensure further mainstreaming of climate change considerations); (iii) water resources management (half a day); (iv) ecosystems and ecosystem-based adaptation (including the importance of woodlots for fuel; detailed information on EbA and its techniques are given in Appendix I of the present Feasibility Study) – one day; (v) payment for ecosystem services (PES) – half a day; (vi) and adaptive management (half a day). The instructions are participatory; instructor and participants decide on the curriculum, whose base will be the one developed under Sub-Activity 1.1.2.1 and may be adapted as the instruction proceeds. The trainings are conducted at sub-catchment level (with two VNRMC grouped per training, for a total of 56 trainings gathering 36 people each) with outdoor activities where appropriate. Gender and Social Inclusion considerations (including FPIC and a special focus on SEAH and GBV) will be mainstreamed in the training with the help of the Gender and Social Inclusion Facilitator. For practical arrangements, one set of training will be conducted for two VNRMCs which are geographically closest.

153. ILM Facilitators will ensure the good organization of this Sub-Activity, together with relevant PIU staff (and in particular Natural Resources Management, Agroecology & EbA, and Gender & Social Inclusion Specialists). The PIU will mobilize the same trainers as targeted under Sub-activity 1.1.2.1. ILM Facilitators will record the processes and results of capacity development trainings and submit to FAO in the timeframe agreed. Information on the Sub-Activity will be shared at the landscape level through Dimitra Club (see Box 7) before and after each event. The beneficiaries are close to 2,000 VNRMC members from 111 landscape units. The service providers are ILM Facilitators and one national trainer for each for the six technical topics (including one from DCCMS for climate change aspects).

154. *Sub-activity 1.1.3.3: Drafting and Finalizing EbA-based VLAP.* Under this Activity, ILM Facilitators and a national NRM expert (consultant) will guide the discussions to draft and finalize a Village Level Action Plan (VLAP – see Box 11) under the leadership of VNRMC members and with the participation of other landscape stakeholders, to identify investment opportunities for watershed restoration, based on the climate vulnerability assessment (activity 1.1.1), landscape resources inventorying supported by knowledge on EbA and local socioeconomic and cultural conditions. 3-4 residents/village (total 30-40 residents/landscape on average) will also join the discussions. The VLAP preparation process will span over a period of 5 weeks, with 3 days of focused discussions per week, bringing together VNRMC members and ILM facilitators (see steps for EbA based VLAPs below). In-between focused discussions, wider exchanges involving representatives of all the villages in the micro-catchments will be engaged by VNRMC members and ILM facilitators to share the conclusions of meetings, validate them and agree on the way forward. The project will also engage a national senior natural resources management expert to support the focused discussions and ensure integration of EbA in ILM. The final VLAP will cover roughly 3 years and will be reviewed yearly for adaptive management by the VNRMC members and other landscape stakeholders. In order to avoid ending up with a VLAP that is not practical to implement, the details on the works implied by VLAP will be examined, discussed and its responsibilities negotiated and shared among the landscape stakeholders. The practicality of the arrangement will be discussed again immediately before VLAP implementation begins and final adjustments will be made (Sub-Activity 1.2.1.2). In order to encourage community members' participation in labour intensive work as volunteers, watershed management material and equipment will be given to them for private use; VLAP will specify who receives what, when and how. The writing responsibilities of VLAP will rest with VNRMC members.

155. Steps for EbA-based VLAPs formulation include:

- *Step 1: Discussion on Pillars (i.e. vision, goal and objectives) and Elements of VLAP as EbA Strategy.* Landscape stakeholders will explore how VLAP as an ILM plan can be an effective entry point to implement an EbA strategy, based on the trainings and other exercises they will have had under this Component. Engagement of the population will be done through meetings called on by Dimitra Club Caretakers in collaboration with ILM Facilitators. In addition to the VNRMC representatives, about 3-4 residents/village (total 30-40 residents/landscape on average) in addition to external landscape stakeholders, are expected to engage in a 3-day discussion, guided by ILM Facilitators. ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. A national senior natural resources management expert will participate to ensure integration of EbA in ILM. Tenure arrangements, usufruct rights and benefit sharing schemes will be discussed and clarified.
- *Step 2: Discussion on detailed priorities/ actions.* Based on climate vulnerability assessment carried out under activity 1.1.1, combined with a landscape demarcation and resource inventorying as a baseline, landscape stakeholders will engage in discussion of investment needs/actions at landscape and farm levels. Examples of investment needs at *landscape-level* include: vegetation coverage of watersheds for securing water resources and for enhancing access to non-timber forest products (NTFP); promotion of native vegetation/trees through assisted natural regeneration (ANR), as well as soil and water conservation. Examples of investment needs at *farm-level* include: diversification of crop varieties including with native and/or landraces, drought-resistant crops to face climate variability; inclusion of wild relatives for further diversity; agrobiodiversity; farm system

designs for pest management; and agroforestry for evapotranspiration reduction and energy dissipation under extreme weather. VLAP stakeholders will be encouraged to program Farmer Field Schools (FFS) to increase farmers' understanding and knowledge of technical responses for adapting to the changing climatic conditions and enhancing their capacity to integrate EbA into their farming systems (FFS will be implemented under Sub-Component 2.1). Prioritization of various investments will be based on the results of a landscape demarcation and resources inventorying (including NTFP), stakeholder identification as well as the information obtained through trainings and EbA techniques listed in Appendix 1. They will explore holistic watershed management, taking into consideration climate change, ecosystems, socioeconomics, culture, gender and social inclusion. A balance will be sought between ecological and social needs as well as benefits in the short-and long terms that is collectively acceptable. Investment needs at farm level will be implemented under *Sub-Component 2.1. Promotion of EbA-based production systems*. This step will be carried out with the assistance of ILM Facilitators. Engagement of the population will be done through meetings called on by Dimitra Club Caretakers in collaboration with ILM Facilitators. Two consecutive 3-day meetings at each landscape are envisaged with the participation of 3-4 residents/village (total 30-40 residents/landscape on average) for each meeting, and VNRMC members, in addition to external landscape stakeholders. ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. A national senior natural resources management expert will participate to ensure integration of EbA in ILM.

- *Step 3: Formulation of Practical Arrangements for VLAP Implementation.* Landscape stakeholders will discuss what is the most effective, transparent and fair incentive scheme regarding tools/equipment, seeds and seedlings to be given to stakeholders who provide labour for VLAP implementation with social and financial effects in mind. ILM Facilitators will inform government practices for similar works and ensure that the incentive scheme does not come at the expense of VLAP implementation. Who provides what kind of labour and when for which work will be discussed to make the implementation realistic and feasible. ILM Facilitators will also ensure that the incentives for women and youth are well represented. ILM facilitators will also discuss with landscape stakeholders how soil and water conservation investments will be operated and maintained (O&M), in line with the technical guidance found in the Malawi National Guidelines: Integrated Catchment Management and Rural Infrastructure 2015 (Volume II). This topic may be re-negotiated at the time of implementation (Sub-Activity 1.2.2.2). This step will be carried out with the assistance of ILM Facilitators. Engagement of the population will be done through meetings called on by Dimitra Club Caretakers in collaboration with ILM Facilitators. One 5-day exercise at each landscape are envisaged with the participation of 3-4 residents/village (total 30-40 residents/landscape on average), and VNRMC members in addition to external landscape stakeholders. ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. A natural resources management expert will participate to ensure integration of EbA in ILM. ILM Facilitators will assist VNRMC members in the process of draft VLAP writing. A national senior natural resources management expert will participate to ensure integration of EbA in ILM.
- *Step 4: Discussion and consolidation of VLAP.* Landscape stakeholders will engage in finalization of VLAP with the assistance of ILM Facilitators. A 3-day exercise at each landscape is envisaged with the participation of 3-4 residents/village in addition to external landscape stakeholders in addition to VNRMC members. ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. A national senior natural resources management expert will participate to ensure integration of EbA in ILM. Traditional Authorities whose territory includes the VNRMC area as well as local government officials (preferably including District Forestry Officer) will participate in the discussion, but the final decision making will be left to the villagers. ILM Facilitators will assist VNRMC members in the

process of draft revision as a document, and the national senior natural resources management expert will support the consolidation of the final drafts.

- Step 5: *Endorsement of VLAP by local government*. VLAPs will be submitted to the Area Development Committee (ADC), before submission to the District Council for inclusion in the (district) Local Development Plans. This steps will be supported by the MoA/DLRC, with assistance from the Regional PIU and ILM facilitators.

156. One VLAPs are completed, local radios will be mobilized to ensure broad communication about finalized VLAPs and their priorities at the scale of the micro-catchment. ILM Facilitators will ensure the good organization of sub-activity, together with VNRMC members, MoA/DLRC staff, MoNRCC/ Department of Forestry (DoF), relevant PIU staff, most importantly Dimitra Club Caretakers for stakeholder mobilization. ILM Facilitators will guide landscape stakeholders through review or formulation of VLAPs so that EbA is integrated and the principles of gender and social inclusion are respected (by directing roughly 40% of discussion time to watershed management issues from gender and social inclusion perspective). ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. ILM Facilitators will record the processes and results of capacity development trainings, with specific attention to lessons to be applied to Activity 1.1.1.4 (which is a similar activity at a larger watershed level), and submit to FAO in the agreed timeframe. The direct beneficiaries are about 8,800.

Box 11 – Example: Content of Village Level Action Plan (VLAP)

Watershed management can be said to consist of two levels of actions, landscape and farm, and Village Level Action Plans (VLAPs) need to consider both. Landscape-level measures – to be implemented under Sub-Component 1.2 – consist of restoration/reinforcement of watershed vegetation coverage for securing water resources and for controlling runoff and soil erosion, including promotion of native vegetation through assisted natural regeneration (ANR) and support to community forests. Farm-level measures – to be implemented under Sub-Component 2.1 – include: crop diversification (with native species, landraces and wild relatives of cultivated native/landrace crops); use of farm system design (to control pests, weeds and diseases); and agroforestry (for nutrient and shade provision, evapotranspiration reduction and energy dissipation under extreme weather).

Landscape-level measures require discussions and agreements among the local residents, as they involve lands that are community property. Related work – construction of contour bunds, swales and check dams – needs mobilization of labor and collaboration, and is hence a topic suited for a village level planning, such as a VLAP. Forests are important ecosystems found in watersheds and more than often community owned. EbA measures to conserve and strengthen them are necessary for proper functioning of watersheds, which include forest farming, use of non-timber forest products (NTFP), woodlot management as well as adoption of alternative sources of energy, as protection of village forests may result in forest exploitation of the neighbor villages. Measures to protect other common lands, such as rotational grazing on grasslands/rangelands, require collaboration of all agro-pastoralists in the landscape. The same holds for use of wetlands for agricultural purposes. In addition to inclusion in a VLAP of agreements on use and maintenance of these common properties, thorough discussions among stakeholders, in particular among local residents, are necessary to create ownership of the plan, which is indispensable for effective management of watersheds. Protection of floodplains, riparian buffer zones and wetlands also call for mobilization of labor at the landscape level, which also needs to be debated, agreed on and included in VLAPs.

A VLAP for landscapes with maize monocrop fields would start with biological waste application to rebuild the health of soil – the source of food and nutrients – which has been exhausted by monocropping and application of synthetic fertilizer, herbicides, etc. As livestock manure is often unavailable in sufficient quantities in Malawi, VLAP will need to include a measure to increase the availability of other types of organic fertilizer, which include composting of household waste, acquisition of small livestock (e.g., small ruminants and poultry), green manuring, crop rotation, cover cropping, intercropping and companion cropping. This in turn requires acquisition of seeds that grow well with maize (e.g., beans and gourd families, or Leguminosae and Cucurbitaceae, respectively), and with products appropriate for the livelihood.

In the long run, ecosystem services are strengthened the most when agriculture resembles an ecosystem, and for that purpose, native crops are the most effective. If seeds to be planted are not readily available, the landscape residents need to plan for seed procurement, which includes liaising with relevant NGOs and other farmers in the country (Sub-Activity 2.1.2.2 *Visits and exchanges*). Adaptation to climate change necessitates good management of soil moisture, which is achieved by mulching, green manuring, cover cropping and so on. Increases in pests and

weeds – already experienced because of climate change – are best dealt with crop rotation, cover cropping, intercropping and companion cropping. Minimization of soil erosion on farms is feasible through contour cropping, minimum tillage and integration of perennial crops.

All of the above must be accompanied by detailed sharing of roles, responsibilities and time/material contribution discussed and agreed upon by community members and other landscape stakeholders.

157. Activity 1.1.3. addresses the planning barrier by (i) strengthening/formulating an official body responsible at the village level for watershed management planning; and (ii) assisting VLAP formulation. It addresses the knowledge barrier by providing occasions for open discussions on VNPMC and guided experience in ILM planning. It addresses the social barrier by (i) devoting 40% of ILM training time to ILM from gender and social inclusion perspective; and (ii) encouraging women and youth to participate in the landscape definition and inventorying, discussions and member selection process. The Activity addresses the financial barrier by funding training for knowledge and skills needed for ILM founded on EbA. It also addresses financial and institutional barriers by providing resources for and aiding what is a VNPMC activity. It also addresses the institutional barrier as it strengthens or establishes a village-level institution linked to the government's water resources management structure.

158. **Activity 1.1.4 Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchments Management Plans (SCMPs) (financed by GCF, executed FAO).** This Activity will establish operational watershed management structures (SCMCs) at sub-catchment level, in line with the government's watershed management strategies/ policies (National Water Policy 2005, Water Resources Act 2013 and Water Resources Regulations 2018). It will support the formulation of strategic plans with interventions in line with climate change adaptation and biodiversity/ecosystem strategies (NDC 2021, National Adaptation Plan 2020, National Forest and Landscape Restoration Strategy 2017, National Biodiversity Strategy and Action Plan 2015-2025 and others – see Part 2.1 of this Feasibility Study). SCMP will propose strategic interventions for effective management of large common lands, such as forests, grasslands/rangelands, floodplains, riparian buffer zones and wetlands that VLAPs and village communities cannot fully cover and address at lower level. It will also address upstream-downstream linkages of micro-catchments contained in the sub-catchment. By strategically integrating climate-change adaptation interventions at a higher catchment planning level. SCMPs will improve the enabling environment, and allow scaling-up/ replication of EbA through other projects and programmes, for impact at a larger scale. Lessons learned from VLAP formulation (Activity 1.1.3) will be applied to this Activity. The total number of SCMPs will be 30 to cover an area of about 267,000 hectares. SCMP elaboration will be in phases, in accordance with the phases of project implementation at micro-catchment level: roughly 16 in Project Year 4 and 14 in Project Year 5, to allow to learn from VLAP formulation and implementation process

159. This Activity will be implemented after VNPMCs and VLAPs are established in the sub-catchment concerned. It will also support the formulation of EbA-based SCMP through planning exercises, including discussions on the pillars and elements of EbA-based ILM. The total number of SCMPs will be 30 to cover an area of about 267,000 hectares. SCMP elaboration will be in phases, in accordance with the phases of project implementation at micro-catchment level: roughly 16 in Project Year 4 and 14 in Project Year 5, to allow to learn from VLAP formulation and implementation process. Table 16 shows the Project schedule in terms of VLAPs and SCMPs.

Table 16 - Project Schedule for Village Level Actions Plans (VLAPs) and Sub-Catchment Management Plans (SCMPs)

Project Year	Y1	Y2	Y3	Y4	Y5	Y6
Number of VLAPs Formulated	11	70	30	0	0	0

Number of SCMPs Formulated	0	0	0	16	14	0
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160. *Sub-activity 1.1.4.1: SCMC Charter Revision and Member Selection.* Under this Sub-Activity, ILM Facilitators will identify the existing SCMCs, assess their operational status, and document the findings (1-week exercise). ILM Facilitators will also oversee and guide landscape stakeholders through SCMC establishment: charter elaboration (describing SCMC functions in a written form) and member selection (average about eight members per committee). Where a SCMC has already been established, ILM facilitators will guide landscape stakeholders through charter revision and member selection. Past experiences of applying ILM indicate that occasional participation of relevant administrators (i.e., leaders from the “modern system”) can be informative and useful. Local officials as well as traditional authorities who oversee a territory larger than, but including the SCMC area, and religious leaders will participate as associate members of the VNRMC, that is without participating in the very final decision making. ILM Facilitators will oversee the elaboration//revision and selection processes for transparency and fairness; awareness raising on gender and social inclusion, including SEAH and GBV, will be integrated in this process. FAO, as EE, and ILM Facilitators will ensure that no associate member dominates the debate, co-opts the local residents or is co-opted by a handful of residents. Discussions among SCMC members and other micro-catchment-level landscape stakeholders on the matters of charter and member selection will take place four hours per week for four consecutive weeks at each landscape at micro-catchment level. At sub-catchment level, ILM Facilitators will coordinate VNRMC members and consolidate inputs on the charter and selected SCMC members from micro-catchments.

161. ILM Facilitators will ensure the good organization of this Sub-Activity, together with the Central PIU (Natural Resources Management, Agroecology & EbA, Gender & Social Inclusion and Agribusiness & Finance Specialist), Regional PIU (Natural Resources Management, Agroecology & EbA) pertinent to each sub-catchment and other Facilitators, most importantly Dimitra Club Caretakers for stakeholder mobilization. ILM Facilitators guide landscape stakeholders through the revision or formulation of SCMC charters, ensuring that EbA is integrated, that the principles of gender and social inclusion are respected and that the difference between VNRMC and SCMC is clear to all. The Facilitators will encourage discussions among landscape stakeholders on SCMC member functions and responsibilities as well as member selection criteria to select the most appropriate SCMC members. ILM Facilitators will ensure that the participation of women and youths, is meaningful and satisfactory with respect to their share in participants’ composition. ILM Facilitators will ensure that the SCMC member selection criteria are well understood by all and selection is fair and transparent. Information on the Sub-Activity will be shared at landscape level through Dimitra Club before and after each event. The selection of SCMC members by each micro-catchment (about 2 members) is recorded by ILM Facilitators and the entire committee composition is communicated back to all micro-catchments. The direct beneficiaries are approximately 3-4 inhabitants per village, or 3,330-4,440 residents, if the same persons participate in review and member selection. The service providers are ILM Facilitators.

162. *Sub-activity 1.1.4.2: SCMC Capacity Development for EbA Implementation.* Ten days training for SCMC members will be provided by national experts (consultants) covering the following fields, with a strategic perspective (differing in content from Sub-Activity 1.1.2.1): (i) ILM (4 days); (ii) climate change (one day with longer attendance of the DCCMS trainer to link climate change with EbA); (iii) water resources management (one day); (iv) ecosystems and ecosystem-based adaptation (including the importance of woodlots for fuel; detailed information on EbA and its techniques are given in Appendix I of the present Feasibility Study) – two days; (v) payment for ecosystem services (PES) – one day; (vi) and adaptive management – one day. Gender and Social Inclusion considerations (including FPIC and a special focus on SEAH and GBV) will be mainstreamed into the trainings with the support of the Gender and Social Inclusion specialist, and of ILM facilitators focusing on Gender and Social Inclusion. The instructions are participatory; instructor and participants decide on the curriculum, whose base will be the one developed under Sub-Activity 1.1.2.1 and may be adapted as the instruction proceeds. The trainings gather members

from two SCMCs (i.e. 16 participants) and are conducted at the level of sub-catchments (bringing together SCMCs from geographically close sub-catchments) with outdoor activities where appropriate.

163. ILM Facilitators will ensure the good organization of this sub-activity, together with relevant PIU staff (Natural Resources Management, Agroecology & EbA, Gender & Social Inclusion Specialists in particular). The PIU rely on trainers supporting previous activities). ILM Facilitators will record the processes and results of capacity development trainings and submit to FAO in the timeframe agreed. The beneficiaries are about 240 SCMC members. The service providers are ILM Facilitators and one national trainer each for the six technical topics (with DCCMS supporting trainings on climate change).

164. *Sub-activity 1.1.4.3: Drafting and Finalizing EbA-based SCMP.* Under this Activity, ILM Facilitators and a national senior NRM expert (consultant) will guide the discussions among SCMC members to identify investment opportunities for watershed ecosystems restoration, based on (i) the assessment carried out under activity 1.1.1 (including climate vulnerability), (ii) landscape resources, (iii) knowledge on EbA, (iv) awareness on local socioeconomic and cultural conditions, as well as (v) lessons from the VLAP development and implementation process. As mentioned above, investment opportunities will also be informed by strategic national documents such as (i) the NDC 2021, (ii) the National Adaptation Plan 2020, (iii) the National Forest and Landscape Restoration Strategy 2017 and (iv) the National Biodiversity Strategy and Action Plan 2015-2025. Investments will also be prioritized by using the set of criteria developed under the *National Guidelines on Integrated Catchment Management and Rural Infrastructure* 2015 (Volume, p.51). Relevant stakeholders of the landscapes contained in the sub-catchment in question (SCMC members, VNRCM members, TAs and district officials) will engage in exchange of ILM experiences and discuss the best way forward for SCMPs. DLRC will also actively participate, together with the Department of Forestry (DoF). The emphasis will be on strategic planning based on upstream-downstream linkages of micro-catchments. The discussions among SCMC members will take place at sub-catchment level with the assistance of ILM Facilitators and a national senior NRM expert. The final SCMP will cover roughly six years, and may be revised at mid-term for adaptive management. ILM Facilitators will coordinate VNRCM and SCMC members at sub-catchment level and consolidate the inputs on SCMP from micro-catchments (through VNRCM), in the sub-catchment in question, including pillars and main elements of VLAPs. The writing responsibilities of SCMP will rest with SCMC members. The SCMP formulation process will span over a period of 2 weeks with two five-days consultations as outlined below.

165. Steps for EbA-based SCMPs formulation include:

- *Step 1: Discussion on Pillars and Elements of SCMP as EbA Strategy.* SCMC members explore how SCMP as an ILM plan can be an effective EbA strategy, based on the trainings and other exercises they have received under this Component, and on the lessons drawn from VLAP formulation and implementation. After information collection, the members are expected to engage in a 5-day discussion, guided by ILM Facilitators and a national senior natural resources management expert. Tenure arrangements, usufruct rights and benefit sharing schemes will be discussed and clarified.
- *Step 2: Formulation and Finalization of Draft SCMP and Approval and Communication of Final SCMP.* SCMC members engage in formulation of a draft SCMP, with the assistance of ILM Facilitators and a national senior natural resources management expert. Discussions on draft SCMP is carried out by landscape stakeholders of each sub-catchment, guided by ILM Facilitators. A 5-day exercise is envisaged with the participation of 3-4 residents per village at landscape level, in addition to external landscape stakeholders. SCMC members, Traditional Authorities and local government officials engage in finalization of SCMP at one location in the sub-catchment, with the assistance of ILM Facilitators. A 5-day exercise is envisaged with the guidance of ILM Facilitators and a NRM expert. The final SCMP will be communicated widely to landscape stakeholders with a method to be chosen by community members of the sub-catchment (e.g., community radio, youth theatre, song and dance).

- *Step 3: Discussion, Finalization, Approval and Communication of SCMP.* A five-days consultation covering discussions on draft SCMP is carried out with the support of the national senior NRM expert, involving SCMC members, VNRMC members, traditional authorities, local government officials, MoA/DLRC decentralized staff and other relevant stakeholders. SCMC members and Traditional Authorities engage in finalization of SCMP at one location in the sub-catchment, with the assistance of the national senior NRM expert and of ILM Facilitators. Other relevant stakeholders including representatives from Development Finance Institutions will also be invited to join the process. The final SCMP will be decided exclusively by the residents of SCMC area and communicated widely to landscape stakeholders using local radios.
- *Step 4: Restitution workshop at central level.* As part of the project's exit strategy, a restitution workshop presenting the 30 SCMPs will be organized in Lilongwe. Participants will include 50 participants, of which national counterparts at central level (in particular MoA/DLRC and MoNRCC/DoF) and relevant DFIs representatives (e.g. the WB MWASIP, Climate Assets Management, etc.) to ensure ownership and possible inspiration for new investments based on the priorities outlined in the SCMPs.

166. ILM Facilitators will ensure the good organization of this Sub-Activity, together with SCMC members, MoA/DLRC staff, MoNRCC/ Department of Forestry (DoF), and relevant PIU staff (in particular Natural Resources Management, Agroecology & EbA, and Gender & Social Inclusion Specialists). ILM Facilitators and the national senior NRM expert will guide the formulation of SCMPs so that EbA is integrated and the principles of gender and social inclusion are respected. ILM Facilitators will ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. ILM Facilitators will ensure that the discussions are constructive and based on a collaborative and collective spirit for sustainable landscape in the long term. The direct beneficiaries are about 1,060 people.

167. Activity 1.1.4. addresses the planning barrier by: strengthening/formulating an official body responsible for watershed management planning (SCMC) at the sub-catchment level; and assisting SCMP formulation. It addresses the knowledge barrier by providing occasions for open discussions on SCMC and guided experience in ILM planning. The activity addresses the planning and knowledge barriers by providing SCMC members, who are responsible for watershed management planning at the village level, with various trainings on technical and social topics necessary for effective ILM founded on EbA. It addresses the social barrier by: devoting 40% of ILM training time to ILM from gender and social inclusion perspective. The Activity addresses the financial barrier by providing resources to discuss SCMC related issues. It addresses the social barrier by encouraging women and youth to participate in the discussion and member selection process. The Activity addresses the financial barrier by funding training for knowledge and skills needed for ILM founded on EbA. It addresses the institutional barrier as it strengthens or formulates a sub-catchment level institution linked to the government's water resources management structure. It also addresses financial and institutional barriers by providing resources for and aiding what is a SCMC activity.

168. **Sub-component 1.2: Implementation of VLAPs based on EbA.** (Output 1.2: Integrated landscape management plans that include watershed ecosystems and founded on EbA are implemented). EbA interventions funded under this sub-component will be the result of the identified investment priorities in the VLAPs. An estimated total area of 83,240 hectares will be targeted within the micro-catchments covered by the 111 VLAPs in the 30 WRU sub-catchments, in the main 8 WRUs. EbA interventions financed under this sub-component will be public investments that are of collective interest, generate public goods (such as services for and from ecosystems) and are proven applicable for the Malawi context. Feasibility and scalability of EbA interventions is highlighted in the Government's *Malawi National Guidelines: Integrated Catchment Management and Rural Infrastructure 2015* and in the *National Forest Landscape Restoration Assessment* (NFLRA) 2016³⁶³ that identified the needs and opportunities for the restoration of

the productivity and ecosystem functions of degraded and deforested landscapes in Malawi at district level. Details on EbA interventions are also described in Appendix I of the present Feasibility Study.

169. **Activity 1.2.1: Preparation of VLAP implementation (financed by GCF).** Under this activity, preparatory arrangements will be rolled-out to ensure a smooth implementation of VLAPs at local level. This step will also be critical to ensure the necessary inputs (equipment, planting material) for VLAP implementation to be procured by NLGFC each year (under sub-activity 1.2.2.1) are identified in an exhaustive and timely manner.

170. **Sub-activity 1.2.1.1: Planning process to initiate VLAP implementation (financed by GCF, executed by MoA/DLRC).** VLAP implementation will be facilitated jointly by ILM Facilitators and NGOs, under the coordination of MoA/ DLRC (as EE). In the months that immediately follow completion of VLAP formulation, PIU's Natural Resource Management specialists, ILM Facilitators, NGOs, VNRMC members and micro-catchment residents will collectively reconfirm the activities to be implemented in the following 12 months (including precise time and location), roles and responsibilities, and develop an annual procurement plan to be submitted to and approved by the District Council, then availed to NLGFC (see activity 1.2.2). This operation will be repeated annually to cover the 3-year period of the VLAPs.

171. ILM Facilitators and NGOs (see sub-activity 1.2.2.1) will assist in mobilizing community volunteers for VLAP implementation, and will be responsible for organizing meetings to reconfirm implementation activities and operations and maintenance arrangements for green assets. MoA/DLRC will ensure that follow-up meetings are organized quarterly in order to discuss progress and issues related to VLAP implementation in their respective Districts of interventions (through the District Directors of Agriculture and Natural Resources). Residents will be encouraged to participate in restoration work through a rotational scheme in line with the agreements under VLAP and government practices for similar works. For works that are labour intensive (especially those related to green assets), NGOs will directly support their execution, demonstrating and supplying machinery and specialized labour where applicable.

172. ILM Facilitators ensure that participation of women and youths is meaningful and satisfactory with respect to their share in participants' composition. ILM Facilitators ensure that discussions are constructive and based on a collaborative and collective spirit for sustainable landscape in the long term and that EbA is integrated and the principles of gender and social inclusion are respected (by directing roughly 40% of discussion time to watershed management issues from gender and social inclusion perspective). Information on the sub-activity will be shared at landscape level through Dimitra Club before and after each event. MoA/DLRC will document the discussions of quarterly meetings and share with ILM Facilitators, Technical Facilitators, VNRMC and SCMC members. ILM Facilitators and VNRMC members will in turn share pertinent information with micro-catchment/landscape residents.

173. The beneficiaries are all micro-catchment/landscape inhabitants, TAs and local officials (Ministry officials at the lowest level in charge of water resources, forestry, and local governance) of targeted micro-catchments (approximately 280,000 persons). The landscape resident participants to preparatory planning meetings will be 60% female and 30% youths.

174. Activity 1.2.1. addresses the planning barrier by assisting operationalization of VLAPs. It addresses the knowledge barrier by providing guided experience in ILM/EbA plan implementation. It also addresses financial and institutional barriers by providing resources for and aiding what is a VNRMC activity.

175. **Activity 1.2.2: VLAP Implementation (financed by GCF).** EbAM will target a net intervention area of 83,240 hectares across communal and agriculture land use, within the total micro-catchment area (88,800 hectares). This activity will enable the actual delivery of investments outlined in each of the 111 VLAPs developed under sub-component 1.1. EbA investments financed under this sub-component will be targeting communal lands (e.g., forests, grasslands/rangelands, floodplains, riparian buffer zones and wetlands) over an area of approximately 67,040 hectares (while Component 2 will target 16,200 hectares of on-farm interventions). The estimated sub-catchment planning area and micro-watershed intervention

area (i.e. landscapes under EbA) per WRU and districts are highlighted in Table 18. The Activity will consist of two sub-activities.

176. *Sub-activity 1.2.2.1: Technical assistance to VLAP implementation (financed by GCF, executed by FAO).* This sub-activity will focus on the mobilization of the required expertise for the implementation of VLAPs. This expertise will be composed of both (i) the NGOs for 60 ILM facilitators (30 two-person teams) already engaged under sub-component 1.1., as a way to ensure continuity in the facilitation process, engagement with communities, and understanding of the VLAPs; and (ii) technical expertise from qualified and experienced service providers (national and international NGOs), for example NGOs/ partners from the Malawi Climate Smart Agriculture Alliance (MCSAA³⁶⁴), which have extensive expertise on EbA techniques and climate change adaptation in Malawi, and have regularly collaborated with MoA/DLRC. Other organisations specialised in agroecology such as – for example - Permaculture Network Malawi or SCOPE will also be on boarded, on a need basis.

177. ILM Facilitators' roles will include:

Organizing meetings to reconfirm activities to be implemented under each VLAP;

Supporting VNMRC in preparing a 12 months procurement plan derived from VLAPs with NGOs, and sharing it with the District Council, who will avail the procurement plan to the National Local Government Finance Committee (NLGFC);

- Assisting NLGFC with procurement, together with international NGOs and PIU;
- Ensuring appropriateness of implementation advice to women and youths; and
- Assisting VNRMCs in documenting rules for maintenance of implemented activities.

Technical roles from national/ international NGO's will include:

- Supporting VNMRC in preparing a 12 months procurement plan derived from VLAPs with ILM facilitator (on a biannual basis), and share it with the District Council, with support from the central and regional PIUs;
- Assisting NLGFC with procurement, together with ILM Facilitators, Central and regional PIU (Natural Resources Management and Agroecology & EbA Specialists) and MoA/DLRC representatives at ADD level pertinent to each landscape;
- In close coordination with MoA/ DLRC, directly supporting execution of EbA works/ technical activities with communities by demonstrating and supplying machinery and specialized labour where applicable;
- Ensuring presence of community volunteers on site as agreed under VLAP and arrival of needed tools and other material;
- Sensitizing stakeholders on EbA during VLAP implementation; and
- Accompanying local volunteers in setting up management plans in the framework of VLAP on livelihoods activities such as beekeeping and harvesting non-timber forest products (NTFP) with ILM Facilitators.

Box 12 – Malawi Climate Smart Agriculture Alliance

The Africa Climate Smart Agriculture Alliance (ACSAA) was established in 2014, following the 2014 Malabo Declaration to mainstream climate change in agriculture.³⁶⁵ The Alliance aims to support rapid adoption of climate smart agriculture (CSA) across Africa, through collaborative efforts and practical, on-the-ground experience of Alliance members in agricultural research and implementation and to contribute to the African Union's broader goal of supporting 25 million farm households on CSA by 2025.³⁶⁶ Its technical partners include FAO, the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), the CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS) and the Forum for Agricultural Research in Africa (FARA).³⁶⁷ Under the umbrella of ACSAA, the Malawi Climate Smart Agriculture Alliance (MCSAA) was formed in 2015.³⁶⁸ Its main

principles are: be Malawi-owned; support the efforts of the Malawi government; strengthen local systemic capacity by providing the tools and resources needed by local actors (farmers, local civil society organisations, extension agents as well as community and cooperative groups), especially to plan, execute and evaluate CSA activities; be a platform for sharing information and experience; and members commit to provide in-kind, technical or financial contributions in support of MCSAA activities.³⁶⁹ As of 2016, 308 projects were being implemented at the District level targeting over 900,000 households.³⁷⁰ The topics contained in MCSAA's Manual for Frontline Staff include EbA (or agroecology) techniques: agroforestry; beekeeping; conservation agriculture; local gene banks; water conservation technologies; pit-planting; swales; improved livestock management; and so on.³⁷¹ EbAM fills the gap left by MCSAA – lack of ownership and social cohesion among beneficiaries needed for collective action, such as sustainable watershed management and weak capacity for holistic management – through adoption of ILM and promotion of EbA, which concerns more than agriculture.

178. The beneficiaries of this sub-activity are inhabitants of targeted micro-catchments (approximately 270,820 persons).

179. *Sub-activity 1.2.2.2: Access to inputs and equipment (executed by NLGFC).* This sub-activity will finance inputs for implementing VLAPs covering about 67,040 hectares of communal lands. The government of Malawi conducted the National Forest Landscape Restoration Assessment (NFLRA) in 2016³⁷² to “*identify the needs and opportunities for the restoration of the productivity and ecological function of degraded and deforested landscapes in Malawi that will in turn help to achieve Malawi's sustainable development goals related to food, water, and livelihood security and climate resilience.*” The forest landscapes according to the assessment is synonymous with watersheds, and their components coincide well with what constitutes watershed ecosystems: agricultural lands; forests and woodlots; soil and water; and river and stream banks.

180. For the purpose of estimating what would be involved in VLAP and financed by EbAM, Table 17 connects the land restoration needs in Malawi with examples of EbA techniques and required inputs and equipment that are feasible in the local context. More technical details on the EbA techniques promoted by EbAM are described in Appendix I of this Feasibility Study. Table 18 indicates the land restoration opportunities under EbAM. Actual investments will depend on the EbA-based VLAPs formulated by the communities. However, based on the NFLR Assessment, suitable ecosystem-based adaptation investment options will include: (i) agriculture restoration on communal lands (applicable to about 7,310 ha) (ii) community forests and woodlot restoration (applicable to about 22,420 hectares); (iii) forest management (applicable to about 22,640 ha); (iv) soil and water conservation (applicable to about 14,350 hectares); and (iv) river and stream bank restoration (applicable to about 320 hectares). Details per district are provided in Table 18.

181. Inputs foreseen to be financed by the Project include: native or landrace seeds and seedlings to promote high biodiversity, as well as equipment required to perform the works (e.g. boulders, wire, hoes, slashers, wheelbarrows, shovels, rakes, strings, pruning tools, portable water containers, etc.). This sub-activity will be implemented by the NLGFC, as Executing Entity. NLGFC is the constitutional body with the mandate to facilitate fiscal decentralization, financial management and local development in local governments. As in the case of the GEF-7 funded *Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme*, NLGFC will provide procurement services to the EbAM project at district level. NLGFC will receive annual updates from the District Council (with the support of relevant project staff and Facilitators) on foreseen needs in terms of material and equipment. Based on the aggregated needs of each VLAP procurement plan approved by the DEC, NLGFC will be in charge of investigating sources of supply³⁷³, negotiating with suppliers on price and delivery, and monitoring the transfer of procured inputs to VLAPs in each targeted districts, with the support of the ILM and technical co-facilitators, MoA/DLRC and PIU staff (NRM specialists and agroecology & EbA specialists). NLGFC procurement of planting material will be linked with the seeds multipliers and nurseries supported under Component 2.

Table 17 - Forest Landscape/Watershed Restoration and EbA

NFLRA Intervention Types	Example EbA Techniques	Inputs and Equipment
Community forests and woodlot restoration	Assisted Natural Regeneration/Farmer Managed Natural Regeneration	<ul style="list-style-type: none"> - Hoe, shovel/spade, digging bar, seeds/saplings. - Plant nurseries. - [Firebreak] Slasher, rake, fire resistant and non-invasive plants. - [Prescribed Burning/Controlled Burning] Sprayer, backpack pump, drip torch, fire rake, etc. - [Fencing of Saplings] Biodegradable fence material. - [Pruning and Thinning] Secateurs, bypass shears, bypass pole pruners, fruit saw. - [Potted Seedling/Miyawaki Method] Soil amendment material (e.g., rice husks), tree seeds/saplings.
Forest management	Assisted Natural Regeneration/Farmer Managed Natural Regeneration	See above.
	Forest Farming	<ul style="list-style-type: none"> - Hoe.
	Use of Wild Products and Non-Timber Forest Products for Livelihood Purposes, e.g., beekeeping	<ul style="list-style-type: none"> - Grasslands, forests and waterbodies. - [Beekeeping] Bees, beehive space, flowering plants.
Soil and water conservation	Contour Bunding/Contour Ridging/Contour Trenching/Diversion Ditch/Contour Vegetation Strip/Contour Hedgerow	<ul style="list-style-type: none"> - Contour gauge/A-frame, hoe and material for contour marking. - [Contour Bunding/Contour Ridging/Contour Trenching/Diversion Ditch/Contour Swale/Berm n' Basin/Diversion Swale] Pegs, hammer, spade, wheelbarrow. - [Contour Swale/Berm n' Basin/Diversion Swale] Perennial vegetation.
	Brush Fill/Brush Plug	<ul style="list-style-type: none"> - Shovel/spade, digging bar, vegetation.
	Gully Plug/Check Dam/Check Wall	<ul style="list-style-type: none"> - Earth moving equipment, rocks/boulders/posts/brushwood/wire/logs. - [Gabion Check Dam/ Gabion Retaining Wall] Contour gauge/A frame, geological/hydrological survey equipment, soil compacting equipment (spades, wheelbarrow, plow, etc.), wire, wire cutter, rocks.
River and stream bank restoration	Revetment	<ul style="list-style-type: none"> - Native flora/fauna/geological material of riparian buffer zones and floodplains. - Establishment of native plant nurseries. - Earth moving equipment, vegetation/rocks (and in case of gabion, wire and wire cutter)/boulders, biodegradable fabric, poles.
	Deformable Bankline	
	Degradable Toe/Deformable Toe	
Agricultural land restoration	Diversification of crops	<ul style="list-style-type: none"> - Seeds for diversification.
	Solid/Liquid Biological Waste Application	<ul style="list-style-type: none"> - Strings/pegs, shovel/hoe, bucket, tarp material (hay, wood, etc.). - Solid biological waste free of antibiotic substances, feed additives and other chemicals toxic to ecosystems.
	Mulching	<ul style="list-style-type: none"> - Slasher. - Mulch Material (wood chips, straw, leaves, seeds for cover crops, etc.).
	Pit Planting/Negarim/Zai/Tassa	<ul style="list-style-type: none"> - Hand hoe, string and pegs.
	Minimum Tillage/Conservation Tillage	<ul style="list-style-type: none"> - Slasher and hoe. - Material required for weed suppression and rill erosion control.

NFLRA Intervention Types	Example EbA Techniques	Inputs and Equipment
		- [Ridge tillage] Hoe, contour gauge/A-frame, hoe and material for contour marking.
	Contour Cropping	- Contour gauge/A-frame, hoe and material for contour marking. - [Contour Bunding/Contour Ridging/Marker Ridging/Contour Trenching/Terracing] Pegs, hammer, spade and wheelbarrow. - [SALT] Shovel/spade, digging bar and tree seeds/saplings.
	Crop Rotation/Intercropping/Companion Cropping	- Hoe. - Seeds for additional crops. - [Crop rotation] Seeds uniform in fixed input requirements (e.g., sunlight, structure such as trellis, soil depth). - If involving trees, shovel/spade, digging bar and tree seeds/saplings.
	Agroforestry	- Hoe, shovel/spade, digging bar, tree seeds/saplings. - [Silvo-Pastoralism] Hoe (if introducing grass/forage to woodland/forest); shovel/spade, digging bar and tree seeds/saplings (if introducing trees to pastures)

Table 18 - Land Restoration Opportunities for EbAM on Communal Lands Based on Malawi National Forest Landscape Restoration Assessment^{374,375}

Targeted WRU	Targeted District	Estimated Project planning Area (ha)	Estimated Project micro-catchment Area (ha)	Land Restoration Opportunities (ha) on micro-catchment area					
				FMNR and agro-forestry, pasturelands	Community Forest/ Woodlot	Forest	Soil & Water	River & Stream Bank	Total Opportunity Area
8A	Karonga	14,435	5,600	256	952	3,304	224	15	4,751
	Chitipa	21,653	3,200	195	736	1,664	224	8	2,827
	Rumphi	0	0	0	0	0	0	0	0
16G	Rumphi	26,724	4,800	146	960	3,696	288	10	5,100
	Nkhataka Bay	54,744	4,800	73	960	4,080	336	4	5,453
4A	Dedza	8,773	5,600	769	448	1,568	1,232	26	4,042
1M	Neno	20,422	7,200	649	560	2,304	792	24	4,330
	Mwanza	22,063	4,800	351	2,112	624	2,208	13	5,309
14D	Thyolo	14,029	10,400	1,586	3,224	624	2,912	37	8,383
1G	Nsanje	51,003	20,000	549	11,400	800	4,400	72	17,221
1T	Mangochi	11,592	5,600	632	392	2,128	560	19	3,731
1B	Zomba	22,045	16,800	2,101	672	1,848	1,176	92	5,889
	TOTAL*	267,500	83,240	7,308	22,416	22,640	14,352	321	67,037

182. The beneficiaries are all micro-catchment/landscape inhabitants, TAs and local officials (Ministry officials at the lowest level in charge of water resources, forestry, and local governance) of targeted micro-catchments (approximately 270,820 persons). The participants to preparatory planning and follow-up meetings will be 60% female and 30% youths. The service providers are ILM Facilitators and Technical Facilitators. Their engagement facilitates scaling up of EbA-based ILM implementation in other parts of the country.

183. The sub-activity addresses the planning barrier by assisting operationalization of VLAPs. It addresses the knowledge barrier by providing guided experience in ILM/EbA plan implementation. It also addresses financial and institutional barriers by providing resources for and aiding what is a VNRMC activity.

184. *Sub-activity 1.2.2.3: Monitoring of VLAP implementation (executed by MoA/DLRC).* Under this Sub-activity, MoA/DLRC (as EE) will coordinate the implementation of VLAP priorities with a focus on communal lands, covering a wide range of interventions: (i) soil and water conservation, for erosion and water runoff control (with green iassets such as swales, brush fill, gully plugs and check dams); (ii) natural forest protection; assisted natural regeneration of forests; woodlot management; (iii) rangeland and wetland management; (iv) rehabilitation and conservation of riparian buffer zones; riverbank protection; floodplains and wetlands; (v) and other livelihoods opportunities and off-farm economic activities (e.g., beekeeping, harvesting non-timber forest products – NTFP - such as baobab). Based on the agreed upon rules for community works, Technical Facilitators will ensure that community volunteers are present on site, receive the needed tools, inputs and equipment to perform the works, and will demonstrate and support the implementation of works, while continuing to sensitize about the relevance and benefits of the applied techniques. ILM Facilitators will also ensure that participating women and youth benefit from advice in a meaningful and satisfactory manner. As a way of incentivizing them, volunteers will receive planting material and pieces of equipment, in accordance with the rules agreed upon when establishing VLAPs, and in line with Government practices for such works. In addition to coordinating this process, MoA/DLRC (as EE) will support VNRMCs to ensure and monitor that clear rules are established and followed for the management of achieved interventions (e.g. operation and maintenance of green infrastructures, protection of young trees and tracking of survival rates, etc.).

185. Regarding interventions described under (iv) above, ILM Facilitators and Technical Facilitators will accompany groups of local volunteers in setting up specific management plans based on VLAP priorities and use of local NTFP. These could replicate innovative “Payment for Ecosystem Services” through which beekeepers rent local woodlots to host their hives (see Box 5). Such economic activities can be further supported and structured through Sub-components 2.2. (development of relevant value-chains and markets), and 2.3(access to finance). Linkages will be facilitated by PIU members and in particular the business and finance specialists.

186. VNRMC and other landscape stakeholders will discuss, with the assistance of MoA/DLRC and ILM Facilitators on the rules for management of implemented interventions, including monitoring and reporting responsibilities. The agreed upon rules will be documented by VNRMC with the assistance of ILM Facilitators. VNRMC will be responsible for collating information and calling meetings with other landscape stakeholders to discuss the steps for adaptive management. Effective management of project interventions is the responsibility of MoA/DLRC.

187. The beneficiaries are all micro-catchment/landscape inhabitants, TAs and local officials (Ministry officials at the lowest level in charge of water resources, forestry, and local governance) of targeted micro-catchments (approximately 270,820 persons). The participants to preparatory planning and follow-up meetings will be 60% female and 30% youths. The service providers are ILM Facilitators and Technical Facilitators. Their engagement will facilitate scaling-up of EbA-based ILM implementation in other parts of the country. The Sub-activity addresses the planning barrier by assisting operationalization of VCMPs. It addresses the knowledge barrier by providing guided experience in ILM/EbA plan implementation. It also

addresses financial and institutional barriers by providing resources for and aiding what is a VNRMC activity.

188. **Component 2: Resilient livelihoods and food systems.** The objective (Outcome 2) of this component is to stabilize productivity and farmers' incomes thanks to more resilient livelihoods and food systems. Combined with component 1 results (increased ecosystem resilience) and building on the VLAPs developed under component 1.1, this component – which will directly target 16,200 ha of farmlands within selected 111 micro-catchments and 30 sub-catchments – will contribute to GCF ARA1 “Most Vulnerable People and Communities” ARA 2, “Health, well-being, food and water security” and MRA4 “Forestry and land use”.

189. By enhancing extension services through farmers field schools - FFS (sub-component 2.1), the Project will increase farmers' understanding and knowledge of technical responses to adapt to changing climatic conditions and enhance their capacity to integrate EbA into their farming systems. Through a food systems approach, the component will support smallholder farmers, producers organisations (POs), farmer groups, small and medium enterprises (SMEs), within the local food system to access markets (sub-component 2.2) and finance – such as village savings and loans associations (VSLAs), micro-finance institutions and banks (sub-component 2.3), which are some of the key barriers to EbA adoption. The component's interventions, by boosting nature-positive food production and building resilience to vulnerabilities, shocks and stresses, will contribute to build more resilient food systems at local level.

190. **Activities under this component are innovative** in that they support smallholder's resilience to climate change through a food system approach and contribute positively to the new “Action Tracks” promoted under the United Nations Food Systems Summit 2021 (UNFSS). A national dialogue on food systems in Malawi was held in 2021 to contribute to the UNFSS in the same year and underscored the importance of protecting ecosystems, especially watersheds and their soil functions, for sustainable food production and enhancing business opportunities in the agricultural sector for farming households and agribusiness operators. Component 1 and 2 interventions will contribute to building more resilient food systems at local level and EbAM will as such be one of the first project to implement UNFSS Action Tracks 3 (“Boosting Nature Positive Food Production”) and 5 (“Building resilience to vulnerabilities shocks and stresses”).

191. **Project interventions will engage a wide range of stakeholders of the food system.** These include actors involved in the production, processing and marketing of food products that originate from EbA-based production systems, as well as actors supporting the value-chain functions, such as financial service providers. Through sub-component 2.1, EbAM will help farmers in selected micro-catchments to adopt and develop integrated, nature positive production systems, where a variety of climate-resilient, native and well adapted crops are associated. Through sub-component 2.2, EbAM will also support linkages between selected climate-resilient crops/products from diversified, EbA-based production systems with public and private market operators engaged in national or international value-chains through a public-private producers partnerships (4Ps) approach and the creation of medium and small enterprises (MSMEs).

192. **Activities promoted are sustainable and replicable.** The integration of EbA in the extension system will allow replication of the approach at local, regional, and national levels – with a strong scaling-up potential. Activities are sustainable because EbA integrated in farming systems enhances farmers' long term capacities to sustain under extreme weather, enhances biodiversity, reduces maladaptation and strengthens watershed/landscape functions and improves food security. Furthermore, farmers adopting EbA will positively adapt, safeguarding the natural resource base, and provide *better services to ecosystems*. Such a reciprocal relationship between farmers and nature will therefore enhance environmental sustainability – one of the project key co-benefits.

193. **The Component addresses the planning, knowledge, social and financial barriers:** the knowledge barrier by enhancing capacities necessary for adopting ecosystem-based adaptation in the production systems through FFS (sub-component 2.1), the social barrier by increasing social capital through participatory approaches, and developing capacities on technical and social issues, including gender and social inclusion (sub-component 2.1) and the financial barrier (sub-component 2.3) by enhancing access to inclusive finance and markets.

194. By addressing these barriers, the project creates incentives for agri SMEs/small local entrepreneurs, as well as formal financing institutions to participate in the program in order to actively participate in and benefit from the creation of a vibrant local economy based on sound environmental, production and business practices.

195. **Sub-component 2.1: Promotion of EbA-based production systems.** The expected output of this subcomponent is that EbA measures and inputs are promoted among farmers. Targeted farmers will be those living and producing with the selected 111 micro-catchments. Sub-Component 2.1 is directly linked with Sub-component 2.2. *Market access and entrepreneurship development* that will assist farmers to engage in commercial activities. It is also directly linked to Sub-component 2.3. *Access to finance for climate resilient investment solutions* which aims to remove barriers that project beneficiaries would face in terms of accessing financial services and thus support the financial needs of farmers.

196. The Sub-Component will be implemented via 3 complementary activities, namely: (i) Activity 2.1.1 EbA agriculture extension support through FFS, (ii) Activity 2.1.2 Knowledge and Innovation, (iii) Activity 2.1.3 Agrobiodiversity promotion. Because EbA is knowledge intensive, farmers' learning will be at the core of the sub-component investment strategy, which will build on the farmer field schools approach (FFS), supported by the use of digital and targeted visits and knowledge exchanges. Combined with an enhanced access to varied and adapted genetic material, FFS will facilitate the full application of EbA – while enhancing agrobiodiversity and the restoration of ecosystem services, leading to an increased climate change adaptation.

197. **Adaptation barriers addressed by the sub-component.** Activities under this sub-component will address the following adaptation barriers (see Part 4 for more details):

- I. **Knowledge and social barriers, which include** (i) Limited technical capacity to adapt to changing climatic conditions by the women, men, female and male youth farmers. Weak capacity and delivery of agricultural extension services. Staffing of decentralized extension officials is also limited. (ii) Detailed information of local ecosystems necessary for successful adaptation, including weather forecasting,³⁷⁶ exists as local/traditional knowledge,³⁷⁷ and its utility for adaptation has been acknowledged by the government, while underlining the inadequate skills and expertise in the agricultural sector.³⁷⁸ (iii) Local/traditional knowledge has not been fully integrated into interventions³⁷⁹ or supplemented by western science for maximum efficacy in adaptation.³⁸⁰ Knowledge on EbA exists and put in practice in Malawi, but in pockets and dispersed across different levels and stakeholders, from the government (including MoA staff) to NGOs and farmers. Little awareness exists at any level on the importance of agrobiodiversity, including genetic diversity and its advantages for climate change adaptation. This has had significant impacts on the availability of diverse and locally-adapted food crops, in addition to trees and shrubs varieties and species of multiple-use.
- II. **The vulnerability to climate change** at individual level. This vulnerability originates from: (i) social exclusion, (ii) low of access to resources and (iii) lack of assets and economic opportunities.
- III. **Limited digital outreach**, especially in rural areas, due to several challenges³⁸¹: (i) low access to electricity; (ii) sparse ICT infrastructure; and (iii) low access to digital device rapid growth of 3G and 4G coverage over the past decade put mobile coverage at 99.6% of the population in 2016,³⁸² while internet access remains low at 14.6%, with 40% in urban areas and 9.3% in rural areas.³⁸³

198. **Activity 2.1.1 EbA agriculture extension support through FFS.** EbAM will support the roll out of the FFS approach that has proven an effective way for uptake of climate-resilient and ecosystem based practices through its participatory and context specific methodology³⁸⁴ (see Box 13). Moreover, FFS are an

effective way of increasing the outreach of extension support to farmers. The roll out of the FFS has 3 levels: (i) the Master Trainer's Course (MTC); (ii) the Training of Facilitators (ToF); and (iii) the actual FFS implementation. FAO will be the main executing agent of the roll out of the MT and ToF courses, while the MoA will be the main implementer of the FFS with overview and technical support from FAO (Agroecology and EbA specialist from the CPIU as well as the Agroecology and EbA specialist from the RPIUs and with technical support from the FFS specialists from FAO Malawi). Key technical partners will be involved through letters of agreement (LoAs) for specific tasks to enrich the technical quality and different themes under EbA of training courses.

Box 13 – The Farmers' Field School Approach

The Farmers Field School method (FFS) is one of FAO's flag innovations, being implemented in more than 90 countries and it is estimated that 20 million farmers have participated in FFS since they started.

Malawi is not an exception and the extension methodology is being implemented in many projects with different partners such as World Bank (e.g. Malawi Watershed Services Improvement Project), IFAD (e.g. Transforming Agriculture through Diversification and Entrepreneurship Programme) and FAO (e.g. EU-funded KULIMA Project – see section 3 of the Feasibility Study). The FFS was first introduced into Malawi in the mid-1990s and not mainstreamed, focusing mainly on IPM. Since then, FFS went through different phases, learning from past interventions into evolving in the promotion of agriculture diversification aiming at reducing food and nutrition insecurity as well as increasing household diversified income.

In the National Agriculture Extension and Advisory Services Strategy (2020-2024), the government of Malawi states that there is limited staffing for extension, which is why the FFS approach has been fundamental in reaching more farmers by the lead-farmer cluster that manage several FFS that respond to one extension agent. FFS are acknowledged by the MoA in the National Agriculture Extension and Advisory Services Strategy as an envisaged approach, and largely used.

Farmers Field School are a very widely used and recognized mean of extension service that will be instrumental for the project to build farmers' knowledge and skills for adaptive management and thus, ensure the adoption and adaptation to the local context of sustainable EbA practices. FFS methods ensure long-term adoption of these practices on targeted farmers, while it serves as a spillover to others members in their community. The extension policy outlined the use of participatory approaches, including the FFS, the model-village approach and the Lead-Farmer approach. Essentially, the FFS decentralizes the process of decision making on farming practices, by making farmers the 'experts' in their own fields. Some research agencies have been supporting the FFS model, through their involvement in participatory field experiments in conjunction with the master trainer courses.

FFS have proven to achieve positive socio-economic and climate change adaptation results. For example, KULIMA in particular has positively delivered on household dietary diversity, productivity increase, the number of households using improved technology combination and adoption of improved livelihoods options to cope with climate related hazards.³⁸⁵ With regards to climate, the FFS can also be fully combined with the PICSA methodology³⁸⁶ (built on the same participatory principles as FFS) which was promoted under the GCF-funded "*Scaling-up the Used of Modernized Climate Information and Early Warning Systems in Malawi*", and which also provided successful results.

199. Results of this activity are 240 MT trained, 675 facilitators trained and 1080 FFS implemented, i.e. about 10 FFS per VLAP. Table 19 below shows the total number of Agriculture Extension Development Officer (AEDO) and Agriculture Extension Development Coordinator (AEDC) who are present in the targeted areas and who will be trained – together with the number of CBF they can support and monitor. AEDC coordinates each Extension Planning Area (EPA)³⁸⁷, while and the AEDO represents the lower level of MoA/DAES presence in the field (level called the "section"), and is the closest to the farmers. The rest of the MT will be NGOs staff working in the project areas. They will facilitate communities and support project activities including FFS implementation and in some cases support in the extension officers' role where MoA staff might lack³⁸⁸. It is estimated that 1 community based facilitator (CBF) will carry a maximum of 2 FFS.

Table 19 - Number of AEDO and AEDC in the targeted areas.

District	No. of Extension Planning Area	No. of Sections/AEDO	total CBF
Thyolo	1	6	30
Nkhata Bay	1	2	10
Rumphi	1	3	15
Zomba	1	9	45
Nsanje	5	36	180
Mwanza	1	10	50
Neno	2	18	90
Mangochi	2	19	95
Dedza	2	22	110
Chitipa	1	5	25
Karonga	1	5	25
Total	18	130	675

200. Sub-activity 2.1.1.1 Master Trainer's Course (MTC) and Training of Facilitators (ToF) (*financed by GCF, executed by FAO*). For the Master Trainer's Course (MTC), EbAM will build on the existing capacity of MoA staff on the FFS model (Box 13). The Project will continue supporting the FFS institutionalization³⁸⁹ by scaling-up the approach and support the Government of Malawi's efforts in sustaining the FFS methodology.

201. During Year 1, four (4) MTC will be carried out for AEDO and AEDC level officers³⁹⁰ from Dedza, Nsanje and Rumphi districts, where no MTC have been carried out yet. For the remaining targeted districts and sections where MTC have already been carried out, 4 refresher courses of 3 weeks will be organized by the CPIU (with the support of the RPIUs) to train extension officials on the EbA approach and practices. These courses will be done in the existing MoA training centres³⁹¹ (that include FFS plots), that already hosted FFS trainings.

202. Both courses will have special modules on EbA practices and approaches. Modules will be based on EbA solutions having a proven scale-up potential in Malawi, as reflected (among other): (i) in the *Malawi National Guidelines on Integrated Catchment and Rural Infrastructures 2015* – which promotes over 30 EbA solutions adapted to the Malawi context, (ii) in the National Forest Landscape Restoration Assessment (NFLRA, 2016) which is proposing a large set of suitable agriculture technologies, (iii) in the *Malawi Climate Smart Agriculture Handbook for Frontline Agricultural Extension Staff 2018* presenting suitable farming practices which can enable farmers in different agro-ecosystems to adapt to climate change and its associated impacts³⁹² and, (iv) by field visits to key informants and farmers who already implement permaculture and agroecological practices. Modules will include:

- I. Conservation agriculture practices (manure management, zero/reduced tillage and use of crop residues/cover crops), with emphasis on the importance of soil organic matters and soil structure by using compost to boost soil fertility and moisture;
- II. Agrobiodiversity and the importance of varied and adapted genetic resources, such as mixed-cropping of native, non-invasive and locally adapted (landraces) varieties;
- III. Promotion of early maturing, nutrition sensitive, drought-resistant and climate-resilient crops. Crops to be promoted will also be based on the results from recent Malawi-specific climate models (for e.g. from FAO and IFAD – as presented in the climate analysis) which are providing some crop suitability analysis at local level;

- IV. Integrated mix-farming systems, and use of bio-inputs/ bio-fertilizer inoculants such as “Bokachi” mixing fermented chicken manure, yeasts, sugar and charcoals/ashes and biopesticides such as those prepared with neem;
- V. General principles and practices of agroecology and permaculture that have a strong replication potential in Malawi (see Box 14, Box 15 and Box 17), as well as Appendix I of the Feasibility Study);
- VI. Intercropping high number of species, including food and cash crops, fuel and livestock feed, native plants and bushes that are pest repellent;
- VII. Farming as a business (accounting, understanding market and prices).

203. The FFS trainings will also include climate and weather information analysis through the Participatory Integrated Climate Services for Agriculture (PICSA)³⁹³, which was promoted under the GCF-funded “*Scaling Up The Used of Modernized Climate Information and Early Warning Systems in Malawi*” (GCF FP002) and used by the Adaptation Fund-sponsored “*Adapting to Climate Change Through Integrated Risk Management Strategies and Enhanced Market Opportunities for Resilient Food Security and Livelihoods*”. PICSA Field Manual³⁹⁴, which are available, will be used at scale.

204. Training modules will be prepared by FAO and integrated into the FFS training, mobilizing the support of experts from (i) the Agroecology-Hub network³⁹⁵ which is spearheaded by Lilongwe University of Agriculture and Natural Resources (LUANAR), (ii) the Gene Bank for agrobiodiversity and genetic resources promotion, (iii) Kusamala Institute, (iv) Permaculture Paradise Institute and, (v) Never Ending Food network. These experts will be also invited to participate on the respective modules during the MTC. A total of 153 extension officers of different levels will be trained and 87 NGO staff. In Year 3, after identification of potential commercial FFS, 2 refresher courses on Farm Business School (FBS) will be carried out. This will ensure at least 80 decentralized staff and facilitators will be well prepared to accompany and train FFS groups and CBFs on FBS themes. These identified FFS group will be linked to and supported under sub-component 2.2.

205. *Training of Facilitators (ToF)*. Community Based Facilitators (CBF) will be identified among lead farmers and innovative farmers in targeted villages, women (at least 50%) and men, prioritizing youth. In addition, eligibility criteria when several candidates are available will include: i) they should preferably be literated ; ii) they should be agricultural producers; iii) they should be from the village where the FFS is being implemented. CBF will be carrying out the FFS under the support of the frontline extension officers and where necessary of locally present NGOs, under the direct oversight of FAO. The ToF will last 3 weeks and include the basic FFS principles and trainings, in addition to training modules on EbA practices and approaches. These modules will also be prepared by FAO with the support of the Agroecology-Hub network of experts which will be invited to deliver part of the modules, particularly the ones on agrobiodiversity, agroecology, and permaculture principles and practices. The ToF will start in Y2 and will be phased until Y4 following implementation of activities in new watersheds. A total of 675 community-based facilitators (CBFs) will be trained.

206. *Sub-activity 2.1.1.2 FFS implementation (financed by GCF, executed by FAO)*. The CPIU, through the preparation of Annual Work Plan and Budget (AWPB), will establish the number of FFS per year to be organized as a result of consultation and organization with the VCMRs. The RPIUs will then support the MoA on the day to day implementation activities. The organization and setting up of the FFS at village level comes as a result of the VLAPs developed under component 1. The group village levels committees will establish the decision of the number, participants, land to be used and topics to include in each FFS, in close relation with activities from Component 1. Each group will undertake a participatory diagnostic and identify main issues and defining objectives of the field school. The participatory diagnostic encourages farmers to propose technical options or "solutions", and to share and discuss their experiences. AEDOs and CBFs will support the organization of the FFS groups, with the support of the facilitators engaged under sub-component 1.1. Each CBF will cover a maximum of 2 FFS, for a total of 1,080 FFS and approximately

27,000 participants (25 participants per FFS), leading to about 16,200 ha of farmland put under EbA (0.6 ha per participant on average).

Table 20 - FFS phasing (start year) in EbAM

	Y1	Y2	Y3	Y4	Y5	Y6	Total
FFS learning on crop		108	230	220	90		648
FFS learning on agroforestry		130	130	102	70		432
Total FFS	-	238	360	322	160	-	1,080
Total farmers trained		5,950	9,000	8,050	4,000		27,000

207. The duration of each FFS is 12-18 months of intense FFS participation. The active FFS group will continue for around 3 years. FFS groups will ensure gender balance and women/youth specific FFS may be organized. Implementation of up to 4 FFS at the same time per village groups can have many benefits on longer-term results³⁹⁶. The learning subjects will fall under 2 main categories being (i) crop production and (ii) agroforestry (see Table 21 below). The choice of category will vary according to the groups' interests and the agro-ecological areas. The FFS groups may also evolve into beekeeping and commercial groups (see sub-component 2.2). The FFS will use a participatory "action research" approach³⁹⁷ for the adoption of EbA practices. This entails working with farmers to redesign: their cropping systems (or livestock system, agroforestry system, etc.), the relations between the various production units, and even the farming-system as a whole. The key to the successful implementation of FFS is therefore to succeed in initiating a truly participatory process of observation, experimentation and design of solutions that are useful to local agriculture, by mobilizing all members of the farmers' group and the facilitator³⁹⁸. This will create the pathway for the transition of the farming system to EbA as described in Table 21.

Table 21 - Different FFS learning subjects and specific and general technical approaches to be promoted.

Possible FFS Learning thematic areas	Specific thematic	Common EbA practices promoted (for more details see EbA list, Appendix I of the feasibility study)
FFS crop production including horticulture	<ul style="list-style-type: none"> - Nursery stock production - Conservation agriculture: Reduced tillage, soil cover, cover cropping systems, tillage of level beds - Seed production and selection. - Crop management (sowing, maintenance (weeding, ridging, hoeing, positive selection, pruning) - Different harvesting techniques and crop processing. - Techniques of conservation, treatment and preservation of agricultural products - Small Irrigation in association with rainwater harvesting 	<ul style="list-style-type: none"> - Agroecosystem Analysis and Field experimentation - Sustainable Landscape Management principles - Integrated Pest Management (IPM) <ul style="list-style-type: none"> o Production of biopesticides o Diversification and introduction of insect attracting or repelling plants - Agroecology and Permaculture principles, practices and ecosystem design
FFS Agroforestry	<ul style="list-style-type: none"> - The different species, their association and use and/or ecological service they render (legumes for Nitrogen fertilization, charcoal, wood, fruits, anti-erosion, etc.) - The different agroforestry systems - Planting and care of tree seedlings, nurseries, protection 	<ul style="list-style-type: none"> - Climate resilient agriculture <ul style="list-style-type: none"> o Introduction of adapted varieties and landraces, crop rotation, crop association and inter-row cultivation o Conservation of soil quality and moisture (conservation

	<ul style="list-style-type: none"> - Tree management, planting of food crops and association of resources (light, water, cover crop production, etc.) 	<p>agriculture), reduced or no-tillage farming</p> <ul style="list-style-type: none"> o Modification and adaptation of sowing times o Efficient use of organic fertilizers o Compost production, animal-plant integration o Cover cropping systems, mulching o Deep bed farming techniques, pit planting o Contour cropping <ul style="list-style-type: none"> -Nursery production and community seed banks -Home garden creation for food security and diversification
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Box 14 – Cases from the field. EbA transition through agroecology/ permaculture



Farmer A lives with her husband and her 6 kids, all going to school and high school. They have 3 ha upland and 0.8 ha in the wetland. But they only work on 1ha because of labor constraints and production costs. The rest of the land is rented and they use the money for schooling. With Permaculture and extension officers support (from the Permaculture Paradise Institute – a local NGO), they have created a home garden (of about 100m²), including one area to multiply seeds and seedlings. Farmer A also planted fruits trees. In the home garden, they have all sorts of vegetables, including native ones. The surplus is exchanged and sold to neighbors. Farmer A and her household are food secure and increase their income by selling this surplus. In the upland, Farmer A has tried Conservation Agriculture (CA) on 0.1 ha with mulching and no-tilling for maize and soy. For this trial, Farmer A and her husband divided the field applying two main farming practices: (1) mulch from no-tilling + use of manure and no-till (CA), and (2) manure and plowing (both cases 0.1 ha). The different results were the following:

(1) The CA practices, resulted in labor reduction, with one-one-day for planting and no soil preparation. The yield was 12 bags of maize. No weeds problems were noticed.

(2) Labor was 6 days for plowing and planting, as before permaculture, and yields were 7 bags of maize, compared to 4 bags of maize before the application of manure

Source: Field mission (October 2022)

208. The following Table 22 summarizes applicable EbA practices according to two main types of farming systems found in the different agroecological zones. The proposed improved systems come from field observations with farmers, and in-depth engagement of CSA, agroecology/EbA stakeholders and farmers during project design. Stakeholders included FAO experts in Malawi, the National GeneBank, LUANAR AgroEcology Hub, Kusumala Institute, Permaculture Paradise Institute, Permaculture Network Malawi.

Table 22 - General farming systems and proposed EbA practices summary

Agro ecological zones	Farming system composition	Current systems (baseline)		Improved systems (under EbA)	
		Crops	Farming practices and technologies	Crops	Farming practices and technologies
<p>Mid-elevation upland Plateau and Highlands</p> <p>Rainfall: 800-1300mm</p> <p>Districts</p> <p>Karonga</p> <p>Chitipa</p> <p>Nkhata Bay</p> <p>Thyolo</p> <p>Rumphi</p> <p>Nsanje</p> <p>Mwanza</p> <p>Mangochi</p> <p>Dedza</p> <p>Livelihood zones</p> <p>Central Karonga</p> <p>Chitipa Millet & Maize</p> <p>Northern Lakeshore</p> <p>Nkhata Bay</p> <p>Cassava</p>	Home garden	Home gardens are not always present; when they are, they include cassava, sweet potatoes, tomatoes, and peppers.	<p>Use of hand or hoe</p> <p>Plowing with oxen or with hoe</p> <p>(2 weeks of land preparation for 1 ha)</p> <p>No soil cover</p>	<p>Tomatoes, onions, sweet potatoes, soy, local native vegetables (blackjack, eggplant, cowpea, potatoes, lablab, etc.), guava, peppers, locally adapted citrus, avocado tree and passiflora, beans, banana, mucuma</p> <p>Leguminous trees (such as <i>Faidherbia albida</i>), woodfuel trees, neem and moringa</p>	<p>High density and high intercropping in homegardens, use of mulching. Watering from homecooking water.</p> <p>Homegarden fencing</p> <p>Agroforestry in home gardens and/or in crop lands</p> <p>Intercropping and crop rotation when 2 seasons are possible.</p> <p>Reduced tillage or no-tillage. Workload reduced to 1-2 days/ha, and/ or use of mulching (workload can increase up to 7 days/ha)</p> <p>Use of hoes, shovels and wheelbarrows.</p> <p>Construction of rainwater catchments, wells, for homegarden irrigation</p>
	Crop land	<p>Maize mono-cropping</p> <p>Or maize intercropped with leguminous (groundnuts or soya, or beans)</p>	<p>Low diversity of crops and foods produced</p> <p>Rainfed mostly, only watering of home gardens</p> <p>Use of synthetic fertilizer only when obtained through the subsidy program. If not, no use at all of fertilizers</p>	<p>Maize intercropped with leguminous such as soybean, local beans, pigeon peas. Also intercropped with Cassava</p> <p>Re-introduction of lost crops such as sorghum and Bambara nuts</p> <p>Maize intercropped with leguminous and pumpkins (MILPA³⁹⁹ model)</p> <p>Agroforestry models</p> <p>Maize intercrop with leguminous plus the use of local or exotic non-invasive leguminous trees (<i>Gliricidia</i>, <i>sesbania</i>).</p>	

Border Productive Horticulture Shire Highlands Border Productive Horticulture Phirilongwe Hills Thyolo Mulunje Tea Estates				Agroforestry Coffee production (if suitable), covered by fast-growing leguminous and woodfuel trees- interplanting own crops during first years and then in a portion of land.	Integrated mix-farming systems, use of manure for composting (at least 1 tn/ha). Ducks may be used also in rice fields for pest control Introduction and use of native, adapted and drought resistant crop varieties (sorghum, millets, pigeon peas, cowpea, Barnaba nuts) Community control of livestock grazing and cropland destruction
	Lowland (if present)	Rice during rainy season		In dry season rotation with vegetables (tomatoes, lettuces and native leaves vegetables); potatoes and sweet potatoes Banana plants, sugar cane Wet season local rice varieties	Vetiver grass (<i>Vetiver nigritanus</i>) used as contouring for wind break, livestock feed and for soil conservation
	Livestock mix-farming systems Few agropastoralist, concentrated in the north	Goats Some cattle Chickens	No integration of livestock with the farming system Uncontrolled and free grazing in dry season	Small livestock such as ducks, rabbits and chickens	
Agro ecological zones	Farming system composition	Current systems (baseline)		Improved systems (under EbA) ⁴⁰⁰	
		Crops	Farming practices and technologies	Crops	Farming practices and technologies

<p>Lower Shire Valley</p> <p>Lakeshore, Middle and Upper Shire</p> <p>Rainfall: 400-800mm</p> <p>High temperature</p> <p>Districts</p> <p>Neno</p> <p>Thyolo</p> <p>Zomba</p> <p>Livelihood zones</p> <p>Lower Shire</p> <p>Middle Shire</p> <p>Rift Valley Escarpment</p>	Home garden	Home gardens are not always present; when they are, they include cassava, sweet potatoes, tomatoes, and peppers.	<p>Use of hand or hoe</p> <p>Plowing with oxen or with hoe</p> <p>2 weeks of land preparation for 1 ha</p>	<p>Tomatoes, onions, sweet potatoes, local native vegetables peppers, locally adapted drought tolerant trees, such as moringa and neem</p> <p>Other such as Faidherbia albida, woodfuel trees, neem and moringa.</p>	<p>High density and high intercropping in home gardens, use of mulching. Watering from home cooking water.</p> <p>Home-garden fencing</p> <p>Agroforestry in home gardens and/or in crop lands</p>
	Crop land	<p>Maize monocropping</p> <p>Or maize intercropping with leguminous (groundnuts or soy, or beans)</p>	<p>No soil cover</p> <p>Low diversity of crops and foods produced</p> <p>Rainfed mostly, only watering of home gardens</p> <p>Use of synthetic fertilizer only when obtained through the subsidize program. If not, no use at all of fertilizers</p>	<p>Maize intercrop with leguminous drought resistant local beans, such as Bambara nut</p> <p>Re-introduction of lost and drought resistant cereals such as sorghum and millets</p> <p>Agroforestry models</p> <p>Maize intercropped with leguminous, plus the use of local or exotic non-invasive leguminous plants, combined with drought resistant trees such as Khaya nyasica.</p>	<p>Intercropping</p> <p>Reduced tilling or no-tilling and/or use of mulching</p> <p>Use of hoes, shovels and wheelbarrows.</p> <p>Construction of rainwater catchments</p> <p>Integrated mix-farming systems, use of manure for composting.</p>
	Livestock	Goats	No integration of livestock with the farming system	Small livestock such as ducks, rabbits and chickens	Introduction and use of native, adapted and drought resistant crop varieties (sorghum, millets, pigeon peas, cowpea, Barnaba nuts)
		Chickens	Uncontrolled and free grazing in dry season		Community control of livestock grazing and cropland destruction

Box 15 – Cases from the field. EbA transition through agroecology/ permaculture



Farmer B is a lead farmer. He is in an advanced transition stage, having a very integrated farming system. He composts manure from rabbits, chicken and ducks mixed with hay from their bed. Farmer B feeds his animals with leftovers from the household and from the home garden, plus some grain from his harvests. The composted manure is put in heaps and covered, resting for 21 days. For 0.25 ha, Farmer B uses 4 wheelbarrows of composted manure (depending on what is being produced). In the wetland, during the summer, Farmer B produces rice and sugar cane. In upper land, he cultivates maize with different beans, and has bananas intercropped. In winter, he plants Irish potatoes, sweet potatoes and tomatoes, and intercropped bananas with sweet potatoes and soybeans. Mr Inosi wants to do more agroforestry, but he has not found seeds/seedlings yet. He uses only local maize, as he prefers it to hybrids. Maize yield for 1 acre is 25 bags, and 10-15 bags of soybean. Labour for land preparation is 7 days for 0.4 ha, against 2 days with CA- that he has tested. He has started a home garden of around 100m² and planted guava, different vegetables and legumes, passiflora and also has a mango tree. He uses the garden mainly for home-consumption and sells the surplus. He has a well in the home garden and has constructed a pond for harvesting rainwater he uses for the garden, more particularly during the dry season (to irrigate the tomatoes twice a day).

Source: Field mission (October 2022)

209. **Sub-activity 2.1.1.3 MoA support to FFS roll out (financed by MoA, executed by MoA).** The Ministry of Agriculture will co-finance (in-kind) and support the rolling out of the FFS by availing 153 decentralized extension staffs' (AEDOs and AEDCs from the respective EPAs and sections time to technically support FFS and monitor their implementation. The decentralized staff will also support M&E data collection from NGOs and CBFs. FAO M&E assistants will also support this work and give technical support when needed. The MoA will co-finance (in kind) the training venues for the MTC and ToF courses, which include study plots as well as training centres.

210. **Activity 2.1.2 Knowledge and innovation (financed by GCF, executed by FAO).** EbA transition and practices adoption is knowledge intensive. Part of its adoption success and outreach relies on enhanced access to technical knowledge as well as climate information complementing the FFS trainings. In line with this, EbAM will promote exchanges, visits and trainings that support different actors to have a first-hand experience and awareness on proposed innovations (many being found at niche levels in Malawi) to ensure their promotion at scale in the targeted sub-catchments and micro-catchments⁴⁰¹. This will on the one hand enhance the technical knowledge promoted through the FFS (Activity 2.1.1), and on the other sensitize policy makers, contributing to Component 3. In addition, EbAM will leverage past projects' experience⁴⁰² by building on capacity developed and weather infrastructure established, as well as phones applications developed by the Department of agriculture extension services (DAES). This activity will be executed by FAO, more particularly the M&E and GIS expert and assistants, Communication and Knowledge Management Specialist, who will be actively involved. The Agroecology and EbA specialists and well as the Natural Resource Management specialists will be also involved in the technical support, identification of knowledge products and technical preparation and review of the different products.

211. The expected Output is: 5,000 people participating to visits, exchanges and targeted trainings and 196,000 people access to climate and technical information.

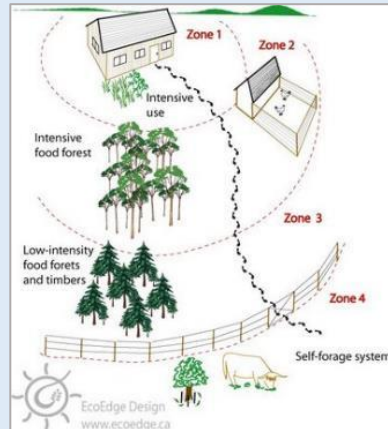
212. *Sub-activity 2.1.2.1 Knowledge generation and sharing.* This sub-activity will finance the promotion of EbA-related knowledge, which will come in complementarity with FFS. As a starting point, a knowledge management strategy will be developed aiming at connecting and motivating different project stakeholders to generate, use and share good practices, as well as help improve adoption rate and outreach of the EbA approach. The strategy will be developed during Y1, by the communication and knowledge management specialist from the CPIU that will be supporting the process of knowledge generation. The expert will work closely with the Agroecology-Hub network. As a result, the agroecology network, together with the project beneficiaries and implementing agents will be better connected, facilitating information and knowledge exchange. When specific and relevant knowledge products will be identified by different project stakeholders, the national consultant will work with FAO for sharing to larger audience, such as policy makers.

213. *Sub-activity 2.1.2.2 Visits and exchanges.* EbAM will promote visits and trainings on EbA approaches and practices for different types of stakeholders, with a twofold purpose: providing real success examples instead of demonstration fields, and at the same time offering some extra key technical training. The activity will target MoA's frontline extension staff, NGOs present in the area and working with the project, and facilitators and farmers. The PIU's Agroecology and EbA Experts will coordinate and work with NGOs and the MoA staff in identifying exchanges, visits and trainings as well as best candidates for attending the different type of exchanges. This sub-activity will be delivered in collaboration and consultation with the AE Knowledge Hub. Visits and trainings will include:

- a. *Exchanges and visits between FFS (facilitators and farmers) and lead farmers' innovators.* This will enhance adoption and adaptation from real success cases, and facilitate the identification of common solutions to common problems.
- b. *Visits and trainings to AE Knowledge Hub network institutes for Farmers and frontline extension staff.* 5 days training to complement the various levels of FFS courses (MT and TOF) and provide practical training on permaculture and agroecology. This training will focus on EbA practices, particularly on understanding other possibilities of landscape design as well as native plants, and analysing how EbA can also be part of the household system. These visits will complement perfectly the FFS training as it works as if it were a demonstration plot with real success stories that shows the transition of the system after some years.
- c. *One-day visit for central MoA staff and some decentralized staff to institutes that are part of the Agroecology Hub network⁴⁰³.* These one-day visits will seek to help component 3 on the policy development activities. Policy makers need to see results and actual impacts in order to be strongly convinced on the relevance of EbA practices and approaches.
- d. *500 targeted youth from project areas to have a full 3 weeks training on permaculture and agroecology.* On average 20 youth per sub-catchment will be identified and directly targeted. Youth representatives, young leaders and innovators, women and men will be selected. This special training will target youth who are interested in agriculture and dynamic members of their community, proposing them a full immersion course of possibilities through real cases that have already transitioned to permaculture and agroecology, and help them become referents and lead farmers, that could then potentially be identified as CBF for EbAM and other projects.

Box 16 – Permaculture in Malawi (from Kusamala.org)

In typical permaculture practice, intensive vegetable cultivation (zone 1) is planned near the house along with other resources that need attention and are used daily. The vast majority of Malawians cultivate staple crops, which fall into zone 3. By incorporating agroecology techniques, such as crop rotation, interplanting, green manures and water management, farmers can produce staple crops while protecting the soil resource and reducing their reliance on expensive inputs. By increasing soil health and improving water management, these practices can also safeguard from extreme weather events and periods of drought.



Food forests (zone 2) incorporate more trees and perennial species into the system, which tend to be more drought resistant. For this reason, zone 2 can be more applicable near the house where little water is available most of the year and where free-range animals are often a problem. In the food forest, families can compost household and animal wastes to improve soil fertility and plant growth. Once established, this area can produce food year round using very little water.



Figure 47 - Photos of trainings in the Permaculture Paradise Institute

Box 17 – Cases from the field. EbA transition through agroecology/ permaculture

Farmer C started permaculture one year and a half ago. Before permaculture, he had no land on which to produce, was doing only some scattered employments and had difficulties to feed his family. He now uses the backyard of the house as a home garden of around 150m², using intercropping and rotation and all year different fruits and vegetables: tomatoes, onions, sweet potatoes, soy, local native vegetables, guava, peppers, planted an avocado tree and a passiflora, beans, etc. Farmer C bought a pig with the first earnings, as well as sugar cane and banana seeds. He now has surplus of every product that he sells in bulk to an off-taker from the area, who buys most of the local production. This dry season, he produced 100 kg of tomatoes and sold 90 kg. He waters twice a day, using a well in the home garden he built. one line long (approximately 10 meters) of crops, 1 wheelbarrow of composted manure (every 3 weeks depending on how crops are looking). He now has a pig, 20 chickens, 25 rabbits, and 10 ducks.



Source: Field mission (October 2022)

214. *Sub-activity 2.1.2.3 Digital extension and climate information.* The project will leverage past interventions and enhance the quality of information shared on existing digital platforms. For example, EbAM will build on the GCF-funded “Scaling Up the Use of Modernized Climate Information and Early Warning Systems in Malawi” (GCF FP002) (closing in 2023), as well scaling-up FFS related activities piloted under FAO-managed Kulima. GCF FP002 has successfully installed more than 30 weather stations (for e.g. in Mangochi), and improved capacities of DCCMS staff⁴⁰⁴. EbAM will leverage these results by using the weather station structures and capacities of DCCMS by partnering with the institution. The DCCMS will be responsible for processing and preparing weather data information and better develop climate adaptation strategies for it then to be shared through SMS and community radios. The decentralized government staff, the CBFs and other farmers who own cell-phones in the targeted areas will receive weather information through SMS. Community radios will be used for forecasting key early weather warning information.



215. Regarding EbA technical knowledge dissemination, EbAM will use the DAES and FFS network for better outreach. AEDOs will get basic training of digital and communication with CBFs, while receiving tablets and or phones. The trainings (on the use of tablets and phones) will be done together with the M&E data collection training delivered by the PIU’s staff (M&E/GIS Officer and Assistants). Digital tools will be used to increase knowledge sharing, and to monitor and report on activities. AEDCs and AEDOs will be in communication with FAO, the MoA and the Agroecology Hub who will prepare the technical messages to deliver. Delivery will be done through a service provider⁴⁰⁵. The Natural Resource Management specialists and the Agroecology and EbA Specialists will review and provide technical support on the type and quality of the messages. 675 CBFs will also receive phones for these two objectives and will be trained by the extension staff. 200 tablets will also be provided for specific monitoring.

216. Community Radio programs will share technical recommendations and information, and invite farmers to have technical discussion for questions and answers⁴⁰⁶. Once the project is more advanced and innovations and good cases have been identified, special radio programs inviting farmers that have

successfully adopted EbA practices will be organized to raise awareness. Community radio outreach will be enhanced through the implementation of the Dimitra clubs (under Component 1).

217. EbAM will also take lessons and leverage experiences from the KULIMA project and – replicate initiatives wherever possible, considering the areas that are covered with 3G at least. FAO has worked with MoA's DAES digital focal points and already selected two existing digital platforms that EbAM will use:

Table 23 - Digital applications developed by DAES

Digital platform 1 (DAES_V2) – Advanced stage For technical advisory services https://drive.google.com/file/d/1OPWuBanLL_Cw79qG_8KMElaF7NpFWHpF/view?usp=sharing	Digital platform 2 (agriv1) For technical advisory services. It includes more information related to sustainable land management practices and some EbA practices such as compost preparation https://play.google.com/store/apps/details?id=com.daesTranslated.app
	

218. Both apps focus on dissemination of advisory messages at national scale, mainly on crop protection, livestock production, fisheries production and villages' savings and loans. The applications are in two languages (English and Chichewa) and target individual farmers as well as famers' organizations and FFS groups. They have a module that provides extension workers contacts, which has been beneficial in enhancing support to farmers. EbAM will also support the inclusion of MT and CBFs' contacts in the database of the App for bigger outreach.

219. **Activity 2.1.3 Agrobiodiversity Promotion.** Seeds diversity is key to EbA and agrobiodiversity, and crucial to the sustainability and adaptation of agriculture in the context of climate change. Native and well-adapted varieties are disappearing due various human-driven pressures, putting at stake agrobiodiversity and ecosystem functions. Seed and tree seedlings availability and diversity are limited inputs. Farmers have a key role in agrobiodiversity as they co-create with nature and develop locally adapted seeds. Still, farm-saved seeds and informal seed exchanges are common practices among small-scale farmers in Malawi. The objective of this activity is to ensure sustainable availability of diverse and adapted genetic resources for farm and communal lands (Component 1) in order to enhance EbA and ecosystem services through agrobiodiversity. The expected Output is: 30 nurseries, 60 multipliers groups and 30 community seed banks established.

Box 18 – What is agrobiodiversity?

The Convention on Biological Diversity (CBD) defines agrobiodiversity as the biological diversity within agroecosystems, consisting of the variety and variability of plants, animals and microorganisms necessary to sustain agroecosystem functions, structure and processes. Four main dimensions are constituting agrobiodiversity, including: i) genetic resources for food and agriculture (plant, animals, microbes and fungi); ii) components of biodiversity that support ecosystem services (organisms contributing to recycling of nutrients, pest and disease control, pollination, pollution and sediment regulation, maintenance of the hydrological cycle, erosion control, and climate regulation and carbon sequestration); iii) abiotic factors (local climatic and chemical factors and the physical structure and functioning of ecosystems); and iv) socio-economic and cultural dimensions (<https://www.cbd.int/agro/whatis.shtml>). Agrobiodiversity is necessary to sustain agroecosystem functions, structure and processes such as pollination, natural pest control, water purification, and more. Ecosystems provide key functions, goods and services, and they depend on the variability of seed diversity on farms and surrounding landscapes. This loss of diversity, including genetic diversity, poses a serious risk to global food security by undermining the resilience of many agricultural systems to threats such as pests, pathogens and climate change. Moreover, the inability of many of the so-called 'improved' varieties to adapt to climate variations, put farmers at high income and food insecurity.

Source: Seed for Diversity and Inclusion. Agroecology and Endogenous Development. Edited by Yoshiaki Nishikawa and Michel Pimbert, 2022.

220. *Sub-activity 2.1.3.1 Availability of adapted genetic material (financed by GCF, executed by FAO).* In partnership with institutes specialized in genetic resources (the National Gene Bank and other international institutes such as, for example, ICRAF and ICRISAT) having the capacity to provide base seeds, EbAM will ensure multiplication of landraces, drought resistant crops, native food crops, including lost crops, native and exotic trees multiplication and dissemination for later multiplication. FAO will be executing this activity through LoAs with these institutes, and under the leadership of the Natural resource specialists and the Agroecology and EbA specialists from the CPIU and RPIUs. These project staff will also guide the selection and validation of the genetic material to multiply. The initial material is necessary, for it to be reproduced at scale by seed multipliers, nurseries and stored by community seed banks. The following Table 24 lists the species and varieties that are eligible⁴⁰⁷ for multiplication and dissemination by the project.

Table 24 - List of the species and varieties that are eligible for multiplication and dissemination by the project, by partner

Gene Bank species and varieties list		
Native and locally adapted vegetables <ul style="list-style-type: none"> ○ Cat whiskers, ○ Hibiscus acetosella ○ Cucurbita maxima ○ Ceratotheca sesamoides ○ Cleome gynandra ○ Moringa olifera ○ Vigna unguiculata ○ Abelmoschus esculentus (L.) ○ Solanum sp. ○ Night shade (the non-invasive ones) ○ Roselle ○ Jewsmarrow ○ Ethiopian Mustard 	Legumes <ul style="list-style-type: none"> ○ Bambara nuts ○ Cowpea ○ Green and Black grams ○ Local bean varieties 	Cereals <ul style="list-style-type: none"> ○ Millets (pearl) ○ Sorghum versicolor & wild relatives ○ Local maize
Species/ varieties with the need of base seed production		
<ul style="list-style-type: none"> ○ Sweet potato ○ Masavuba ○ Pumpkin ○ Mucuna ○ Dolicos bean ○ Lableb ○ Vetvet bean 		
Tree seeds/seedlings		
<ul style="list-style-type: none"> ○ Masuku - Fruit harvested from the wild ○ M'bawa (Khaya nyasica)- fuel, fiber, high quality timber ○ Msekese- leguminouse, fruit, fuel, tannin, medicine, forage. ○ Moringa- food, oil, medicine, forage, fuel ○ Msambafumu- fuel, hardwood ○ Mkunhku- harwood, timber, medicine ○ Mthethe- excellent fuelwood, gum, timber, medicine ○ Msangu- forage, fuel ○ Mfula, Marula- food, oil, skin care, forage ○ Manyika- food, oil, skincare, etc ○ Sausage Tree – medicinal ○ Kachikoti - medicinal (malaria) ○ Mpinfipinfi - medicinal (abdominal pain) ○ Thambozi - medicinal (STI) ○ Palibekanthu - medicinal (abdominal pain) ○ Nthadza - medicinal (cleansing abdomen) ○ Mgoza - riverbank restoration (intercropping with other trees) ○ Mvuvu - riverbank restoration (intercropping with other trees) ○ Mtamgatanga - riverbank restoration (intercropping with other trees) ○ Tanga Tanga (Albizia) – restoration ○ Faidherbia albida- agroforestry, leguminous, forage and fuel. 		Exotic: <ul style="list-style-type: none"> ○ Tephrosia – agroforestry ○ Guava – homegardens ○ Mango tree (local variety) – home gardens
Drought resistant varieties- OPV (for. e.g ICRISAT)		
<ul style="list-style-type: none"> ○ Sorghum ○ Millets ○ Pigeon peas 		

221. Sub Activity 2.1.3.2 Initial seed and seedling availability (financed by FAO, executed by FAO). As soon as year 1, EbAM will leverage FAO co-financing through the FAO/GEF-7 project (Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme - DSL IP), to ensure the procurement of native seeds and tree seedlings for Mangochi District. This will help leverage some of FAO/GEF-7 efforts in Mangochi and scale them up across a bigger area in the district.

222. *Sub Activity 2.1.3.3 Capacity development and support to seed multipliers (financed by GCF, executed by FAO)*. The RPIU Specialists, with the support of the MoA decentralized officers (AEDOs and AEDCs), will identify existing seed multipliers organized in association, or new-interested producers associations through self-targeting that exist in the targeted areas, that are willing to produce in line with EbA approaches, and to professionalize in seed multiplication. The multipliers will be accompanied and trained by the MoA (by mobilizing the Gene Bank and Crop Development Department) with the possible support of a specialized institute (e.g. ICRISAT) and will adapt official protocols for the improvement of adapted and drought resistant varieties multiplication, storage and selling. The crops supported will be different from those supported by the Agriculture Input Program (AIP) so as not to compete and to propose diverse crops. Supported crops (see Table 24 above) will include locally adapted and native crops, together with the improved well adapted drought resistant varieties from sorghum, pearl millet and pigeon peas. Some community seed bank groups (supported under sub-activity 2.1.3.4) may also want to evolve into a seed multiplication business driven group. These associations will be also linked to activities under sub-components 2.2 and 2.3 and supported in increasing their business capacities and possible financial access. A total of 60 multipliers groups (approximately 2 per sub-catchment, plus 5 possible community seed banks evolving into business) will be supported and trained in multiplication techniques and seed production. These trainings and the technical follow-up will be done through a complete training during years 2, 3 and 4 taking into account the phasing of the project and the agricultural calendar. Producers and seed associations will be supported to adopt best practices for post-harvest, and seed storage. EbAM will follow-up during the following years through visits and provision of technical support during key production and post-production periods.

223. EbAM will support the organization and structuring of seed networks to improve the visibility, sale and availability of seeds in the markets. This will be done through activities under sub-component 2.2. The project will also provide initial support by proposing a starter kit. The kit will include quality seeds, appropriate seed storing bags and on farm storage small containers, organic fertilizer, wheelbarrow, shovel, watering can and water distribution material as needed. The aim is to transform these associations and groups of seed multipliers into profitable enterprises. These associations will also be supported in increasing their business capacities (sub-component 2.2) and in accessing finance (sub-component 2.3). In addition, in link with the food fairs from Sub-Component 2.2, multipliers and community seed nurseries will be showing, selling the seeds crops and vegetables to raise awareness and support the dissemination of neglected varieties and native species for food consumption.

224. *Sub-activity 2.1.3.4 Community/individual nurseries and seed banks support (financed by GCF, executed by FAO)*. EbAM will support the establishment of at least one nursery and community seed bank per sub-catchment, for a total of 30 of each. The creation of tree nurseries and seed banks, as well as their organization, will result from the VLAPs. Selection of participants will include self-targeting, EbAM targeting measures for women and youth and will prioritize existing seed “guardians”⁴⁰⁸. These community nurseries and seed banks will focus on tree seedlings and seeds conservation to maintain local diversity (members of seed banks will also receive information on production and multiplication), particularly to support common land restoration as well as to multiply and preserve native and lost crops. Initially, EbAM will provide technical capacity building and planting material and equipment⁴⁰⁹ for their establishment. EbAM will progressively support these nurseries and seed banks professionalization, so that they can also support implementation of VLAPs under EbAM and future scale-up of activities in terms of land restoration, and for the diversification of farm-level production. Technical support will be provided through MoA agents (decentralized staff with support from the Genebank and Crop Development) and specialized institutions (e.g. ICRAF) with expertise for tree nurseries, as well as from the Department of Agriculture Research

Services (DARS) under MoA for the seed banks. Species and varieties are those listed as eligible previously. This activity will target women mainly as they are the normal seed carers, highly involved in seed storage, selection and multiplication. The community seed bank and multiplication support could draw inspiration from the CMSS model from Uganda (see Box 19).

Box 19 – Community managed seed security model

Example of the community managed seed security model (CMSS) promoted in Uganda. The model consists of consolidating existing good seed security practices scattered among small scale farmers into a comprehensive approach for promoting community seed security. Under this model, farmers are taken through modules where they gain knowledge on seed selection, multiplication and management techniques. The different modules are:

- Issues identification and brainstorming: Small-scale farmers are taken through understanding seed security issues such as seed related challenges, existing seed security interventions and the gaps therein which justified the need for the intervention using the CMSS Model.
- Training: Small-scale farmer group members are trained in seed production and management practices i.e., seed identification and selection, field management of a seed crop, soil fertility management in seed production and pre- and post-harvest seed handling.
- Quality control: Seed security committees are established and tasked with developing quality control guidelines in consultation with farmer group members and other stakeholders, researchers and facilitators. Facilities for ensuring seed quality should be established, (i.e. shelling equipment, materials for drying seed materials, and seed storage).
- Collecting or procurement: The next step is collecting or procurement of foundation seed for multiplication from reliable and trusted sources.
- Seed multiplication: These important aspects of the intervention involved site selection, the establishment of a multiplication garden, and recommendation of best agronomic practices as well as carrying out periodic monitoring and field inspection.
- Seed distribution and marketing: Small-scale farmers can sell the seed to other group members at low prices, give out seeds as loans, or share freely with other small-scale farmers.

Uganda case study. AFSA, 2019. <https://afsafrika.org/wp-content/uploads/2019/11/uganda-english.pdf>

225. **Sub-Component 2.2: Market access and entrepreneurship development.** The output of this sub-component is “*Private sector is incentivized to invest in climate-resilient agriculture; and better farmers’ access to markets*”. Sub-Component 2.2 is a food system transformation intervention that aims to stimulate the adoption of climate resilient, nature-positive production practices leading to diversification of the supply of sustainably-produced local food to the market.

226. A Market Study (annexed to this Feasibility Study) has been developed and provides details on marketing opportunities for a set of selected crops and products. While production diversification will result in a multitude of crops being produced by smallholder farmers in the project areas, the market analysis focused on those (i.e. legumes, oilseeds, perennials/ agroforestry, horticulture, cereals and non-timber forest products – NTFP) which demonstrate marketing potential for 4P commercial linkages or local SME development based on the diversity and sustainability of production, as well as suitability in the context of climate change.

227. From a livelihoods perspective, EbA will allow farmers to acquire dependable agriculture-derived incomes. Sub-Component 2.2 is directly linked with Sub-component 2.1. *Extension support to boost adoption of EbA solutions* that will create the EbA-based production capacity and outputs needed for farmers to engage in commercial activities. It is also directly linked to Sub-component 2.3. *Access to finance for climate resilient investment solutions* which aims to remove barriers that project beneficiaries would face in terms of accessing financial services and thus support the financial needs of viable commercial enterprises. It is also linked with sub-component 1.2 *VLAP implementation*, which will enhance communities’ access to NTFP, through ecosystem restoration investments, more particularly at the level of community forests. Overall, the sub-component will support two main market access and entrepreneurship development pathways: (i) Public-private producer partnerships (4Ps); and (ii) Micro, small and medium enterprise (MSME) development (which can follow a number of organisational options⁴¹⁰), based on direct market sales.

228. The sub-component will result in the establishment of financially sustainable and diverse local EbA-based agri-food business models, such as 4Ps and MSMEs, that drive food-system transformation through the development of an “EbA” brand that creates consumer value through awareness and desirability for sustainably produced and healthy local food, and the “revival” of nutritious traditional diets. The Sub-Component will be implemented via three complementary Activities, namely: (i) Activity 2.2.1 Public-private producer partnerships (4Ps) establishment, (ii) Activity 2.2.2. Micro, Small and Medium Enterprise (MSME) development, (iii) Activity 2.2.3 Market development through “EbA production system” related brand creation.

229. **Adaptation barriers addressed by the sub-component.** The Project will respond to social (market) barriers through the creation of demand drivers through the following types of interventions: (i) create consumer awareness of benefits in terms of food quality, safety and nutrition through branding and communication campaigns and (ii) promote fresh food demand linked to seasonality of production that engages consumer and off-takers behavior change grounded in understanding of EbA production principles and its positive co-benefits for and links to human nutrition and health.

230. As mentioned above, implementation will adopt a food-system approach that engages all parties from producers to consumers in the development of a demand-driven EbA production, and viable market linkages. It will also consider a ‘transition period’ – necessary to establish stable production based on newly-adopted EbA practices. This will lead to a continual development approach to market and entrepreneurial growth that will gain momentum as the EbA production-base stabilises and grows beyond year 2 of project implementation. This implementation approach aims to mitigate any perceived risk of production adjustment capacity and as part of the “graduation process” mitigating any potential negative setbacks linked to timely uptake which may discourage producers or partners from engagement.

231. **Synergies of the sub-component approach with other project interventions.** As highlighted in Section 4 of the present Feasibility Study, there are several different interventions in Malawi that support sustainable smallholder agriculture and the linkage to markets in various forms. For example, the World

Bank financed the Agricultural Commercialization and Resilience Enhancement Project - AGCOM1.0 (under implementation) and AGCOM2.1 (under preparation). The AGCOM 2.0 Project will scale up and upgrade the 4P inclusive value chain development approach called “productive alliances”, successfully implemented under AGCOM (1.0), which supported over 200 productive alliance subprojects and benefited 40,000 small-scale farmers. It has contributed to diversifying the agricultural sector by promoting sales in 20 value chains.

232. The IFAD-funded Transforming Agriculture through Diversification and Entrepreneurship Programme (TRADE, 2020-2025) targets to implement 50 4Ps. TRADE builds - among others - on the IFAD-funded Rural Livelihoods and Economic Enhancement Programme (RLEEP) experience, that also promoted the 4P model, and worked with a range of value chain actors including farmers, the private sector, and the National Smallholder Farmers’ Association of Malawi (NASFAM) and have now moved from producer organisation development support to market-driven value chain development interventions. Malawi’s Green Innovation Centres for the Agriculture and Food Sector, financed by GiZ, also put emphasis on the promotion of MSME development and the supply chain linkages between farmer groups and larger off-takers.

233. The Project will also leverage the EU-funded (EUR 35 million), FAO-implemented “Strengthening agriculture commercialisation and nutrition sensitive programming in Malawi” (under formulation), which will enhance the enabling environment and support access to markets and quality & food safety standards.

234. **Activity 2.2.1 Public-private producer partnerships (4Ps) establishment (financed by GCF; executed by FAO).** The objective of this activity is to facilitate the establishment of a limited number of 4Ps based around a selected set of products (e.g. legumes, oilseeds, perennials/ agroforestry, horticulture, cereals and NTFP, as described in the Market Study), through a transparent engagement process, technical and institutional development support. Box 20 provides a definition of what a 4P entails⁴¹¹.

Box 20 – 4P Definition

A Public-private producer partnership is a structured commercial partnership between a public entity, business agents and small-scale producers, who agree to do a specific, defined, business venture together while jointly assuming risks and responsibilities, and sharing benefits, resources and competencies. This type of partnership incentivises private investment through a public sector involvement to remove perceived risks associated with business collaboration among or with smallholders, their effective association into a business entity/group and ability to manage jointly their responsibility in the business partnership. Thus, in a 4P arrangement the profitability goals of the private enterprise are complemented by the socio-economic goals pursued by the public sector, for which institutional and technical assistance is provided.

235. The activity will enhance access to markets and linkages with the private sector, business development service and entrepreneurial skills development as well as access to information with regards to food quality and safety. 4Ps also offer a de-risking mechanism for financing (under Sub- Component 2.3) via the use of contractual arrangements and supply contracts in the form of guarantees for lending. In contrast to MSME development, 4Ps entails institutional infrastructure and business relationship development that is coordinated, formalised and well understood by a number of parties. Financing arrangements for successfully established 4P arrangements will be provided under the facilities developed in Sub-Component 2.3.

236. **Targeting.** The targeting approach will be demand-driven and based on self-identification among the beneficiaries of sub-component 1.2 (who will have a better access to NTFP) and sub-component 2.1, who will be farmers trained in the application of climate-resilient, nature positive EbA practices and organised in farmers’ groups, such as Farmer Field Schools (FFS). In some cases the crops and products

produced by these groups will be of interest to existing private sector/ commercial off-takers (see example of private sector entities in the Market Study) and lead to the creation of formal 4P arrangements – and will become the target group for Activity 2.2.1 described below. To guarantee gender and youth inclusion, the activity will ensure that capacity building for farmers engaged in 4Ps will target women and youth as a priority, in close coordination with the FFS inclusion approach (See Sub-Component 2.1). In other words, the creation of EbA farmer organisations will be an outcome of Sub-Component 2.1 that will, where market viable, transition into a group that is engaged in a formal 4P business arrangement, that will be guided by criteria described in sub-activity 2.2.1.1.

237. This activity will aim at developing around 3 fully-fledged 4P business plans a year, starting in year 2 – one in each south, centre and north regions of the country. A maximum 12 fully operational, transformative, and financially sustainable 4Ps is envisaged to emerge by project end. Each farmer groups engaged in a 4Ps will include on average 20 core members organised in a single commercial entity. There will be about 10 such groups in each 4P in order to provide commercial volumes. As such, around 200 farmers will be directly engaged in each 4P business partnership. These 4P arrangements will be appropriate for products of interest to off-takers and producer groups that have the capacity to engage in a commercial partnership. The farmer groups will in turn engage a much larger number of farmers in the community in less formal supplier relationships, thus extending the benefits. It is expected that each farmer group will source from another 80 farmers each, thus in total an additional 800 farmers will be supplying each 4P business with EbA production. In total, the number of beneficiaries for each 4P is expected to be around 1,000 farmers. Reaching, a total of 12,000 farmers during the full project implementation period.

238. This activity builds on the lessons from on-going projects that also target 4P development (AGCOM, TRADE – as mentioned above) in order to streamline the 4P approach. Lessons learnt (based on stakeholder engagement during preparation) show that 4P can effectively enhance access to markets for smallholder farmers, but 4P set up (institutional and financial) can be complex in some cases – with implementation challenges if too ambitious, or not well designed and monitored. These lessons are reflected in EbAM, which will focus on fewer (12) but more robust 4Ps that can benefit from comprehensive and continuous support.

239. *Sub-Activity 2.2.1.1 Expression of interest.* The focus of this Sub-Activity is to establish the process of 4P selection and conduct bi-annual Calls for Expression of Interest (Eoi) leading to the selection of potential 4P partners interest in a commercial engagement that is centred around EbA production systems. The call for Eoi will be based on 4P eligibility criteria focused on EbA production systems in the project target areas, the nature of the commodities and products involved will further determine the 4P business models. The 6 key criteria upon which the project will build its support for the establishment of 4Ps will be the following:

- I. EbA production systems in line with sub-component 2.1;
- II. Beneficiaries from sub-component 1.2, more particularly those engaged in collecting NTFPs (including honey production);
- III. Food safety and nutrition of food crop produced;
- IV. Inclusivity of supply chain in terms of smallholders, in particular women and youth;
- V. Business concept including benefits sharing;
- VI. Marketing strategy and “branding” that promote EbA production principles (linked to Activity 2.2.3).

240. To implement the sub-activity, the CPIU will engage a *National Expert in 4P Development (a national consultant)* to design, advertise (with support from a *PR/marketing expert* under Activity 2.2.3) and run call for Eoi the process of selection. The expert will work in close collaboration with *the Agribusiness & Finance Specialist* and the *Project Coordinator* of the PIU. The Eoi for 4P development will be ‘off-taker’ driven with larger companies (see examples of private sector enterprises in the Market Study) having

identified EbA crops and products and farmer groups supported under sub-component 1.2 and 2.1, that they would like to engage in expanding their supply chain. The PIU *Agribusiness & Finance Specialist* need to define with the financing partners under Sub-Component 2.3 their information financial and business data requirements with regards to the credit approval process, in order to build this into the 4P design of sub-activity 2.2.1.3 and sub-activity 2.2.2.2.

241. The 4P process design and development will engage the *4P Development Expert* as well as *Institutional and Business Development experts* to guide and facilitate the partnership agreement as described in sub-activities 2.2.1.1 and 2.2.1.3.



Figure 48 – Building blocks of a successful 4P

242. *Sub-Activity 2.2.1.2 Capacity-building for partners in the process of negotiation of 4P agreements and operations.* This sub-activity will focus on enabling partners to fully engage in the negotiation of 4P arrangements, which is a key prerequisite to the sustainability of a potential business relationship. 4Ps are a formal, structured relationship between commercial partners which come with a management cost structure linked to the delivery and oversight of the commitments made and thus requires rigorous institutional development and financial management analysis for all partners to clearly establish the business case of the partnership. There are key capacity and institutional building aspects that will be addressed in this Sub-Activity, such as: capacity development for partners to engage in a 4P; clear agreement on roles, responsibilities, risks and benefits sharing, and the establishment of a system of governance, communication, and conflict mitigation within the 4P entity. The process will require site-visits of the 4P partners (both off-takers and producers) for familiarisation with operations, practices and capacities that creates mutual understanding and visibility.

243. The types of contributions that each party bring to the table along with its motivations for engaging according to its comparative advantage define the basic structure and principles of 4Ps. Table 25 provides an indication of the contributions and motivation that each partner will bring to the relationship.

Table 25 - Examples of partners' economic contributions and business motivation for a 4P engagement⁴¹²

Contributions	Motivation
<i>Producer groups:</i>	
Know-how and experience in EbA farming	Combining climate resilient production systems with an enhanced access to business opportunities and new markets.
Production of EbA commodities demanded by the market	
Capacity to invest a substantial amount of labor and sometimes even capital—e.g. for agricultural production, infrastructure maintenance and watershed management	

Public-sector agencies:

Invest in public goods such as basic infrastructure (rural roads, bridges, irrigation, electricity, market facilities, etc.), research and extension

Ensure a supportive policy, regulatory and business environment (e.g. property rights to land and water, rural business licenses, tax breaks and tax incentives, food safety and standards, trade tariffs)

Reduce risk and transaction costs for the other two parties and build trust between them (e.g. by enforcing contacts, ensuring fairness in dealing with conflicts and showing political commitment to inclusive partnerships)

To achieve economic growth and reduce poverty (or meet development goals) in a cost-effective, climate-resilient and sustainable manner by leveraging private-sector knowledge and investment.

Off-taker companies:

Access to markets, inputs, working capital, etc.

To secure crops that are more climate resilient

Management capacity and coordination along the value-chain

To secure reliable sources of raw materials that meet their specifications regarding timeliness of delivery, quality, and volume, and be derived from an EbA production system

Investment in processing, storage, transportation, etc.

Market intelligence, technology, and technical assistance

To open or expand into new markets

May co-invest in community-owned assets such as storage facilities, warehouses and processing units

To accommodate to changes in consumer preferences with regards to variety, quality and safety

To diversify customers or suppliers and profits

Broker/facilitator (project):

Established "honest broker" that understands all parties' needs and concerns, builds trust and brings parties together (including small farmers, public-sector actors and private companies)

To build sustainable 4Ps based on climate resilient production systems, that can evolve into mutually beneficial and inclusive business relationships by creating synergies among all parties, EbAM seeks to reach development outcomes more efficiently

Objectively assesses constraints and opportunities, and assists in establishing and negotiating 4P business models and related contractual arrangements

Supports producer groups in becoming better organized and prepared for engagement in formal market-based transactions

Supports 4P project implementation, monitoring and evaluation (M&E), and brings technical expertise when needed

244. To implement the sub-activity, the PIU will source *Institutional Development Consultants* who will work directly under the guidance and supervision of the *Agribusiness Expert* of the CPIU. The work will be closely coordinated with the FFS and Farmer Business School (FBS) curriculum to strengthen general understanding of the role and advantages of farmer level institutions in market access.

245. The project can also partner in the implementation of this Sub-Activity with the NASFAM and Malawi Federation of Cooperatives as the two main umbrella organisations for the association and cooperative movements respectively, that support the development of a strong producers organisation base, thus improving capacity for EbA-based business development.

246. *Sub-Activity 2.2.1.3 Development of 4P Business plans.* The focus of this Sub-Activity is to help partners develop a business model for the entire 4P as an economic entity, that demonstrates the cost-benefits for each player in the 4P. ⁴¹³ illustrates a typical 4P arrangement, a pre-requisite for its success is

that the smallholders need a high level of organisation to take over the role of aggregator and agent, since farming as a business is difficult for many smallholders. It requires good leadership; correct incentives and the producer organisations need to adhere to good governance principles. To establish these capacities takes a rather lengthy period of time and intensive facilitation, coaching and mentoring by a 4P broker.⁴¹⁴ As part of this process, the support will focus on establishing:

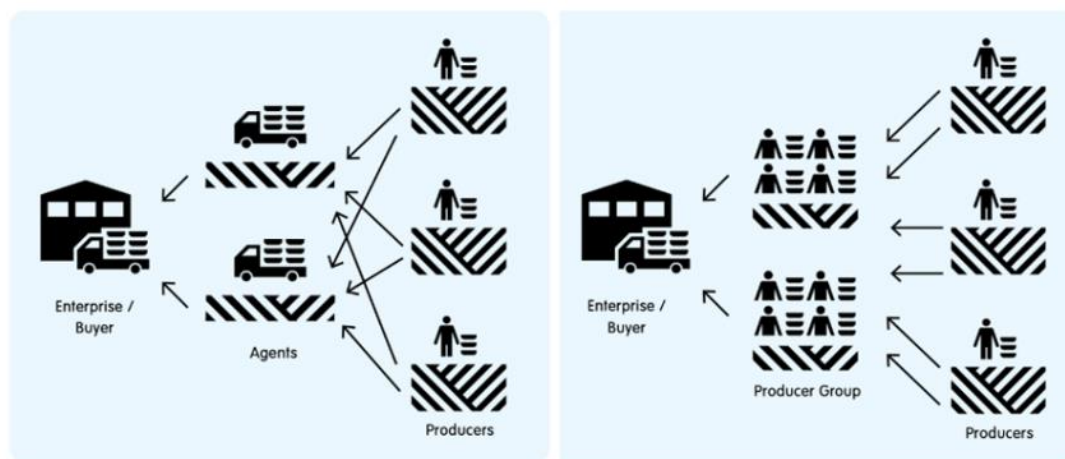


Figure 49 - From agent-led to producer group-led aggregation as opportunity for 4P

247. **Strong business case:** The long-term success of the 4P depends on developing a strong business case for the partnership as a whole and for each of the partners individually. This entails the development of a business and operations model that defines the partnership. The partnership model could be based on many different types of commercial engagement between actors of the food system, such as contract-farming, an out-grower scheme, a joint-venture shareholding scheme, a loose supply-based arrangement or a cooperative-led model. In addition, other partners involved in the value chain can also be included in the partnership operational design (for example input suppliers).

248. Technical assistance support will also focus on strengthening the EbA characteristic of the products and the 'brand' that is to be developed around the concept of local and sustainable production, supported via Sub-Component 2.2.3, aiming to provide the EbAM 4Ps with a 'market differentiation' strategy and a competitive advantage built around the quality and safety of local and traditional food.

249. **4P business model design:** The type of business model depends on the nature of the product. For example, a highly integrated business model, such as contract farming or an out-grower scheme, is more relevant to perishable commodities, such as fresh fruits and vegetables, sold in formal retail markets (e.g. supermarkets), which may require continuous and consistent delivery, traceability and high food safety standards. The same type of integration may apply to cash crops that are sold to a specific buyer who deals exclusively with a determined number of producers or producer organisations (as is the case with coffee, moringa and macadamia in Malawi). Such integrated models are more binding for the partners, who become mutually dependent: farmers have only one buyer for their produce, while the company relies on them to provide the raw material needed to make its processing business profitable.⁴¹⁵

250. While the business model for the 4P will not change in function of gender or youth, the support needed for its design and operationalisation must take into account specific technical assistance needs to ensure inclusive opportunities and the engagement of women and youth in decision-making and business management process.

251. In addition to the business plan development, a specific 'supply contract' will need to be elaborated between the partners that underpin the commercial relationship at the centre of the 4P.

252. Importantly, where relevant, the business plan and supply contract parameters and content must be agreed with the potential financing partners under Sub-Component 2.3, to ensure that all requirements

with regards to information and credentials for the loan application/assessment are met by the business plan portfolio prepared for the 4P.

253. To implement the sub-activity, 3 local Business Development Consultants will be contracted by the CPIU to support the business plan elaboration and work in close collaboration with the Institutional Development Consultant as well as the Marketing Service Provider engaged under Activity 2.2.3, coordinated by the Agribusiness & Finance Specialist of the PIU.

254. There are also several business plan development tools that can be deployed for the elaboration of qualitative and quantitative business proposals, such as FAO's RuralInvest tool⁴¹⁶ that can be deployed.

255. *Sub-Activity 2.2.1.4 Support to 4P implementation.* The focus of this Sub-Activity is to ensure that the 4P arrangements put in place can overcome potential initial hurdles related to the novelty of the supply relationship, the required capacity to deliver, communicate and troubleshoot potential concerns, through continuous technical support.

256. EbAM – through the Agribusiness & Finance Specialist of the PIU - will provide continuous 'honest broker' support to all parties in the 4P arrangement through regular physical presence and advice at the point of 'delivery of agreed goods/crops' ensuring that agreed responsibilities and contractual obligations are adhered to and any failures to do so are quickly and adequately addressed to mitigate any potential disruptions to the agreed supply arrangements. Issues of inclusion of gender and youth will also be continuously monitored and supported in this sub-activity.

257. The key skill that this support is aiming to build is the ability for 'self-help' and a 'progressive' attitude towards problem solving, as opposed to reliance on external assistance that results in lack of sustainability and potential failure.

258. The sub-activity will be delivered by the national business development consultants who support the business plan development for each 4P, under the close oversight of the Agribusiness & Finance Specialist in the PIU. This would provide the trust, insight, and skills necessary to support the operationalisation of the partnership and guide the deployment of potential conflict resolution mechanisms between the parties.

259. **Activity 2.2.2 Micro, Small and Medium Enterprise (MSME) development (financed by GCF, executed by FAO).** This activity will focus on the creation of local MSMEs that offer new and strengthened opportunities to link farmers to markets, or through direct market sales. In contrast to a 4P, it will offer small local entrepreneurs to engage in direct commercialisation outside of any supply contract commitments.

260. At the same time, a higher number of farmers attending FFS under sub-component 2.1 will express an interest and show capacity to establish commercial entities for the production, aggregation or processing of production. It is envisaged that about 270 farmer-led commercial entities (MSMEs) – resulting from FFS demonstrating a commercialisation initiative under sub-component 2.1, but also from communities engaging in the commercialisation of NTFP under sub-component 1.2 - to be established and operate successfully on the national agriculture and food markets across the country, each of those will engage about 20 farmers. This activity, in contrast to 4Ps, will open the opportunity for smaller scale and less-structured, independent local business to develop, that can engage groups that may not otherwise have the capacity to be part of a highly structured and demanding partnership.

261. The objective is to stimulate entrepreneurial development, outside of the more elaborated 4P context. Youth and women led entrepreneurial/commercial initiatives will be particularly encouraged and supported by EbAM by focusing on removing technical, capacity and financial access barriers that impede their involvement in business development. Women will be additionally empowered by the support for traditional food and its value both from economic and socio-cultural perspective, that aims to transform the food-system and consumer culture.

262. The activity will address social barriers by offering economic empowerment to women, youth and other vulnerable groups that are interested and willing to engage in development in local EbA businesses

based on traditional foods and native crops and empowering through an EbA market brand creation and commercial opportunities based on their own improved production resilience and capacity. The scale-up and replicability of local business development will be based on the sustained EbA production capacity and results (Sub-Component 2.1), enhanced productivity of ecosystems for NTFP related businesses (Sub-Component 1.2), as well as the increase of consumer demand for EbA derived foods. It will be further supported by financing instruments promoted under Sub-Component 2.3.

263. Sub-Activity 2.2.2.1: Identification of common economic/commercial interests of farmers and establishment of MSMEs – institutional development. Based on the work done under Sub-Component 2.1 and the FFS and FBS, this Sub-Activity will focus on the identification of those farmers and farmer groups who demonstrate an interest and aptitude in developing a joint commercial activity.

264. Under this Sub-Activity interested farmer groups will be assisted in the elaboration of their commercial vision and business proposition, as well as the most appropriate form of MSME - commercial entity – Cooperatives, Associations or Commercial Companies (Described in detail in Appendix 2. Market Assessment) under which their operations can develop. As part of the technical support, the groups will be assisted in understanding the ‘pro’s’ and ‘con’s’ of different types of commercial entities under which they can perform their economic activities. They will also receive guidance on the implications with regards to the management structures needed to handle the operations, external commercial relationships, group finances/accounts and decision- making processes.

265. To implement the sub-activity, an Institutional Development Expert (who is also engaged in supporting farmer organisations involved in 4Ps) will support farmer EbA-based commercial organisations development. The work will be coordinated by the Agribusiness & Finance Specialist of the CPIU.

266. *Sub-Activity 2.2.2.2 Development of commercial business plans.* The focus of this activity is to enable the successful business establishment of the newly formed MSMEs (cooperatives, etc. with a commercial end) through an inclusive process of business plan preparation that enables all partners/members to gain a clear vision of the operations. A participatory process of business plan elaboration will help all farmers involved in the enterprise to jointly deliberate on the investment and operational costs and technical needs, as well as the marketing strategy and requirements that would define the returns. A careful projection of the annual cashflows will also allow the farmers to understand the cash inflow and outflow during the year, offering predictability and transparency of the commercial finances, and implications for participating individuals. An example of such methodology is RuralInvest, a participatory business development tool, developed by FAO.

267. As part of these business models, the technical assistance support will also focus on strengthening the EbA characteristic of the products and the ‘project brand’ that is to be developed around the concept of local and sustainable production. Aiming to provide the EbAM MSMEs with a ‘market differentiation’ strategy that can also turn into a competitive advantage build around the quality and safety of local and traditional food, supported via Activity 2.2.3.

268. National Business Development Consultants will be contracted to support the business plan elaboration. This work will be done in close collaboration with the Institutional Development consultant supporting the 4P development and coordinated by the Agribusiness & Finance Specialists of the CPIU, as well as the Marketing Service Provider engaged under Activity 2.2.3 on the development of an EbA-related ‘brand’ for local foods.

269. Potential local partners could be considered, such as *Thanthwe Farms*⁴¹⁷ – local farm also specialised in business development incubators and working with youth and women; as well as *SEED*⁴¹⁸ - that can engage through their Enterprise Support programs that directly assist individual enterprises at multiple levels of business development – from the early stages of inspiration and concept-building to scaling up or the replication of proven, successful eco-inclusive business models.

270. *Sub-Activity 2.2.2.3 Support to the establishment and consolidation of business operations.* This Sub-Activity will operate in a similar format as Sub-Activity 2.2.1.4 and will focus on supporting the

consolidation of the MSME operations and business proposition. The interventions will focus on continuous and regular support to MSMEs to build their capacity to overcome potential 'initial hurdles' related to the operations, management, and external relationship management. The key skill that this support is aiming to build is the ability for 'self-help' and a 'progressive' attitude towards problem solving, as opposed to reliance on external assistance that results in lack of sustainability and potential failure.

271. The sub-activity will be delivered by the local service provider/business development consultants who also support the 4P relationships. In this case the support will also include inputs from other local partners involved in the business plan preparation. The Marketing Service Provider engaged under Activity 2.2.3 on the development of a EbA-related 'brand' for local foods will also regularly support the establishment of marketing activities where appropriate and relevant.

Table 26 - Number of beneficiaries by type of commercial entity created

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
4P	0	2	3	3	3	1	12
Beneficiaries	0	2,000	3,000	3,000	3,000	1,000	12,000 50% women and youth
MSMEs	0	0	70	70	70	60	270
Beneficiaries	0	0	1,400	1,400	1,400	1,200	5,400 50%women and youth

272. **Activity 2.2.3 Market development through “EbA production system” brand creation (financed by GCF; executed by FAO).** The activity aims to help generate market demand for the products (e.g. legumes, oilseeds, perennials/ agroforestry, horticulture, cereals and NTFP) emanating from the project areas and produced under agro-ecology, permaculture and/or climate resilient agriculture as promoted in sub-components 1.2 and 2.1, with a two-fold scope: (i) to raise the awareness of the consumer on the link between food, tradition and sustainability; and (ii) to offer EbAM producers a market differentiation tool linked to the production principles they have embraced. As women are culturally associated with the preparation of traditional foods, this intervention would also build new opportunities for value addition businesses, such as food processing and catering developed around the concepts of EbA and local resilient and nutritious diets.

273. The activity will address market barriers for EbA products by stimulating market demand and facilitating market access for EbA produce, through active improvement of consumer awareness of the links between climate change, production systems, nutrition, and human food security and safety. This intervention sets the project apart from a more traditional production-focused intervention that directly tackles the need to equally address the demand side.

274. Branding offers an innovative way to engage the demand side in recognising the multiple value (environmental, nutritional and social) represented by the shift in production systems promoted by EbAM.

Product branding is when marketers introduce a product to the public with its own unique identity. This can be with the product name, logo, design—any aspect of the product that differentiates itself from all else.

Vs.

Product certification or product qualification is the process of certifying that a certain product has passed performance tests and quality assurance tests, and meets qualification criteria stipulated in contracts, regulations, or specifications

275. The “brand” is a tool for EbAM to address demand/consumer limitations with regards to awareness of climate and production thematic underpinning the need for agri-food transformation that the project aims to deliver and to provide a sustainable “market pull” for producers adopting. It will be associated with the target group that has shifted production methods in accordance with Component 1 principles and via assistance from Component 2.1 activities.

276. It builds/capitalizes on the successful experience of the “Buy Malawi Brand” spearheaded by the Ministry of Trade and also referenced in the Market Assessment (Appendix 2). This national branding stimulated demand for national products and innovates through product differentiation. It also supports emerging national effort to promote chemical free and organic farming (for which there is no national certification yet and which is complex) and capitalises on the increasing focus on nutrition and “healthy diets” among especially urban consumers.



Figure 50 - Buy Malawi Brand logo

277. The Brand message (which will be designed by the project team and a marketing company) will raise general awareness of the value of EbA produce at the market space, allowing for consumer choices to result in increasing market share of EbA-derived production. As consumer markets in Malawi are cash-limited, a price premium will not be a realistic outcome and it hence cannot be expected that the 4Ps or MSMEs would receive a price mark-up. However, a shift of preferences towards their products, allowing 4Ps or MSMEs to gain market share is expected.

278. The Brand will also provide an opportunity to link the climate resilience and “traditional diets” to the efforts under sub-component 2.1, promote certain crops and create demand for seeds and seed production, by increased interest in the consumption of these foods, by conducting regional fairs envisaged as part of the awareness-raising (embodied in the brand) under Activity 2.2.3.

279. The scaling-up of this brand will depend on the successful establishment of the EbA production systems, the capacity to satisfy consumer demand in terms of volumes and quality. The “branding” scale up will also depend on the impact of the consumer awareness campaign under sub-activity 2.2.3.2 to transform food systems and put the emphasis on resilience and sustainability, alongside ecosystem and human health. While under this project the “brand” will be attributed only to EbAM target beneficiaries such as 4Ps and MSMEs, after its proof of concept and market value, the Ministry of Trade, in coordination with production extension and other partners of the Ministry of Agriculture can extend the branding to a broader group of agribusinesses that demonstrate compliance with the brand identity and message.

280. *Sub-Activity 2.2.3.1 Collaboration with government institutions on the creation of a brand to drive demand for EbA produce.* The focus of this Sub-Activity will be the establishment of a product brand under the Ministry of Trade and in coordination with the *Let’s Buy Malawi* brand (see above, and Appendix 2 – Market Assessment), adding to the label of national origin a further differentiation based on environmental resilience and sustainability of production that can be attributed to the EbAM production and target group and serve as a pilot for such type of “climate resilient and eco-system friendly” branding in Malawi.

281. This activity will focus on the administrative and regulatory process necessary for the creation of a commercial food brand and the institutional positioning and ownership. The Brand labelling will be accredited to companies that produce and trade products and associated with EbA practices.

282. To implement the sub-activity, the CPIU will hire an international Brand Creation Expert and a local Marketing Consultant to work with the relevant government bodies, such as the Ministry of Trade and the Malawi Bureau of Standards. What this sub-activity aims to achieve is the institutional and conceptual alignment between the Ministry of Trade branding activities and EbAM, ensuring ownership and long-term support for the continuity of this educational branding effort beyond the project lifespan.

283. *Sub-Activity 2.2.3.2 Marketing campaign on the brand and its message.* The focus of this Sub-Activity will be the creation of an EbA brand name and message that clearly states the value-proposition of the brand that links directly with the production criteria established in sub-component 2.1. This will be part of a broader communication campaign on public awareness of the relationship between food quality, the production ecosystem, human health and climate change.

284. It will aim to create the wider social awareness and consciousness around the interconnectivity between human and environmental health, to further incentivise adoption of environmental and social brands. It is also a part of project's systems-based approach that aims to address the range and complexities in a holistic and sustainable manner.

285. The brand's message needs to be well defined and transmit a clear stance of what values it stands for (promotion of sustainable and traditional food production) and what value it adds for the consumer (directly through health benefits and indirectly by restoring the natural environment the consumer lives in and depends on). The activities will invest in the visibility and promotion of EbAM produce, thus providing an additional incentive for private sector off-taker buy-in.

286. An international Brand Creation Expert and a local Marketing Consultant will be recruited by the CPIU and support the present Sub-Activity. He/she will work with a local Marketing/ Public Relations Firm what would be contracted to provide marketing services/campaign. This will be coordinated with the *Let's Buy Malawi* brand to create synergies and capitalise on existing market recognition.

287. *Sub-Activity 2.2.3.3 Linking EbA produce to traditional cuisine via local fairs.* This will focus on the promotion of traditional foods and products, including NTFPs, the ingredients for which will have been produced under Sub-component 2.1 or gathered under Sub-component 1.2.

288. The objective of this Sub-Activity is multi-fold: (i) to stimulate demand for traditional ingredients and NTFPs and thus create demand for production under EbA; (ii) to provide and promote the social/cultural – traditional food component to the EbAM brand; (iii) to link different players of the food-system from restaurants and retail to producers and consumers and in doing so strengthen knowledge-sharing and capacity-building related to sustainable food consumption and production, especially in the context of traditional cuisine; (iv) to highlight seasonality of production and seasonality of recipes, especially in the context of urban consumer markets.

289. This will be done via regular annual district level business fairs which will bring together the different players – from producers to processors, local chefs and consumers in a display of tradition cuisine and the versatile use of traditional products and NTFPs emerging from the EbAM target producers, 4Ps and MSMEs.

290. The sub-activity will be coordinated and organised by the *local Marketing Consultant* contracted to deliver the activities under Sub-Activity 2.2.3.1 and 2.2.3.2, in close collaboration with the *Agribusiness & Finance Specialist* and the *Project Coordinator* of the PIU, and will be closely coordinated with the implementation and target group of sub-components 1.2 and 2.1.

Box 21 – Pamudzi Bar and Eatery

The unique traditional cuisine that is offered at Pamudzi Bar and Eatery has clearly struck the chord of so many people around the city of Blantyre. From noon the place is a beehive of activities as cars are continuously coming in and going out. Situated in Mandala, the place oozes a special traditional appeal. From the dressing of the staff to the naming of the eating shelters, everything retains a distinct traditional feel. Food is served at the khonde from the main house, kwa mbuya by a group of female staff who are draped in their traditional chilundu regalia complete with a head cloth (duku). Patrons can either chose to enjoy their meal in mphala, pabwalo and gowelo shelters.

“In a typical village setting we have these three structures present. I pictured a situation where someone upon being served his food, depending on how one is feeling can make a decision to enjoy his food in either of these places,” says owner of the place Loveness Msanide.



291. **Sub-component 2.3. Access to finance for climate resilient investment solutions.** This sub-component aims to remove barriers that project beneficiaries are facing to access finance for sustainably investing in the EbA solutions promoted by the project under components 1 and 2. Expected output is “Financial service providers support investment in climate-resilient agriculture”. Around 98,500 beneficiary households including 50% women and 25% youth will have accessed to adapted financial services by end of the project. The Sub-Component will be implemented via 4 complementary Activities, namely: (i) Activity 2.3.1: Consolidation / expansion of Community Based Financial Organizations, (ii) Activity 2.3.2: Development and delivery of climate adaptation financial services by Formal Financial Institutions (FFIs), (iii) Activity 2.3.3: Linkage of partner FFIs to financial instruments providers, and (iv) Activity 2.3.4: Linkage of agri SMEs to impact investment funds.

292. **Barriers to access finance** on the *demand side* as specified in Part 4.1 will be addressed by sub-component 2.1 (under which farmers will be trained on EbA solutions, financial literacy and business management through the farmers field schools – FFS) and sub-component 2.2 (under which SMEs will be supported to develop business plans and strengthen their business skills by local service providers / business development consultants). The sub-component will address barriers on the *supply side* by providing technical assistance to financial institutions, both formal and informal, to develop and deliver adapted and inclusive services and linking them with financial instruments (concessional credit lines and guarantee schemes). In addition, largest, and most performing and impactful SMEs will be linked to impact investment funds for debt and / or equity financing and additional technical support.

293. **Approaches will be aligned to the specific needs of five categories of beneficiaries**, including women and youth: (i) Farmers and SMEs in the Public-Private Producer Partnerships (4Ps); (ii) Producer Commercial Organizations and their farmers members / shareholders; (iii) Seeds producers business groups; (iv) Subsistence farmers trained in the FFS that will not be involved in any of the two first models⁴¹⁹; and (iv) Beneficiaries under Component 1 that will not be enrolled into the FFS, to access finance to implement activities as specified in the village level action plans (VLAP).



294. The sub-component will be implemented (and co-financed) by the Ministry of Finance and Economic Affairs, through the FARMSE Programme (see Box 22). MoF/FARMSE will work closely with EbAM's CPIU and RPIU (more particularly the Agribusiness and Finance Specialist). For this to happen, MoF/FARMSE will prepare its Annual Work Plan hand-in-hand with the CPIU of EbAM, organise technical meetings on a monthly basis, and plan joint supervisions and site visits, in order to ensure full complementarities between the two projects. MoF/FARMSE will participate in the Steering and Technical Committees of EbAM (PSC and PTC, see Part 6 of the present Feasibility Study).

295. The sub-component will build on experience and approaches of MoF/FARMSE under its sub-component 2, where it supports both (i) informal organizations like Village Savings and Loan Associations (VSLA) under its CBFO support component, for provision of proximity simple financial services, and (ii) FFIs for the development of adapted and inclusive financial services that may cater for the specific financing needs of farmers for EbA investments and of the agri SMEs. VSLA is the model of CBFO supported by MoF/FARMSE, since it is the dominant CBFO model in Malawi.

296. FARMSE's objective to put more focus until end of project life on farmers and SME financing, with a specific focus on climate adaptation financing is well aligned with EbAM's objectives. Partnership between EbAM and MoF/FARMSE is thus seen as mutually beneficial, which is expected to contribute to achievement of the project outcomes. At last, MoF/FARMSE approach of supporting the private financial sector in Malawi for sustainability and scaling up of the project outcomes will allow to shift the pattern of investment in climate change adaptation from grants to a market-based, sustainable and scalable approach.

297. **Synergies of the sub-component with other interventions.** As highlighted in Part 4 of the present Feasibility Study, there are several interventions in Malawi that support financial inclusion and rural finance. These are for instance: (i) Promotion of agricultural finance for agri-based enterprises in Rural areas (“GIZ Agfin” Project), commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ), and implemented by GIZ, which objective is to support FFIs to provide financial services to agricultural and agri-based enterprises in rural areas that are tailored to their business models. (ii) AGCOM, financed by the World Bank, which is providing matching grants and a Partial Credit Guarantee Fund for agri value chain actors, (iii) Adapting to Climate Change Through Integrated Risk Management Strategies and Enhanced Market Opportunities for Resilient Food Security and Livelihoods, project funded by the Adaptation Fund and implemented by the World Food Programme (WFP) which promotes in particular weather index insurance. MoF/FARMSE and EbAM will remain updated with the activities of these projects and others as relevant, and seek to establish synergies and complementarities when relevant and feasible, especially in terms of promotion of innovative financial services.

Box 22 – Financial Access for Rural Markets, Smallholders and Enterprise Programme (FARMSE) under the Ministry of Finance and Economic Affairs

FARMSE development objective is to increase access to a range of sustainable financial services by rural households and micro, small, and medium enterprises (MSMEs). FARMSE is a nation-wide project covering the 28 districts of Malawi. The four components are:

Component 1: Ultra-poor graduation model development and scaling up – Development and delivery of effective graduation programmes in rural areas to reduce extreme poverty levels.

Component 2: Support to Financial Innovation and Outreach, through (i) Support to Community Based Financial Organization (CBFO) and (ii) Innovation and Outreach Facility (IOF) to support Formal Financial Institutions (FFIs) to innovate and increase their rural outreach.

Component 3: Strategic Partnerships, Knowledge Generation, and Policy aiming at increasing the capacity and knowledge base of rural financial sector support organizations.

Component 4: Programme management involving the Programme Steering Committee (PSC), the Programme Technical Committee (PTC) and the Programme Management Unit (PMU).

MoF/FARMSE has reached 845,000 beneficiary households, including 23,000 in the Ultra Poor Graduation component, 547,000 supported to access informal financial and non-financial services from 26,239 CBFOs, and 381,000 having accessed formal financial services from commercial banks, SACCOs and MFIs. It is expected to reach a total of 1.5 million beneficiaries by June 2028. Key focus for the remaining project life will be to scale up current activities while at the same time ensuring sustainability of outcomes. Specific focus will be on promoting adapted financial services for farmers and agri SMEs through agricultural value chain financing and promotion of digital innovations, including climate adaptation financing.

Source: FARMSE Programme Design Report

Box 23 – VSLA Model in Malawi



Village Savings and Loan Associations (VSLAs) are ubiquitous in rural areas in Malawi, each comprising around 20 members in average, with around 50% women. A VSLA is a self-selected group of people, who pool their money into a fund, from which members can borrow. The money is paid back with interest, causing the fund to grow. These savings and borrowing activities take place during a cycle of pre-determined length (typically 12 months), at the end of which the funds are distributed to members, in proportion to their total savings (also called shares). Members are free to use the distributed lump sum as they wish.

Loans are mostly used for small businesses and social / consumptions needs (school fees, housing, etc), with very short term (usually one month), small amounts (average of a few dozen thousand Kwacha) and very high interest rate (up to 20% per month). Members also use these loans to purchase agricultural inputs or pay for labor in their farms, with repayment backed by small businesses income. It is also observed that members may use part of the shares and dividends distributed on annual basis to purchase inputs or pay for labor. Most of the VSLAs also manage a social fund that is used to support members to cover emergency and social expenses.

298. **Activity 2.3.1: Consolidation / expansion of Community Based Financial Organizations (financed by MoF/FARMSE; executed by MoF/FARMSE).** This activity builds on and leverages the sub component 2.1 of FARMSE: Community-based financial organization (CBFO) support, VSLA being the mainstream CBFO model in Malawi.

299. MoF/FARMSE will strengthen existing VSLAs or establish new VSLAs in EbAM's areas (districts, sub- catchments and micro-catchments) as defined in Part 1 of the present Feasibility Study), therefore providing access by EbAM beneficiaries to simple adapted financial services. Particular attention will be given to facilitate membership of women and youth in these associations. VSLAs will also be supported to link with FFIs to access additional resources to on-lend to their members, or to guarantee the individual loans directly granted by the FFIs to the VSLA members. This linkage may also allow the VSLA members to open formal savings accounts, which contributes to a higher level of financial inclusion, and opens the door to other services, including loans for financial needs that are not covered by the VSLAs, insurance, mobile banking and digital services. It is projected that 80% of the total number of EbAM beneficiaries⁴²⁰ will be or become a member of a VSLA and will benefit from their services, as specified in the Table 27 below:

Table 27 - Number of beneficiaries benefiting from VSLA services

	Year 1 ⁴²¹	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Farmers enrolled in the FFS	2,475	5,000	7,440	6,685		-	21,600
Beneficiaries in component 1 non enrolled in FFS⁴²²	7,619	48,482	20,778				76,879
Total	10,094	53,482	28,218	6,685	-	-	98,479

300. All categories of individual or household beneficiaries supported by EbAM may be members and use the services of the VSLAs. The subsistence farmers may access the simple financial services from the

VSLAs, like accumulation of funds through shares and small loans, that can be used to invest small amounts in their farms for EbA investments, as well as the social fund that may contribute to some extent to their resilience (see Box 23). They may also open savings accounts in FFIs and access loans for their activities. The farmers involved in the 4Ps or in the commercial producer organizations may, in addition to the VSLA core services, be linked to FFIs through the VSLAs to access adapted finance for their EbA investments. The beneficiaries who will not be enrolled in the FFS will be able to use the VSLA services to contribute to the financing of economic/ livelihoods activities specified in the VLAP⁴²³, such as beekeeping and other livestock activities.

301. As currently executed by MoF/FARMSE, international or local NGOs with experience in promoting CBFOs/VSLAs (MoF/FARMSE “Implementing Partners”), will be contracted by MoF/FARMSE to support VSLAs, with the specific objective of promoting VSLA services to EbAM supported beneficiaries (VLAP communities, farmers and their organisations, MSMEs, 4Ps) and facilitate linkages with FFIs sub-contracted by MoF/FARMSE to develop and deliver financial services tailored to EbAM’s various groups of beneficiaries (see output 2.3.2). Linkages of VSLAs will not be mandatory but encouraged in the call for proposal for the FFIs. Implementing Partners will be selected through a competitive call for proposal process.

302. *Sub-activity 2.3.1.1: Strengthening of existing VSLAs and establishment of new VSLAs in EbAM areas.* This sub-activity will start with a mapping of VSLAs in EbAM areas (climate vulnerable districts, sub-catchments, micro-catchments/ group of villages as described and mapped in component 1) and membership by EbAM beneficiaries. With the assistance of EbAM CPIU (more particularly the Agribusiness and Finance Specialist), the Implementing Partners contracted by MoF/FARMSE will carry out a study to map the VSLAs and analyse how many of the EbAM supported beneficiaries are already members of a VSLA. This will allow the Implementing Partners to specify how many existing VSLAs will need to be strengthened and how many new VSLAs will need to be established (estimated around 5,500 in total). The study will put a particular emphasis on women and youth involvement in the VSLAs. This study will be conducted each year. This activity will be implemented by a consortium of international or local NGOs (that MoF/FARMSE calls “Implementing Partners”).

303. The sub-activity will promote the services of the VSLAs for the non-members. The international or local NGOs contracted by MoF/FARMSE will organize meetings with beneficiaries supported by EbAM who are not already member of a VSLA to promote its services and benefits. Interested beneficiaries residing in the same area will then have the option of joining an existing VSLA or to form a new VSLA together. To facilitate linkages with the FFIs for the delivery of loans to finance EbA investments, it will be encouraged that farmers supported by EbAM will as much as possible be gathered in the same VSLAs. This principle will guide the selection of VSLAs to be supported and may entail that some farmers already member of a VSLA may join another VSLA.

304. Main supports provided by the international or local NGOs to the VSLAs will cover: (i) Group governance and dynamics, (ii) Savings and Loans Group best practices, (iii) Economic activity selection / Business planning and management, (iv) Market linkage with off-takers, suppliers and service providers, (v) Financial literacy, (vi) Linkage with Formal Financial Institutions (FFI) and mobile money banking, (vii) Promotion of gender equality and (viii) Promotion of climate resilient agricultural production. The support will be tailored to the specific needs of VSLAs based on a capacity building needs assessment. With the support of EbAM’s CPIU and RPIU (Agribusiness & Finance Specialist), the international or local NGOs will link with sub-component 2.1 and 2.2 of EbAM to ensure synergies and complementarity of the activities, especially for the market linkage with off-takers, Financial literacy training and FFS.

305. The sub-activity will finance a study on the sustainability of the VSLA model. The exit strategy developed by the current international and local NGOs contracted by MoF/FARMSE builds on: (i) Involvement of community structures (Village Development Committees - VDC and Area Development Committee - ADC⁴²⁴) and district councils; (ii) Linkages with FFI, markets and service providers; and (iii) Community facilitators (volunteers). Experience in other contexts shows however that it might not be

sufficient to ensure sustainability of the VSLAs, which need permanent quality services and supervision. MoF/FARMSE will therefore assist the international and local NGOs to study various sustainability models implemented in neighbouring countries like Kenya (FSA management companies) and Tanzania (VICOBA Federation)⁴²⁵, including exposure visits, and, based on these experiences, develop and implement adapted models for VSLAs in Malawi. This will contribute to the viability of the VSLAs and of their services to their members, including EbAM beneficiaries.

306. MoF/FARMSE has supported the Reserve Bank of Malawi (RBM) to integrate climate adaptation elements in the financial literacy training modules, more particularly for VSLAs. One of the mandates of the RBM (the Central Bank), through its Consumer Protection and Financial Literacy Unit, is indeed to support the development of and to “certify” financial literacy training modules for use and dissemination by various organizations. MoF/FARMSE, has supported the RBM to improve the financial literacy training modules. The improved modules will be disseminated to MoF/FARMSE Implementing Partners (international and local NGOs) for training of the VSLA members.

307. *Sub-activity 2.3.1.2: Technical backstopping and implementation support, Knowledge management and dissemination.* EbAM, through MoF/FARMSE, will provide technical backstopping and implementation support through desk review of reports, regular engagement with Implementing Partners managers and field visits. Support will notably be provided by MoF/FARMSE CBFO specialist, as well as by consultants on need basis.

308. EbAM, through MoF/FARMSE, will produce *knowledge management products* (case studies, videos, etc.) on how socially-inclusive VSLAs contribute to climate adaptation financing. This material will be disseminated through various channels (like MoA, and MoF/FARMSE websites, social networks, TV and radio and national and international conferences). At community level, the project will also rely on the Dimitra Clubs that will have their solar powered radios connected to local community radios. MoF through FARMSE will also organize at least one knowledge dissemination workshop per year, each gathering around 50 people from relevant stakeholders like the Reserve Bank of Malawi, Ministry of Finance and Economic Affairs, Ministry of Agriculture and of NGOs and Projects involved in rural and inclusive finance development, to further share and scale up lessons learnt and good practices.

309. EbAM through MoF/FARMSE, will contribute to the *development of a national digital financial inclusion portal*, where all financial service providers, informal and formal, will be registered, with key information on their outreach, products and services. This information will be easily available to rural finance stakeholders to guide policy development and interventions. The service provider that will be contracted to develop the portal will be requested to include relevant information about climate adaptation financing, including EbA financing.

310. **Activity 2.3.2: Development and delivery of climate adaptation financial services by Formal Financial Institutions (Executed by MoF/FARMSE).** This activity builds on and leverages sub-component 2.2 of MoF/FARMSE: Innovation and Outreach Facility (IOF). MoF/FARMSE will support FFIs (commercial banks, MFIs, SACCOs, insurance companies) to develop adapted financial services for EbA investments by farmers and agri-SMEs linked to women, men and youth farmers, based on the EbA investments selected and promoted by EbAM. The FFI will be contractually committed to target EbAM areas and beneficiaries (FFS members, SMEs, 4P beneficiaries). As already implemented by MoF/FARMSE, the financial support to FFI will not include funds for on-lending. MoF/FARMSE will however be involved in facilitating linkages of FFIs to financial instruments on demand basis (see activity 2.3.3).

311. Interactions with selected FFIs in the different categories (commercial banks, MFIs, SACCOs and Insurance companies – see Annex 7 on Stakeholders Engagement Plan)⁴²⁶ highlighted that all have some experience in agricultural finance, including for farmers and / or agri SMEs – but minimal experience in climate adaptation financing. All have expressed that technical assistance by EbAM in various areas depending on their specific needs (climate finance strategy, product development, risk management, staff training, development / adaptation of digital services and platforms, loan monitoring, development of adapted crop insurance products, etc.), and linkages to financial instruments (concessional credit lines and

guarantee schemes, that would allow them to offer better pricing and conditions to end clients) would incentivize them to develop adapted products to better reach and service EbAM beneficiaries.

312. Based on FFIs experience, it is clear that the most adapted and feasible model to finance farmers is the “Agricultural Value Chain Financing (AVCF)” approach. AVCF model – which will be promoted under this sub-activity - builds on public and private partnerships within the value chains to mitigate risks of production and marketing, and risks linked to business skills gaps. The key de-risking factors are training to farmers on good agricultural practices, farming as a business and financial literacy (sub-component 2.1), and secured linkages to the markets (sub-component 2.2). Another key de-risking factor is the possibility to bundle crop insurance in the loan product. For this activity, MoF/FARMSE will collaborate closely with implementing partners / service providers for sub components 2.1 and 2.2. In addition, most FFIs envisage to develop new digital solutions or to add features to existing solutions to increase cost efficiency and customer friendliness of their services.

313. Table 28 below summarizes for each category of FFI the services that could be offered to EbAM beneficiaries, as well as the preferred delivery channels.

Table 28 - Services by the different categories of formal financial institutions

Category of Formal Financial Institution	Services offered to EbAM beneficiaries
Commercial banks	<p><u>Financial products</u></p> <ul style="list-style-type: none"> • Loans to farmers (women, men and youth) for inputs, labor and equipment, aligned with EbA investments. • Loans to Producers Organizations (POs) for working capital and equipment (processing, transport, etc). • Loans to agri SMEs for working capital and equipment. • Savings services, including through mobile banking and agency banking⁴²⁷. • Crop insurance bundled with the loan product. • Warehouse receipt system financing (WRS)⁴²⁸. • Short and mid-term loans. • Interest rate between 20 and 25% per annum⁴²⁹. Actual rate determined based on risk analysis. <p><u>Delivery channels</u></p> <ul style="list-style-type: none"> • Value-chain financing (VCF) model building on partnerships with public and private sector. • Loans to farmers through POs and VSLAs for last mile distribution. • SME lending for agri SMEs. • Mobile banking and banking agents, digital platforms. Partnerships with Fintechs and Agritechs to develop innovative digital solutions.
MicroFinance Institutions (MFIs)	<p><u>Financial products</u></p> <ul style="list-style-type: none"> • Loans to farmers (women, men and youth) for inputs, labor and equipment, aligned with EbA investments. • Loans to POs for working capital and equipment (processing, transport, etc), for limited amounts. • Loans to agri SMEs for working capital and equipment, for limited amounts (max 10,000 to 15,000 USD). • Savings services for the Deposit taking MFIs, including through mobile banking. • Crop insurance bundled with the loan product. • Mostly short term loans. • Interest rate around 6% per month. Might be reduced to 3-4% if access to concessional credit lines. <p><u>Delivery channels</u></p> <ul style="list-style-type: none"> • Individual loans using the group lending model⁴³⁰. • VCF model building on partnerships with public and private sector.

**Category of Formal
Financial Institution**

Services offered to EbAM beneficiaries

Financial Cooperatives (SACCOs)	<ul style="list-style-type: none"> • Mobile banking. Partnerships with Fintechs and Agritechs to develop innovative digital solutions.
	<p><u>Financial products</u></p> <ul style="list-style-type: none"> • Loans to farmers (women, men and youth) for inputs and labor, and equipment, aligned with activities and investments promoted by EbAM. • Loans to POs for working capital and equipment (processing, transport, etc.), for limited amounts. • Savings services, including through mobile banking. • Crop insurance bundled with the loan product. • Loans to agri SMEs limited amounts. • Mostly short term loans. • Interest rate around 2 – 3% per month. <p><u>Delivery channels</u></p> <ul style="list-style-type: none"> • Individual loans, group based lending, loans through VSLAs. • Integrated cooperative model⁴³¹. • Mobile banking. Partnerships with Fintechs and Agritechs to develop innovative digital solutions.
Insurance companies	<p><u>Products</u></p> <ul style="list-style-type: none"> • General insurance to cover for flood, drought and hailstone. • Area yield index⁴³², weather index insurance⁴³³, Hybrid index insurance⁴³⁴. <p><u>Delivery channels</u></p> <ul style="list-style-type: none"> • Either directly by the insurance company, through brokers or through partnerships with banks (bundling with loan product, which is the easiest way to sell crop insurance). • Through mobile phones for payments of premiums and claims.

314. It is projected that at a total of 12,880 farmers (including 50% women and 25% youth) and 249 SMEs will access finance (loans) from the FFIs supported under Sub-component 2.2 of MoF/FARMSE (see Table 29)⁴³⁵. They may also access insurance products that are likely to be bundled with the loan products, and all would also open savings accounts as a condition to access loans. It is assumed that 70% of the farmers, all SMEs involved in the 4Ps, 70% of the Producers Commercial Organizations, and 80% of the Seeds producers' organizations will access finance.

Table 29 - Number of beneficiaries accessing formal financial services

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Number of farmers							
In 4Ps	-	1,200	1,800	1,800	1,800	1,800	8,400
Members / shareholders of Producers Commercial Organizations	-	-	980	980	980	840	3,780
Total number of farmers	-	1,200	2,780	2,780	2,780	2,640	12,180
Number of SMEs							
In 4Ps	-	2	3	3	3	1	12
Producers Commercial Organizations	-	-	49	49	49	42	189

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Seeds producers' business groups	-	-	8	16	16	8	48
Total number of SMEs	-	2	60	68	68	51	249

315. FARMSE will ensure that targets set in the contract with the FFIs are aligned with the projected numbers of beneficiaries in the Table 29 above. Eligible costs under the contracts will involve financing of studies, consultancies, training, costs of the professional staff of the FFIs, travel equipment and costs, as per the eligibility rules of FARMSE. Financial Institutions that will have been supported by FARMSE to develop and deliver adapted formal financial services for the EbAM beneficiaries will be committed to continue provision of these services in Year 5 and 6, after completion of FARMSE. A clause to this effect will be included in their agreement with MoF / FARMSE, and EbAM CPIU and RPIU will liaise with the FFIs to link them with EbAM eligible beneficiaries and will monitor effective implementation of this clause.

316. Sub-activity 2.3.2.1: Technical support to FFIs to develop and scale up innovative and adapted financial services (financed by GCF, executed by MoF/FARMSE). Competitive and demand led call for proposals will be issued and managed by MoF through FARMSE as per its current practices to select FFIs for development of innovative and adapted services for EbAM target groups. MoF/FARMSE will finance the design and pilot test of new financial services and low-cost delivery mechanisms to enable EbAM target groups to finance their EbA investments. Selection of the FFIs will be based on a number of appraisal criteria: (i) strategy to develop EbA financial services (written commitment by the Board of Directors or senior management of FFI), (ii) experience in agricultural finance, (iii) internal capacity to develop and deliver the services, (iv) commitment to engage with EbAM beneficiaries particularly women and youth individuals and groups, (v) features of the proposed products (interest rate, repayment modalities, collateral requirements, bundling with crop insurance, etc.), (vi) proposed delivery channels (partnerships with other value chain actors, digitization of the products and processes, etc.), (vii) adapted products for the agri SMEs, and (viii) adapted products for women and youths. Selected FFIs will be supported to develop the services and be linked to financial instruments (guarantee, concessional credit lines) (see Activity 2.3.3 below) on a need and demand basis. The financial services will be innovative for FARMSE and generally for Malawi, since there are currently no products designed specifically for EbA investments.

317. Development of financial services. Activities would include developing and piloting product prototypes, conducting pilot tests, adjusting and refining product features, as well as costing, pricing and delivery mechanisms. Subject to commercial viability, a roll-out plan would be prepared to determine the human, financial, and technical resources and related training and investment requirements. Eligible costs to be covered for innovation would include TA, logistics cost related to fieldwork, staff training, adjustments of the MIS and ICT equipment. Support could also cover costs related to developing new product user material for prospective clients.

318. FFIs proposing to develop innovative digital services (developing / improving their own platform or partnering with fintechs / agritechs) will be prioritized. FARMSE has planned to promote the development of fintechs and agritechs through its IOF, building on the experience of platforms like Digifarm in Kenya⁴³⁶ and other fintechs/ agritechs services operating in Africa (see Figure 51 and Figure 52 showing the "ecosystem of start-ups already operating in Africa). Other potential innovations that may be supported are digitally enabled credit scoring⁴³⁷ and geodata systems for climate risk analysis, that will contribute to credit scoring. It is expected that the delivery of the digital services will involve mostly youth, who are more conversant with the digital technologies.

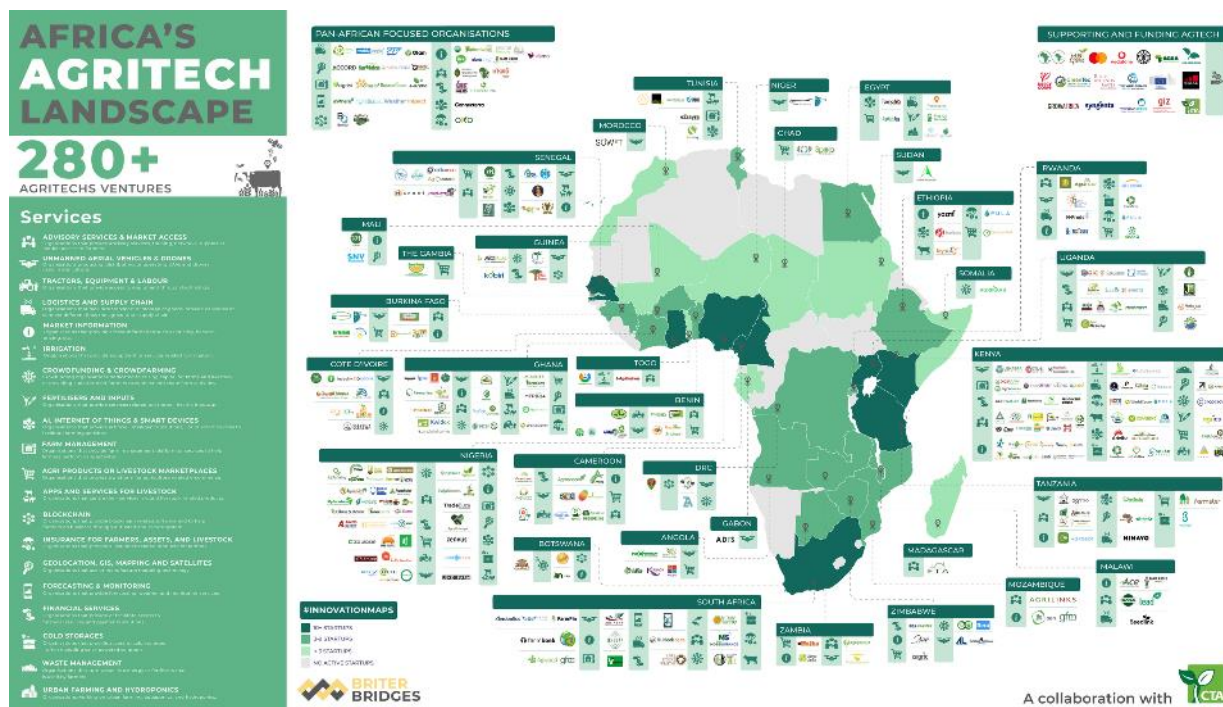


Figure 51 – Africa's Agritech landscape

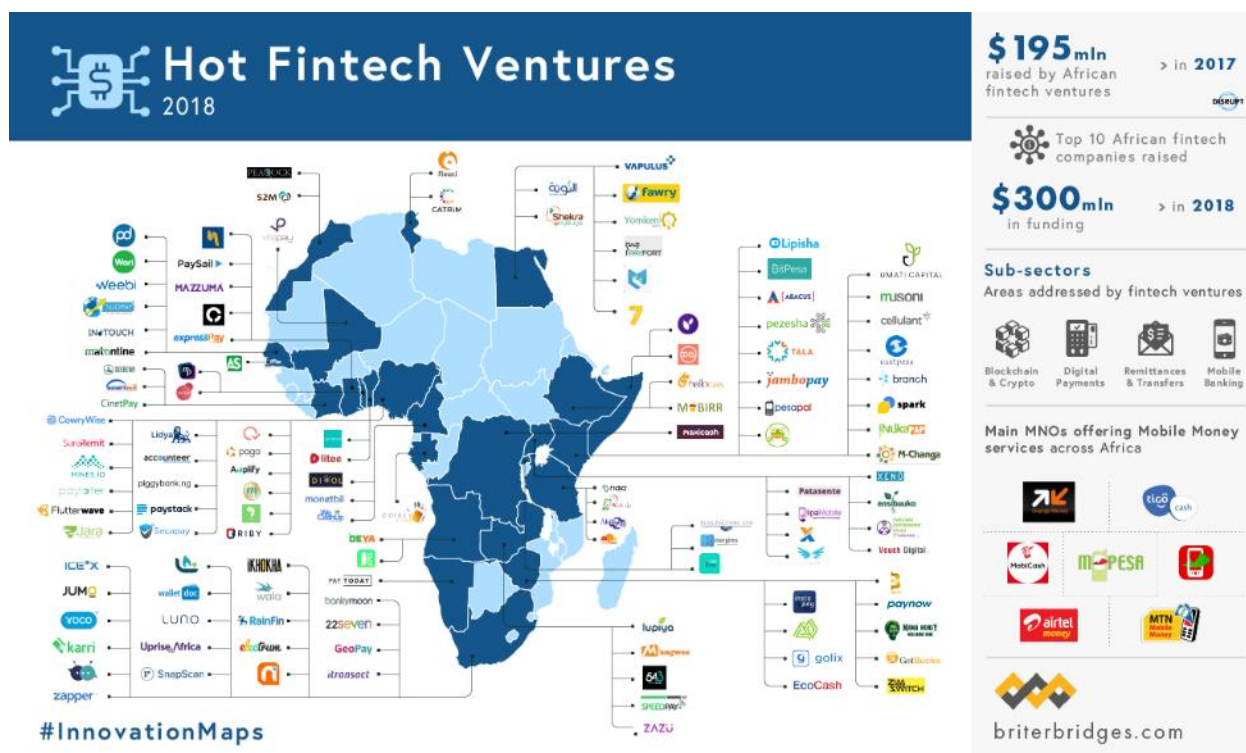


Figure 52 – Africa's fintech landscape

319. For insurance, products may be delivered by the FFIs in partnership with insurance companies, and bundled in the loan products, or developed and delivered by insurance companies (but the first model is what usually works better and generates higher uptake). Innovations to be supported would be index-based insurance (weather, area yield or hybrid). For this specific activity, FARMSE will work closely with

the Adaptation Fund Project implemented by MoA (“Adapting to Climate Change Through Integrated Risk Management Strategies and Enhanced Market Opportunities for Resilient Food Security and Livelihoods” – see Part 4), that has a dedicated component on access to insurance as a risk transfer mechanism for farmers affected by Climate Change. MoF/FARMSE, MoA (implementing the Adaptation Fund Project) and FAO CPIU will learn from the implementation of insurance in order to better support products that have a potential for scale up.

320. It is projected that a total of 6 contracts will be signed with FFIs to develop and pilot innovative services between Year 2 and Year 4.

321. Scale-up of financial services. FARMSE will then support the scaling up successful innovations with the higher potential for outreach. This will include support for institutional strengthening, for increasing the FSP product delivery capacity, and the capacity of EbAM target group to use new financial products and services. Priority will be given to the FFIs that have developed the innovations. It is projected that a total of 4 contracts will be signed for scaling up of innovations between Year 3 and Year 4 .

322. Eligible expenses for scaling-up include national and international TA for staff training, draft manuals, and institutional change (e.g., adjusting processes and procedures). MoF/FARMSE will finance physical investment costs related to the scaling up, such as Information and communications technology (ICT) equipment, low-cost branches and agencies, vehicles. Such costs must be directly linked to the outreach targets and supported by financial projections showing profitability over a 2 to 3-year term. Finally, training and capacity development of prospective clients could be co-financed, if they are critical to outreach and financial targets, and enable the project target group to use the products and services effectively. Training can include, for example, targeted financial literacy and business development, organisational strengthening, or technical/agronomic matters, in complementarity with support provided under other EbAM components / sub-components.

323. A Proposals Review Committee (PRC) has been established by FARMSE with the authority to review and approve or disapprove the applications by the FFIs, while ensuring professional confidentiality so that innovations, approaches and products tested and developed are not revealed to competitor or the general public.

324. PRC currently comprises a representative of the MoF, a representative of Malawi Microfinance Network, a representative of Reserve Bank of Malawi, a representative of National Smallholder Farmers Association of Malawi and independent experts on key thematic areas, MoF/FARMSE PMU will ensure that an expert in climate adaptation financing is added to the PRC. The specific governance and decision-making structure of the PRC is defined in FARMSE Project Implementation Manual (PIM).

325. In terms of management of the TA to the FFIs, MoF/FARMSE PMU main tasks will include (i) fine-tuning of the operational procedures; (ii) screening the market and identifying high-potential partners that could be supported; (iii) creating a roster of reputable and qualified Technical Service Providers (national, regional, international); (iv) actively reaching out to potential Technical Service Providers and applicants to raise their awareness on the TA opportunity; (v) providing guidance to applicants and Technical Service Providers in preparing proposals; (vi) screening proposals received and making recommendations to the PRC; (vii) negotiating performance-based grant agreements with winning FFIs; and (viii) monitoring implementation progress and performance according to milestones.

326. *Sub-activity 2.3.2.2: Technical backstopping and implementation support (financed by MoF/FARMSE, executed by MoF/FARMSE).* EbAM, through MoF/FARMSE, will provide technical backstopping and implementation support as identified as part of its monitoring and evaluation function through desk review of reports, regular engagement with FFIs managers and field visits. Support will be provided by MoF/FARMSE’s PMU specialists and contracted to consultants.

327. EbAM, through MoF/FARMSE, will produce knowledge management products (outcome studies, innovations studies, case studies, videos, etc.) on how innovative and inclusive formal financial services promoted by the project contribute to the promotion of climate adaptation investments. These products will

be disseminated through various channels like for sub-activity 2.3.1.3. At community level, the project will also rely on the Dimitra Clubs that will have their solar powered radios connected to local community radios. MoF through FARMSE will also organize at least one knowledge dissemination workshops per year, each gathering around 50 people from relevant stakeholders like the Reserve Bank of Malawi, Ministry of Finance and Economic Affairs, Ministry of Agriculture, representatives of the formal financial sector, and of NGOs and Projects involved in promotion of innovative rural financial services.

328. **Activity 2.3.3. Linkage of partner FFIs to financial instruments providers (financed by MoF/FARMSE; executed by MoF/FARMSE).** This activity aims at incentivizing the FFIs to engage into financing of EbAM targets, in addition to the technical assistance, and it will also contribute to the reduction of the cost of the loans for the project beneficiaries.

329. MoF through FARMSE will link partner FFIs, on a need and demand basis, to institutions and initiatives managing concessional credit lines⁴³⁸ and guarantee funds or schemes⁴³⁹. This will include; (i) Malawi Agricultural and Industrial Investment Corporation (MAIIC), a Malawian Development Finance Institution that has expressed interest for partnership with EbAM, and potentially (ii) IFAD schemes like the proposed Africa Rural Climate Adaptation Finance Mechanism (ARCAFIM) to be funded by the GCF, that would facilitate access to concessional resources and risk management schemes for FFIs to finance climate adaptation investments by farmers and agri SMEs, and IFAD's non-Sovereign Private Sector Operations (NSOs), that is managing three financial instruments namely debt, equity and risk mitigation products, and (iii) any other instrument that will be identified during implementation.

330. *Sub-activity 2.3.3.1: Scoping study of the potential financial instruments.* MoF through FARMSE will contract a consultant to carry out a scoping study of the potential financial instruments that MoF/FARMSE could partner with for linkages with its partner FFIs. The study will identify the potential partners, with information on the features of the financial instruments, eligibility criteria and processes and conditions to access the instruments.

331. The consultant tasks will be: (i) to conduct a desk review of the financial instruments (concessional credit lines, guarantee mechanisms) that already operate in Malawi or that could potentially operate in Malawi; (ii) Preselect through this desk review instruments that may show an interest to partner with FFIs supported by EbAM especially to finance climate adaptation, (iii) Engage directly with the preselected instruments to confirm their interest and to get detailed information on their investment features, eligibility criteria and processes and conditions to access the instruments, (iv) Provide a report to MoF/FARMSE with a documented list of potential partners.

332. *Sub-activity 2.3.3.2: Facilitation of linkages by MoF/FARMSE.* MoF through FARMSE will facilitate linkages between the partner FFIs and the identified financial instruments. This will involve technical assistance to support the FFI to develop its application to access the financial instruments.

333. Based on the scoping study report, FARMSE will inform its partner FFIs of the opportunities to access the different financial instruments and will agree with them on what support could be provided by FARMSE to facilitate the linkages and contracting with the financial instruments, subject to the commitment by the FFIs to use a significant part of the mobilized funds and / or guarantee mobilized to finance EbAM target groups for EbA investments. This support may in particular be on the development of the application to the financial instruments.

334. **Activity 2.3.4. Linkage of agri SMEs to impact investment funds (financed by MoF/FARMSE; executed by MoF/FARMSE).** MoF through FARMSE will link on demand basis largest agri-SME supported under sub-component 2.2 to impact investment funds (see Box 24). Through these linkages, the agri SMEs may access alternative or complementary sources of funds to that of the FFIs as well as technical support, building on the support provided by EbAM. It is anticipated that agri-SMEs supported under the 4Ps model would be eligible for investment, thanks to their linkages with farmers and climate resilience focus, and target will be to link at least five of them to impact investment funds.

335. *Sub-activity 2.3.4.1: Scoping study of the impact investment funds.* MoF through FARMSE will contract a consultant to carry out a scoping study of the potential impact investment funds investing in the Region, and with which MoF/FARMSE could partner for linkages with supported agri SMEs. The study will identify the potential partners, with information on the features of their investments, eligibility criteria and processes and conditions to access funding.

336. The consultant tasks will be: (i) to conduct a desk review of the impact investment funds that already invest in Malawi or that could potentially invest in Malawi; (ii) Preselect through this desk review funds that may show an interest to invest in EbAM-supported agri-SMEs, (iii) Engage directly with the preselected funds to confirm their interest and to get detailed information on their investment features, including minimum investment ticket size, eligibility criteria for the agri-SMEs, and processes and conditions to access the funds, (iv) Provide a report to MoF/FARMSE with a documented list of potential partners.

337. *Sub-activity 2.3.4.2: Facilitation of linkages by MoF/FARMSE.* MoF through FARMSE will facilitate linkages between the eligible supported agri SMEs and the identified impact investment funds. This may involve technical assistance to support the agri SMEs to develop their funding application.

338. Based on the scoping study report, FARMSE will inform eligible agri-SMEs supported by EbAM of the opportunities to access funding through the impact investment funds, and will agree with them on what support could be provided by FARMSE to facilitate the linkages and contracting with the funds, subject to the commitment by the agri-SMEs to use a significant part of the mobilized funds for investments that will benefit farmers supported by EbAM. This support may in particular be on the selection of the most adapted Impact investment fund(s) considering the nature of the agri-SME, and development of the application to the Impact investment funds.

Box 24 – Impact Investing and Climate Finance

Impact investing is an investment strategy that seeks to generate financial returns while also creating a positive social or environmental impact. Impact investing is distinct from philanthropy in that investors target a financial return (or at least a return of capital). It is different from negative screening strategies, which seek to minimize negative impacts by eliminating certain harmful investments (e.g. tobacco or firearms). It is also different from strategies that assess environmental, social and governance (ESG) factors in investment decisions; impact investments proactively target positive impact.

Impact investment funds, which may be private or public (Development Finance Institutions) can invest in equity or debt in companies that generate impact in various sectors including agriculture, where impact is usually sought in terms of improving livelihood of smallholder farmers. In addition to providing equity and debt, many impact investment funds provide technical assistance to their investees. Minimum ticket for investment is however rather high (at least a few hundred thousand USD) and only medium sized or large companies usually benefit from these investments.

A research by the Global Impact Investing Network (GIIN) dated April 2019 (https://thegiin.org/assets/Sizing%20the%20Impact%20Investing%20Market_webfile.pdf) showed that there are over 1,340 active impact investing organizations across the world who collectively manage USD 502 billion in investments intended to bring about positive change. 6% of these organizations are headquartered in Africa, but many headquartered out of Africa have investments in Africa. One of the areas of impact that these funds look for is adaptation to / mitigation of climate change. Examples of international and regional funds investing in Sub-Saharan Africa, with a potential for linkages with Malawian agri-food SMEs (and which will be further explored during implementation) include:

- [The Agribusiness Capital Fund \(ABC fund\)](#), funded by IFAD and EU amongst others, supports projects that generate jobs for rural women and youth, as well as sustainable agriculture initiatives, with a particular focus on climate change adaptation solutions. ABC invests in East and Southern Africa, including **Kenya and Uganda**.

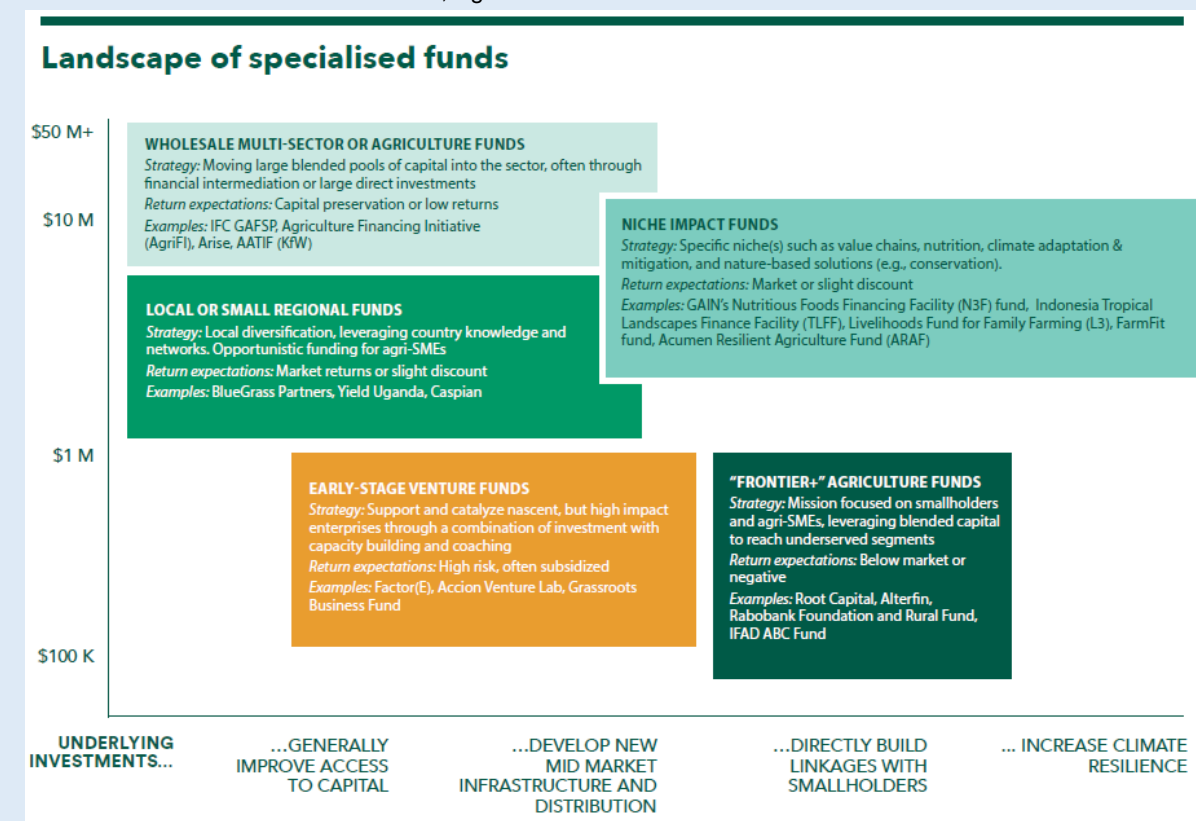
- [The Acumen Fund](#), which has been accredited by the GCF and implements the Acumen Resilient Agriculture Fund (ARAF) in **Nigeria, Ghana and Uganda**. ARAF (met during EbAM's formulation) is purpose-built fund aimed at enhancing the climate resilience of smallholder farmers by investing in early stage agri-SMEs enabling this resilience. Acumen has a successful track record in sourcing and executing equity investment opportunities in the clean energy and agriculture sectors which provide environmental and livelihood impacts.

- [Kenya Climate Ventures \(KCV\)](#) provides financial and technical support for early and growth stage companies that are delivering smart climate solutions to communities in **Kenya**.

- [Root Capital](#) launched in 2020 its Climate Resilience Roadmap, a comprehensive strategy to support urgent climate action in rural communities and is committed to growing lending to climate action leaders that are on the frontlines of climate change and are helping communities mitigate and adapt. Root Capital invests in **Republic of the Congo, Ghana, Kenya, Rwanda, Tanzania, and Uganda**.

- Calvert Impact Capital efforts to combat climate change and its disproportionate effects on disadvantaged communities extend to the sustainable agriculture sector.

- Adolf H. Lundin Charitable Foundation (AHLCF) invests across three sectors creating meaningful impact and returns across Africa: Financial Inclusion, Agriculture & Food and Climate Smart.



Source: ISF, AgriSME Finance, State of the Sector Report, March 2022

339. **Component 3. Enabling Institutional and Financial Environment**

340. The outcome of this component is “The enabling environment (finance and policies) to sustain, replicate and scale-up climate resilient watershed ecosystems and agriculture practices is enhanced”. This objective will be achieved by leveraging public and private climate finance (sub-component 3.1) and scaling-up EbA in national policies (sub-component 3.2). It will contribute to GCF results areas ARA1, ARA4 and MRA4. The component will contribute to the sustainability and replicability of EbA activities and well-functioning watershed ecosystems promoted under components 1 and 2.

341. **This component will address the institutional barriers.** As per the theory of change, these include (i) insufficient institutional capacity to mobilize innovative public and private climate finance and (ii) limited integration of EbA in national policies. It will give attention to low and volatile investments in integrated landscape management and address the need to propose innovative solutions to attract more sustainable climate finance.

342. **Activities promoted under the component are sustainable and innovative.** The Project will support Malawi’s vision to establish its National Climate Change Fund (NCCF) and will strengthen local trusts (e.g. MEET or Shire BEST). Together, the activities will facilitate mobilization of more catalytic climate finance, and contribute to sustaining, replicating and expanding the scale of climate-resilient investments promoted by the Project under components 1 and 2. Activities under this sub-component are also innovative because they will leverage private sector experience on carbon credits with the private sector (Climate Asset Management – CAM/ HSBC - which is financing the Restore Africa Programme). Interventions will mainstream and deep-root EbA in national policies and investment plans, and bring the EbA agenda at sectoral policies level. By integrating EbA in national policies, the component will contribute to improve the enabling environment, and allow replication and scaling-up of EbA through other projects and programmes – for massive-scale impact and sustainability.

343. **Sub-component 3.1. Leveraging public and private climate finance.** (Output 3.1: Sustainable and innovative public and private climate financing through NCCF and local trusts are in place). At national level, the project will assist the National Climate Change Fund (NCCF) (activity 3.1.1) and local national conservation trusts funds (Malawi Environment Endowment Trust - MEET and Shire BEST) to mobilize climate finance for scaling-up climate-change adaptation interventions, based on EbA (activity 3.1.2). It will also leverage private sector experience on carbon credits in Malawi as part of the exit strategy (3.2.3). This sub-component will contribute to an improved enabling environment, more particularly on enhancing access to climate finance and instruments.

Box 25 – NCCF - A National Climate Change Fund for Long-Term Financial Sustainability

The National Climate Change Policy (NCCP) 2016 and the National Adaptation Plan (NAP) framework 2020 see environmental degradation and climate change as major impediments to development that frustrate the efforts to improve livelihoods and “aims to promote climate change adaptation, mitigation, technology transfer and capacity building for sustainable livelihoods”. The mandates of the NAP in the National Adaptation Framework 2020 include: improve community resilience to climate change through enhanced agricultural production, infrastructure development and disaster risk management; enhance sustainable utilization of natural resources especially forest, water, fisheries and wildlife resources; and improve environmental management especially soil and land management. The NCCP and NAP framework paved the way for establishing and operationalize a National Climate Change Fund (NCCF), to finance climate-resilient investments.

The NCCF aims at supporting the country to manage climate finance by facilitating the mobilization, blending, coordination of, and disbursing for climate finance. The NCCF seeks to mobilize funding from various sources both domestically and internationally (including climate funds such as the GCF or Adaptation Fund), multilateral development banks, development finance institutions (DFIs), and private investors. Furthermore, it will offer specific financial instruments with the aim to mobilize private funding at the project level. The NCCF aims to be a large source of capital for low-carbon and climate-resilient projects in Malawi.

The NCCF will be spearheaded by Malawi Environment Protection Authority (MEPA). A Climate Change Independent panel of Experts will be set up for the purpose of providing specific short-term investment/technical advice, and support to the Fund Manager on reviewing proposals put forward for funding under the NCCF. The

NCCF will also receive support from: (i) the National Steering Committee on Climate Change, (ii) the National Technical Committee on Climate Change and Disaster Risk Management, (iii) the Donor Working Group on Climate Change and (iv) Climate Change Expert Working Groups.

Day-to-day Management of the Fund will be carried out by a Fund Manager, who will be supported by: (i) a Climate Change Technical Specialist, (ii) a Climate Change Financial Management Specialist, (iii) a Climate Change Resource Mobilisation Specialist, (iv) a Climate Change M&E Specialist, (v) a Climate Change Knowledge Management Specialist, (vi) a Social and Environmental Safeguard Specialist, (vii) a Climate Change human resources and Administration Manager and (viii) a Procurement Specialist.

The NCCF has received initial support from UNDP, who assisted on developing the Fund's standard operating procedures (SOP) and governance structure, as well as developing a preliminary capitalization strategy across all sectors. It is expected that the NCCF starts operating in early 2023.

Source: Standard Operating Procedure of the NCCF

344. ***Activity 3.1.1. Support to Malawi's National Climate Change Fund (NCCF) (financed by the GCF, executed by FAO).*** The Project will provide some capacity development to the NCCF (see Box 25 for details) to mobilize resources and build an investment pipeline focusing on ecosystem restoration, watershed resilience and climate-resilient agriculture, based on EbA. The objective of this activity is to replicate EbA investments through the NCCF, while sustaining interventions promoted by EbAM under components 1 and 2. The Project's proposed technical support to the NCCF, which will start on year 2, will result in an increased volume of climate finance being available nationally to replicate EbAM activities, in additional climate-vulnerable watersheds, for increased impact. In line with the Fund's Standard Operating Procedures (SOP), proposed technical assistance from EbAM will encompass 4 sub-activities as follows.

345. ***Sub-activity 3.1.1.1: Support to resources mobilization.*** This sub-activity will support the NCCF to mobilize climate finance through international sources. More particularly, EbAM will assist the NCCF to meet GCF accreditation standards to leverage "direct access" financing – which is a priority identified in the NCCF SOP and highlighted by the Environmental Affairs Department (EAD) during EbAM formulation. For this to happen, during Project years 2 to 5, the Project (CPIU) will contract an international consultant to develop Strategic accreditation materials such as: (i) a capacity gap assessment (including human resources, skills and competency capabilities) and action plan to address the gaps identified, (ii) a study reviewing the Fund's fiduciary principles and standards, (iii) a report detailing the Fund's environmental and social (E&S) safeguards/ standards, and draft an Environmental and Social Management System (ESMS) as needed, and (iv) a gender policy and action plan. Under a longer-term horizon (beginning of year 3), the Project will also consider financing some technical assistance to develop a strategy/ feasibility study for the NCCF to leverage innovative private sector finance instruments - which could include, for example green or climate bonds. This feasibility study will be prepared by a non-profit – for e.g. Climate Bond Initiative – contracted by FAO (CPIU).

346. ***Sub-activity 3.1.1.2: Support to pipeline building.*** The NCCF has two priority investment areas for climate-change adaptation. These include: (i) integrated watershed management, (ii) climate change community resilience through climate-smart agriculture production systems. To support investment under these priority areas, EbAM will finance (through consultancies; by year 1) investment strategies, with the objective to build a pipeline of quality adaptation projects, based on EbA. Investment Strategies will build on EbAM's investment experience/lessons learnt. These will include: (i) criteria for targeting watersheds (e.g. climate vulnerability, ecosystem/ landscape degradation, youth/gender inclusion), (ii) a list of technical solutions for climate-change adaptation (e.g. integrated landscape management, EbA, public-private producer partnerships), (iii) a list of potential projects to be funded, including EbAM's beneficiaries (communities, farmers, SMEs), (iv) a list of monitoring and evaluation (M&E) indicators for the Fund's monitoring, verification and reporting framework (MRV). EbAM's "SMART" outcome/outputs indicators and reporting methodologies will be leveraged to contribute to the NCCF monitoring and evaluation system.

Together with the NCCF staff, the CPIU will develop ToRs for the international consultants implementing the work.

347. *Sub-activity 3.1.1.3: Capacity development on EbA.* Trainings on the main EbA techniques listed in the investment strategies will be delivered by FAO. Trainings (conducted in year 3) will include (i) deep-dive on the EbA techniques (as described/ listed in Appendix I of the present Feasibility Study), (ii) costs (equipment/inputs needed for adoption) and benefits, based on EbAM's experience. Trainings (5 days each) will also build on the evidence-based studies prepared under sub-component 3.2 for policy dialogue. They will be organised by FAO (CPIU) and delivered by international consultants contracted by FAO. Trainings will target the following NCCF staff: (i) the Climate Change Technical Specialist, (ii) the Climate Change M&E Specialist, (iii) the Climate Change Knowledge Management Specialist and, (iv) the Social and Environmental Safeguard Specialist (gender balance of trainings beneficiaries cannot be appraised as the NCCF team is not yet in place as of October 2022).

348. *Sub-activity 3.1.1.4. Capacity development on climate risk analysis.* In line with the NCCF's priority area 4 (Capacity development and knowledge transfer), EbAM will provide targeted capacity development on climate vulnerability analysis. Trainings will promote FAO-developed tools such as ABC map or the Global Agro-ecological Zoning platform - GAEZ (see Box 26). Climate vulnerability assessments (based on climate exposure, sensitivity and adaptive capacity) will allow the NCCF staff to better identify major climate risks (soil degradation and erosion, water scarcity, reduced crop yields, pasture degradation) for each proposal and select/finance suitable adaptation measures. Assistance – led by FAO - will consist of trainings (5 days), refresher workshops (5 days) and coaching/ remote assistance on real cases/ projects identified by the NCCF. The training, that will be conducted by year 3, will include the following NCCF staff: (i) the Climate Change Technical Specialist, (ii) the Climate Change M&E Specialist, (iii) the Climate Change Knowledge Management Specialist and, (iv) the Social and Environmental Safeguard Specialist.

349. *Sub-activity 3.1.1.5. Capacity development on carbon balance analysis.* In line with the NCCF's priority area 4 (Capacity development and knowledge transfer), EbAM will deliver trainings to NCCF staff on greenhouse gas (GHG) accounting with FAO-developed tools/ methodologies such as the *FAO Ex-ante Carbon Balance Tool* (EX-ACT, see Box 27) or the *Global Livestock Environmental Assessment Model, interactive* (GLEAM-i, see Box 27) tools, which are built on the latest scientific information. These tools will enable NCCF staff to assess, monitor and evaluate the mitigation potential of Projects financed by NCCF in the agriculture, forestry and other land use change (AFOLU) sectors. Assistance from FAO will consist of 2 trainings and 1 refresher workshops (5 days each), with some remote coaching on real cases/ projects identified by the NCCF. Trainings (to be conducted in year 3) will target the following NCCF staff: (i) the Climate Change Technical Specialist, (ii) the Climate Change M&E Specialist, (iii) the Climate Change Knowledge Management Specialist and, (iv) the Social and Environmental Safeguard Specialist.

Box 26 – Tools for climate vulnerability analysis: EarthMap, ABC map and GAEZ

GAEZ provides a standardized framework for the characterization of climate, soil and terrain conditions relevant to agricultural production. It identifies crop-specific limitations of climate, soil and terrain resources in a consistent and empirically founded way. It systematically computes spatial and temporal data on maximum potential and attainable crop yields as well as expected sustainable agricultural production potentials at different specified levels of inputs and management conditions. The GAEZ computations were completed for a range of climatic conditions, with quantifications of impacts on land productivity from historical climate variability as well as of potential future climate change. Climatic conditions are based on a time series of historical data of 1961-2010 and a selection of future climate simulations using recent IPCC AR5 Earth System Model (ESM) outputs for four Representative Concentration Pathways (RCPs). For more details, see <https://www.fao.org/3/cb4620en/cb4620en.pdf> and <https://gaez.fao.org/pages/data-viewer>

ABC Map is a new geospatial app based on Google Earth Engine (GEE) that holistically assesses the environmental impact of National Policies and Plans and investments in the agriculture forestry, and other land-use sectors. It is an innovative, free and open-source tool developed by FAO in the framework of the FAO – Google partnership. It allows everyone to visualize, process and analyze satellite imagery and global datasets on climate, vegetation, fires, biodiversity, geo-social and other topics. Users need no prior knowledge of remote sensing or Geographical Information Systems (GIS). For more details, see <https://abc-map.org/>

Box 27 – Carbon Balance Tools

FAO Ex-Ante Carbon balance tool (EX-ACT). The EX-ACT suite of tools is based on the Intergovernmental Panel on Climate Change (IPCC) methodology for greenhouse gas (GHG) emissions inventories. EX-ACT provides its users with a consistent way of estimating and tracking the outcomes of agricultural interventions on GHG emissions. EX-ACT is the only GHG accounting tool to cover the entire agricultural sector including Agriculture, Forestry and Other Land Use (AFOLU) inland and coastal wetlands, fisheries and aquaculture, agricultural inputs and infrastructure.

EX-ACT aims at (i) identifying the climate mitigation outcomes of agricultural interventions (projects, policies and investments) at any stage of their implementation (*ex ante*, during and *ex post*) and at any level (local, regional and national); (ii) supporting countries (public and private sectors) in accessing funds from international financial institutions; (iii) strengthening the capacities of national and international stakeholders in estimating, monitoring and evaluating progress on emissions reduction goals; and (iv) supporting policy makers in integrating climate change mitigation objectives into national strategies and international commitments, such as Nationally Determined Contributions or National Adaptation Plans.

For more information about EX-ACT, see <https://www.fao.org/in-action/epic/ex-act-tool/suite-of-tools/ex-act/en/> and <https://www.fao.org/policy-support/tools-and-publications/resources-details/fr/c/1472534/>

FAO Global Livestock Environmental Assessment model (GLEAM-i). GLEAM-i is a publicly available and free tool specific to estimating the greenhouse gas (GHG) emissions from different livestock species and production systems from all countries in the world. The livestock species covered in GLEAM-i are four ruminant species (cattle, buffalo, sheep and goat); and two monogastric species (chicken and pigs). The production systems embedded in the tool are grassland-based and mixed for ruminants; backyard, broiler and layers for chicken; and backyard, intermediate and industrial for pigs (FAO, 2017; MacLeod et al., 2017). For more details, see <https://www.fao.org/3/cb2249en/cb2249en.pdf>

350. **Activity 3.1.2. Support to National Conservation Trust Funds (*financed by the GCF, executed by FAO*).** The Project will provide capacity development to two (2) local Trusts (the Malawi Environmental Endowment Trust – MEET and Shire BEST; see Box 28 and Box 29) to scale-up and replicate investments promoted by EbAM. More particularly, the Project will support (starting year 1) these local funds in broadening their funding base, with the ambition to promote EbA and watershed resilience in their operations, and implement their mandate to yield positive environment and natural resource conservation, in the context of climate change. Sub-activities financed by the Project will include:

351. *Sub-activity 3.1.2.1: Technical assistance for national entities in accessing GCF resources.* This intervention would support MEET in accessing, for example, the GCF Project Specific Assessment Approach (PSAA) instrument, and be considered as a local Direct Access Entity (DAE) to GCF. MEET direct access to GCF is a priority for Malawi's National Designated Authority - NDA (Environmental Affairs Department - EAD). Direct access of local entities is part of the action plan for the Resource Mobilisation strategy for Malawi's NDC. The Project will support PSAA process for MEET, including a proposed project (including the environmental and social safeguards), together with the institutional and capacity assessment of MEET. Starting from year 2, the Project will mobilize international consultants (identified and contracted by FAO through CPIU) to develop key PSAA materials such as: (i) a concept note, (ii) a funding proposal (including the environmental and social (E&S) safeguards/ standards, and a gender policy and action plan), and (iii) an institutional capacity assessment (including human resources, skills and competency capabilities).

352. *Sub activity 3.1.2.2: feasibility studies for MEET to develop innovative finance instruments for ecosystem restoration.* To support implementation of MEET's Resources Mobilization Strategy (RMS, 2019-2023), the Project will finance studies to access innovative climate finance instruments for more funding towards EbA. One instrument identified during design is debt-for-nature swaps (DFES). Debt for Nature Swap is a transaction where a country has its debt purchased, renegotiated or forgiven by its creditors with specific conditions, for example, that savings on debt service are invested in environmental

conservation activities. DEFS, which are new for Malawi (but well-known and used in some other sub-Saharan contexts such as Madagascar), are highlighted in MEET's RMS as a key instrument to broaden its funding base. Swaps provide opportunities for raising capital in low-income countries to address climate change adaptation, natural resources management and other policy challenges. Capital raised (freed) through debt-for-nature swaps can be applied through trust funds..

Box 28 - Malawi Environmental Endowment Trust (MEET)

MEET is an independent organization that was established in 1999 by various stakeholders, including the Government of Malawi (GoM), under the Trustees Incorporation Act of 1962 of the Laws of Malawi. The organization was incorporated on the 5th of March 1999. The Secretariat currently has a lean staff complement comprising 3 (three) full time employees, The Coordinator, the Finance and Administration Officer and the Grants Officer.

MEET was established out of concern about the problem associated with extensive environmental and natural resources degradation in Malawi and the realization that available policies granting government total ownership and responsibility for the management of some natural resources could not be realized due to inadequate financial resources. It was envisaged that a sustainable, regular and adequate funding mechanism relevant to the needs of the people would be a practical solution to the problem.

In this context, and in accordance with the 2019-2023 Strategic Plan (SP), the vision of MEET is a "well-resourced institution that is able to effectively contribute to the protection and management of the environment and the conservation and sustainable utilisation of natural resources". The mission is "to mobilize and disburse financial resources and manage financial mechanisms from diverse sources and partnerships in order to support actions that yield positive environment and natural resources conservation results and contribute to sustainable, social and economic development". MEET operates one of the few grants making management systems within the Environmental and Natural Resources Management (ENRM) sector in Malawi.

Key broad thematic areas covered by MEET include: (i) climate change adaptation and mitigation, (ii) the establishment, conservation and/or rehabilitation of forests and woodlands, (iii) biodiversity conservation, (iv) capacity Building, environmental information, education and communication, (v) Natural Resource Based Enterprises, (vi) Rainwater Harvesting, (vii) soil and water conservation and, (viii) Renewable Energy.

In the 2019-2023 Strategic Plan, MEET has set out goals which shall be the centre of its focus in the next five years. The goals are centered around four themes namely; effective programming, financial sustainability, institutional capacity, and partnerships. Thus, the goals which shall drive this Strategic Plan are: (i) Effective programming; (ii) Financial sustainability; (iii) Strengthened institutional capacity and (iv) Strengthened partnerships.



Source: MEET Strategic Plan 2019-2023

353. With the support of an international consultant versed in climate and conservation finance (consultant identified and contracted by FAO through the CPIU), the Project will support MEET in financing prefeasibility studies to assess the potential for leveraging DFES in the context of Malawi. The studies will include the potential for mainstreaming climate change adaptation, ecosystem-based restoration and environment conservation in domestic environmental financing. The study will engage the government and assess fiscal capacity, commitment to transparency and international credibility of the domestic spending and expenditure programme. The proceeds from DFES are often allocated to local environmental Trust Funds – such as MEET - which in turn disburse grants to conservation projects.

354. *Sub-activity 3.1.2.3. Capacity development on Monitoring and Evaluation (M&E).* The Project will supports the Conservation Trust Funds to develop indicators for the Fund's monitoring, verification and

reporting framework (MRV). EbAM's "SMART" outcome/outputs indicators and reporting methodologies will be leveraged to contribute to the Trusts M&E systems.

Box 29 – Shire Best Trust

Shire BEST is a Trust (non-for profit organization) which became operational in July 2019 through the Millennium Challenge Compact (MCC) project and also through the Shire River Basin Management project (SRBMP). Shire Best commenced implementation of pilot catchment restoration projects in the Middle Shire Catchment.

Shire BEST has a Board of Trustees and 3 sub-committees (Finance and Administration; Investments and Fundraising; Environment and Natural Resource Management). Shire BEST has on-going relationships with the private sector i.e. Electricity Generation Company of Malawi (EGENCO) and Illovo Sugar Company, which are the two biggest Malawian private sector companies that are fully dependent on the Shire River, the former for hydro-power generation and the latter for sugarcane irrigation.

These companies have recently partnered with Shire BEST by co-financing 3 ecosystem restoration Projects in the Neno district (Symon and Chekucheku TAs) and Chikwawa district (Lundu TA). These Projects included activities such as: (i) the establishment of bamboo corridors, (ii) assisted natural regeneration, and (iii) stream sediment load reduction in the Shire River. Together, these private-sector funded initiatives reached 300 households and restored over 1,800 hectares. EGENCO's financial contribution amounted MWK 265 million (USD 260,000 over 2 years), while Illovo's amounted MWK 65 million (USD 67,000 over one year). Both companies are convinced that they need to support efforts to restore the Shire River Catchment, because their business operations are dependent on the continued water flow in the Shire River. For EGENCO, it is not only water flow which is important, but also reduced sediment load and water quality.

To implement these projects with the private sector, Shire BEST worked closely with the Ministry of Agriculture (Department of Land Resources Conservation), the Ministry of Climate Change and Natural Resources (Department of Forestry) and the Ministry of Gender, Children, Disability and Social Welfare (Department of Community and Social Welfare).



355. **Activity 3.1.3. Leveraging private sector experience on carbon credits in Malawi as part of the exit strategy (financed by the GCF, executed by FAO).** This activity will establish the enabling environment to leverage private sector finance for ecosystem restoration interventions. This activity will be carried out in synergy with the Restore Africa Program, financed by Climate Asset Management (CAM) – a joint venture between HSBC Asset Management and Pollination. Restore Africa is implemented by the Global Evergreening Alliance (GEA) – a consortium of NGOs engaged in landscape restoration (see donor mapping in the feasibility study). GEA, through the leadership of Catholic Relief Services (CRS) in Malawi, is implementing the Restore Africa initiative in Malawi, which is combining restoration activities with access to carbon credits.

356. *Sub-activity 3.1.3.1. Gap analysis and baseline.* This activity will aim at performing a gap analysis and establishing a baseline during the first months of implementation of EbAM to assess potential for proposing carbon credit in EbAM's areas (preferably in one or two districts that Restore Africa and EbAM have in common, such as Neno and Chitipa) on the mid to long term, as a possible additional exit strategy for the project. The gap analysis will allow to assess whether technical solutions proposed by EbAM are suitable for generating and claiming carbon credits (in terms of potential for promoted trees and shrubs species to sequester carbon, above and below ground). The gap analysis will be carried out by an international consultant (contracted by FAO through the CPIU) who will be identified together with CAM and GEA.

357. *Sub-activity 3.1.3.2. Continuous learning for possible replication.* Under this sub-activity, EbAM will mobilize national and international expertise (through the CPIU), in synergy with the Knowledge Platform established under the Restore Africa initiative, to consolidate the learning process on Restore Africa

activities in Malawi, and propose operational solutions for this approach to be replicated in the country, including through the involvement of other EbAM partners (NCCF, MEET, Shire BEST, MFIs, etc.), using EbAM intervention areas as possible entry points.

358. **Sub-component 3.2 Scaling-up in national policies.** This sub-component will improve the enabling environment by promoting EbA as a key instrument for climate change adaptation within national policies. The aim of mainstreaming EbA is to enhance the effectiveness, efficiency, and longevity of EbA principles by embedding its practices into policies, sectoral planning and financing – including government budget – hence contributing to EbAM's paradigm shift and sustainability. Only the integration of EbA into planning tools and budgets of sectoral strategies (e.g. National Agriculture Investment Plan) can secure the financial support and human resources needed for EbA to become viable in the long term.

359. For this to happen, this sub-component will support: (i) some evidence generation from the Project on the socio-economic benefits of EbA, drawing on the lessons from VLAP and SCMP implementation (activity 3.2.1), (ii) the preparation of a policy influencing plan (PIP), based on a policy assessment analysing challenges and opportunities for mainstreaming EbA into different sectoral policies (activity 3.2.2), and (iii) implementation of priority actions of the PIP (activity 3.2.3).

360. This sub-component will be co-financed by, and synergize closely with, the GEF-7-funded *Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme* (SFM DSL IP 2021-2026, Transforming landscapes and livelihoods: a cross-sector approach to accelerate restoration of Malawi's Miombo and Mopane woodlands for sustainable forest and biodiversity management) – for which FAO is the GEF Implementing Agency, and the Department of Forestry (DoF) the main Executing Entity.

361. **Activity 3.2.1 Preparation of evidence-based studies (financed by the GCF, executed by FAO).** The Project will finance a set of knowledge products, best practices and cases studies based on EbAM experience. Results of the cases will be compiled into policy briefs, which will be used to stimulate dialogue around EbA-based policies and regulations, and feed the policy dialogue and policy improvement process.

362. *Sub-activity 3.2.1.1 Policy briefs based on cost-benefit analyses (CBA).* As part of the knowledge management system, the project will conduct CBAs – which will be done on farms and communities having benefited from EbAM's support. CBA will analyse adoption rates, costs and compute financial indicators such as net margins, net present value (NPV), internal rate of return (IRR) and annual cash flows. Based on CBAs, the project will finance the development of policy briefs to promote the efficiency/effectiveness of EbAM interventions, and provide “business cases”, to inform policy dialogue. The activity will be carried out by international consultants under the supervision of the FAO CPIU.

Box 30 - The TAPE methodology

With the help of multiple partners, FAO has developed a global analytical framework for the multidimensional assessment of the performance of agroecology: the Tool for Agroecology Performance Evaluation (TAPE), which aims to:

- Inform policy makers, development institutions, and other stakeholders by creating references to the multidimensional performance of agroecology and its potential to contribute to multiple SDGs;
- Build knowledge and empower producers through the collective process of producing and sharing data and evidence based on their own practices;
- Support agroecological transition processes at different scales, in different locations and different timeframes by proposing a diagnostic of performances over time and by identifying areas of strengths/weaknesses and enabling/disabling environments.

TAPE assesses agroecology by carrying out a diagnostic of production systems with regard to various dimensions (environmental, social, economic) and in a variety of contexts (production systems, communities, territories, agro-ecological zones, etc.). It explains how the analytical framework proposed by FAO was developed, what its underlying principles are and what its methodological components are.

TAPE can be used to develop projects aiming to build evidence and collect data about sustainable agriculture and the particular role of agroecological approaches. It can also be used to analyze how existing efforts to measure agroecology can contribute to building globally relevant and harmonized evidence.

Source: TAPE Guidelines for Application

363. *Sub-activity 3.2.1.2 Policy brief: TAPE analysis. Impact of EbA on production systems.* The Project will carry out some regular analysis of the socio-economic performance of EbAM, using the FAO Tool for Agroecology Performance Evaluation (TAPE) methodology (see Box 30). It will evidence the positive impacts of EbA by carrying out a diagnostic of production systems with regard to various dimensions of EbA (environmental, social, economic), in the targeted watersheds ecosystems and beneficiaries (communities – component 1, production systems – component 2.1). This study – which will be conducted by FAO experts (staff and consultants) - will evidence the wider benefits of EbA in relation to sustainable development, in terms of environmental, social, economic and gender-sensitive development co-benefits. The TAPE methodology has recently (and successfully) been used by IFAD to review the performance of projects in Southern Africa ([see report from Lesotho](#)), and EbAM could scale-up the use of TAPE in the Malawi context.

364. **Activity 3.2.2. Policy Assessment and preparation of a policy influencing plan (PIP) (financed by FAO, executed by FAO).** Through the FAO/GEF-7, EbAM will collaborate with Malawi's National Committee on Climate Change and Disaster Risk Management (NCCC&DRM) who will provide strategic direction, inter-ministerial coordination (including MoA, MoCCNR, MoF etc.) and policy guidance in relation to Malawi's climate policy, including the Nationally Determined Contribution (NDC). NCCC&DRM currently provides an important information-sharing forum on government policy relating to climate change. It carries the responsibility to mainstream climate change into sectoral policies and programs in Malawi. NCCC&DRM is co-chaired by the Department of Climate Change Meteorological Services (DCCMS) and Department of Disaster Management Affairs (DoDMA), with its Secretariat in The Environmental Affairs Department (EAD). NCCC&DRM acts as a forum for cross-sectoral review and evaluation of progress in NDC implementation. The NCCC&DRM was chosen by the FAO/GEF-7 Project as the key partner for policy dialogue because of its track record of work and demonstrated capacity to carry out its institutional mandate.

365. *Sub-activity 3.2.2.1 Policy Influencing Plan (PIP).* Through the FAO/GEF-7 Project, EbAM will partner with the Centre for Environmental Policy and Advocacy (CEPA) to carry out a policy review process/assessment. The result of this policy review process will be a Policy Influencing Plan (PIP) (i.e. a policy advocacy plan) including the in-depth policy analysis and a set of priority recommendations to improve the mainstreaming of ecosystem restoration, integrated landscape management and biodiversity conservation into the national policy frameworks.

366. *Sub-activity 3.2.2.2 Dissemination of the PIP.* The PIP will be presented at a National Seminar that the NCCC&DRM will call, involving policy-makers, civil servants, research/academia, extension organizations, farmer organizations, private sector, development partners and NGOs. PIP will also be disseminated through the production of leaflets, posters, banners and reports with abundant visual elements, presentations and video presentations translated in the local languages.

367. **Activity 3.2.3 Implementation of the PIP (financed by the GCF, executed by FAO).** Based on the PIP prepared by the FAO/GEF-7 Project, and using EbAM's best practices/ evidence-based studies (prepared under activity 3.2.1), the Project will finance an iterative series of policy dialogue events led by NCCC&DRM at national level, to provide information about existing policy rules and regulations, policy constraints and proposed improvements (new or revised policies) with EbA integrated. NCCC&DRM will be contracted by FAO (CPIU) through a Letter of Agreement (LoA).

368. *Sub-activity 3.2.3.1. Policy dialogue.* Dialogues will aim at achieving a policy paradigm shift towards ecosystem-centred measures linked to sustainable farming under conservation agriculture, agro-environmental production and climate-resilient crops and native, well adapted, non-invasive varieties. Topics for policy dialogue will include re-purposing subsidies from inorganic fertilizers and maize seeds, to

incentives linked to sustainable tree-crop-livestock agroforestry farming under conservation agriculture, biodiversified tree-crop-livestock agroforestry climate-resilient, crops and varieties. Policy dialogue events will target the following stakeholders: (i) policy makers, (ii) civil servants and public officials, (iii) traditional leaders, and, (iv) district officials. Policy dialogue events will be workshops organised by the NCCC&DRM, with support from the PIU. Dialogues will involve the Parliamentary Committee on Agriculture and Natural Resources who can lobby during budget sessions for more funds allocation into these areas. Five (5) policy dialogue events will be organised (2 per year on Y4 and Y5, 1 in Y 6), starting after Project mid-term.

369. *Sub-activity 3.2.3.2 Update of policies and strategic frameworks.* The Project will finance the time of experts who will include priorities into policies and strategic frameworks. Frameworks could include the Agrobiodiversity Policy, the National Agriculture Investment Plan (current NAIP covers 2017-2023) and the National Biodiversity Strategy and Action Plan (current NBSAP covers 2015-2025). FAO, through the CPIU, will organize public events to help make an advocacy case of the revised/new policies, include advocacy-related information in websites, and enrol high-profile individuals to publicly advocate for the proposed changes.

5.3 Scalability, Replicability and Sustainability

370. *Scalability:* The project will establish the necessary drivers to push the scaling-up process forward, during implementation and beyond. These drivers include:

- *Tested innovations:* the Project will introduce and scale-up EbA solutions in highly vulnerable districts and watersheds to repair degraded ecosystems, increase climate change resilience of agriculture, make water available, and enhance livelihoods.
- *Leadership:* by supporting the adoption of the EbA approach with wide arrays of stakeholders, both at watershed level and beyond – food system actors, VNRMCS, CMCs, extension services, financing institutions, technical and financial partners, policy makers engaged in policy dialogue processes, etc., enabling its replication at all levels.
- *Incentives and accountability:* the prospects of stabilized and diversified incomes and relatively higher returns are a key incentive for the long-term adoption of proposed climate-resilient technologies at farm and community levels.
- *Enabling environment/ catalysts:* EbA solutions, fully aligned with Malawi's NDC, will reduce maladaptation risks, and create a virtuous cycle whereby the increased resilience of practitioners pushes them to further engage in EbA. Through knowledge management and improvements in the financial mechanisms and regulatory framework, the project will create an enabling environment conducive to private sector investment, and more inclusive financial services, facilitating access to EbA-based technologies and farm production throughout Malawi.

371. *Replicability:* EbAM's replicability will be guaranteed by (i) the relevance, efficacy and effectiveness of promoted techniques to build vulnerable smallholder's and ecosystem's resilience in the context of Malawi; (ii) the integration of EbA in local planning and national policies and investment plans, as well as extension programs through FFS – guaranteeing both a strong ownership at local and national levels, and establishing the blueprint for future replication; and (iii) support to financial mechanisms both at local and national level to facilitate the pursued financing of promoted interventions, through: an enhanced access to finance through MoF/FARMSE; and the innovative financing mechanisms and support to NCCF in mobilizing catalytic climate finance.

372. *Sustainability:* The EbAM project holistically addresses critical drivers of sustainability:

- *Political and institutional:* By supporting CMC and VNRMCS to firmly mainstream EbA into local development planning, the Project will develop medium to long-term institutional capacity to mobilize more climate finance towards climate-resilient investments in degraded watershed ecosystems, beyond the Project's investment horizon. This decentralized and participatory planning process will advance the policy and regulatory frameworks in the field.

- *Social sustainability and ownership*: Ownership and appropriation – which are key for behavioral change – are embedded in the project, notably through its participatory and collective learning approaches.
- *Economic/financial*: The increased inclusion of smallholder farmers, FOs and SMEs within food systems (i.e. markets/ business opportunities with private sector, as well as local finance institutions developed by the MoF/FARMSE), will contribute to stabilize incomes and enhance the sustainability of ecosystem-based adaptation interventions. In addition, support to the NCCF, local conservation Trusts, as well as partnerships with CAM to leverage private sector experience on carbon credits, will aim to secure the long-term financial sustainability of the landscape restoration interventions.
- *Environmental*: EbA approaches repair and restore ecosystems, guaranteeing their sustainable provision of services to the communities whose livelihoods depend on.
- *Technical*: appropriateness of techniques supported under the project.

5.4 Project benefits

373. One key benefit that the Project will generate is enhanced food security (SDG2 – Zero Hunger). EbA practices will improve soil fertility and boost yields of crops impacted by climate-change (see FP section B.1. climate rationale). For example, studies in Malawi reported that maize yields could increase by more than 40% under traditional management with *Acacia albida*⁴⁴⁰. Evidence also suggests that yields obtained by smallholder in Malawi could potentially double if farmers had access to the knowledge, extension services and trainings on sustainable adaptation to climate change⁴⁴¹. Activities will also contribute to poverty alleviation (SDG1 – No Poverty) thanks to their potential to increase household incomes⁴⁴².

374. By scaling up EbA practices, the Project will generate environmental co-benefits in terms of better land and water use, improved soil quality and water conservation that will lower GHG emissions, hence generating mitigation co-benefits (SDG13 – Climate Action) which are accounted for under MRA4 (Forestry and Land Use – see above). In addition, erosion control will generate environmental benefits such as sediment retention, hence protecting downstream public goods (watershed ecosystems including various waterbodies) and private entities⁴⁴³ with valuable fixed assets, hence contributing to SDG 15 (Life on Land). As highlighted in section B.1, climate change will negatively affect the health of the population.⁴⁴⁴ Therefore, as a result of improved climate change adaptation, the Project will also contribute to SDG 3 (Good Health and Well Being).

375. The Project will contribute to gender equality and women empowerment (SDG5), to the National Gender Policy and address the gender inequalities exacerbated by climate change. Through the use of participative community and gender transformative approaches, it will ensure the full engagement and participation of women in FFS on climate-resilient agriculture, and mainstream gender in the trainings. The Project will train extension workers on gender and social inclusion, and create opportunities for dialogues between women, men, female and male youth. Project will incentivize women's access to labour saving technologies, nutrition sensitive and early maturing crop varieties, as well as productivity-enhancing assets. Studies in Malawi⁴⁴⁵ reported that conservation agriculture (CA) alone can reduce the labour demand for women farmers by about 34 days.

376. Sustainable adaptation to climate change is unattainable if interventions exclude the vulnerable groups or do not fully cater to them. The vulnerable groups are characterized by scant access to knowledge, resources and opportunities and tend much more than others to resort to practices which are viable in the short term, but come at the expense of opportunities to reach long-term goals. Such practices in the case of climate change adaptation are called maladaptation. Therefore, without adoption of gender-sensitive approach, gender gaps are bound to grow and make women even more vulnerable, increasing the chances of serious maladaptation.

5.4.1. Calculation of beneficiaries

377. **Total number of direct and indirect beneficiaries' estimations.** EbAM will support restoration activities (over 83,240 ha) under Component 1, reaching directly 270,820 people or about 61,550 households. The project's investment logic is based on an integrated landscape development approach, with micro-catchments as entry points for project implementation. Therefore, the methodology for calculating direct beneficiaries relies on the assumption that people and households belonging to the villages in the targeted micro-catchments and benefiting from component 1 investments are all directly engaged in project activities, and will all receive measurable adaptation benefits. Part of this population will also be participating in other component activities (as evidenced in Table 32) and computations avoided double counting. Based on use of sex-disaggregated data at district level (data from the 2018 household Census), the project expects to reach 52% of women.

378. Villages and people that are not part of the targeted micro-catchments but are included in the selected sub-catchments were counted as indirect beneficiaries. These indirect beneficiaries are individuals who will not receive targeted support from EbAM's, but will receive a measurable adaptation benefit thanks to an improved environment driven by SCMCs and EbA-based SCMP developed under component 1. The total number of indirect beneficiaries estimated corresponds to 69,099 households or 304,035 people. Based on this, the total number of project beneficiaries is estimated at 574,855 people, of which 52% are women.

Table 30 shows how direct and indirect beneficiaries were calculated. In summary:

- I. Based on sub-catchments (SC) delineations using GIS mapping (see section 1.4 of the present FS), and based on the estimated number of possible micro-catchments per SC, Traditional Authorities were identified, and corresponding hectares calculated (at planning/ SCMP and direct/VLAP intervention levels);
- II. Data from the 2018 Population Census⁴⁴⁶ was used to provide population by Traditional Authority as well as the number of people per household;
- III. Data from (I) and (II) were used to estimate the share (percentage) of Traditional Authority area covered by the SCMPs⁴⁴⁷ and the share of TA area covered by the VLAPs. That percentage was used to estimate the actual population that would benefit from the VLAPs⁴⁴⁸, i.e. direct beneficiaries.
- IV. The above estimation for the VLAPs resulted in a number of direct beneficiaries (individual and households) for each TA. The aggregation of direct beneficiaries per TA gives the final number of direct beneficiaries.
- V. The remaining share of population and ha from each TA/sub-catchment are those considered as indirect beneficiaries.

379. For example, WRU 4A (covering Dedza district) includes 2 TAs, Kazumbo and Tambala, with a population of respectively 110,262 and 84,103, according to the 2018 Census (see Table 30). The actual targeted sub-catchment will cover 25% of the TA area. This means that the actual benefiting population per sub-catchment area can be estimated to 25% of the total population of the TA. Additionally, 64% of the total sub-catchment area will be covered by VLAPs implementation. Direct beneficiaries from VLAP implementation can hence be estimated by applying this percentage (64%) to the overall population of the sub-catchment. The remaining population of the sub-catchment is considered as indirect beneficiaries.

Table 30 - Direct and Indirect beneficiary calculation detail by WRU and sub-catchments

WRU	Districts	No of targetted TA/SC	Population	Net Targetted PLANNING area		Net Watershed Intervention Area		Assumptions for beneficiary and area estimations
				(Ha)		@ 800Ha/GVLAP	(Ha)	
8A	Karonga	TA Kyunqu	89672		14435		5600	
		TA Nthalire	19340		21652.5		3200	
		total population in Sub-catchment area	27,253					25% of the total TA population as per actual Sub-catchment area from total TA
		total people indirect	total people direct					24 % of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
		20,712	6,541	36,088		8,800		
16G	Rumphi	SC Mwankhunikira	25,466		26724.0		4800	
		SC Chapinduka	3754					
		SC Mkondowe	2140					
		TA Musisiya	24642					
	Nkhataka Bay	SC Nyalunwanga	13054		54744.1		4800	
		total population in Sub-catchment area	62,150					80% of the total TA population as per actual Sub-catchment area from total TA
		total people indirect	total people direct					12% of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
4A	Dedza	TA Kazumbo	110262					
		TA Tambala	84103		8772.7		5600	
		total population in Sub-catchment area	48591					25% of the total TA population as per actual Sub-catchment area from total TA
		total people indirect	total people direct					64% of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
		17,493	31,098	8,773		5,600		
1M	Neno	TA Dambe	33130				7200	
		TA Mlauli (shared with WB)	13871.91		20422		4800	
	Mwanza	TA Kanduko	49941		22063			
		total population in Sub-catchment area	73192					75.5% of the total TA population as per actual Sub-catchment area from total TA
		total people indirect	total people direct					28% of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
		56,358	16,834	42,486		12,000		
14D	Thyolo	SC Mbawe	49022					
		TA Nsabwe	45511					
		SC Thukuta	21354		14029.443		10400	
		total population in Sub-catchment area	104298.3					90% of the total TA population as per actual Sub-catchment area from total TA
		total people indirect	total people direct					74% of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
		27,118	77,181	14,029		10,400		
1G	Nsanje	TA Mlolo	69110					
		SC Mbenje	53559					
		TA Tengani	41100					
		Various x 4						
		total population in Sub-catchment area	137,729.7		51003.355		20,000	84.1% of the total TA population as per actual Sub-catchment area from total TA
1T	Mangochi	total people indirect	total people direct					39% of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
		84,015	53,715	51,003		20,000		
		TA Chimuwla	93858					
		total population in Sub-catchment area	51621.9					55% of the total TA population as per actual Sub-catchment area from total TA
		total people indirect	total people direct					48% of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
1B	Zomba	26,843	24,779		11592		5600	
		TA Mlumbe	127300					
		total population in Sub-catchment area	70015					55% of the total TA population as per actual Sub-catchment area from total TA
		total people indirect	total people direct					76% of the population in the Sub-catchment area directly benefiting as per area of VLAP implementation
		16,804	53,211		22045		16800	
		Total direct people	270,817		267,483		88,800	
		Total indirect	304,035					

Table 31 - Summary of direct and indirect beneficiaries, households VLAPS and villages

Districts	(indirect beneficiaries Outreach % of rest of TAs SC level planning)	Total indirect HHs	WRU #	Direct beneficiaries Outreach	Total direct HHs	VLAPs	Villages
Nkhataka Bay	54,692	12,430.08	16G	7,458	1,695.01	12	120
Chitipa, Karonga, Rumphi	20,712	4,707.34	8A	6,541	1,486.53	11	110
Dedza	17,493	3,975.65	4A	31,098	7,067.82	7	70
Neno, Mwanza	56,358	12,808.58	1M	16,834	3,825.94	15	150
Nsanje	84,015	19,094.35	1G	53,715	12,207.86	25	250
Mangochi	26,843	6,100.77	1T	24,779	5,631.48	7	70
Zomba	16,804	3,819.00	1B	53,211	12,093.50	21	210
Thyolo	27,118	6,163.08	14D	77,181	17,541	13	130
Total	304,035	69,099		270,817	61,549	111	1110

380. **Direct beneficiaries' calculations by activity.** The following Table 32 shows direct beneficiaries by funding source and activity, including household members. The table also categorizes beneficiaries by type for each activity (i.e. individual farmer, FOs or groups and MSMEs). The corresponding Excel is also included as Appendix 3 to the present document. The last columns shows data disaggregated by sex. Assumptions to avoid double counting in the total number of beneficiaries per sub-component are described in the last column of the table. Assumption for calculations were the following:

- Number of household members: 4.4
- Average number of people per MSMEs: 20
- Number of members per farmers' group: 20
- FFS members, including CBF:25
- Number of 4Ps: 12
- Percentage of total beneficiaries becoming member of a VSLA, and considers only adults of the households (2 people assumed)): 80%
- Share of farmers having access to FFIs: 70%
- People per individual nurseries and multiplication: 15
- People per nursery/multiplication: 15
- Percentage of beneficiaries reached by digital extension: 70%
- Share of VLAP stakeholders benefiting from technical trainings: 20%
- Share of VLAP stakeholders benefiting from Dimitra Club: 100%
- Share of VLAP stakeholders benefiting from household methodology for wife and husband: 40%
- Share of VLAP members benefiting from household methodology for youth: 30%
- VNRMC members: 18
- SMC members: 8
- 40% of budget from FFS comes from MoA.

381. Each total number of beneficiaries shown in the table remains at output level, and it does not add to the total number of project beneficiaries. Under each output, assumptions to avoid double counting were taken as shown the last column of the table. For activities where no direct beneficiaries are expected at output level, such as those activities related to Component 3, "Not Applicable" (N/A) has been indicated.

Table 32 - Direct beneficiaries Calculation per activity.

Component	Output	Activity	Direct beneficiaries by source of funding				Population direct by type				Population direct by gender		Assumptions to avoid double counting
			GCF	MoF/FARMSE	MoA	FAO	Individual Farmers	Households	FO and groups	MSMEs	Male	Female	
C1	<u>Output 1.1: Integrated landscape management plans that include watershed ecosystems and founded on EbA are developed</u>	Total	270,817										Assumptions to avoid double counting
		Activity 1.1.1: Targeting and Phasing of Sub-Catchments and Micro-Catchments	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	All activities overlap with 1.1.3 beneficiaries
		Activity 1.1.2: Capacity Development of ILM Stakeholders on Ecosystem-based Adaptation	270,817				61,549	61,549	141		129,992	140,825	
		Activity 1.1.3: Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and formulation of EbA-based Village Level Action Plans (VLAPs)	8,791				1,998	1,998	111		4,220	4,571	
		Activity 1.1.4: Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchments Management Plans (SCMPs)	1,056				240	240	30		507	549	
	<u>Output 1.2: Integrated landscape management plans that include watershed ecosystems and founded on EbA are implemented</u>	Total	270,817										Assumptions to avoid double counting
		Activity 1.2.1: Preparation of VLAP implementation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Activity 1.2.2 includes the whole population part of the VLAPs. This equals outreach
		Activity 1.2.2: VLAP Implementation	270,817				270,817	61,549			129,992	140,825	
C2	<u>Output 2.1: EbA measures and inputs are promoted among farmers</u>	Total	122,368	-							115,180	172,769	Assumptions to avoid double counting
		Activity 2.1.1: EbA agriculture extension support through FFS	71,280		47,520		27,000	27,000			28,512	42,768	2.1.3 includes the rest of beneficiaries' activities overlaps at least 30% of beneficiaries from FFS and overlaps
		Activity 2.1.2: Knowledge and innovation	211,572					48,084			84,629	126,943	
		Activity 2.1.3: Agrobiodiversity Promotion	5,097			27,754	27,765	7,469	77		2,039	3,058	

													100% from beneficiaries from FAO cofinancing
	Output 2.2: Private sector incentivized to invest in climate-resilient agriculture; and better farmers' access to markets	Total	76,560										Assumptions to avoid double counting
		Activity 2.2.1: Public-private producer partnerships (4Ps) establishment	52,800					12,000			26,400	26,400	Activities 2.2.2. and 2.2.3 overlap being the same beneficiaries
		Activity 2.2.2: Micro, Small and Medium Enterprise (MSME) development	23,760					5,400		270	11,405	12,355	
		Activity 2.2.3: Market development through "EbA production system" brand creation	23,760					5,400		270	11,405	12,355	
	Output 2.3: Financial service providers incentivized to invest in climate-resilient agriculture	Total		98,479,323									Assumptions to avoid double counting
		Activity 2.3.1: Consolidation / expansion of Community Based Financial Organizations		98,479			49,239	49,239			47,270	51,209	Activity 2.3.2 overlaps with 2.3.1 beneficiaries
		Activity 2.3.2: Development and delivery of climate adaptation financial services by Formal Financial Institutions	53,592					12,180		270	25,724	27,868	Activity 3.2.1 considers direct beneficiaries as only the adult members (2) of the households.
		Activity 2.3.3: Linkage of partner FFIs to financial instruments providers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		Activity 2.3.4: Linkage of agri SMEs to impact investment funds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
C3	Output 3.1: Sustainable and innovative public and private climate financing through NCCF and local trusts are in place	Total											Assumptions to avoid double counting
		Activity 3.1.1: Support to Malawi's National Climate Change Fund (NCCF)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Activity 3.1.2: Support to National Conservation Trust Funds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		Activity 3.1.3: Leveraging private sector experience on carbon credits in Malawi as part of the exit strategy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Output 3.2: EbA integrated in national policies	Activity 3.2.1: Preparation of evidence-based studies	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		Activity 3.2.2: Policy Assessment and preparation of a policy influencing plan (PIP)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
		Activity 3.2.3: Implementation of the PIP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

5.4.2. Carbon balance

382. The Ex-Ante Carbon Balance Tool (Ex-ACT) has been developed by the Food and Agriculture Organization of the United Nations (FAO) to evaluate impacts of the interventions in the Agriculture, Forestry and Other Land Use (AFOLU) sector on greenhouse gas (GHG) emissions. Ex-ACT provides estimates of the mitigation potential of public or private investment projects, policies and national level programs. It helps the decision makers to understand whether the planned agricultural interventions contribute to meeting climate change mitigation objectives. The Ex-ACT appraisals, initially designed for *ex-ante* analysis, can be also conducted during the project implementation as well as *ex-post* for comprehensive monitoring and evaluation, both at a project and at a country level. Ex-ACT calculations are based on land use data.

383. The current version of Ex-ACT (V9.3) is primarily based on the IPCC 2019 Refinement to the 2006 Guidelines for National Greenhouse Gas Inventories (IPCC 2019) and IPCC 2013, 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands (IPCC 2014), complemented by other scientific research. GHG emissions for farm operations, inputs, transport and irrigation systems implementation are based on Lal (2004). Emissions factors for the fishery sector are derived from Parker & Tyedmers (2014), Sciortino (2010), Winther et al. (2009) and Irribaren et al. (2010 & 2011). Soil carbon stock in mangroves is complemented by the review from Atwood et al. (2017). These references provide Ex-ACT with recognized default values for emission factors and carbon values, the so-called Tier 1 level of precision.

384. The tool consists of seven topic modules that allow to analyze a range of agricultural and forestry activities including crop production, land rehabilitation, forest management, livestock and grassland production systems among others. The tool calculates changes in carbon stocks and GHG emissions including carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), which once converted to CO₂ equivalent are used to derive the carbon balance that indicates the impact of the project: positive carbon balance indicates that the project leads to greater emissions, while negative carbon balance indicates that project contributes to emissions reduction.

385. The evaluation assesses how the impacts of an intervention compared to the business as usual (BAU) scenario. The calculator requires data for 3 specific points in time: initial situation, with project scenario, without project or BAU. Once all this information is gathered, a plan based on technical expertise is generated on how to best model the intervention in the tool along with the assumptions made. This is a crucial step as this is what really determines the measurement of the impact. All these aspects are discussed below to ensure a clear and transparent understanding of the assessment done for this project

386. Results suggest a mitigation potential in the range of -2,750,323 tCO₂eq. Detailed results are presented in Annex 22, and detailed Ex-Act calculations were attached to the file.

5.5 Project costs and financing

Table 33 - Project costs and financing

Component	Output	Indicative cost million USD (\$)	GCF financing	Co-financing	Amount million USD (\$)	Financial Instrument	Name of Institution s
			Amount million USD (\$)	Financial Instrument			
<u>1. Integrated Landscape Management</u>	<u>1.1 Integrated landscape management plans that include watershed ecosystems and founded on EbA are developed</u>	<u>5.68</u>	<u>5.37</u>	<u>Grants</u>	<u>0.31</u>	<u>Grants</u>	<u>FAO</u>
	<u>1.2 Integrated landscape management plans that include watershed ecosystems and founded on EbA are implemented</u>	<u>18.92</u>	<u>18.92</u>	<u>Grants</u>	<u>0.00</u>		
<u>2. Resilient livelihoods and food systems</u>	<u>2.1 EbA measures and inputs are promoted among farmers</u>	<u>10.35</u>	<u>7.24</u>	<u>Grants</u>	<u>0.16</u>	<u>Grants</u>	<u>FAO</u>
	<u>2.2 Private sector is incentivized to invest in climate-</u>	<u>3.49</u>	<u>3.49</u>	<u>Grants</u>	<u>2.95</u>	<u>In-kind</u>	<u>MOA</u>
					<u>0.00</u>		

	<u>resilient agriculture ; and better farmers' access to markets</u>						
	<u>2.3 Financial service providers are incentivized to invest in climate-resilient agriculture</u>	<u>8.66</u>	<u>3.18</u>	<u>Grants</u>	<u>5.48</u>	<u>Grants</u>	<u>MoF</u>
<u>3. Enabling institutional and financial environment</u>	<u>3.1 Sustainable and innovative public and private climate financing through NCCF and local trusts are in place</u>	<u>0.44</u>	<u>0.44</u>	<u>Grants</u>	<u>0</u>		
	<u>3.2 EbA is integrated in national policies</u>	<u>0.75</u>	<u>0.39</u>	<u>Grants</u>	<u>0.36</u>	<u>Grants</u>	<u>FAO</u>
<u>Monitoring and evaluation</u>	<u>M&E</u>	<u>2.32</u>	<u>1.78</u>	<u>Grants</u>	<u>0.19</u>	<u>Grants</u>	<u>FAO</u>
					<u>0.35</u>	<u>Grants</u>	<u>MOF</u>
<u>Project management</u>	<u>PMC</u>	<u>2.62</u>	<u>2.01</u>	<u>Grants</u>	<u>0.62</u>	<u>Grants</u>	<u>MoF</u>
Indicative total cost (USD)	<u>53.22 million</u>	<u>42.81 million</u>	<u>10.42 million</u>				

5.6 Efficiency and effectiveness (economic and financial analysis)

387. EbAM is expected to have multiple benefits for project participants and society as a whole. Broadly, these benefits can be classified as i) increased productivity on farmland, resulting from EbAM activities in Component 1 and support to producers in Component 2 (e.g. FFS and improved access to finance); ii) additional post-production value and improved access to markets through the activities in Component 2 (e.g. the 4Ps and improved access to finance) iii) a significant reduction in greenhouse gas emissions from EbAM and improved agricultural practices and iv) additional benefits of EbAM such as an increased production of Non-Timber Forest Products and other, less easily quantifiable, ecosystems benefits.

388. The ex-ante financial and economic viability of EbAM is demonstrated through an economic and financial analysis, a cost-benefit analysis of the project. The analysis is based on farm and enterprise

models assessing the costs and benefits of proposed project interventions. The financial analysis considers the profitability of these investments from the point of view of project participants, while the economic analysis considers the profitability of investments for the entire project from the perspective of society.

389. At the economic level, one important project benefit will be the project mitigation impact. As mentioned above, the project is expected to lead to a reduction in emissions of 137,516 t CO₂e per year on average over a 20-year period. This reduction in GHG emissions was converted into an economic value using two price ranges (low and high ranges of social carbon prices as adopted by the World Bank) and considered in the Economic Analysis.

390. The results of the financial analysis shows that the proposed investments are financially viable for project beneficiaries, as all financial models have positive Net Present Values (NPV) and Internal Rate of Returns (IRRs) above the financial discount rate of 14.2%. These results mean that EbA solutions have proven to be cost-efficient, which is a key incentive for the long-term adoption and sustainability of these climate-resilient practices and technologies by the farmers.

391. The Economic Analysis further shows that the project as a whole also has a positive return on investment, with an NPV of 68.5 MUSD and an Economic Internal Rate of Return (EIRR) of 32.8%, above the economic discount rate of 10%. These results are those of the baseline scenario, defined as the scenario that includes the value of avoided GHG emissions using the low social carbon price. Using the high social price of carbon, the project EIRR increases to 54.6%. Without the value of avoided GHG emissions, the project has a much lower, albeit still positive, EIRR of 12.7%.

392. The sensitivity analysis further shows that the project remains economically viable in different scenarios, including a decrease in benefits of 20% and an increase in costs of 20%. The cost per beneficiary (197 USD/person) is comparable to/consistent with recent GCF funding proposals.

393. These ex-ante results are confirmed by other analysis in the country. For example, landscape restoration investments under the World Bank-funded MWASIP project show an EIRR of 15.6%⁴⁴⁹ (without of the value of avoided GHG emissions). Enhanced watershed management through improved crop management, tree planting and soil and water conservation measures in the upper catchments foreseen by the GEF-funded ERAS Project are estimated (at design) to have an EIRR of 27.5%⁴⁵⁰. Similarly, catchment management interventions conducted within the SRBMP project are found (at completion) to generate an EIRR of 25.9%⁴⁵¹ (without of the value of avoided GHG emissions). The cost-benefit analysis conducted within the Malawi NFLRA shows that agriculture-based restoration interventions (e.g., conservation agriculture, agroforestry, farmer managed natural regeneration), and forestry-based activities such as community plantations and private woodlots generate positive NPVs ⁴⁵². Ignaciuk et al. (2021) find that the IRR of adopting maize-legume intercropping in the southern Malawian districts of Blantyre, Neno, Phalombe, and Zomba is about 19% as opposed to 15% of maize monocropping (which is the traditional way of growing maize in Malawi)⁴⁵³. Mutenje et al. (2019), using a sample of 1,440 households in both mid-altitude plateau and lakeshore plains AEZs show that growing maize adopting conservation agriculture, drought tolerant varieties, intercropping/rotating with legumes generate positive economic benefits in terms of NPV and IRR⁴⁵⁴.

5.7 Sustainability of proposed interventions / exit strategy

394. The project design includes several features to enhance sustainability. By supporting CMC and VNRM to systematically mainstream EbA into local development planning (sub-activity 1.1.3.3 and 1.1.4.3), the Project will develop medium to long-term institutional capacity to mobilize additional climate finance towards climate-resilient investments in degraded watershed ecosystems, beyond the Project's investment horizon. The Project support (more particularly under activity 1.1.3.3) will ensure that operations and maintenance (O&M) needs (e.g. monitoring of land degradation, regular land maintenance) will be included in VLAPs, and expected to be covered through local governments (districts) funding/ budgets and other sources (see below). This decentralized and participatory planning process will advance the policy and

regulatory frameworks in the field, more particularly the Decentralization Act (which devolves funding from central Government to districts).

395. The increased financial inclusion of smallholder farmers, FOs and SMEs within local finance institutions, together with partnerships with financial instrument providers (e.g. MAIIC) developed (and enhanced) by the MoF/FARMSE (co-financing and co-executing the Project) will contribute to enhance the sustainability of ecosystems-based adaptation interventions. In addition, (i) support to the Malawi Climate Change Fund (NCCF), (ii) linkages with national conservation trusts (MEET and Shire BEST) and, (ii) partnerships with the private sector (CAM/ HSBC – which is financing the Restore Africa Programme) to leverage experience on carbon credits, will facilitate mobilization of climate finance, and contribute to sustaining, replicating and ensuring the long-term financial sustainability of the landscape restoration interventions, while expanding the scale of investments promoted by the Project under component 1 and 2. Interventions will mainstream and deep-root EbA in national policies and investment plans, and bring the EbA agenda at sectoral policies level. By integrating EbA in national policies, the legacy of the component will be to improve the enabling environment, and allow replication and scaling-up of EbA through other projects and programmes – for massive-scale impact and sustainability.

DISTRIBUTION OF INVESTMENT SOLUTIONS AMONG EbAM COMPONENTS

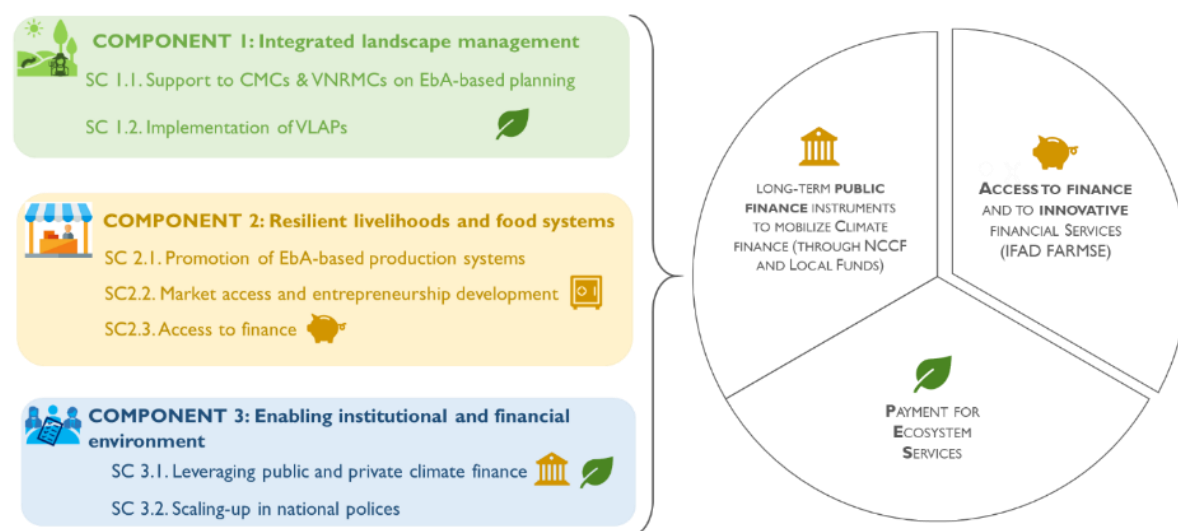









Table 34 - Innovations supported by EbAM

Innovation	Comp./sub-comp.	Innovation type	Purpose
Integration of EbA in local planning - CMPs & VLAPs - with stakeholder engagement, including vulnerable groups	C1, SC1.1 and SC1.2	Planning	<ul style="list-style-type: none"> - Watershed ecosystem resilience to extreme climate - Mitigating maladaptation risks - Equitable sharing of decision-making power among social groups at local/watershed level
Integration of local knowledge on forest management	SC1.1 and SC 1.2	Technical innovation	<ul style="list-style-type: none"> - Implement the government's intention to incorporate local knowledge in forest management (National Forest Policy 2016)
Thorough engagement of farmers in the choice of new technologies to offer	SC 2.1	Implementation	<ul style="list-style-type: none"> - Overcoming the non-adoption barrier against new technologies

			- Acknowledgement of the diversity among farmers for better overall adoption of EbA
 Use of digital technologies	C2, SC2.1	Technical innovation	- Access to digital services, such as agro-weather information and e-extension - Knowledge sharing
 Public private producers partnerships (4Ps) and support to MSMEs	C2, SC2.2	Business innovation	- Smallholder access to markets - Commercial agreements with local private operators/ agri-food SMEs
 Enhanced access to finance through MoF co-financing (MoF/FARMSE Programme), linkages with impact investment funds	C2, SC2.3	Financing mechanism	- Leverage MoF/FARMSE's instruments for an enhanced access to finance service providers (VSLAs, SACCOs, MFIs, Banks) for EbA adoption
 PES	C1 C3, SC3.1	Financing mechanism	- Expanding small scale, community-led PES, such as renting trees for apiculture - Leveraging private sector experience on carbon credits, with Private sector engagement (Climate Asset Management – CAM/ HSBC)
 Support local trusts to access GCF resources	C3, SC3.2	Institutional	- Scalability and sustainability of EbAM interventions
 Support to Malawi's National Climate Change Fund (NCCF)	C3, SC3.2	Financing mechanism	- Sustainability of EbAM interventions - Scalability: building an investment pipeline for NCCF focusing on EbA, in EbAM watersheds and beyond (scalability)
 Integration of EbA in national policies	C3, SC3.3	Policy	- Sustainability of EbAM interventions - Scalability: uptake of EbA into national policies, sectoral plans, and budgetary processes

396. The Project will scale up a number of innovations which are already tried and tested, with a history of delivering positive adaptation results. The climate-resilient investments promoted by the Project are expected to generate attractive financial returns for the farmers⁴⁵⁵ as evidenced in the EFA (see Annex 3). The prospects of stabilized and diversified incomes and relatively higher returns for the farmers are a key incentive for the long-term adoption and sustainability of climate-resilient practices and technologies.

397. Through the various capacity development activities, the project will invest in strengthening the capacity of extension workers and farmers on the topic of climate-resilient agriculture and EbA. The “climate responsive” FFS programme on climate-change adaptation will build and strengthen a network of FFS master trainers and lead farmers as FFS facilitators, who will build the needed extension capacity within the farmer communities. These master trainers and facilitators will be able to support other similar extension interventions inside and outside the targeted districts and watersheds, beyond the Project lifespan.

398. As mentioned below, the proposed project was designed through the participation of a wide array of public and private institutions, civil society (including national and international NGOs) to promote ownership of the project; the project's Stakeholder Engagement Plan (Annex 7) provides detailed information on how these stakeholders will keep being engaged during implementation. M&E and KM&L activities will ensure that the lessons learned, documents produced and the activities implemented during the project are archived (within the Project MIS system), and disseminated to the benefit of other projects and programmes.

Part 6. Implementation arrangements

6.1 Institutional and implementation arrangements

Accredited Entity

399. FAO will serve as the Accredited Entity (AE) for this project. As such, FAO will be responsible for the overall management of the project, including: (i) all aspects of project appraisal; (ii) administrative, financial and technical oversight and supervision throughout project implementation; (iii) ensuring funds are effectively managed to deliver results and achieve objectives; (iv) ensuring the quality of project monitoring, as well as the timeliness and quality of reporting to the GCF; and (v) project closure and evaluation. FAO will ensure these responsibilities in accordance with the detailed provisions outlined in the Accreditation Master Agreement (AMA) between FAO and GCF.

400. FAO's role as AE will be attributed to the relevant offices and divisions in FAO Headquarters located in Rome, Italy (HQ), Sub-Regional Office for Southern Africa located in Harare, Zimbabwe and the Country Representation Office for Malawi (FAO-Malawi).

In order to fulfil the AE functions, FAO will set up a dedicated Project Task Force (PTF) in line with FAO project cycle guidelines. The PTF will be composed by the Budget Holder (BH), the Lead Technical Officer (LTO), Funding Liaison Officer (FLO), HQ Technical Officer and other officers, as appropriate.

401. The PTF will remain independent from the Executing Entity functions also performed by FAO (see Project execution section below). In line with the GCF policy on fees adopted through GCF Board Decision B.19/09, the above-mentioned segregation of responsibilities within FAO will ensure that the Organization can independently and effectively perform the AE functions listed in the GCF *General principles and indicative list of eligible costs covered under GCF fees and project management costs*.

Project co-financing

402. The Ministry of Finance and Economic Affairs (MoF), the Ministry of Agriculture (MoA), and FAO will provide in co-financing to the project, respectively in the form of cash (grant) for MoF, in-kind for MoA, and cash (grant) for FAO. The co-financiers are responsible for reporting of co-financing activities and their disbursement amount to the AE in accordance with the detailed provisions outlined in the GCF policies as well as AMA, Funded Activity Agreement (FAA) between FAO and GCF and the co-financing agreement signed between the co-financier and FAO in its capacity of AE. MoF, MoA and FAO will be responsible for executing and managing and their co-financing under the coordination of the Project Implementation Unit (PIU – see below) and through the Project Steering Committee - PSC (see Project execution section below). More specifically:

- I. **The Ministry of Finance and Economic Affairs** will provide in-cash (grant) co-financing through the FARMSE Programme, for a total amount of 7.78 million USD. Activities co-financed are described in sub-component 2.3 of the funding proposal.
- II. **The Ministry of Agriculture** will provide in-kind co-financing for a total amount of 2.95 million USD in the form of: (i) salary/time of the Head of District for agriculture, who will contribute to the Project during the FFS; (ii) the salary/time of extensionists (agriculture extension development officer – AEDO, agriculture extension development coordinator - AEDC), who will contribute to the Project during the FFS and; (iii) training venues (training centers for trainings of master trainers and facilitators).
- III. FAO will provide in-cash (grant) co-financing through the GEF-7 funded Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme - SFM DSL IP, for a total amount of 523,000 USD and FAO Technical Cooperation Programme for a total amount of 500,000 USD. Activities co-financed include: (i) a Policy Assessment and the preparation of a policy influencing plan, (ii) production of seeds and seedlings of native plant species with high biodiversity, social and economic value, from local

ecosystem in the Mangochi district, and (iii) FPIC and environmental and social assessment. Through this co-financing, FAO will contribute to the GCF-GEF linkage, and long term vision for complementarity.

Executing Entities

403. The project will be executed by FAO, together with the Government of Malawi (GoM), acting through (ii) the Ministry of Agriculture – MoA (specifically the Department of Land Resources Conservation - DLRC), (iii) the National Local Government Finance Committee (NLGFC) and, (iv) the Ministry of Finance and Economic Affairs - MoF (specifically the FARMSE Programme), in a co-execution modality to deliver the project activities funded by GCF proceeds (see below for details). Additionally, MoF/FARMSE, MoA and FAO will be responsible for executing their co-financed activities.

404. **FAO** will act as an Executing Entity (EE) and will ensure strong country-driven execution of project activities and will be in charge of the execution of selected activities funded by GCF proceeds based on its comparative advantages. It will also coordinate the work of the co-EE supporting EbAM (MoA, MoF and NLGFC – see below). This will allow Malawi to benefit from the technical and operations experience of a specialized development assistance agency from the United Nations (UN), while providing opportunities for the government to increase their capacity through technical assistance and development and implementation of activities under the three components. FAO will also execute the activities co-financed by the FAO managed GEF-7 project.

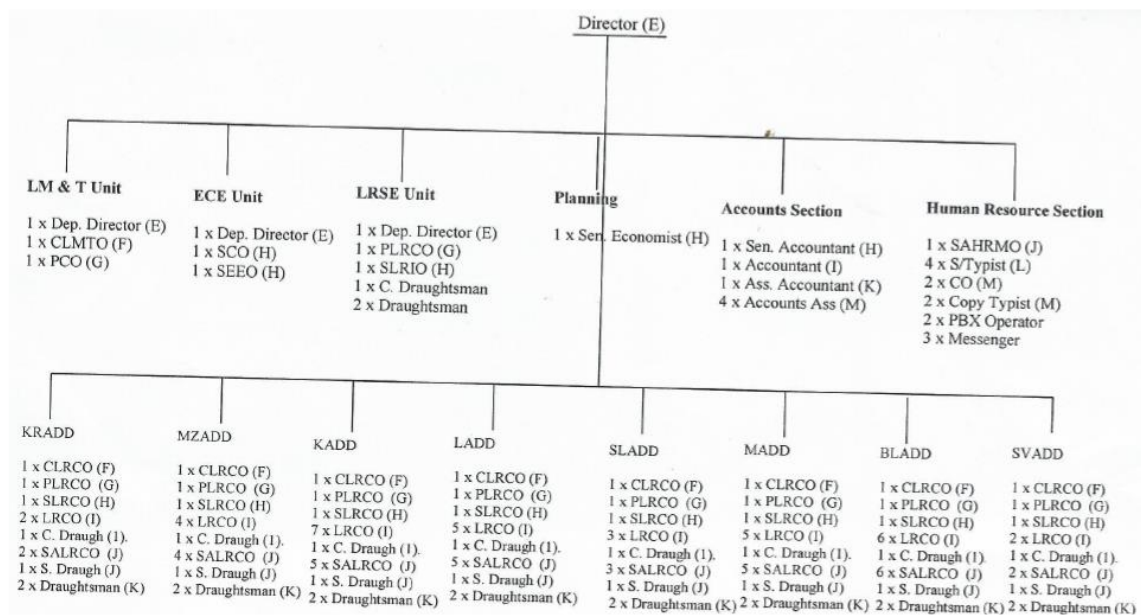
405. **The Ministry of Agriculture (MoA – see organigram below).** MoA is strongly engaged since the beginning of EbAM's design process, and it collaborated closely with the Project formulation Team (through e.g. the mobilization of a National Task Force appointed by the Director of the Department of Land Resources Conservation, and the contribution to background studies). Through its: (i) various technical departments (Department of Land Resources Conservation, Department of Agricultural Extension Services, Department of Crop Production etc. – see organigram below), (ii) engagement in the implementation of other donor-funded Projects (e.g. DLRC for the World Bank-funded Malawi Watershed Services Improvement Project - MWASIP), (iii) strong experience in Land Resources Management at watershed level and, (iv) network of decentralized staff at local level (ADD – Agricultural Development Districts), MoA is in a very good position to implement technical activities as an EE in the targeted catchments, more particularly through the DLRC (see organigram below).

406. MoA will collaborate with the districts and with all the actors of the decentralized local government system i.e. District Executive Committees (DEC), District Environment Sub-Committee (DESC), District Director of Agriculture and Natural Resources, Traditional Authorities (TAs), Group of Village Heads (GVH), village natural resources management committee (VNRMCs).

Figure 53 - Organigram of MoA (source: MoA's website)



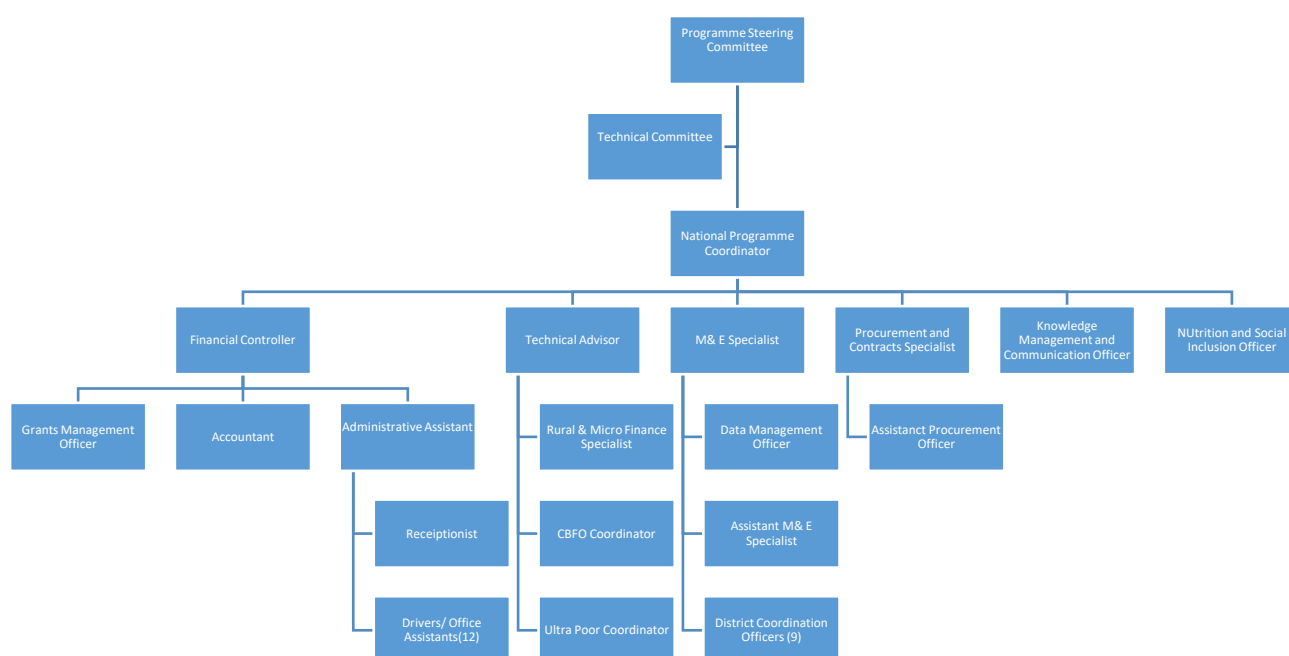
Figure 54 - Organigram of DLRC (source: operational assessment of DLRC)



Legend: CLMTO: Chief Land Management Training Officer; PCO Principal Conservation Officer; CLRCO Chief Land Resource Conservation Officer; PLRCO Principal Land Resource Conservation Officer; SLRCO Senior Assistant Land Resource Conservation Officer; SALRCO Senior Assistant Land Resource Conservation Officer; LRCO Land Resource Conservation Officer ; C Draughtsman Chief Draughtsman; S Draughtsman Senior Draughtsman; S/Typist Senior Typist; SLRIO Senior Land Resource Information Officer; SCO Senior Conservation Officer; SEEO Senior Environmental Education Officer ; SAHRMO Senior Administration and Human Resource Management Office

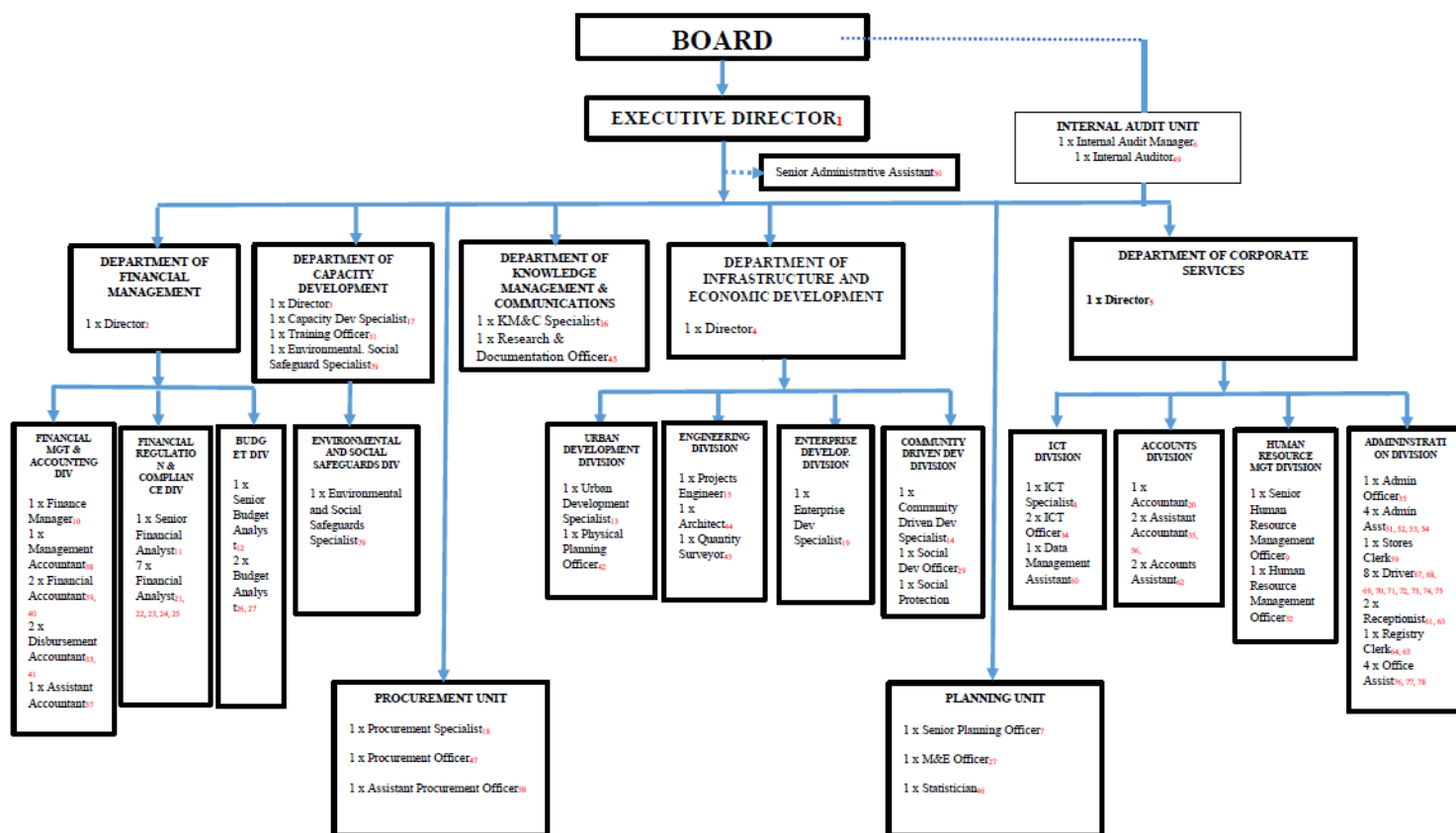
407. **Ministry of Finance and Economic Affairs (MoF), as lead Agency of the FARMSE Programme.** MoF/FARMSE, expressed interest to co-finance and co-execute EbAM (see section 5.2 of the Feasibility Study). FARMSE (see organigram below) is a Programme funded by the International Fund for Agricultural Development (IFAD) and implemented by MoF. The Programme's development objective is to increase access to a range of sustainable financial services by rural households and micro, small, and medium enterprises (MSMEs). FARMSE is a nation-wide project covering the 28 districts of Malawi. The four components are: (i) Component 1: Ultra-poor graduation model development and scaling up – Development and delivery of effective graduation programmes in rural areas to reduce extreme poverty levels; (ii) Component 2: Support to Financial Innovation and Outreach, through (i) Support to Community based financial organization (CBFO) and (ii) Innovation and Outreach Facility (IOF) to support Formal Financial Institutions (FFIs) to innovate and increase their rural outreach.(iii) Component 3: Strategic Partnerships, Knowledge Generation, and Policy aiming at increasing the capacity and knowledge base of rural financial sector support organizations. Component 4: Programme management involving the Programme Steering Committee (PSC), the Programme Technical Committee (PTC) and the Programme Management Unit (PMU). MoF/FARMSE has reached 845,000 beneficiary households, including 23,000 in the Ultra Poor Graduation component, 547,000 supported to access informal financial and non-financial services from 26,239 CBFOs, and 381,000 having accessed formal financial services from commercial banks, SACCOs and MFIs. It is expected to reach a total of 1.5 million beneficiaries by June 2028. Key focus for the remaining project life will be to scale up current activities while at the same time ensuring sustainability of outcomes. Specific focus will be on promoting adapted financial services for farmers and agri SMEs through agricultural value chain financing and promotion of digital innovations, including climate adaptation financing.

Figure 55 - Organigram of MoF/FARMSE (source: FARMSE Project Programme Implementation Manual)



408. **The National Local Government Finance Committee (NLGFC).** NLGFC is the constitutional body with the mandate to facilitate fiscal decentralization, financial management and local development in local governments (District Councils) of Malawi. As it is the case under the GEF-7 funded, FAO-implemented *Sustainable Forest Management, Dryland Sustainable Landscape Impact Programme - SFM DSL IP*, NLGFC (through the Department of Infrastructures and Economic Development, supported by the Department of Financial Management) will provide the procurement services to the EbAM project, being in charge of investigating sources of supply, obtaining price quotations, negotiating with suppliers on price and delivery and monitoring the transfer of procured inputs to the project beneficiaries, based on the needs identified in the VLAPs (see component 1). This will facilitate accessibility for inputs for the restoration, sustainable management, production and manufacturing of agriculture and forest products. In addition to working with FAO, NLGFC has extensive experience working on donor-sponsored projects, such as the World Bank (Social Support for Resilient Livelihoods Project). Through this partnership, the Project will support implementation of the Decentralization Act (1998), which devolves powers and funding from the central government to districts, hence ensure project sustainability, and support a paradigm shift towards an increased ownership by districts.

Figure 56 - Organigram of NLGFC (source: NLGFC website)



409. **Flow of funds and legal arrangements.** After the signature of the FAA, FAO will enter into a Project Agreement (Subsidiary Agreement) with the Government of Malawi, which will be binding on all the government entities involved in the project, including MoA (DLRC), NLGFC and MoF (FARMSE). The Project Agreement will include 1) provisions on the Convention on the Privileges and Immunities of the Specialized Agencies, 2) provisions with respect to the co-financing to be provided by the Government of Malawi acting through MoA and MoF, and 3) the respective roles and responsibilities of the Accredited Entity and the Government of Malawi for the implementation of the Project. In line with the project implementation arrangements outlined above, GCF proceeds received by FAO in its capacity as Accredited

Entity will flow to the co-Executing Entities, namely FAO-Malawi, MoA, NLGFC and MoF for the implementation of project activities (Figure 57). A summary of EE activities also illustrating the flow of funds is presented in Table 35 below. The provisions regarding MoF and MoA responsibilities, both as EEs and co-financiers, as well as NLGFC responsibilities as EE, together with all financial details, will be included in the Project Agreement, which will also serve as subsidiary agreement, signed by the Government of Malawi.

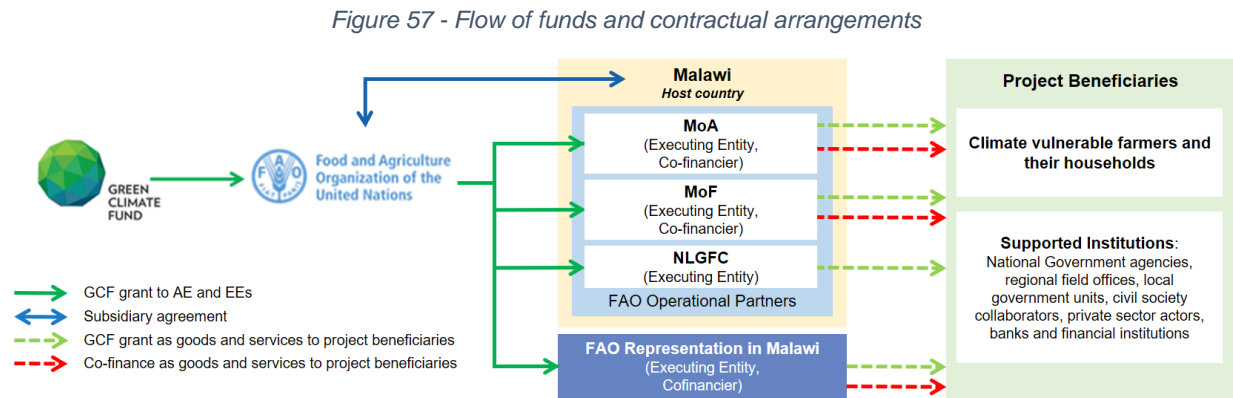


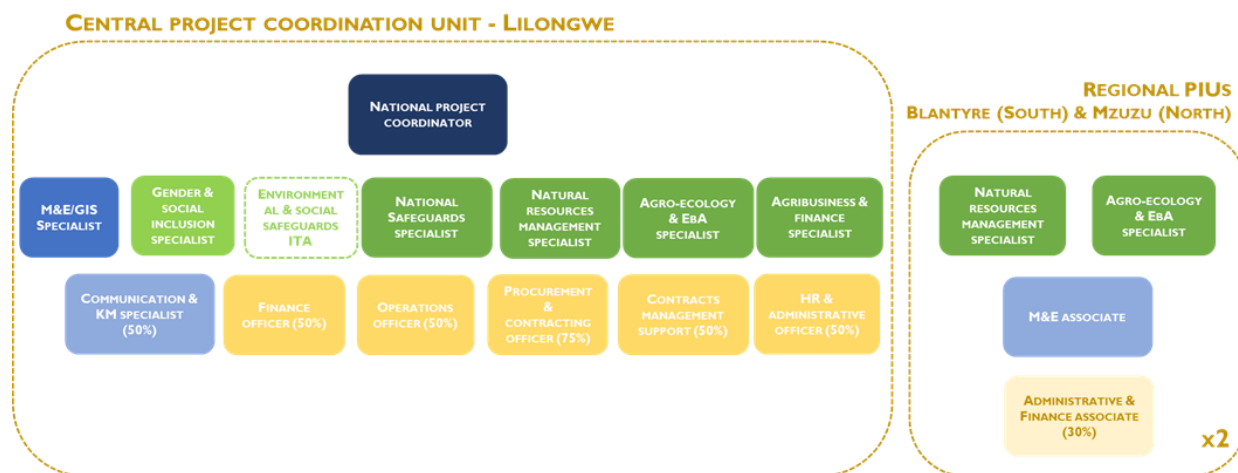
Table 35 - Project activities per EE

Output	Activity	Sub-activity	GoM (MoA)	GoM (MoF)	GoM (NLGFC)	FAO	Funding source
1.1	Activity 1.1.1: Targeting and Phasing of Sub-Catchments and Micro-Catchments	1.1.1.1					GCF
		1.1.1.2					FAO
		1.1.1.3					GCF
	Activity 1.1.2: Capacity Development of ILM Stakeholders on Ecosystem-based Adaptation	1.1.2.1					GCF
		1.1.2.2					GCF
		1.1.2.3					GCF
	Activity 1.1.3: Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and formulation of EbA-based Village Level Action Plans (VLAPs)	1.1.3.1					GCF
		1.1.3.2					GCF
		1.1.3.3					GCF
	Activity 1.1.4: Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchments Management Plans (SCMPs)	1.1.4.1					GCF
		1.1.4.2					GCF
		1.1.4.3					GCF
1.2	Activity 1.2.1: Preparation of VLAP implementation	1.2.1.1					GCF
		1.2.2.1					GCF
		1.2.2.2					GCF
2.1	Activity 2.1.1 EbA agriculture extension support through FFS	2.1.1.1					GCF
		2.1.1.2					GCF
		2.1.1.3					MoA
	Activity 2.1.2 Knowledge innovation	2.1.2.1					GCF
		2.1.2.2					GCF
		2.1.2.3					GCF
	Activity 2.1.3 Agrobiodiversity promotion	2.1.3.1					GCF
		2.1.3.2					FAO (GEF7 Project)
		2.1.3.3					GCF
		2.1.3.4					GCF
							GCF
							GCF
2.2	Activity 2.2.1 Public-private producer partnerships (4Ps) establishment	2.2.1.1					GCF
		2.2.1.2					GCF
		2.2.1.3					GCF
	Activity 2.2.2 MSME development	2.2.2.1					GCF
		2.2.2.2					GCF
		2.2.2.3					GCF
	Activity 2.2.3 Market development through 'EbA production system' brand creation	2.2.3.1					GCF
		2.2.3.2					GCF
		2.2.3.3					GCF
	Activity 2.3.1 Consolidation / expansion of Community Based Financial Organizations	2.3.1.1					MOF (FARMSE)
		2.3.1.2					MOF (FARMSE)
		2.3.2.1					GCF
2.3	Activity 2.3.2: Development and delivery of innovative climate adaptation finance services	2.3.2.2					MOF (FARMSE)
		2.3.3.1					MOF (FARMSE)
		2.3.3.2					MOF (FARMSE)
	Activity 2.3.3. Linkage of partner FFIs to financial instruments	2.3.4.1					MOF (FARMSE)
		2.3.4.2					MOF (FARMSE)
							MOF (FARMSE)
3.1	Activity 3.1.1. Support to Malawi's National Climate Change Fund (NCCF)	3.1.1.1					GCF
		3.1.1.2					GCF
		3.1.1.3					GCF
	Activity 3.1.2. Support to National Conservation Trust Funds	3.1.1.4					GCF
		3.1.1.5					GCF
		3.1.2.1					GCF
	Activity 3.1.3. Leveraging private sector experience on carbon credits in Malawi as part of the exit strategy	3.1.2.2					GCF
		3.1.2.3					GCF
		3.1.3.1					GCF
	Activity 3.2.1 Preparation of evidence-based studies	3.1.3.2					GCF
		3.2.1.1					GCF
		3.2.1.2					GCF
3.2	Activity 3.2.2. Policy Assessment and preparation of a policy influencing plan (PIP)	3.2.2.1					FAO (GEF7 Project)
		3.2.2.2					FAO (GEF7 Project)
	Activity 3.2.3 Implementation of the PIP	3.2.3.1					GCF
		3.2.3.2					GCF

410. The project will establish a central **Project Implementation Unit (CPIU)** that will be functional for the entire duration and be responsible for day-to-day implementation of the project. The main functions of the PIU, following the guidance of the PSC and project technical committee (PTC), are to ensure overall efficient management, coordination, implementation and monitoring of the project through the effective implementation of the annual work plans and budgets (AWPBs). The PIU will be led and managed by a project-recruited National Project Coordinator (NPC). The NPC will be appointed by FAO and will be responsible for overall project management and coordination with project stakeholders. The PIU will also include a finance officer (50%), an operation officer (50%), a Human resources & admin officer (50%), a procurement & contracting officer (75%) and a contracts management officer. In addition, the project PIU will include the following technical specialists: (i) a total of 6 technical advisors for components 1 and 2, with a team of 2 specialists (EbA & agroecology specialist in each project office (central and regional): EbA & Agroecology specialist, NRM specialist; (ii) an Agribusiness & Finance specialist at central level, (iii) a Gender and social inclusion specialist at central level, (iv) an Environmental and social safeguards international technical assistance (E&S) at central level (50% time), (v) a national safeguards specialist, (vi) an M&E / GIS specialist at central level; and (iv) a part time Knowledge Management specialist at central

level (50%). All staff will be hired under the project through a competitive process, in close consultation with the Government of Malawi.

PROJECT ORGANIGRAM



411. The CPIU will coordinate closely with the two **Regional Project Implementation Units (RPIUs)**, which will be established in Blantyre (Southern Region) and Mzuzu (Northern Region). RPIUs will supervise the day-to-day project operations in each districts, liaising with the Focal Points (appointed by the EE) in each district. The regional PIU will be composed of the two technical specialists (EbA/ Agroecology specialist and NRM specialist) mentioned above, together with an M&E associate, and part time administrative and finance associate (30%).

Other Project Partners

412. During implementation, in addition to the above EE, the project will engage relevant government counterparts from MoA (e.g. Gene Bank within the Research Services), Ministry of Climate Change and Natural Resources – MoCCNR (e.g. DCCMS) as procured parties. It will also engage knowledge institutions (Agroecology Hub of Lilongwe University of Agriculture and Natural Resources – LUANAR), training centers (Paradise Permaculture Centre, Kusamala Permaculture Institute, SFHC Research and Training Centre), local non-profit conservation trusts (MEET, Shire BEST), finance service providers and the private sector (e.g. Malawi Industrial & Agricultural Investment Corporation – MAIIC).

413. In addition, several partners will be engaged in the project either to ensure complementarity with their activities and/or delivery of goods works and services. The project will cooperate closely with qualified and experienced service providers (NGOs) for several project activities (ILM facilitation, technical assistance for VLAP implementation) under component 1 and 2. More particularly, it will collaborate with a consortium of NGOs from the Malawi Climate Smart Agriculture Alliance (MCSAA), which have extensive technical expertise relevant for the activities to be implemented by this project, and which have regularly worked with MoA (DLRC). MCSAA includes CARE, Catholic Relief Services (CRS), Total Land Care (TLC), Development Fund of Norway (DF Norway), Find Your Feet (FYF). It will also work with NGOs having a proven track-record of implementing EbA/ agroecology activities in the countries or in the region. The partners will be selected as procured parties during project implementation in accordance with FAO rules and regulations for procuring goods and services (e.g. FAO Manual sections 502 and 507).

Project Governance

414. A **Project Steering Committee (PSC)** will be established to provide strategic guidance for the project. The PSC will be co-chaired by the NDA (Environmental Affairs Department, MoCCNR), and co-

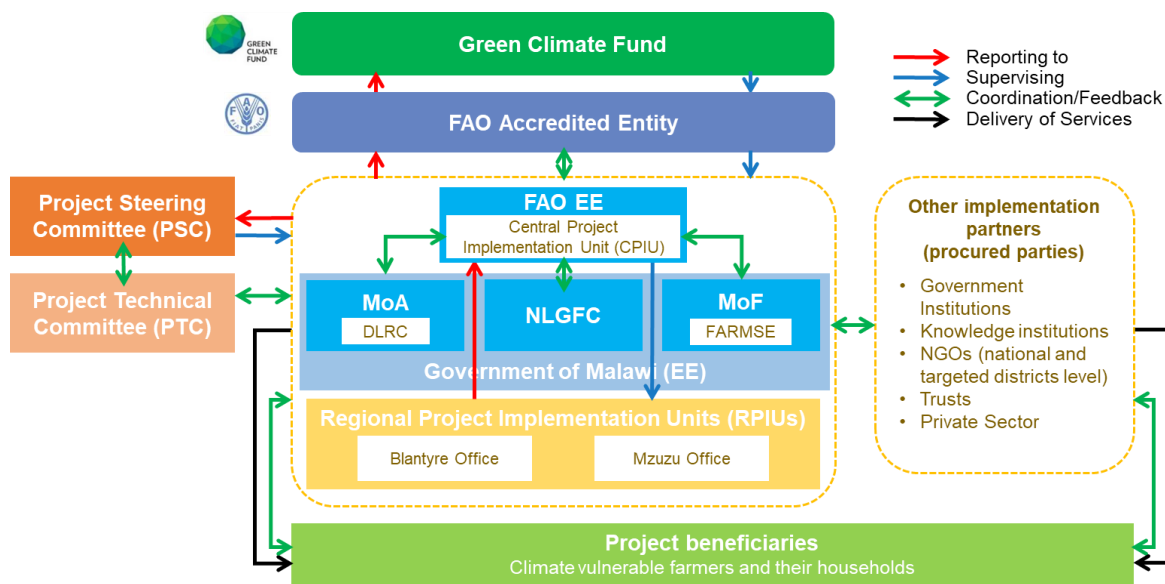
chaired by the Secretary of the MoA and FAO Representative to Malawi. It will also include the Secretary of Ministry of Climate Change and Natural Resources (MoCCNR). The NPC of the PIU will serve as Rapporteur to the PSC. The PSC will include representatives of other key government departments and agencies, private sector and civil society organizations. These partners will include MoA Departments for Land Resources Conservation, Crop Development, Agriculture Extension Services, Agriculture Planning Services, Animal Health and Livestock Development, and respectively. The MoNRCC will also be engaged through the Departments of Forestry (DoF), Climate Change and Meteorological Services (DCCMS), Fisheries (DoF), respectively. It will also engage the NLGFC, the Ministry of Finance and Economic Affairs (MoF, Pensions and Financial Sector Division which is overseeing FARMSE), the Ministry of Community Development and Social Welfare, the Ministry of Lands, the Ministry of Industry, as well as other key entities such as Lilongwe University of Agriculture and Natural Resources (LUANAR), the National Smallholder Farmers' Association of Malawi (NASFAM), the National Water Resources Authority (NWRA), CSOs (Civil Society Network on Climate Change) and NGOs (MCSAA). Representatives of (i) the Development Cooperation Group on Environment, Resilience and Climate change (DCERCC) of the Environmental Affairs Department and (ii), the Joint Technical Committee on Climate Change and Disaster Risk Management, the Donor Committee in Agriculture and Food Security (DCAFS) will also sit in the PSC.

415. The role of the PSC will be to: (i) provide overall guidance and direction to the project, ensuring it remains within any specified constraints; (ii) address project issues as raised by the national project coordinator; (iii) monitor project risks and the effectiveness of mitigation measures, and provide guidance on new project risks, and agree on possible countermeasures and management actions to address specific risks; (iv) review the project progress, and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans; (v) review and agree with annual work plan and provide necessary strategic guidance for its implementation; (vi) appraise the annual project implementation report, including the quality assessment rating report; (vii) make recommendations for subsequent work plans to build on achievements and address any shortcomings; and (viii) provide ad hoc direction and advice for exceptional situations when the project coordinator's tolerances are exceeded.

416. The PSC will be expected to meet formally at least once every 12 months. Formal meetings will be scheduled and arranged by the National Project Coordinator in consultation with, and at the request of PSC members (with tentative dates for the following meeting being agreed under Any Other Business). Extraordinary meetings of the PSC can be requested by any of its members.

417. The PSC will be supported by the **Project Technical Committee (PTC)**, which will review and, where needed, advise on the technical delivery of the project. The PTC will be co-chaired by the NDA, the Department of Land Resources Conservation and FAO Representation in Malawi, which will be the Secretariat for both the PSC and the PTC. Other members of the PTC will include MoA Departments for Crop Development, Agriculture Extension Services, Agriculture Planning Services, Animal Health and Livestock Development, and Agriculture Research Services (including the Gene Bank), MoF (FARMSE) and the MoCCNR Departments of Irrigation, Forestry, and Fisheries respectively, and NASFAM, FUM, NWRA, and relevant CSOs and NGOs. The PTC will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project.

Figure 58 - Proposed institutional arrangements for EbAM



6.2 Safeguards, risks and mitigation measures

418. As per the Environmental and Social Management Guidelines of FAO, all projects are to be screened to establish an overall ESS risk categorisation for the given project. The proposed project has been screened and assessed as having a Moderate (i.e. Category B) ESS risk rating. As a consequence of this risk categorisation, and due to the nature of planned project activities, an Environmental and Social Management Framework (ESMF) has been developed in order to adequately assess, manage and mitigate any social and environmental risks that may eventuate during the course of project implementation. In particular, the ESMF plans for the development of Environmental and Social Management Plans associated with each VLAP, to ensure VLAP priorities (which will guide activities implemented under sub-component 1.2 and subcomponent 2.1) are fully screened against environmental and social safeguards.

419. FAO safeguard standards which have been triggered during the environmental and social screening exercise conducted during FP are presented in Table 36 below (summarizing the outcomes of the application of FAO's screening checklist).

Table 36 - FAO's screening checklist applied to EbAM

FAO Safeguard Category	Triggered	Safeguard Instruments & Mitigation Measures
ESS 1 – Natural Resources Management	YES	<p>Standard 1 is triggered in this project due to its emphasis on managing soil and land resources, as well as water resources. The proposed interventions involve developing and implementing Village Level Action Plans (VLAPs) combining EbA and integrated landscape management (ILM) measures at watershed and village levels.</p> <p>The project will not have activities that would result in the degradation of soils, undermine sustainable land management practices or reduce the adaptive capacity to climate change or increase GHG emissions significantly, rather the project primary aims at promoting EbA practices and enhancing the adaptive capacity to climate change. The project doesn't invest in large-scale infrastructure and doesn't have activities that would result in any changes to existing tenure rights. The full transparency of land restoration planning is embedded in the project as a general principle and as part of the participatory process for VLAP preparation. As part of the same process, the establishment of VNRMC charters, and participatory preparation of VLAP will guarantee that all local stakeholders are aware and agree with the restoration actions planned on communal/customary land. In addition, non-eligibility list of activities has been prepared (see appendix IV of the Annex 6).</p>
ESS2 – Biodiversity, Ecosystems, and Natural Habitats	YES	<p>Standard 2 is triggered as activities planned under sub-components 1.2 and 2.1. may result in respectively micro-catchment and farm-level activities that access genetic resources for their utilization, and/or access traditional knowledge associated with genetic resources that is held by local communities and/or farmers.</p> <p>To address potentially adverse impacts associated with the utilisation of traditional knowledge and use of genetic resources, the project will ensure that benefits arising from utilization, and subsequent application and commercialization, are shared in a fair and equitable way in accordance with the Convention on Biological Diversity. The project has also been designed so as to ensure that activities are aligned with access to benefit sharing as specified in FAO's 2019 guidance: ABS Elements to Facilitate Domestic Implementation of Access and Benefit Sharing for Different Subsectors of Genetic Resources for Food and Agriculture</p>
ESS3 – Plant Genetic Resources for Food and Agriculture	YES	<p>Standard 3 is triggered, as project supported activities prioritized within VLAPS may involve: (i) the introduction of crops and varieties not previously grown; (ii) providing seeds/planting material for cultivation; and (iii) establishment or management of planted forests.</p> <p>To manage adverse risk associated with the handling and supply of seeds for cultivation, the project will: (i) Avoid undermining local seed & planting material production and supply systems; (ii) Ensure that the seeds and planting materials are from locally/regionally adapted crops and varieties that are accepted by farmers and consumers; even if they have been forgotten and will need to be reintroduced; (iii) Ensure that the seeds and planting materials are free from pests and diseases according to norms; and (iv) Ensure, according to applicable national laws and/or regulations, that farmers' rights to plant genetic resources for food and agriculture (PGFRA), and over associated traditional knowledge are respected, along with the sharing of the benefits accrued from their use.</p>
ESS 4 - Animal - Livestock and Aquatic - Genetic Resources for Food and Agriculture	YES	<p>Standard 4 is triggered as the project entails promoting integrated crop/ small livestock, and possibly crop/aquatic production systems (if identified by local residents through ILM) as part of EbA techniques.</p> <p>As a mitigation measure, the Project prioritizes the use of native species in its activities, aligning with the principles of EbA/ agroecology. The team took further mitigation measure by explicitly prohibiting the introduction of non-native and invasive species, thus including it in the ESMF non-eligibility list.</p>
ESS5 – Pest and Pesticide Management	NO	<p>N/A The project primarily aims to enhance ecosystem functions and climate resilience through nature-based approaches, minimizing reliance on chemical interventions. The Project is committed to promoting sustainable and EbA/agroecological practices. Synthetic pesticides will not be promoted through the project. The use of pesticides has been explicitly excluded through the ESMF non-eligibility list. While integrated crop and small livestock is among the EbA techniques promoted by the project, it will</p>

		be implemented in a manner that minimizes environmental and social risks. By prioritizing EbA/agroecological principles and excluding harmful inputs such as pesticides, the project aims to safeguard against unintended consequences without necessitating the triggering of ESS5.
ESS6 – Involuntary Resettlement and Displacement	NO	N/A. The full transparency of land restoration planning is embedded in the project as a general principle and as part of the participatory process for VLAP preparation. As part of the same process, the establishment of VNRMC charters, and participatory preparation of VLAP will guarantee that all local stakeholders are aware and agree with the restoration actions planned on communal/customary land. The project does not entail physical or economic displacement, whether full or partial, permanent or temporary, as a result of land or resource restriction. In addition, under the project's non-eligibility list, several activities are expressly prohibited. These include the use of the project to facilitate involuntary resettlement of local communities, as well as any form of land acquisition. Additionally, restrictions on resource access, such as farming land, that cannot be adequately mitigated and would negatively impact the livelihoods of Indigenous Peoples, ethnic groups, and disadvantaged populations are strictly prohibited.
ESS7 – Decent Work	YES	<p>Standard 7 is triggered as the project may operate in: (i) sectors or value chains that are dominated by subsistence producers and other vulnerable informal agricultural workers, and more generally characterized by high levels “working poverty”; (ii) situations where youth work mostly as unpaid contributing family workers, lack access to decent jobs and are increasingly abandoning agriculture and rural areas; and, (iii) in situations where major gender inequality in the labour market prevails e.g. where women tend to work predominantly as unpaid contributing family members or subsistence farmers, have lower skills and qualifications, lower productivity and wages, less representation and voice in producers’ and workers’ organizations, more precarious contracts and higher informality rates, etc.</p> <p>Specific measures and mechanisms will be introduced to empower the most vulnerable/disadvantaged categories of rural workers such as small-scale producers, contributing family workers, subsistence farmers, and agricultural informal wage workers. Complementary measures have been included in the design of project activities, which are aimed at training youth, engaging them and their associations in the value chains, facilitating their access to productive resources, credit and markets, and stimulating youth-friendly business development services.</p> <p>As per FAO guidance on child labour, children under the age of 18 should not be engaged in work-related activities in connection with the project in a manner that is likely to be hazardous or interfere with their compulsory education or be harmful to their health, safety or morals. Where children under the age of 18 may be engaged in work-related activities in connection with the project, an appropriate risk assessment will be conducted, together with regular monitoring of health, working conditions and hours of work. It should be noted that, if children are involved, this would be limited to family labour that would be likely to occur without project.</p>
ESS8 – Gender Equality	YES	<p>Standard 8 is triggered by the EbAM project since the project may face either passive or active opposition to women's involvement and efforts to enhance women's empowerment within the communities.</p> <p>As per GCF requirements a gender assessment and action plan has been developed, with specific gender-targeted activities built into the project design and social approaches.</p> <p>Moreover, mitigation measures include utilizing targeting mechanisms like direct, community-based, and self-targeting methods to ensure inclusivity of vulnerable groups such as female-headed households, female youth, girls, and persons living with HIV/AIDS. The use of the Dimitra Clubs involving all community members as well as the Household Methodology will promote gender equality through open discussions on gender and social inclusion related issues, including gender-based violence (GBV) and Sexual exploitation, abuse and harassment (SEAH). Training for religious, traditional, and community leaders, project team and facilitators will enhance their capacity to mobilize communities and promote gender equality. The project will promote Gender equality and women empowerment (GEWE) and will monitor the</p>

		progress using the Gender Action Plan (GAP) to ensure alignment with project objectives.
ESS9 – Indigenous Peoples and Cultural Heritage	YES	<p>Standard 9 is triggered due to its potential impacts on indigenous peoples. The project focuses on integrated landscape management and ecosystem-based adaptation, which inherently intersect with indigenous territories and traditional practices.</p> <p>Mitigation measures for ESS9 include obtaining Free, Prior, and Informed Consent (FPIC) and conducting the assessment of Indigenous People Framework in addition to deliver training on FPIC for field facilitation. These measures aim to respect indigenous rights, identify and protect cultural assets, and involve communities in decision-making, ensuring sustainable project outcomes while safeguarding indigenous peoples and cultural heritage. The project extends some of the safeguard activities for IPs to all beneficiary communities in recognition of their rights akin to those of the IPs.</p>

420. The project's ESMF has entailed careful planning and includes a range of management controls to ensure that the post-appraisal social and environmental due diligence takes place in a timely manner. It describes the required institutional mechanisms to allow the executing entities to implement sub-activities in a manner consistent with the requirements of FAO's ESMG, and Malawian regulations. The ESMF establishes a framework that guides the screening and categorization, level of impact assessment, required institutional arrangements, and processes to be followed during project implementation. The ESMF ensures that appropriate management measures that comply with FAO's safeguard requirements, and Malawian regulations are adopted prior to implementation of the proposed activities. FPIC process will be implemented by FPIC facilitators under sub-activity 1.1.1.2.

421. **Institutional arrangements:** Overall compliance with the project's ESMF will be ensured by the Environmental and Social Safeguards (International Technical Assistant) and national safeguards specialist within the CPIU, who will work closely together with the Gender and Social Inclusion Specialist (who will oversee the GAP) and the National Project Coordinator.

422. **In addition, there will be zero tolerance of sexual exploitation, abuse, and harassment (SEAH),** and the project's ESMF consequent ESMP as well as implementation safeguards documents will mainstream SEAH risk mitigation, in accordance with the FAO ESMG. The project will support gender sensitization and trainings for project staff and beneficiaries on gender equality and social inclusion and SEAH, and will elaborate a code of conduct for the implementation of the project. Specific procedures to minimize SEAH risk will be developed for the project GRM, to ensure the mechanism is survivor-centred and gender-responsive (including confidential reporting), and to facilitate linkages to related services and redress for anyone affected by SEAH.

423. **Grievance and Redress Mechanism (GRM):** The grievance redress mechanism (GRM) is an integral project management element that intends to seek feedback from beneficiaries and resolve complaints on project activities and performance. The mechanism is based on FAO requirements and most importantly, it is based on existing, community-specific grievance redress mechanisms preferred by the local beneficiaries. FAO and EEs will inform communities about the GRM through culturally appropriate mechanisms, ensuring information on mechanisms at all four levels is communicated (i.e. community-based, project-level GRM, FAO-level GRM, and GCF's Independent Redress Mechanism). The CPIU and Regional Project Offices will be responsible for managing the grievance and redress mechanism. The GRM has a strong link with FAO Malawi's competent officers to ensure the right application of GRM principles. Project-related SEAH and GBV grievances will be managed through the existing FAO GRM system, which will also be strengthened to include a procedure for handling SEAH that is inclusive, survivor-centred and gender-responsive, complemented by GBV referral pathways. The pathways will be established and operationalized under the project in collaboration with UNFPA, including medical care, psychosocial support, legal and social/reintegration support (see Section 9 of the ESMF in FP Annex 6 for more detailed information).

6.3 Targeting, gender and youth inclusion

424. **Gender strategy and action plan.** The EbAM gender strategy and action plan (Annex 8) aim at mainstreaming social inclusion and sensitivity toward vulnerable groups (women, youth, etc.) in order to promote gender and youth transformation in the longer term. Their elaboration has been based on a gender assessment and consultations that have highlighted the gender/youth roles and power relations, the needs, constraints and opportunities of women, men, female and male youth in the project context. The development of project activities has therefore considered various barriers related to climate change adaptation capacity (see Table 37 below) that have been analysed from a gender and social inclusion perspective. Sensitivity of the project responses to gender and social inclusion is expected to support the achievement of project results. Equal participation and ownership by women, men, female and male youth will make project results more effective and sustainable.

Table 37 - Climate change adaptation capacity barriers analyzed from a gender and inclusion perspective

<i>social barriers and human capital</i>	<ul style="list-style-type: none"> - Cultural norms (including masculinities and patriarchy) and socialization process nurturing an unequal gender division of labor - Limited participation of women due to household burden and time constraints - Unequitable sharing of decision-making power at the household and community levels - Women's lack of economic independence increasing women's exposure to GBV and HIV - Low responsiveness to GBV grievance system - Constrained access to land, due to anchored culture norms, lack of awareness and delayed implementation of the new Land Act
<i>Knowledge and Technical barriers</i>	<ul style="list-style-type: none"> - Limited knowledge of CCA and catchment/landscape, especially among the vulnerable - Limited capacity to integrate catchment into VLAPs - Limited capacity to implement EbA solutions, especially among the vulnerable - Limited capacity and delivery of agricultural extension services - Low access to capacity building trainings - Limited access to inputs - Limited access to technology
<i>Market and financial barriers</i>	<ul style="list-style-type: none"> - Limited existence of funds accessible to the vulnerable (collateral requirement particularly for women and youth, social norm, etc.), restricting them to low-margin businesses - Limited access to markets - Low social standing of the vulnerable especially women, their limited mobility and lack of business information making them dependent on middlemen
<i>Institutional barriers</i>	<ul style="list-style-type: none"> - Limited effective involvement and participation of women and youth in policy elaboration process and consultations - Limited awareness among the policy drafters/approvers and law makers of the importance of social inclusion in sustainability - Limited mechanism in policy drafting/approval and law-making processes to take the vulnerable's point of view into account

425. **Principles of project implementation.** EbAM will be implemented as per the principles below (details available in Annex 8) in order to promote the effective participation of women, men, young people and other vulnerable groups in the various activities with voice and decision-making power:

- social acceptance of gender and youth empowerment,,

- Interventions Based on Custom-fit Context Analysis,
- Inclusive and collaborative process for Mutual Benefits,,
- Women and Youth Empowerment for Meaningful Participation,
- Ensuring Sustainability through Ownership,
- Preventing Increased Risks of GBV including Sexual Violence.

426. **EbAM's gender and social inclusion approaches.** The project will rely on the use of the Dimitra Clubs and the Household approach (HHA), two methodologies that have proven being effective in terms of community engagement, social mobilization and inclusion, collective action, gender equality and equitable sharing of decision-making power both at household and community levels.

427. At community level: Described as voluntary and informal groups of rural women, men, young women and young men which discuss common problems and seek solutions by acting together and using their own locally available resources/capacities, the Dimitra Clubs⁴⁵⁶ are an appropriate entry point to mobilize and engage all community members (women, men, female and male youth) in the entire catchment management process. Set-up and operationalized at village level, the Clubs stimulate active and voluntary participation of the whole community, whether it concerns discussions, decision-making or actions; and will allow each community member to become an agent of change. They will provide a space for consultation between the various technical committees existing at village level (Village Natural Resource Management Committee, Village Development Committee, etc.), which will be a good starting point for the development of integrated VLAPs. The Clubs enable members to discuss any subject and access relevant information that responds to their needs. The approach contributes to improving ownership, autonomy and sustainability of the clubs' initiatives, and strengthens the willingness to make change and take actions. Indeed, the Clubs belong to their members, and it is they who manage them and decide how they should be run (e.g., subject to be discussed, frequency of meetings, types of monitoring, etc.). Since communication, interaction and networking are at the core of the approach, the Clubs will amplify the impact of capacity development, particularly those related to the adoption of EbA solutions in the EbAM context, whether carried out through the FFS or other channels. As the development and implementation of VLAPs advance, the Clubs will also give a space for redressing any grievance that may arise.

428. At household level: The household approach⁴⁵⁷ will be implemented within households engaged in farming for home consumption and income generation. The approach aims at empowering all household members (male and female, adults and youth) to have better gender or power relations that will enable equitable access to and control over resources, assets and benefits. In the Malawian context, the approach will also enable household members to identify and address HIV and other issues⁴⁵⁸ which results in improved livelihood of all household members. The purpose is to guide women, men and youth household members in participatory dialogues that help them understand their household livelihoods, needs, challenges, roles, gender norms and their connection to poverty. Family members develop a common vision that takes into account the aspirations of all as a family and whose implementation is carried out in a participatory manner. Since the methodology facilitates reflection, behavioural change and household planning through gender-sensitive participation; it is expected to particularly lead to the improvement of gender and power relations in the household, and also to the increase of household incomes and food and nutrition security as well as openness on HIV and AIDS and any other issues due to increased knowledge and skills for both women and men, and assertiveness of women and youth. HHA will promote the sustainable use of natural resources and the importance of adaptation to climate change in the household participatory need assessments, vision setting and planning. Lead families and male champions will promote gender equality through action leaning.

429. Apart from climate change adaptation issues which are at the core of the project, the use of the clubs and the household approach will help address gender and social inclusion related issues that constitute core barriers to adaptation. A specific focus will be put on (i) gender and sex; (ii) advantages and disadvantages of gender-specific roles and tasks; (iii) gender-based violence (GBV) and Sexual

exploitation, abuse and harassment (SEAH), including masculinities and patriarchy; (iv) Free Prior and Informed Consent (FPIC) process; (vi) teenage pregnancy/marriage and school dropout; (vii) examples, motives and results of gender discrimination and social exclusion; and (viii) gender and social inclusion in community development and welfare, including food and nutrition security. For the latter, the implementation of FFS under Component 2 will also allow discussing the impact of integrated mix-farming systems on food diversity and availability, and on food and nutrition security.

430. The project will adopt a 'zero-tolerance approach' to SEAH. It will give specific attention on mitigating risk of GBV and SEAH, particularly on vulnerable groups including female-headed households, women and children, and persons living with HIV/AIDS. Mitigation measures to prevent and grievance redress mechanisms to respond to arising issues will be developed in close consultation with the identified at-risk groups. The project will set up a comprehensive GRM comprising four parallel systems: (i) a community-based system, (ii) a project-level GRM, (iii) the FAO-level GRM and (iv) the GCF Independent Redress Mechanism (IRM). This will allow individuals to select a community based (usually considered as the channel preferred by women as less formal) or more formal channel to lodge a grievance and file complaints. It must ensure the availability of effective grievance mechanisms accessible to women, girls and the vulnerable groups at risk that minimize the reporting burden on victims, offer gender-sensitive services and minimize the risk of retaliation. Those mechanisms should contain specific procedures for GBV and SEAH, including confidential reporting with secure and ethical documentation. SEAH complaints will be monitored and information will be compiled in progress reports. The effectiveness of mitigation measures will also be assessed. With identified cases, the project should orient GBV and SEAH victims towards existing support services, including health services, psychosocial support, legal advice, police surveillance, and shelters. A series of capacity buildings and awareness-raising that consider GBV and SEAH issues are planned to strengthen stakeholders' capacity at various levels: trainings of ILM facilitators, traditional and community leaders; preparation and implementation of safeguards document at VLAP level in alignment with the project ESMP; awareness raising on gender and social inclusion, including SEAH and GBV in the VNRMC and SCMC charter revision and member selection processes; mainstreaming of Gender and Social Inclusion including a focus on SEAH and GBV into the trainings of VNRMC and SCMC members. The use of Dimitra Clubs and Household approach will also promote open discussions on these subjects at both community and household levels. With the collaboration of the National Environmental and Social Safeguards specialist and Environmental District Officers, the Gender and Social Inclusion specialist will be in charge of the monitoring, reviewing, improving and reporting the progress in addressing GBV and SEAH. The project staff will also be trained to raise their sensitiveness on the subject and support the zero-tolerance approach to SEAH promoted by the project.

431. **Project beneficiaries and targeting.** The project is expected to directly benefit about 270 820 individuals (considering the 2018 Population and Housing Census estimates of 4.4 person per rural household) vulnerable to climate-change. Sixty (60) percent of project direct beneficiaries will be women. The project targets as a priority smallholder farmers living in rural areas, women, men, female and male youth, who are considered the most vulnerable to climate change. The targeting approach is combined with criteria of local vulnerability to climate change, poverty and specific criteria according to the activity promoted.

432. The project will specifically target:

- Vulnerable households living in targeted catchments including households headed by young women, widows or women abandoned by their husbands;
- Farmers' organizations and associations in the intervention zone, which will be identified in each village under selected micro watersheds and involved in VLAPs development process;
- Women farmers' groups and associations living in the intervention area and involved in VLAPs development process;

- Young women and men and youth groups in the intervention area who are interested in participating in project activities, particularly in public works, digitalization and agriculture related services;
- Middle-income and better-off farmers living in targeted catchments;
- SMEs present in the targeted areas, working on identified value chains under the market analysis and preferred crops identified by EbAM.

433. The selection of beneficiary households and individuals will be made: (i) at geographic level of intervention (village) following communication and awareness-raising operations undertaken by the project's implementing partners; and (ii) on the basis of specific criteria developed in participatory manner for each activity. EbAM implementation approach will thus be essentially demand-driven: beneficiaries will be identified on the basis of their interest and motivation to engage in project activities.

434. EbAM will ensure that the identified target groups participate and benefit from the project activities. It will combine various targeting mechanisms including geographic targeting, direct targeting, community-based targeting and self-targeting.

435. **Geographic targeting and entry points.** As detail explained in section 1.4 from the FS, the project will base its intervention on an integrated territorial development approach. The watershed management approach is the entry point for strengthening the adaptive capacities of ecosystems and the resilience of the most vulnerable population in the face of climate change, as well as achieving the sustainable use of natural resources. This ensures an integrated approach to interventions, avoiding the dispersion of activities and achieving greater resilience and impact on the beneficiary population. The Identification of relevant watersheds can improve the management of natural resources and ecosystem services of the productive areas of the territories of the targeted population.

436. Geographic targeting includes different stages:

- Identification of the districts and Water Resource Units (WRU) (that have on average more than 150,000 ha) based on the climate vulnerability analysis (see section 1.4 for details). These are the higher administrative and watershed level areas identified;
- Identification of sub-catchments inside the WRUs. This level coincides with approximately TA level (1,500-15,000 ha) and it is the actual geographical entry point level, where the activity 1.1.1 will be carried out as support for Sub-catchment management plans (SCMP) and its committees will be supported;
- Identification and consultation of villages and communities part of the watersheds as possible project beneficiaries, Micro-watershed level (500-1,500 ha). These level is the identification and selection of hotspots, the selection criteria is described under section 1.4. This level is the actual planning and investment level for EbAM, where a group of villages (about 10 villages) will be supported under component 1 to plan and invest in their territory. This will be done through the VRMCS and the formulation and implementation of the VLAPS (see Component 1 for more details).

437. EbAM's **direct targeting** will orient project supports to specific groups (eg. poor and ultra-poor households, young women who dropped out of school due to teenage pregnancy/early marriage, young men candidates for immigration, etc.) based on vulnerability criteria and technical criteria specific for each activity. The setting of quota will also help in this regard, notably the project ambition to reach 60 percent of women among direct beneficiaries. Vulnerability and poverty criteria will be established at the start of the project, to ensure that the most vulnerable (low income, less educated, female heads of households) benefits from the project. EbAM will also put in place empowerment measures to secure vulnerable groups' participation (inclusive social engineering process, capacity building, etc.).

438. In line with the community-based natural resource management approach, the project will also rely on **community-based targeting mechanism**. This approach implies consultations with the relevant communities and other local stakeholders (community leaders, etc.) in the selection of project potential beneficiaries. The use of the Dimitra Clubs' approach will support the project community-based targeting.

439. The project will also consider **self-targeting** approach which include the provision of goods and services that are aligned with the priorities, needs, assets, capacities and livelihood strategies of identified differentiated target groups. Self-targeting relies on the knowledge of project areas of intervention and allows individuals, producer organizations and entrepreneurs to decide for themselves whether to participate in the various project activities or request support from the project. The following points relate to some self-targeting elements identified during design field missions and gender assessment consultations: interest of women, men and community members in climate change adaptation activities; women and young people's will to run their own business/income generating activities; micro and small enterprises' interest in receiving technical and financial support from the project; producer/women organizations 'will to participate and create commercial relationships with other market players; small entrepreneurs who show interest in developing opportunities and services that can contribute to local pro-poor economic and social development dynamics; etc.

440. **Mainstreaming social inclusion and sensitivity toward vulnerable groups in the various project components.** Specific attention has been given to ensure that project activities and responses under the various components/sub-components are gender sensitive and socially inclusive.

441. Component 1. EbAM will promote socially inclusive and meaningful participation of the vulnerable in the planning and implementation processes of Integrated Landscape Management (ILM). To this end, the project will promote the use of the Dimitra Clubs as an entry point for mobilizing and engaging women, men, female and male youth community members in the entire catchment/landscape management process. In addition to capacity building activities that are related to climate change adaptation and the integration of catchment/landscape into village-level action plans, the project will support the evolvement of societal norms by promoting equitable sharing of decision-making power at household and community levels. The use of household approach and Dimitra Clubs will create space for dialogues both in the households and communities that will allow discussing and challenging gender and social norms as well as other issues and challenges, and finding solutions; and will promote effective participation of all community members including the vulnerable. The sub-topics that could be discussed includes (i) gender and sex; (ii) advantages and disadvantages of gender-specific roles and tasks; (iii) gender-based violence (GBV) and Sexual exploitation, abuse and harassment (SEAH), including masculinities and patriarchy; (iv) origin/history and merits/demerits of social inclusion Free Prior and Informed Consent (FPIC) process; (v) examples, motives and results of gender discrimination and social exclusion; and (vi) gender and social inclusion in community development and welfare, including food and nutrition security. The Clubs will also facilitate information sharing and knowledge dissemination within the community. The project aims at supporting 1 110 clusters of Dimitra Clubs and implementing the HHA through the training of 30 ILM facilitators on Dimitra Clubs facilitation and Household methodology, to support the spread of the approach at village level. Some local officials as well as religious and traditional leaders will also participate in the trainings. The project will make sure that the EbA-based ILM Plans or VLAPs and catchment management plans are gender and youth sensitive and socially inclusive. For the implementation of the plans, the project has also to secure the vulnerable effective participation, and make sure that they benefit from the project's technical as well as inputs and equipment support.

442. Component 2. From a gender and social inclusion perspective, EbAM will promote resilient livelihoods and food systems by (i) ensuring the use of gender/youth sensitive mechanisms and inclusive approaches in the promotion of EbA-based production systems, (ii) enhancing the business and market access conditions for better participation of EbA-trained women, men and youth farmers and strengthening their entrepreneurship and marketing skills, and (iii) developing and delivering financial services that are adapted to the various project's target groups.

443. For the promotion of EbA-based production systems, the project will ensure gender balance among extension workers and FFS facilitators for the delivery of EbA agricultural extension services. In addition, the project may need to consider implementing women-only/youth-only FFS and pay particular attention on how to better involve the vulnerable (poor, widows etc.) in the FFS to facilitate exchanges and acquisition of knowledge. Similarly for exchange visits, the project will ensure affinity links between group members in order to facilitate exchanges and sharing of experience. Women, men and youth who self-targeted themselves in plant and crop genetic material availability and multiplication will be involved in these activities as appropriate. To address food and nutrition insecurity, the impact of integrated mix-farming systems on food diversity and availability, and on food and nutrition security will be discussed in the FFS. The project will rely on the Dimitra Clubs to facilitate flow of information and knowledge dissemination within the community. Dimitra clubs solar powered radios will be connected to local community radios to enhance communication.

444. In terms of market access and entrepreneurship development for EbA producers, EbAM will target women, men and youth groups that are interested and have the potential to develop into commercial entities⁴⁵⁹. Priority will be given to women and youth farmers groups who will be supported in the identification of common economic and commercial interests, the definition of common objectives, the development of business plans, and in PO's management and daily operations. Women and youth farmers groups that have the potential to engage in 4Ps will also be prioritized. The provision of technical assistance under the 4Ps will consider women and youth's specific needs. Through the 4Ps and commercial group activities, women and youth will also see their marketing/commercial skills (identification of good business opportunities (high margin, sustainable, etc.), negotiation, etc.) strengthened. Since the project will also support the development of a EbA brand, products labelling will create a high-value niche markets for women and youth. The brand development will also offer to youth the opportunity to engage in other food system activities beyond production, such as marketing and communication related to the EbA brand. Women can also engage in food system transformation initiatives that could add value to their business such as linking EbA produce to traditional cuisine.

445. Regarding access to financial services, EbAM will build upon MoF/FARMSE's targeting strategy which key element is inclusion. It will proactively reach out to individuals, households or groups/associations to ensure women and youth have access to the financial opportunities offered by the project, and will make sure that project interventions are sensitive to the needs and aspirations of women and youth. Through MoF/FARMSE which is an EbAM co-financier, EbAM will support the effective participation of the vulnerable in Community based financial organizations (CBFOs), which are informal organizations formed and managed by individuals coming together voluntarily and commonly referred to as Village Savings and Loan Associations (VSLAs), to facilitate their access to savings and loans products. As part of capacity building and apart from financial literacy, the project will also strengthen women, men, female and male youth financial knowledge through the HH approach. EbAM's comprehensive package to support CBFO members will include group governance and dynamics; savings and loans group best practices; economic activity selection / Business planning and management; market linkage with off-takers; suppliers and service providers; financial literacy; linkage with Formal Financial Institutions (FFI) and mobile money banking; Gender Action Learning System (GALS) and Household (HH) methodology; and promotion of environmentally friendly agricultural production. On the supply side, EbAM will support Formal Financial Institutions (FFIs) to develop and deliver adapted financial services for smallholder farmers engaged in commercial activities for investments in EbA solutions. Particular attention will be given to the development of specific products tailored to women and youth's needs. The project will also ensure that the various studies related to the development of various financial instruments and knowledge dissemination products are gender-sensitive and socially inclusive. Financial implementing partners that are offering financial and non-financial services will be assessed for their gender sensitivity and their awareness on the project's priority groups.

446. Component 3. Gender sensitive and socially inclusive activities related to enabling institutional and financial environment include assistance to NCCF to develop its gender strategy as well as capacity

strengthening for NCCF's women and men's staff on EbA, climate risk analysis and carbon balance analysis trainings. National Conservation Trust Funds including MEET will also be supported on its gender strategy and M&E trainings. Women's participation in the various process and studies will be given particular attention. As for the scaling up of EbA and ILM in national policies, women's participation in policy dialogue will be promoted. Gender principles will be considered in the update of policies and key frameworks. Specific economic analysis looking at return for women-led farms will also be conducted.

447. To ensure gender-sensitive and socially inclusive project management, the capacity of project team and implementing partners on gender and social inclusion will be strengthened, and measures should be taken to ensure effective participation of women and youth in the scaling-up of EbA in policies.

448. Table 38 below summarizes how various groups of beneficiaries will be selected and benefit from the project activities.

Table 38 - Summary of project beneficiaries, eligibility criteria, support measures and modality of involvement

Sub-Component 1.1: Support to Village Natural Resources Management Committees (VNRMCs) and Sub-Catchment Management Committees (SCMCs) on EbA Planning				
Project Activities	Type of beneficiary	Eligibility criteria	Support measures	Modalities of beneficiary involvement
Activity 1.1.1: Targeting and Phasing of Sub-Catchments and Micro-Catchments	<ul style="list-style-type: none"> [Indirect] all inhabitants of targeted sub-and micro-catchments [Direct] MoA/DLRC and DAES; traditional authorities 	<ul style="list-style-type: none"> Residency in selected micro-catchments for intervention. 	<ul style="list-style-type: none"> Provision of GIS and ground-truthing expert services 	<ul style="list-style-type: none"> Participation in (i) identification, (ii) assessment, (iii) validation and (iv) phasing of 30 sub-catchments and 111 micro-catchments
Activity 1.1.2: Capacity Development of Integrated Landscape Management Stakeholders on Ecosystem-based Adaptation	<ul style="list-style-type: none"> [Direct] 60 ILM facilitators (from NGOs) associated with project implementation [Direct] 1,100 Dimitra Clubs [Direct] 25 inhabitants per targeted micro-catchment, or 2,775 persons, of which 60% are female and 30% youths (age 15-35). 	<ul style="list-style-type: none"> Residency in selected micro-catchments for intervention. 	<ul style="list-style-type: none"> ILM Facilitators' discussion guidance Organization of trainings on technical (ILM, climate change, EbA, other related technical topics) and social issues (Dimitra Club, Household methodology). 	<ul style="list-style-type: none"> Participation in capacity development trainings for EbA implementation Participation in gender and social inclusion programmes.
Activity 1.1.3: Strengthening/Formation of Village Natural Resources Management Committees (VNRMCs) and Formulation of EbA-based Village Level Action Plans (VLAPs)	<ul style="list-style-type: none"> [Direct] 2000 VNRMC members from 111 landscape units, plus wider population engaged during consultations [Indirect] All inhabitants of targeted micro-catchments- women, men and youth. 	<ul style="list-style-type: none"> Residency in selected micro-catchments for intervention. 	<ul style="list-style-type: none"> ILM Facilitators' discussion guidance and coordination at micro-catchment level 	<ul style="list-style-type: none"> Participation in discussions on VNRMC related issues and in member selection.
Activity 1.1.4 Strengthening/Formation of Sub-Catchment Management Committees (SCMCs) and Formulation of EbA-based Sub-Catchments Management Plans (SCMPs)	<ul style="list-style-type: none"> [Direct] 30 SCMC members (1998 people), plus wider population engaged during consultations [Indirect] All inhabitants of targeted micro-catchments- women, men and youth. 	<ul style="list-style-type: none"> Residency in selected sub-catchments for intervention. 	<ul style="list-style-type: none"> ILM Facilitators' discussion guidance and coordination at sub-catchment level. 	<ul style="list-style-type: none"> Participation in discussions on SCMC related issues and in member selection.
Sub-component 1.2: Implementation of VLAPs based on EbA				
Activity 1.2.1: Preparation of VLAP implementation	<ul style="list-style-type: none"> [Direct] All inhabitants of targeted micro-catchments – women, men and youth 	<ul style="list-style-type: none"> Residency in selected micro-catchments 	<ul style="list-style-type: none"> ILM Facilitators' discussion guidance and coordination Technical NGOs 	<ul style="list-style-type: none"> ILM facilitators provides to micro-watershed/ILM residents:

		for intervention.		information on climate resilient agriculture; connections to local administrative personnel, experts, goods and service providers, and executing agencies.
Activity 1.2.2: VLAP implementation	<ul style="list-style-type: none"> • [Direct] All inhabitants of targeted micro-catchments – women, men and youth 	<ul style="list-style-type: none"> • Residency in selected micro-catchments for intervention. 	<ul style="list-style-type: none"> • MoA/DLRC and NLGFC • ILM Facilitators' discussion guidance • Technical NGOs 	<ul style="list-style-type: none"> • Participation in information collection by ILM Facilitators on issues encountered.
Sub-component 2.1: Promotion of EbA-based production systems				
Activity 2.1.1. EbA agriculture extension support through FFS	<ul style="list-style-type: none"> • Women, men and youth farmers 	<ul style="list-style-type: none"> • Women, men and youth farmers from the targeted micro and sub-catchments interested in participating in the FFS process. • Self-targeting criteria with quotas also for ensuring women CBF. • Identification and selection of facilitators, "lead" innovative farmers, prioritizing youth. 	<ul style="list-style-type: none"> • Training of CBFs • FFS running kit adapted to themes proposed for the FFS (adapted seeds, tools) • Follow-up, monitoring and technical support from extension officers (AEDOs, AEDCs), FAO technical team • Creation when appropriate of only women FFS 	<ul style="list-style-type: none"> • Participation to preliminary decision meetings • Provision of plot land (individual for agroforestry and individual or common for regular FFS) • Plot preparation for the FFS • Participation to FFS – quotas for women (60%) and youth (40%) • Respect of the rules of procedure co-defined with the other members of the (e.g.: regular attendance and participation in the work on the school field)
Activity 2.1.2. Knowledge and innovation	<ul style="list-style-type: none"> • Women, men and youth • All categories of farmers and village population, from vulnerable to better off • Extension staff and NGOs staff, • National MoA staff 	<ul style="list-style-type: none"> • Self-targeting for community radios and people that have a phone and want to access to the service • Direct targeting for FFS members • Direct targeting for trainings' participation diverse target groups 	<ul style="list-style-type: none"> • Follow-up, monitoring and technical support from extension officers, NGOs and FAO technical team • Provision of tablets and phones for FFS facilitators AEDOs/ AEDCs. 	<ul style="list-style-type: none"> • Youth quotas for participation to specific trainings 100% • Quotas for 60% women participation to trainings, visits and to talk into radio shows.
Activity 2.1.3. Agrobiodiversity promotion	<ul style="list-style-type: none"> • Women, men and youth • Vulnerable farmers 	<ul style="list-style-type: none"> • Self-targeting criteria with quotas. 	<ul style="list-style-type: none"> • Follow-up, monitoring and technical support from extension officers, NGOs and service providers technical team 	<ul style="list-style-type: none"> • Quotas for women (60%) and youth (40%); • Participation to preliminary decision meetings • Provision of plot land (individual or common)

				<ul style="list-style-type: none"> Plot preparation for the nurseries
Sub-Component 2.2: Market access and entrepreneurship development				
Activity 2.2.1. 4Ps establishment	<ul style="list-style-type: none"> All EbA farmers, including women and youth Off-takers of EbA production 	<ul style="list-style-type: none"> Ability to engage in a commercial supply partnership based on EbA products – self targeting 	<ul style="list-style-type: none"> Criteria for 4P establishment and support in capacity development for 4P negotiation, establishment, and management process 	<ul style="list-style-type: none"> Expression of Interest Business plan development support Minimum of 50% of farmers engaged women and youth
Activity 2.2.2. MSMEs development	<ul style="list-style-type: none"> MSMEs producers and processors based on EbA production outputs 	<ul style="list-style-type: none"> Self-targeting – interest in group commercial activities Basic business capacity (under FBS SC 2.1) 	<ul style="list-style-type: none"> Business planning technical support and capacity building Support with access to finance under SC2.3 	<ul style="list-style-type: none"> Participatory business plan development and capacity for business management Minimum of 50% of MSME participation women and youth
Activity 2.2.3 Market development through 'EbA production system' brand creation	<ul style="list-style-type: none"> EbA producers Domestic consumers 	<ul style="list-style-type: none"> EbA production systems and products 	<ul style="list-style-type: none"> EbA produce branding for targeted demand development 	<ul style="list-style-type: none"> Marketing campaign for EbA brand and message on EbA benefits for ecosystems and human health Traditional cuisine fairs based on EbA products
Sub-component 2.3. Access to finance for climate resilient investment solutions				
Activity 2.3.1 Consolidation / expansion of Community Based Financial Organizations	<ul style="list-style-type: none"> All categories of farmers and village population supported by the Project. 	<ul style="list-style-type: none"> All population supported by the Project may access the CBFOs on voluntary basis. 	<ul style="list-style-type: none"> Promotion of the CBFOs services to the Project beneficiaries. Support to the CBFOs on various areas to strengthen their governance, management and performance (quality of the services). Support to develop a viable model for the CBFOs to ensure sustainability of their services post Project. 	<ul style="list-style-type: none"> CBFO members are involved in the definition of the services and the governance and management of the CBFOs through participation to general meetings and other interactions with the CBFO leaders. CBFO members purchase shares to constitute the initial capital of the CBFOs. Beneficiaries consulted by the Project on their satisfaction of the services, which may lead to adjustments.
Activity 2.3.2: Development and delivery of climate adaptation financial services by Formal Financial Institutions (FFIs)	<ul style="list-style-type: none"> Farmers trained in the FFS and integrated in the Public-Private Producer Partnerships (4Ps) or members of the Producer Commercial Organizations SMEs in the 4Ps, Producers Commercial Organizations, and Seeds producers' business groups. 	<ul style="list-style-type: none"> All farmers and SMEs that comply with eligibility criteria of the Formal Financial Institutions (FFIs). 	<ul style="list-style-type: none"> Technical assistance to the FFIs to develop adapted and innovative financial services for climate resilient investments. 	<ul style="list-style-type: none"> Project eligible beneficiaries are consulted by the FFIs during the participatory product development process and during implementation for improvement of the products. Beneficiaries are consulted by the Project on their satisfaction of the services, which may lead to adjustments.

Activity 2.3.3. Linkage of partner FFIs to financial instruments providers	<ul style="list-style-type: none"> • FFIs that have been supported to successfully develop and deliver adapted financial products to the Project beneficiaries. 	<ul style="list-style-type: none"> • As per eligibility criteria of the institutions / schemes managing the financial instruments (concessional credit line, guarantee) 	<ul style="list-style-type: none"> • Scoping study of potential financial instruments for linkage. • Linkage between eligible FFIs and the Financial instruments. • Support to the eligible FFIs to develop credible applications for funding. 	<ul style="list-style-type: none"> • FFIs develop their funding application with support on demand basis of the Project. They sign contracts with the financial instruments.
Activity 2.3.4. Linkage of agri-SMEs to impact investment funds	<ul style="list-style-type: none"> • Large SMEs having demonstrated positive and significant impact on the farmers benefiting from their services under the 4Ps. 	<ul style="list-style-type: none"> • As per eligibility criteria of the investment funds. 	<ul style="list-style-type: none"> • Scoping study on potential investment funds for linkage. • Linkage between eligible SMEs and the investment funds. • Support to the eligible SMEs to develop credible applications for funding. 	<ul style="list-style-type: none"> • SMEs develop their funding application with support on demand basis of the Project. They sign contracts with the Investment funds.

449. **Implementation mechanisms.** The overall development and implementation of EbAM gender strategy and action plan will be led by the gender and social inclusion expert of the Central Project Implementation Unit (CPIU). The gender and social expert has to ensure that project management including planning, implementation of all project activities, monitoring and reporting, is gender sensitive and socially inclusive. EbAM logframe and monitoring and evaluation system should include measurable indicators for women and youth for each project component and sub-component. Data collection during project implementation will be gender and age disaggregated. At mid-term and project completion, the co-benefit on “Gender equality, women empowerment and inclusion” relating the qualitative change on GEWE will be monitored. It will be measured through the percentage of women perceiving improved support for women’s empowerment from men.

450. As for gender and youth specific activities, the implementation of the Dimitra Clubs approach will be carried out by 30 ILM facilitators recruited through NGOs. Facilitators (who will be trained on the Dimitra Clubs Approach) will be in charge of sensitizing local authorities and communities on the approach, setting-up the clubs and train Dimitra “caretakers” from the communities. Regarding health issues such as HIV and AIDS, apart from their consideration at the core of the household approach, the project will involve Community Health Committee members in the Dimitra clubs and will refer beneficiaries to the health surveillance assistants working in the localities. As for the household approach, EbAM will work closely with the Ministry of Agriculture for its implementation. Within DAES, the Agriculture Gender Roles Extension Support Services Offices (AGRESSO) will take the lead through Agricultural extension development officers (AEDO) who have already been trained on the methodology. Extension officers will work with local male and female farmers called local facilitators and will train them on the HHA as well as on the approach facilitation methodology. These local facilitators will then promote the use of HHA to peer households. The AEDOs should monitor the implementation of the approach both for local facilitators and peer households.

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No aggregate production estimates for the country are included in the report. The table includes upper and lower ranges of crop yield anomaly (ton/ha/year) with respect to historical. The descriptive projections in the table take into account the spread of predicted changes across three CC models (CanESM2, CNRM-CM5, MPI-ESM-MR) and across Districts.

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³⁵³ FAO, 2019. "Dimitra Clubs: What's the impact?: 10 years of empowering rural people to drive development." <https://www.fao.org/fao-stories/article/en/c/1200214/> (accessed October 2022).

³⁵⁴ FAO, 2019. "Dimitra Clubs: What's the impact?: 10 years of empowering rural people to drive development." <https://www.fao.org/fao-stories/article/en/c/1200214/> (accessed October 2022).

³⁵⁵ Phiri, Y., 2022. "FAO project approach impresses committee." *Nation*.

³⁵⁶ Chan, C., et al., 2019. "Exploring the Gender Action Learning System (GALS) Methodology to Increasing Resilience and Youth Economic Opportunities." Presented at the 2019 Global Youth economic Opportunities Summit. October 2019, Washington, D.C. <https://youtheconomicopportunities.org/sites/default/files/uploads/resource/Exploring%20the%20Gender%20Action%20Learning%20Methodology%20System%20%28GALS%29.pdf> (accessed March 2021).

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³⁵⁷ Chan, C. et al., 2019. "Exploring the Gender Action Learning System (GALS) Methodology to Increasing Resilience and Youth Economic Opportunities." Presented at the 2019 Global Youth economic Opportunities Summit. October 2019, Washington, D.C. <https://youtheconomicopportunities.org/sites/default/files/uploads/resource/Exploring%20the%20Gender%20Action%20Learning%20Methodology%20System%20%28GALS%29.pdf> (accessed March 2021).

³⁵⁸ National Guidelines: Integrated Catchment Management and Rural Infrastructure 2015.

³⁵⁹ Government of Malawi, 2020. "Forestry (Amendment) Act 2019 (No. 7 of 2020 ."

³⁶⁰ An autonomous government-sponsored body, established by the Water Resources Act 2013, with the responsibilities to allocate water resources to various parties in the country.

Source: SADC Groundwater Management Institute, 2019. "Gap Analysis and Action Plan – Scoping Report (Final), February 2019, Malawi, Report Number 1.7." <https://sadc-gmi.org/wp-content/uploads/2021/01/Malawi.pdf> (accessed October 2022).

³⁶¹ Government of Malawi, 2013. "Water Resources Act, 2013 (No. 2 of 2013)."

³⁶² Government of Malawi, 2013. "Water Resources Act, 2013 (No. 2 of 2013)."

³⁶³ Ministry of Natural Resources, Energy and Mining of Malawi, 2017. *Forest Landscape Restoration Opportunities Assessment for Malawi*.

³⁶⁴ MCSAA includes NGOs such as Catholic Relief Services (CRS), Find your Feet (FYF), Total Land Care (TLC), Development Fund of Norway, CARE. MCSAA regularly operate with the Department of Land Resources (DLRC) from the Ministry of Agriculture (MoA). Some members of the MCSAA (e.g. CRS) collaborate with the Restore Africa (RA) Programme under the Global Evergreening Alliance (GEA), and are implementing EbA in RA's districts.

³⁶⁵ The Rural Hub, undated. "Africa Climate-Smart Agriculture Alliance Launched." <http://www.hubrural.org/Afrique-intelligente-face-au.html?lang=en> (accessed November 2022).

³⁶⁶ Anonymous, 2014. "The Africa Climate-Smart Agriculture Alliance." <http://www.arcworld.org/downloads/140622%20Africa%20Climate-smart%20alliance%20brochure%20-%20Final-1.pdf> (accessed November 2022).

³⁶⁷ Gee, S. et al., 2016. "Malawi Climate Smart Agriculture Alliance (MCSAA) Climate Smart Agriculture Scoping Study." <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiUy7fE3KD7AhU0QvEDHeT>

NBGwQFnoECAoQAQ&url=https%3A%2F%2Fpolicycommons.net%2Fartifacts%2F2157881%2Fmcsaa-climate-smart-agriculture-scoping-study%2F2913387%2F&usg=AOvVaw3lcyhBG-XNCqCHP1cDGg-e (accessed November 2022).

³⁶⁸ MCSAA, 2017. "Malawi Climate Smart Agriculture Alliance Terms of Reference."

³⁶⁹ MCSAA, 2017. "Malawi Climate Smart Agriculture Alliance Terms of Reference."

³⁷⁰ Gee, S. *et al.*, 2016. "Malawi Climate Smart Agriculture Alliance (MCSAA) Climate Smart Agriculture Scoping Study." <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKewiUy7fE3KD7AhU0QvEDHeT> NBGwQFnoECAoQAQ&url=https%3A%2F%2Fpolicycommons.net%2Fartifacts%2F2157881%2Fmcsaa-climate-smart-agriculture-scoping-study%2F2913387%2F&usg=AOvVaw3lcyhBG-XNCqCHP1cDGg-e (accessed November 2022).

³⁷¹ Ministry of Agriculture, Irrigation and Water Development, 2017. "Malawi climate smart agriculture training manual for frontline agricultural extension staff."

³⁷² Ministry of Natural Resources, Energy and Mining of Malawi, 2017. *Forest Landscape Restoration Opportunities Assessment for Malawi*.

³⁷³ Availability of planting material will be from the market, more particularly well established NGOs in Malawi (e.g. Permaculture Network Malawi, Agroecology Hub, Kusamala Institute of Agriculture and Ecology, Permaculture Paradise Institute, Biodiversity Conservation Initiative etc.) and from the Community/individual nurseries and seed banks promoted by the Project under component 2.

³⁷⁴ Ministry of Natural Resources, Energy and Mining of Malawi, 2017. *Forest Landscape Restoration Opportunities Assessment for Malawi*.

³⁷⁵ Total land area is 88,800 hectares. 83,240 hectares is area, net of barelands, urban areas and water bodies

³⁷⁶ Kalanda-Joshua, M. *et al.*, 201. "Integrating indigenous knowledge with conventional science: Enhancing localised climate and weather forecasts in Nessa, Mulanje, Malawi." *Physics and Chemistry of the Earth, Parts A/B/C*. Vol. 36, Issues 14–15, 996-1003.

³⁷⁷ Moyo, B. H. Z. and Moyo, D. Z., 2017. "Indigenous Knowledge Perceptions and Development Practice in Northern Malawi: Lessons from Small-Scale Farmers' Agricultural Practices." In Ngulue, P. (ed.), *Handbook of Research on Social, Cultural, and Educational Considerations of Indigenous Knowledge in Developing Countries*. Hershey: IGI Global.

Ntupanyama, Y. M. *et al.*, 2008. "Indigenous knowledge of rural communities in Malawi on socio-economic use, propagation, biology, biodiversity and ecology of *Uapaca kirkiana* Muell. Arg." *African Journal of Biotechnology*. Vol. 7, No. 14, 2386-2396.

Nanganga J. and Safalaoh A.C.L., 2020. "Climate Change and Weather Variability Effects on Cattle Production: Perception of Cattle Keepers in Chikwawa, Malawi."

Nkomwa, E.C. *et al.*, 2014. "Assessing indigenous knowledge systems and climate change adaptation strategies in agriculture: A case study of Chagaka Village, Chikwawa, Southern Malawi."

³⁷⁸ Ministry of Mines, Natural Resources and Environment, Government of Malawi, 2006. "Malawi's National Adaptation Programmes of Action (NAPA), Under the United Nations Framework Convention on Climate Change (UNFCCC), First Edition." <https://unfccc.int/resource/docs/napa/mwi01.pdf> (accessed October 2021).

Ministry of Mines, Natural Resources and Environment, Government of Malawi, 2006. "Malawi's National Adaptation Programmes of Action (NAPA), Under the United Nations Framework Convention on Climate Change (UNFCCC), First Edition." <https://unfccc.int/resource/docs/napa/mwi01.pdf> (accessed October 2021).

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Kalanda-Joshua, M. *et al.*, 201. "Integrating indigenous knowledge with conventional science: Enhancing localised climate and weather forecasts in Nessa, Mulanje, Malawi." *Physics and Chemistry of the Earth, Parts A/B/C*. Vol. 36, Issues 14–15, 996-1003.

³⁸¹ FAO Malawi, 2021. Data on Digital Outreach.

³⁸² Baller, S. *et al.* (eds.), 2016. *The Global Information Technology Report 2016: Innovating in the Digital Economy*. Geneva: World Economic Forum.

³⁸³ FAO Malawi, 2022.

³⁸⁴ <https://www.fao.org/farmer-field-schools/ffs-overview/en>

³⁸⁵ FAO, EU, Government of Malawi. Endline survey report for the KULIMA Project, October 2023. (unpublished)

³⁸⁶ The PICSA module involves agriculture extension staff working with groups of farmers ahead of the agricultural season to firstly analyse historical climate information and use participatory tools to develop and choose crop, livestock and livelihood options best suited to individual farmers' circumstances. Then soon before and during the season extension staff and farmers consider the practical implications of seasonal and short-term forecasts on the plans farmers have made.

³⁸⁷ Malawi is divided into 187 Extension Planning Areas (EPA), which are further subdivided into agricultural sections comprising group of villages

³⁸⁸ This approach is done under Kulima and other projects where FFS are implemented and is part of past lessons from other projects that were implemented.

³⁸⁹ The recent FFS initiatives operate within government structures and institutions, intended to facilitate mainstreaming of the FFS model. Part of the objective of the EU-funded (and FAO implemented) Kulima Project is to institutionalize the FFS in the Extension service system. EbAM will come to complement Kulima on the outreach of the FFS, while Kulima will ensure long-term sustainability of the process by the institutional work and capacity building on the National Extension System they are developing.

³⁹⁰ Some local NGOs staff will act as extension staff and work with EbAM, in some cases. NGO staff will be part of the trainings and act as extension staff in areas where there is a DAES staff limitation.

³⁹¹ One in Muzuzu in the north and Mulanje in the south.

³⁹² <https://genesis.imgix.net/uploads/Malawi-CSA-manual.pdf>

³⁹³ See above footnote (386) on PICSA.

³⁹⁴ Dorward P, Clarkson G and Stern R (2015). Participatory Integrated Climate Services for Agriculture (PICSA): Field Manual. Walker Institute, University of Reading. ISBN: 9780704915633.

³⁹⁵ The Agroecology Knowledge Hub Lilongwe University of Agriculture and Natural Resources (LUANAR), Hub members include universities, farmer organizations, FRNs, research institutes, non-governmental organizations (NGOs), extension services, and private sector organizations. The Hub links and has at disposal many different experts on Agroecology related practices. The hub facilitates evaluation and testing of promising practices and methodologies for agronomic, economic, social, environmental, and nutritional benefits using a systems approach. The Evidence generated is used for influencing policy on supporting agroecological systems. The Hub is also part of the Permaculture and Agroecology Network in Malawi.

³⁹⁶ It is called foci model and can improve results by: easier and more cost-effective monitoring and mentoring support of FFS groups and facilitators; easier to ensure peer-to-peer support among local facilitators, a key to quality maintenance; greater closeness of groups enables group to- group inter-visits and exchanges, which enhance a feeling of togetherness and a positive competitive spirit across groups. Farmer Field School Guidance Document. FAO, 2016.

³⁹⁷ Participatory Action Research, emphasizes research and action. Farmers are involved in deciding what needs to be researched, designing and measuring results.

³⁹⁸ Bakker, T., Dugué, P., Roesch, K., Phillips, S. and Poisot, A.S. 2022. How can the farmer field school approach be used to support agroecological transitions in family farming in the Global South? Recommendations for farmer field school facilitators, agricultural development project designers and managers. Rome, FAO. <https://doi.org/10.4060/cb9920en>

³⁹⁹ Milpa crops are nutritionally and environmentally complementary. A basic Milpa system has Maize, beans and pumpkins. Maize lacks the amino acids lysine and tryptophan, which the body needs to make proteins and niacin; Beans have both lysine and tryptophan. Pumpkins for their part, provide an array of vitamins. These crops complement in the use of light and nutrients as well as specially.

⁴⁰⁰ for more details see EbA list, Appendix I of the feasibility study

⁴⁰¹ Geels (2012) multilevel perspective on innovations, describes 3 levels: the niche-innovations, sociotechnical regimes and sociotechnical landscape. Because we define transitions as changes from one sociotechnical regime to another, EbAM will work comprehensively to unlock these niche-innovations.

Geels, F.W. and Kemp, R., 2012, 'The multi-level perspective as a new perspective for studying socio-technical transitions', in: Geels, F.W., Kemp, R., Dudley, G. and Lyons, G. (eds.), 2012, *Automobility in Transition? A Socio-Technical Analysis of Sustainable Transport*, Routledge, pp. 49-79

⁴⁰² GCF-funded "Scaling Up the Use of Modernized Climate Information and Early Warning Systems in Malawi" (GCF FP002) (closing in 2023), and enable farmers and FFS facilitators to benefit from climate information, through SMS or and community radio stations. The Project will scale-up other digital services already test piloted in Malawi; EU-funded (and FAO implemented) Kulima Project

⁴⁰³ Such as the Permaculture Paradise Institute and Kusamala Institute.

⁴⁰⁴ From the Project Performance Report, 2019.

⁴⁰⁵ Private service provider for SMS sending, and DAESS to add the information on their apps.

⁴⁰⁶ Messages will be also design by the FAO, MoA and Agroecology-Hub.

⁴⁰⁷ Eligible meaning that will be particularly avoiding invasion species.

⁴⁰⁸ "Seed guardians" are farmers and who have been reserving not only seeds, but also agroecological indigenous knowledge and practices that seek to reduce agriculture's dependence on current technological packages advocated by conventional agriculture, thus contributing to more adapted and climate-resilient agroecosystems. They play a fundamental role in safeguarding agrobiodiversity and the traditional knowledge associated with its sustainable use in local production systems. This role is fundamentally played by women and traditional and indigenous communities, valuing their role in agrobiodiversity conservation.

⁴⁰⁹ Seeds and seedlings, watering cans, pots, etc.

⁴¹⁰ MSMEs in the broadest sense of the word –any commercial organisational development, which could be a cooperative, association or a commercial company, or an informal commercial entrepreneurial group.

⁴¹¹ Elaborated from IDS/IFAD publication, Brokering Development: Enabling Factors for Public-Private-Producer Partnerships in Agricultural Value Chains (2015). Available at: <http://www.ids.ac.uk/publication/brokering-development-enabling-factors-for-public-private-producer-partnerships-in-agricultural-value-chains>.

⁴¹² Elaborated from IDS/IFAD publication, Brokering Development: Enabling Factors for Public-Private-Producer Partnerships in Agricultural Value Chains (2015). Available at: <http://www.ids.ac.uk/publication/brokering-development-enabling-factors-for-public-private-producer-partnerships-in-agricultural-value-chains>.

⁴¹³ N. Janssen, F. Jacobs (2018) Brokering of Public Private Producer Partnerships: Lessons learned from the Partnering for Value Chain Project implemented by SNV 2015-2018, SNV & IFAD,

⁴¹⁴ N. Janssen, F. Jacobs (2018) Brokering of Public Private Producer Partnerships: Lessons learned from the Partnering for Value Chain Project implemented by SNV 2015-2018, SNV & IFAD,

⁴¹⁵ IFAD (2016); How To DO: Public-Private-Producer Partnerships (4Ps) in Agricultural Value Chains

⁴¹⁶ <https://www.fao.org/in-action/ruralinvest/support/en/>

⁴¹⁷ <https://thanthwemw.com/public/index/about-us>

⁴¹⁸ <https://seed.uno/about/seed/countries>

⁴¹⁹ Farmers who produce mostly for consumption but may sell surplus on the markets (usually local markets) and may need some finance to purchase inputs and pay for labour.

⁴²⁰ Direct and indirect

⁴²¹ Year 1 estimation for VSLA members is based on the number of FFS programmed under the 11 VLAPs created at the end of Year 1, accounting for 80% of FFS members. Under Year 1, and after VLAP formulation, it is possible to start identifying FFS members. FARMSE implementing partners will support these FFS members to become VSLAs members.

⁴²² Number of beneficiaries not enrolled in FFS is estimated as the total number of beneficiaries total number of beneficiaries for VSLAs (80% of adult beneficiaries, 2 people per household) - the FFS members.

⁴²³ This may be individual or group economic activities like beekeeping and other livestock activities that would not need enrolment in the FFS.

⁴²⁴ VDC: Village Development Committee. ADC: Area Development Committee.

⁴²⁵ FSA : Financial Services Associations. VICOPA: Village Community Banks. Both are informal organizations similar to VSLAs.

⁴²⁶ Commercial banks: FDH Bank, Mybucks Bank, NBS Bank and Standard Bank; MFIs: CUMO, FINCA and Vision Fund; SACCOs: MUSSCO, National Union of SACCOs: Insurance Companies: NICO (with also information collected on Britam and CIC from their partner banks).

⁴²⁷ Agency banking is a type of branchless banking that allows the traditional banks to extend their network of branches and services in a cost-efficient manner through authorized agents, that can provide a specified range of services (opening of accounts, transactions (savings deposit and withdrawal, loan disbursement and repayment, bill payments, money transfers, etc).

⁴²⁸ WRS is a process where owners of commodities deposit their commodities in a certified warehouse and are issued with a document called a Warehouse Receipt as proof of ownership, that can be used as collateral for a loan.

⁴²⁹ Interest rate is determined as RBM Base rate + a margin (around 11%). Base rate during the design was between 13.5 and 13.9%.

⁴³⁰ Loans are given to members of the groups with guarantee of the group, that is committed to ensure repayment of the members through social pressure or internal management of collaterals.

⁴³¹ Partnership with cooperatives at different levels of the value chains (producers' cooperatives, marketing cooperatives, etc).

⁴³² Area yield index insurance is a seasonal cover for crop yield shortfall below the historical average yield in a unit area of insurance.

⁴³³ Weather index-based insurance products use an underlying index (like rainfall) to determine losses due to a specified event.

⁴³⁴ Hybrid index insurance is a combination of Weather Index Insurance and Area Yield Index Insurance. It offers comprehensive coverage for farmers as it maximizes on the advantages of both insurance products. Unlike traditional insurance that looks at actual observed losses to indemnify the policyholder, the index acts as a proxy for losses and is theoretically less expensive to manage, especially for Farmers, since insurance agents do not have to visit the farms.

⁴³⁵ SMEs will access adapted financial services to manage and develop their business and relationship with farmers supported by the project.

⁴³⁶ Digifarm provides a wide range of digital services to value chain actors through phones or web, including access to financial services in partnership with FFIs.

⁴³⁷ Credit scoring is a statistical analysis performed by lenders to determine the creditworthiness of a potential client. It usually uses digitally enabled algorithms.

⁴³⁸ Concessional credit lines offer better conditions than commercial credit lines in terms of interest rate, maturity and repayment schedule.

⁴³⁹ Guarantee funds or Schemes allow the financial institutions to cover part of the credit risk with the borrowers, which is usually required by the FFIs for borrowers who cannot themselves provide adequate collateral.

⁴⁴⁰ Saka, A. R., Bunderson, W. T., Itimu, O. A., Phombeya, H. S. K., and Mbekeani, Y. (1994). The effects of *Acacia albida* on soils and maize grain yields under smallholder farm conditions in Malawi. *Forest Ecology and Management*, 64: 217-230. Reference reported in: Ministry of Natural Resources, Energy and Mining - Malawi (2017). *Forest Landscape Restoration Opportunities Assessment for Malawi*. NFLRA (Malawi), IUCN, WRI. xv + 126pp.

⁴⁴¹ CIAT, 2019. "Climate-smart Agriculture in Malawi." https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/CSA%20_Profile_Malawi.pdf (accessed November 2021).

⁴⁴² CBA done under the NFLRA shows an income increase of 1.5 to 2.1 million Malawian kwacha (MWK) i.e. 40% over a twenty-year period. CIAT, World Bank (2018) report a 100% increase in incomes under the DFID-funded Enhancing Community Resilience to Climate Change and Variability Project.

⁴⁴³ hydropower facilities of the Electricity Generation Company - EGENCO and irrigation schemes

⁴⁴⁴ Macho, M., 2019. Resident/Humanitarian Coordinator Report on the Use of CERF Funds: Malawi, Rapid Response Cyclone Idai, 2019." https://cerf.un.org/sites/default/files/resources/19-RR-MWI-35650_Malawi_RCHC_Report.pdf (accessed November 2021).

IFPRI, 2020. "The Short-term Impacts of COVID-19 on the Malawian Economy, 2020–2021, A SAM multiplier modelling analysis." Lilongwe: IFPRI.

⁴⁴⁵ CIAT, World Bank, 2018

⁴⁴⁶ Malawi Population Census, 2018. <https://malawi.unfpa.org/sites/default/files/resource-pdf/2018%20Malawi%20Population%20and%20Housing%20Census%20Main%20Report%20%281%29.pdf>

⁴⁴⁷ these adjustments were done in order to take out urban and national park areas that will not fall under either plan level

⁴⁴⁸ With a known assumption of ha and villages by VLAPs described in Component 1.

⁴⁴⁹ World Bank, 2021. Project Appraisal Document of the Malawi Watershed Services Improvement Project (MWASIP). Economic and financial analysis.

⁴⁵⁰ IFAD, 2016. Project design report of the Enhancing the resilience of agro-ecological systems project (ERASP) in Malawi

⁴⁵¹ World Bank, 2019. Malawi: Shire River Basin Management Program (SRBMP Phase-I) Project Implementation completion and results report

⁴⁵² Ministry of Natural Resources, Energy and Mining - Malawi (2017). *Forest Landscape Restoration Opportunity Assessment for Malawi*. NFLRA (Malawi), IUCN, WRI. xv + 126pp.

⁴⁵³ Ignaciuk, A., Maggio, G. & Sitko, N.J. 2021. Assessing the profitability and feasibility of climate-smart agriculture investment in Southern Malawi. Understanding the costs and benefits in a volatile and changing climate. *FAO Agricultural Development Economics Working Paper 21-07*. Rome, FAO. <https://doi.org/10.4060/cb5381en>

⁴⁵⁴ Mutenje, M.J., Farnworth, C.R., Stirling, C., Thierfelder, C., Mupangwa, W. and Nyagumbo, I. 2019. A cost-benefit analysis of climate-smart agriculture options in Southern Africa: Balancing gender and technology. *Ecological Economics* 163: 126–137.

⁴⁵⁵ Ministry of Natural Resources, Energy and Mining - Malawi (2017). *Forest Landscape Restoration Opportunities Assessment for Malawi*. NFLRA (Malawi), IUCN, WRI. xv + 126pp.

⁴⁵⁶ Dimitra Clubs: a unique approach, FAO, 2015

⁴⁵⁷ Household Approach Implementation Manual for Extension Workers and Local Facilitators, Ministry of Agriculture, Irrigation and Water Development, Department of Agriculture Extension Services, 2016

⁴⁵⁸ HIV and AIDS issues are at the core of the HH approach promoted and institutionalized by the Ministry of Agriculture at country level

⁴⁵⁹ Any commercial organisational development, which could be a cooperative, association or a commercial company, or an informal commercial entrepreneurial group