



# UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement      Programa de las Naciones Unidas para el Medio Ambiente  
 Программа Организации Объединенных Наций по окружающей среде      برنامج الأمم المتحدة للبيئة

联合国环境规划署



## SECTION 1: PROJECT IDENTIFICATION

- 1.1 Project title:** Ecosystem-Based Adaptation for Rural Resilience in Tanzania
- 1.2 Project number:** 5695
- 1.3 Project type:** PMS:
- 1.4 Trust Fund:** FSP
- 1.5 Strategic objectives:** LDCF
- 1.6 UNEP priority:** Climate Change Adaptation
- 1.7 Geographical scope:** Climate Change Adaptation
- 1.8 Mode of execution:** National
- 1.9 Project executing organization:** External
- 1.10 Duration of project:** VPO-DOE with Ministry of Agriculture, Livestock and Fisheries (MALF)
- Validity of legal instrument:** 60 months
- Commencing:** no later than December 2016
- Technical completion:** no later than December 2020
- 66 months**

<b>1.11 Cost of project</b>	<b>US\$</b>	<b>%</b>
Cost to the GEF LDCF	<b>7,571,233</b>	<b>%</b>
Co-financing		<b>27 %</b>
Grant		
<b>National Government: Ministry of Agriculture, Livestock and Fisheries - MALF (ASDP-2)</b>	<b>10,075,000</b>	<b>36 %</b>
<b>National Government: Ministry of Water and Irrigation - MWI (WSDP)</b>	<b>10,075,000</b>	<b>36 %</b>
<i>Sub-total</i>	20,150,000	
In-kind		
<b>National Government VPO</b>	<b>600,000</b>	<b>2 %</b>
<i>Sub-total</i>	600,000	
<b>Total</b>	<b>28,321,233</b>	<b>100%</b>

## 1.12 Project Summary

Tanzania is still considered one of the world's poorest economies (Least Developed Country), with a gross national income per capita of US\$ 920. However, the Tanzanian economy has performed strongly in recent years, recording growth of 7.3% in 2013, up from 6.9% in 2012, mostly driven by information and communications, construction, manufacturing and other services<sup>1</sup>. Comparatively, agriculture remains the mainstay of the economy, employing 62.1% of the workforce, but the sector is affected by infrastructure gaps and low productivity. In 2014, efforts in reaching Millennium Development Goals (MDGs) 2015 targets were successful for one out of the seven MDGs<sup>2</sup>. Targets for 2015 of one or more indicators of the other six MDGs were considered achievable in a year's time<sup>3</sup>, while some indicators of MDG 1, MDG 3 and MDG 5 were considered unachievable by 2015<sup>4</sup>.

The negative impacts of climate change and climate variability are already evident, affecting Tanzania's social, economic and physical environment<sup>5</sup>. In most parts of the country, observational evidences from local communities suggest changes in temperature and seasonal shifts in rainfall patterns. Intra-seasonal and inter-annual rainfall variability manifested through late rainfall onset and early rainfall cessation, increase in dry spells and shift in rainfall patterns are becoming more common in Tanzania. Like many other Least Developing Countries (LDCs), Tanzania is vulnerable to the impacts of climate change due to its low adaptive capacity and dependence on climate sensitive sectors such as agriculture, energy, livestock, health, water, fisheries, forestry, wildlife and infrastructure<sup>6</sup>. The project aims to address the rapid degradation of ecosystem services, enhanced by climate change impacts communities and their livelihoods that depend on healthy ecosystems.

Although there are numerous development and climate change adaptation projects taking place in Tanzania, there remain some significant capacity challenges as regards coordination and the identification of synergies between and among projects and sectors. As the pace of development quickens, there is also a need to develop responsive institutions that integrate lessons learned from past projects into current and future initiatives. At the local level, many Tanzanian communities lack the technical capacity, physical and financial resources to manage and cope with climate change impacts on ecosystem services. The goal of the project is to increase resilience to climate change in rural communities of Tanzania by strengthening ecosystem resilience and diversifying livelihoods, using an ecosystem-based adaptation approach.

The project will take place in four regions of the Mainland and the Zanzibar Islands. One district per region and one ward per district were selected during the Project Preparation Phase according to several criteria (Appendix 8) to participate in the project:

- Simanjiro district (Manyara region, Mainland)
- Mpwapa district (Dodoma region, Mainland)
- Mvomero district (Morogoro region, Mainland)
- Kishapu district (Shinyanga region, Mainland)
- Kaskazini-A Shehia, Kaskazini-Unguja, Unguja Island (Zanzibar)

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<sup>1</sup> World Bank: <http://data.worldbank.org/country/tanzania> (accessed on March 8th, 2016)

<sup>2</sup> MDG 4: Reduce Child Mortality (Country Report on the Millennium Development Goals 2014: Entering 2015 with MDG scores).

<sup>3</sup> MDG 2: Achieve universal primary education; MDG 6: Combat HIV/AIDS malaria and other disease (Proportion of children under 5 sleeping under insecticide-treated bed nets); MDG 7: Ensure environmental sustainability (Proportion of population using an improved drinking water source) (Country Report on the Millennium Development Goals 2014: Entering 2015 with MDG scores).

<sup>4</sup> MDG 1: Eradicate extreme poverty and hunger (Proportion of population below national basic needs poverty line; Under 5 stunted height for age below 2SD); MDG 3: Promote gender equality and empower women (Ratio of females to males in tertiary education); MDG 5: Improve maternal health (maternal mortality ratio; Proportion of births attended by skilled health personnel) (Country Report on the Millennium Development Goals 2014: Entering 2015 with MDG scores).

<sup>5</sup> United Republic of Tanzania –URT (2012). National Climate Change Strategy, Vice President's Office, URT

<sup>6</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President's Office, URT

This project will benefit up to 1,468,035 beneficiaries (or 298,631 households) in the selected districts and will lead to the following outcomes:

- Improved stakeholders capacity to adapt to climate change through EbA approaches and undertake resilience building responses,
- Increased resilience in project sites through demonstration of EBA practices and improved livelihoods, and
- Strengthened information base on EbA supports an up-scaling strategy.

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## Acronyms and Abbreviations

AAF	African Adaptation Fund
ASDP	Agricultural Sector Development Programme
ASDP-2	Second Agricultural Sector Development Programme
CBD	Convention on Biological Diversity
CBO	Community-based Organisation
CCA	Climate Change Adaptation
CTA	Chief Technical Advisor
DRR	Disaster Risk Reduction
EAC	East African Community
EbA	Ecosystem-based Adaptation
ENSO	El Niño Southern Oscillation
EWS	Early Warning System
FAO	Food and Agriculture Organisation
FFS	Farmer Field School
FSP	Full-sized Project
GCM	Global Climate Models
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
HDI	Human Development Index
IA	Implementing Agency
ICRAF	World Agroforestry Centre
LDCF	Least Developed Country Fund
MALF	Ministry of Agriculture, Fisheries and Livestock
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MoU	Memorandum of Understanding
MKUKUTA	National Strategy for Growth and Poverty Reduction (Mkakati wa Kukuza Uchumi na Kupunguza Umasikini Tanzania)
MWI	Ministry of Water and Irrigation
NAPA	National Adaptation Programme of Action
NGO	Non-Governmental Organisation
NTFP	Non-timber Forest Products
PIR	Project Implementation Review
PM	Project Manager
PMO-RALG	Prime Minister's Office Regional Administration and Local Government
PMU	Project Management Unit
PPG	Project Preparation Grant
PSC	Project Steering Committee
TM	Task Manager
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climatic Changes
VIA	Vulnerability Impact Assessment

VRA	Vulnerability Risk Assessment
WSDP	Water Sector Development Programme

## **SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)**

### **2.1. Background and context**

This proposal seeks funding from the Least Developed Countries Fund (LDCF) to implement the Full-Size Project (FSP) entitled: “Ecosystem-Based Adaptation for Rural Resilience in Tanzania”. Hereafter, this FSP will be referred to as “the proposed project”.

The goal of the proposed project is to strengthen climate resilience in rural communities of Tanzania by building adaptive capacities to implement Ecosystem-based Adaptation (EbA) approaches and diversifying livelihoods. The project will include the following interventions: i) strengthening the capacity of key stakeholders, notably at the decentralized level; ii) restorative investments targeted towards key ecosystem service to support rural resilience, iii) the development of local incentives and opportunities for sustainable livelihoods and iv) knowledge management on climate change adaptation and up-scaling.

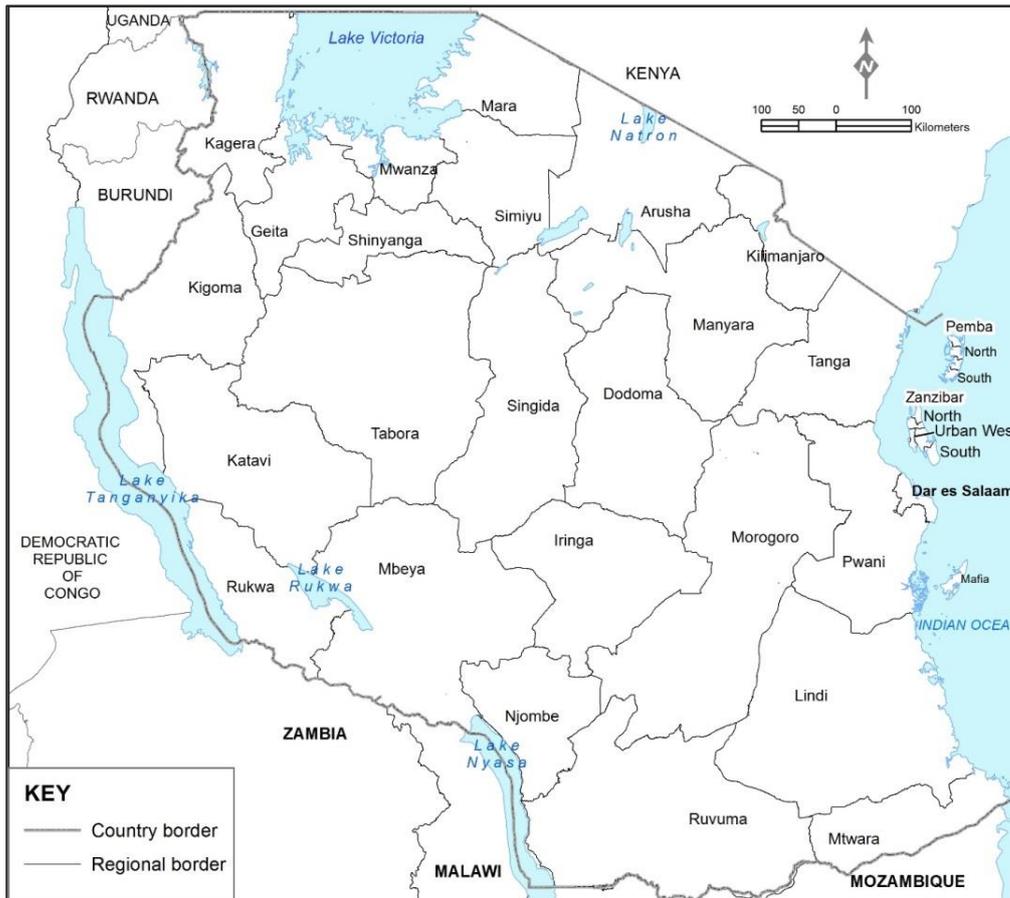
#### *2.1.1 Geographical context*

The United Republic of Tanzania (i.e. Tanzania Mainland and Zanzibar) is located in Eastern Africa between Latitude 1° and 12° South and Longitude 29° and 41° East<sup>7</sup>. It is bordered by Kenya and Uganda to the North; Rwanda, Burundi and Democratic Republic of Congo to the West; Zambia and Malawi to the South West; Mozambique to the South; and Indian Ocean to the East (Figure 1).

Size-wise, the United Republic of Tanzania covers a total area of 945,087 km<sup>2</sup> out of which 881,289 km<sup>2</sup> cover mainland and 2,460 km<sup>2</sup> Zanzibar Islands, plus 59,050 km<sup>2</sup> inland water bodies (i.e. Lake Victoria, Lake Tanganyika and the south-west Lake Nyasa). Tanzania mainland encompasses major island of Mafia (518 km<sup>2</sup>) and Zanzibar consists of Unguja (1,666 km<sup>2</sup>) and Pemba (795 km<sup>2</sup>).

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<sup>7</sup> United Republic of Tanzania (2014). State of the Environment Report, Division of Environment, Vice President’s Office, Tanzania, 2<sup>nd</sup> report.



**Figure 1: Map of the United Republic of Tanzania (URT, 2014)**

### 2.1.2 Demography

From the 2012 Population and Housing Census, the human population in the United Republic of Tanzania (URT) is estimated at 44,928,923 inhabitants<sup>8</sup>, of which, 43,625,354 live in the mainland Tanzania and 1,303,569 in Zanzibar. About 73.7% of the total population (31,809,808) lives in rural areas while 26.3% (11,378,015) lives in urban areas. Since 1967, the URT has been experiencing rapid population growth: from 12.3 million people in 1967 to 44.9 million people in 2012, with almost a doubling between 1988 and 2012. The intercensal growth rate from the year 2002 to 2012 is 2.7%.

However, regardless of rapid population increase, Tanzania is sparsely populated with population density of 51 persons per square kilometers with variation across regions (Figure 2). Density is higher in areas like Dar es Salaam (4.36 million people; almost 10% of the total population) and Mjini Magharibi Regions (593, 678 people) with population density of 3,133 and 2,581 persons per square kilometer respectively. In the Tanzania mainland, Lindi and Katavi Regions recorded the lowest population densities at 13 and 15 persons per kilometer respectively, while in Zanzibar the lowest population was recorded in Kusini Unguja Region. In totality, about 44% of the Tanzanian population is composed of young people below 15 years old followed by a population aged 15-24 (20%), 25-64 (33%) and 3% is composed of people aged 65 and above.

<sup>8</sup> National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS), Zanzibar. 2013. 2012 Population and Housing Census: Population Distribution by Administrative Units; Key Findings. Dar es Salaam, Tanzania: NBS and OCGS.

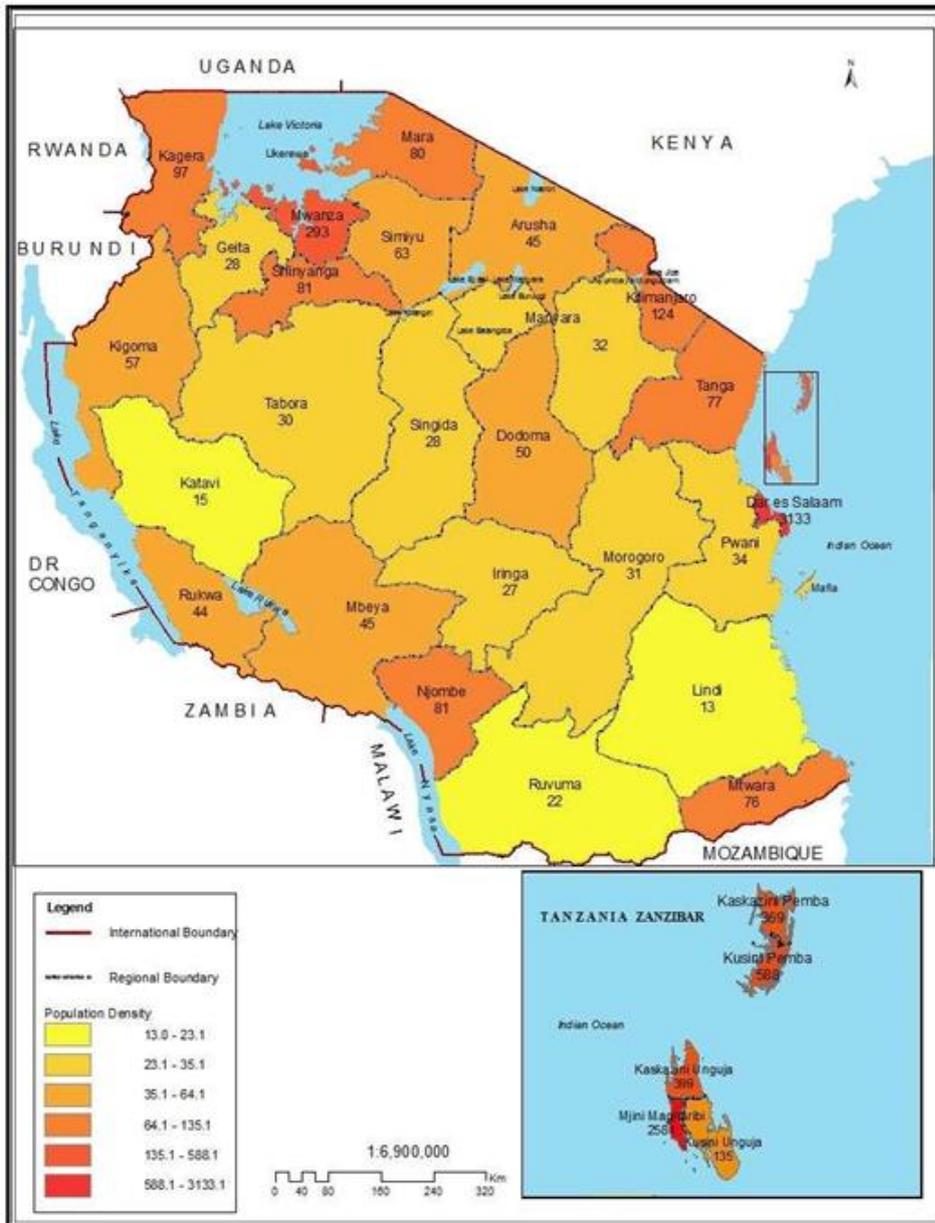


Figure 2: Population density by region, 2012<sup>9</sup>

### 2.1.3 Political context

Tanzania continues to be politically stable and peaceful<sup>10</sup>. Compared to other East African countries, Tanzania scores better in terms of civil liberties and political rights. Strength elements include liberties such as: freedoms of press, speech and religion; freedom of assembly and association, and constitutionally guaranteed Women’s rights. Some of the areas that have been necessitating improvements in Tanzania include: weak transparency and accountability institutions; business climate bottlenecks; and deteriorating educational quality<sup>11</sup>. Some of these areas for improvements

<sup>9</sup> National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS), Zanzibar. 2013. 2012 Population and Housing Census: Population Distribution by Administrative Units; Key Findings. Dar es Salaam, Tanzania: NBS and OCGS.

<sup>10</sup> United Republic of Tanzania: Country Strategy Paper 2011-2015, African Development Bank (Regional Department East 1 OREA 2011)

<sup>11</sup> id.

have been among the major points necessitating a constitutional review, a process that started in December 2011 and was still ongoing at the time of writing.

The draft constitution was presented by the Constitution Review Commission (CRC) and debated by the Constituent Assembly in Dodoma Region in April 2014. The debate on the draft constitution resulted into a split among the major opposition political parties namely, Chama cha Demokrasia na Maendeleo (Chadema), Civic United Front (CUF), NCCR-Mageuzi and National League for Democracy (NLD) merged into the Coalition of Defenders of the People's Constitution popularly known by the Swahili term *Umoja wa Katiba ya Wananchi* (UKAWA)<sup>12</sup>. During this time, Tanzania has remained peaceful with peaceful transition from one administration to another. On 25th October 2015, Tanzania held its fifth presidential and legislative elections. The ruling party, the Chama Cha Mapinduzi (Party of the Revolution), secured the presidential election, with H.E. John Pombe Joseph Magufuli becoming the fifth President of the United Republic of Tanzania.

#### 2.1.4 Economy

Tanzania is one of the world's poorest economies in terms of per capita income, and it remains a Least Developed Country (LDC) by UN standards. However, the Tanzanian economy has continued to perform strongly, recording growth of 7.3% in 2013, up from 6.9% in 2012, driven by information and communications, construction, manufacturing and other services<sup>13</sup>. Comparatively, agriculture remains the mainstay of the economy, employing the majority of the workforce (62.1% of the population), but the sector is underperforming, owing to infrastructure gaps and low productivity.

Inflation in Tanzania has stabilized at single digits over the past year, declining to an annual average of 6.8% in 2014 due to prudent monetary policy, a favourable food situation and declining fuel prices. Export performance remains strong, driven by gold and tourism/travel receipts. But the import bill has grown, mainly due to imports of capital and intermediate goods, particularly oil, keeping the current account deficit wide at around 11% of GDP. In Tanzania, spatial inclusion remains problematic, mainly due to regional disparities. The poorer regions are predominantly rural and their economies are much less diversified. Despite Tanzania's macroeconomic achievements, growth is not sufficiently broad based, and poverty levels remain high. About 34% of Tanzanians live below the basic needs poverty line and therefore directly depend on natural resources for their survival.

#### 2.15 Education

The education system in Tanzania is divided into pre-primary education (for infants and young children aged 0-6 years), primary education, secondary education, teachers education and training, tertiary education and training, vocational and technical education and training as well as non-formal education and training<sup>14</sup>. In the past several years, Tanzania has been working on reaching universal primary education, entailing all children entering school to complete the training cycle. Today, access is almost universal and the primary completion rate is close to 90 per cent. The fee-free primary education policy advocated and implemented by the Tanzanian government is increasingly creating a positive impact in boosting access to schools in both urban and rural areas. The remaining challenge, however, is how to adequately improve the transition to and retention in secondary schools and other education levels. The higher education cost-sharing policy has been affecting children from the poor families in Tanzania from joining higher learning institutions after completing primary and secondary levels. It is envisaged that the Government of Tanzania will continue to support pro-poor schooling by allocating more funding to the higher education loan board.

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<sup>12</sup><http://blogs.lse.ac.uk/africaatlse/2015/06/29/opposition-politics-in-tanzania-and-why-the-country-will-benefit-from-a-strong-unified-opposition/>

<sup>13</sup> <http://www.afdb.org/en/countries/east-africa/tanzania/tanzania-economic-outlook/>

<sup>14</sup> Tanzania Education Sector Analysis-2011

Other challenges facing the education sector in Tanzania include poverty, which has remained a considerable socio-economic issue and a persistent problem in the country<sup>15</sup>. HIV/AIDS has also had effects for both the supply of and demand for education services.

### 2.1.6 Agriculture

Agriculture is the foundation of the Tanzanian economy accounting for 24% of the GDP, 30% of total exports and 65% of raw materials for Tanzanian industries (2016)<sup>16</sup>. It accounts for about half of the national income, three quarters of merchandise exports, provides employment to about 80% of Tanzanians and most of all, it is a source of food. Agriculture in Tanzania is dominated by smallholder farmers cultivating farms of less than three hectares and practicing rain-fed agriculture. About 70% of Tanzania's crop area is cultivated by hand hoe, 20% by ox plough and 10% by tractor. Food crop production dominates the agriculture economy. In some areas, irrigated agriculture helps to stabilize agricultural production, improve food security, increase farm productivity and income, and produce higher-value crops such as vegetables and flowers.

Maize is the country's main subsistence crop and is grown by more than 50% of Tanzanian farmers and is found in all regions of the country. Most of Tanzania is classified broadly as a 'Maize-Mixed' farming system with areas of root crop-based farming in the southern and northwestern areas. Rice is the second most important staple in Tanzania. Rain-fed paddy rice production by smallholders is centered in Mbeya, Morogoro, Mwanza, Shinyanga, and Tabora. Other major food crops include sorghum, millet, wheat, pulses, cassava, potatoes, bananas, plantains, sugar, groundnuts, sesame, coconuts, and soybeans. Much of Tanzania's sorghum and millet are produced in arid and semi-arid agroecological zones. Finger millet is popular in the country's southwestern regions.

The main exported cash crops include coffee, tea, cotton, cashews, raw tobacco, sisal and spices. Raw tobacco represents Tanzania's most important exported cash crop growing from USD 55.7 million worth of exports in 2001 to USD 356 million in 2013, followed by cashews which grew from USD 52.5 million to USD 197 million and coffee from USD 68.9 million to USD 186 million in the same period.

Tanzanian agriculture can be classified into ten farming systems, which have been developed in response to the country's agro-ecological zones<sup>17</sup>:

1. Banana/Coffee/Horticulture system, found in Kagera, Kilimanjaro, Arusha, Kigoma and Mbeya regions: tree crops, intensive land use, volcanic soils with high fertility
2. Maize/Legume system, found in Rukwa, Ruvuma, Arusha, Kagera, Shinyanga, Iringa, Mbeya, Kigoma, Tabora, Tanga, Morogoro, Kahama, Biharamulo: shifting cultivation, maize and legumes, beans and groundnuts intercropped, coffee
3. Cashew/Coconut/Cassava system, found in coast region, eastern Lindi and Mtwara
4. Rice/Sugarcane system, found in alluvial river valleys: rice and sugarcane
5. Sorghum/Bulrush and Millet/Livestock system, found in Sukumaland, Shinyanga and rural Mwanza: sorghum, millet, maize and cotton, oilseeds, rice
6. Tea/Maize/Pyrethrum system, found in Njombe and Mufindi districts in Iringa region: tea, maize, Irish potatoes, beans, wheat, pyrethrum, wattle trees, sunflower
7. Cotton/Maize system, found in Mwanza, Shinyanga, Kagera, Mara, Singida, Tabora and Kigoma, Morogoro, Coast, Mbeya, Tanga, Kilimanjaro, and Arusha

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<sup>15</sup> <http://www.worldbank.org/content/dam/Worldbank/document/Africa/Tanzania/Report/tanzania-poverty-assessment-05.2015.pdf>

<sup>16</sup> <http://www.tanzaniainvest.com/agriculture> (25th February 2016).

<sup>17</sup> Tanzania Environmental Threats and Opportunities Assessment, 2012, USAID TANZANIA

8. Horticulture-based system, found in Lushoto district, Tanga region, Morogoro region, and Iringa rural in Iringa region: vegetables (cabbages, tomatoes, sweet pepper, cauliflower lettuce and indigenous vegetables), fruits, (pears, apples, plums, passion fruit avocado), maize, coffee, Irish potatoes, tea, beans
9. Wet Rice irrigated system, occupies river valleys and alluvial plains, Kilombero, Wami Valleys, Kilosa, Lower Kilimanjaro, Ulanga, Kyela, Usangu and Rufiji
10. Pastoralist and Agro-pastoralist system, found in semi-arid areas, Dodoma, Singida, parts of Mara and Arusha, Chunya districts, Mbeya and Igunga district in Tabora: deep attachment to livestock and simple cropping systems

The main obstacles hindering agricultural development include:

- i. Poor access and low use of improved seeds and fertilizers;
- ii. Under-investment in productivity enhancing technologies including agricultural mechanization;
- iii. Limited access to financing for uptake of technologies;
- iv. Unreliability of rainfall in some of the regions
- v. Limited use of available water resources for irrigated agriculture.

After crops, the livestock industry is the second biggest contributor to Tanzanian Agriculture representing 5.5% of the country's household income and 30% of the Tanzania's Agriculture GDP. Out of the contribution to GDP, 40% comes from beef production, 30% from milk and another 30% from small stock production, which differ from region to region. Tanzania's livestock population is mostly reared by smallholder farmers, whose ownership totals 37.06 million, the majority of which is concentrated in the country's northern region. Tanzania livestock includes cattle (21.3 million), sheep (6.9 million), goats (15 million) and pigs (1.6 million)<sup>18</sup>. The sector has attracted international capital mostly from the European Union to develop partnerships with smallholder farmers to develop commercial scale farming, allowing animal products exports to increase from US\$ 215 million in 2009 and 2010 to US\$ 223 million in 2013. Growth in cattle population has reached approximately 5% per annum<sup>19</sup>.

Fisheries are also an important sub-sector in Tanzania, providing about 35% of rural employment and ensuring complementary sources of protein for many rural communities. Fisheries contribute approximately 1.4% to the country's GSP but the sector has been showing signs of decline since 2009. Challenges include illegal fishing, over-exploitation and the destruction of fish habitats through the use of inappropriate fishing techniques. Coastal communities in Tanzania are highly vulnerable to the impacts of climate change on fisheries. Inland most of the fish originates from Lake Victoria, which is challenged by diminishing stocks, pollution and invasive species<sup>20</sup>.

In 2008 the National Agricultural Input Voucher Scheme (NAIVS), an input subsidy program designed to respond to the sharp rise in global grain and fertilizer prices, was introduced. The main aim of the program is to raise maize and rice production, and thus preserve Tanzania's household and national food security. The program helped 2.5 million smallholder farmers to buy one-acre package of maize or rice seed and chemical fertilizer at a discount of 50% from the market price and has helped to raise the demand for improved seeds with currently 20% of smallholder farmers using them and 12% using chemical fertilizer compared with the old figure of 3%. It also extended Tanzania's

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<sup>18</sup> East African Community, 2011 statistics

<sup>19</sup> SAGCOT, Tanzania Investment Opportunity, 2013

<sup>20</sup> United Republic of Tanzania Ministry of Finance and Economic Affairs, National Strategy for Growth and Reduction of Poverty II, and National Bureau of Statistics and Ministry of Finance, National Accounts of Tanzania Mainland 2001-2013.

chemical fertilizer industry to total USD 191.85 million in 2013 up from USD 75.98 million registered at the end of 2007<sup>21</sup>.

In 2009, Tanzania's then President, Jakaya Kikwete launched the Kilimo Kwanza initiative as a central pillar in achieving the country's Vision 2025 to become a middle-income country. Kilimo Kwanza (Agriculture First) is a national resolution to accelerate agricultural transformation in Tanzania. It comprises a holistic set of policy instruments and strategic interventions towards addressing the various sectorial challenges and taking advantage of the numerous opportunities to modernize and commercialize agriculture in Tanzania. In 2010, the Southern Agricultural Growth Corridor of Tanzania (SAGCOT), an agricultural partnership designed to improve agricultural productivity, food security and livelihoods in Tanzania, was initiated. In 2011, SAGCOT's Investment Blueprint was launched by Tanzanian President Kikwete, to showcase the investment opportunities in the Corridor and lays out a framework of institutions and activities required to reap the development potential. In 2015, Tanzania's Agriculture Development Bank was established by the government of Tanzania, specifically to assist the government in implementing its policies and strategies relating to the agricultural sector.

### *2.1.7 Energy*

Tanzania is gifted with diverse energy sources most of which are untapped, these include biomass, hydro, uranium, natural gas, coal, geothermal, solar and wind. The primary energy supply includes biomass (90%); petroleum products (8%); electricity (1.5%), and the remaining (0.5%) is contributed by coal and other renewable energy sources. More than 80% of energy delivered from biomass is consumed in rural areas; heavy dependence on biomass as the main energy source contributes to deforestation, while the importation of oil costs about 25% to 35% of the nation's foreign currency earnings<sup>22</sup>.

Hydropower accounts for approximately half of Tanzania's total power generation, with the remainder provided by thermal generation using domestic natural gas, coal and heavy fuel oil<sup>23</sup>. The dominance of hydropower has meant that the frequent and prolonged droughts that affect the region (the last major drought occurred in 2011) have caused significant and on-going power shortages. On top of the power generation issue, Tanzania's transmission and distribution network suffers from inefficiencies and under-investment. The World Economic Forum gives the country 2.2 out of 7 for quality of electricity supply due to its underdeveloped infrastructure. As a consequence of significant population growth and sustained economic growth Tanzania's energy demand is expected to grow by between 5 and 8.5% each year for the next 5 years.. Opportunities for new power generation are abundant, with generation by hydro, gas and coal predicted to increase the current total installed capacity of approximately 1,000MW to around 2,000MW over the next five years. Energy demand in Tanzania has grown rapidly due to population growth and the increase in economic activities in the last 15 years.

In areas outside of Dar es Salaam (59%) and Kilimanjaro (18%) regions, the rate of electrification is between 2% and 10%, with less than 15% of the country having energy access. Rural energy consumption, which makes up 85% of the national energy consumption, is almost exclusively made up of biomass, with attendant impacts on forest resources. Efforts are underway to connect rural areas to the grid, including through the Rural Electrification Agency and project aimed at developing renewable energy sources<sup>24</sup>.

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<sup>21</sup> World Bank, 2014. Tanzania – Public Expenditure Review, National Agricultural Input Voucher Scheme

<sup>22</sup> <https://www.usea.org/sites/default/files/event-/Tanzania%20Power%20Sector.pdf>

<sup>23</sup> <http://www.nortonrosefulbright.com/knowledge/publications/79377/tanzania-energy-sector-overview>

<sup>24</sup> Rural Electrification Agency, undated.

[https://www.esmap.org/sites/esmap.org/files/4b.%20TANZANIA\\_Innovation%20in%20Delivery%20of%20Services.pdf](https://www.esmap.org/sites/esmap.org/files/4b.%20TANZANIA_Innovation%20in%20Delivery%20of%20Services.pdf)

### 2.1.8 Water Resources

Tanzania has extensive water resources, which include lakes, rivers, wetlands, springs, reservoirs and groundwater aquifers<sup>25</sup>. Lakes alone cover about 7% of Tanzania's land surface. On the borders there are three African Great Lakes: Lake Victoria (source of White Nile and second largest fresh water lake in the world), Lake Tanganyika (Africa's deepest and longest freshwater lake, and the world's second deepest lake) and Lake Nyasa; inland lakes include Lake Rukwa, Lake Eyasi and Lake Manyara (Figure 3). Additionally the country shares major transboundary rivers with neighbours including the Kagera and Mara rivers draining into Lake Victoria, Songwe draining into Lake Nyasa and Ruvuma at the border with Mozambique draining into Indian Ocean.

Despite having so much water on the periphery of the country, Tanzania is considered a dry country with 61% of the land classified as dry. Most of the country receives less than 800mm/year. Groundwater has been always an alternative and its availability is mainly controlled by geology and climate, which is variable. Aquifers are discrete. About 75% of the country is underlain by Precambrian Basement complex, which comprises of hard, consolidated and sometimes metamorphosed rocks. Volcanic areas of northern and southern Tanzania as well as the sedimentary coastal basins are potential groundwater resource areas. However, water quality is a problem in terms of high salinity and fluoride concentration, and thus not suitable for human use. Groundwater is a major supplement for surface water for many parts of the country and is a vital source of water in semi-arid water scarce areas.

Water resources are developed in line with Development Vision 2025 and the National Strategy for Growth and Reduction of Poverty, better known under its Swahili name MKUKUTA (Mkakati wa Kukuza Uchumi na Kupunguza Umasikini Tanzania). Universal access to safe water is one of the objectives of Vision 2025, to be realised "through the involvement of the private sector and the empowerment of local government". The importance of water supply and adequate sanitation is recognised in the second cluster of MKUKUTA ("Improvement of quality of life and social well-being"). Here, one of the primary goal is to achieve "increased access to clean, affordable and safe water, sanitation, decent shelter, and a safe and sustainable environment."

In 2011, some 21 out of 35.9 million mainland Tanzanians in rural areas and small towns had access to safe drinking water.<sup>26</sup> The quality of service remains poor largely due to most water sector investments not being adequately maintained. To achieve the National Strategy for Growth and Reduction of Poverty (MKUKUTA) targets and to reach Sustainable Development Goals (SDGs) targets, a further 24.6 million will need improved water supply.

### 2.1.9 Ecosystems, protected areas and Conservation

Tanzania is composed of diverse ecosystems ranging from dry lands and the grassland savannas for large mammals (e.g. the famous Serengeti National Park), miombo woodlands, montane forests, marine and coastal ecosystems (e.g. marine coral reef ecosystems), freshwater and wetlands (e.g. alkaline Rift-Valley Lakes with endemic Cichlid species) and coastal lowland forests (Figure 3). The diverse terrestrial ecosystem in Tanzania reflects variation in elevation, precipitation, and soils.

Arid grasslands and savanna ecosystems receive less than about 400 to 600 mm of rainfall on average and extend south from Tanzania's border with Kenya<sup>27</sup>. These ecosystems are key features of World Heritage Sites and Biosphere Reserves at Serengeti-Ngorongoro biosphere reserves where ungulate migrations track cyclical wet and dry seasons. Semi-arid areas with 500 to 800 mm of precipitation occupy large central and southeastern zones. Miombo woodlands are mostly found in the plateau

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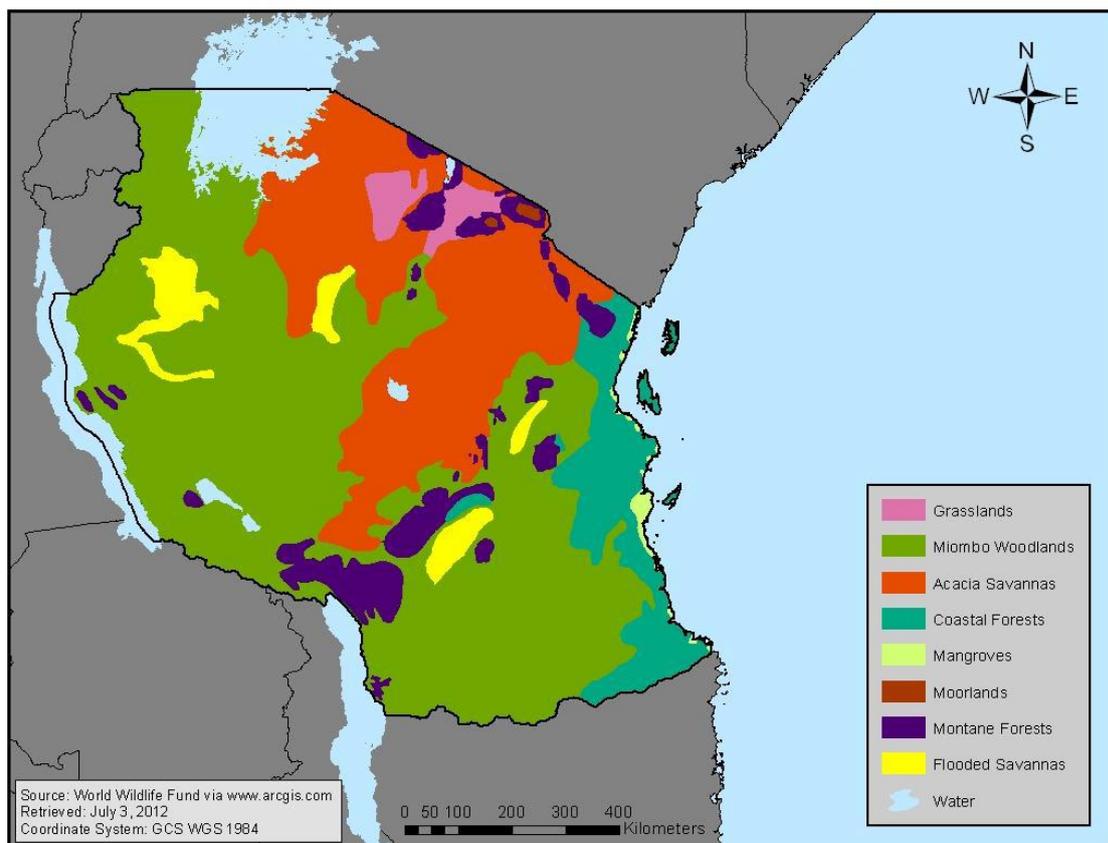
<sup>25</sup> National Water Policy-2002, United Republic of Tanzania

<sup>26</sup> WSDP: Phase 1 Evaluation, 2013

<sup>27</sup> Tanzania Environmental Threats and Opportunities Assessment, 2012, USAID TANZANIA

zones (800 to 1500 m in elevation) in western and southern Tanzania. Highland areas that are generally above 1000 m elevation form a broad ridge that bisects the country along the Eastern Arc Mountains; others follow Tanzania's western borders between Lakes Nyasa, Tanganyika and Victoria and its boundary with Kenya. The Northern Highlands of Kilimanjaro, Mt. Meru and the Eastern Rift and the Southern Highlands near Mbeya occur on volcanic soils that are generally more fertile than the soils developed from crystalline, granitic soils typical of the eastern Arc Mountains. Sandy, infertile soils are common to the Coastal zone and finer-texture soils are found in Alluvial Plains located near Kilombero, Rufiji, Usangu and Wami. Highly-weathered, low and moderate fertility soils are common to the highlands zone.

Tanzania has already designated about 40% of its total surface area to forest, wildlife and marine protected areas (PAs)<sup>28</sup>. The Tanzanian protected area system is designed to conserve its ecosystems and species. There are seven different categories of PAs in Tanzania (in both include landscapes and seascapes), which includes national parks, forest reserves, game reserves, game controlled areas, wildlife management areas, conservation areas, and the special case of the Ngorongoro Conservation Area (NCA). Today, Tanzania has 16 national parks, 540 forest reserves, 28 game reserves, 38 game-controlled areas, and the NCA. To ensure conservation of wildlife species (biodiversity) in different protected areas, National Parks are managed by the Tanzania National Parks (TANAPA), Forest Reserves are managed by the Tanzania Forest Agency (TFA), Game Reserves and Game Controlled Areas are managed by the Wildlife Division under the Ministry of Natural Resources and Tourism, Ngorongoro Conservation Area is managed by the Ngorongoro Conservation Area Authority (NCAA), and Wildlife Management Areas are co-managed by locally formed Community-Based Organizations and the Wildlife



**Figure 3: Major terrestrial ecosystems of Tanzania**

<sup>28</sup> United Republic of Tanzania (2014). State of the Environment Report, Division of Environment, Vice President's Office, Tanzania, 2nd report.

### 2.1.10 Climate and Climate Change

#### *General climatic conditions*

Tanzania is characterized by two main rainfall patterns, namely the long rains and the short rains which are associated with the southward and northwards movement of the Inter-tropical Convergence Zone (ITCZ). The long rains (*Masika*) begin in mid-March to end of May, while the short rains (*Vuli*) begin in the middle of October and continue to early December. The northern part of Tanzania including area around Lake Victoria Basin, North-Eastern Highland and the Northern Coast experience bimodal rainfall regime while Central, South and Western areas have a prolonged unimodal rainfall regime starting from November to the end of April.

Apart from rainfall, temperature in Tanzania also varies according to the geographical location, relief and altitude. In the Coastal Regions and the off-shore Islands the average temperatures ranges between 27°C and 29°C, while in the Central, Northern and Western parts temperatures range between 20°C and 30°C and higher between the months of December and March. In the Northeast and Southwest where there are mountainous areas and Makonde Plateau, the temperature occasionally drops below 15°C at night during the months of June and July. In some parts (Southern Highlands) temperature can reach as low as 0°C – 6°C. This temperature variation has significant impact on the agro-ecological zones and the adaptation strategies in the agriculture sector<sup>29</sup>.

#### *Observed effects of Climate Change*

Overall observations show that there are already changes in rainfall patterns and temperature in most parts of Tanzania. In many areas, rains are increasingly declining in most parts of the country and cycles are detrimentally changing. Such changes in climatic variables are expected to alter the characteristics of the agro-ecological zones, leading to reduced yield of some crops, such as maize by 33% nationally<sup>30</sup>. Predictions show that areas with unimodal rainfall patterns will experience a 5-15% decrease in rainfall while those with bimodal rainfall patterns will experience increased rainfall of 5-54%<sup>31</sup>.

The negative impacts of climate change and climate variability are already evident affecting the Tanzania's social, economic and physical environment<sup>32</sup>. In most parts of the country, observational evidences from the local communities are suggesting changes in temperature and seasonal shifts in rainfall patterns. Intra-seasonal and inter-annual rainfall variability manifested through late rainfall onset and early rainfall cessation, increase in dry spells and shift in rainfall patterns are becoming more common in Tanzania. Tanzania like many other Least Developing Countries (LDCs), is vulnerable to the impacts of climate change due to its low adaptive capacity and dependence on climate sensitive sectors such as agriculture, energy, livestock, health, water, fisheries, forestry, wildlife and infrastructure<sup>33</sup>.

Time series analysis of both mean annual maximum and minimum temperature has revealed significant increase in temperature trends in some meteorological stations in the country<sup>34</sup> (Figure 6). Several health hazards related to temperature increase including malaria has spread to non-traditional areas such as in highlands and cold areas (e.g. some parts of Kagera Region, Kasulu in Kigoma

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<sup>29</sup> United Republic of Tanzania- INITIAL NATIONAL COMMUNICATION UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

<sup>30</sup> Global CLimate Adaption Partership (GCAP) for maize

<sup>31</sup> United Republic of Tanzania- National Adaptation Programme of Action (NAPA), 2007

<sup>32</sup> United Republic of Tanzania –URT (2012). National Climate Change Strategy, Vice President' s Office , URT

<sup>33</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President' s Office , URT

<sup>34</sup> Tanzania Meteorological Agency-TMA (2014). Climate Change Projection for Tanzania , URT

Region, Rungwe in Mbeya Region, Lushoto and Amani in Tanga Region<sup>35</sup>. Malaria is the largest cause of loss of lives in the country accounting for about 16% of the all reported deaths and 19% of national health spending.

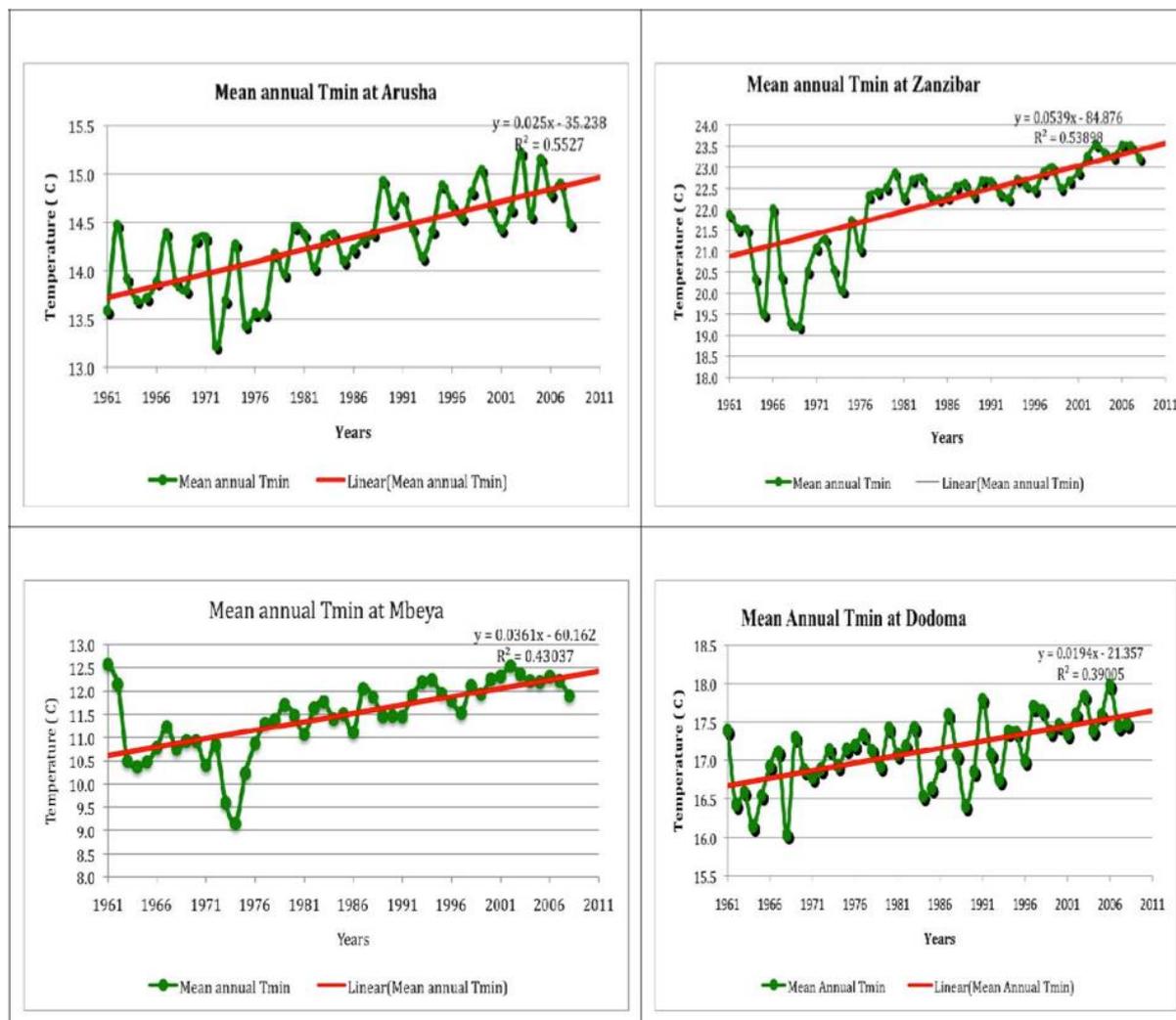


Figure 4: Mean annual minimum temperature trends at Arusha (top left), Zanzibar (top right), Mbeya (bottom left) and Dodoma (bottom right) stations. Source (TMA, 2014)<sup>36</sup>

*Observed sectoral impacts of Climate Change and variability:*

Frequent droughts over the years have resulted into massive crop failure and livestock loss in many parts of the country, especially in the semi-arid areas. For example, between year 2009 and 2010, drought was estimated to have killed a total of 316, 437 cattle, 236,359 goats and 92, 640 sheep in Arusha and Manyara Regions. The value of loss of agriculture GDP from the impacts of climate change over the coming 50 years is estimated at US\$ 27 billion (Tanzanian Shillings 43,200 trillion), which is an annual average of about US\$ 540 million (Tanzania Shillings 864,000 billion)<sup>37</sup>.

Since 1972, there has also been a 68% decrease in dry season flow in Mara River (transboundary river shared by Tanzania and Kenya) contributing to a decline of the herbivore population dependent on the

<sup>35</sup> Kibona, E (2008). Climate Change and Health in Tanzania, CLACC Working Paper 7, iied/The Ring Alliance of Policy Research Organization

<sup>36</sup> Tanzania Meteorological Agency-TMA (2014). Climate Change Projection for Tanzania, URT

<sup>37</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President’ s Office , URT

Mara River in the Serengeti ecosystem. Also, annual flows in the Kilombero/Rufiji Rivers have decreased by 8% since 1972. Further to this, water levels of Lake Victoria, Lake Tanganyika, Lake Manyara, Lake Rukwa and Lake Jipe have dropped significantly in recent years<sup>38</sup>.

Due to extreme and persistent droughts, all major hydropower dams which are the main source of electrical power in the country (e.g. Kidatu and Mtera) have continuously dropped below their lowest water level during the dry season, resulting in long hours of power black-outs. Firms that do not have their own generators have lost an average of 40% of production due to power cuts or interruptions<sup>39</sup>.

Apart from droughts, floods are occurring in various parts of Tanzania, negatively impacting infrastructure and human lives. For example, in February 2010, floods, which occurred in Kilosa District, forced about 23,980 residents out of their homes with devastating damage on crop yields. Restoration costs of infrastructural loss in this incident was estimated at about 200 billion Tanzanian shillings equivalent to about 0.02%, of the GDP. Also, floods that occurred that occurred in 2011, 2014 and 2015 in Morogoro (Mvomero and Kilosa) and Dodoma (Bahi), and in 2011 in Dar es Salaam caused considerable property and infrastructure damage. These floods damaged more than 886 km of roads and 26 bridges, which cost the nation about 17 billion Tanzanian shillings for repair.

Climate change-related impacts are also vividly recorded in most terrestrial and aquatic ecosystems in Tanzania. The El-Nino related floods that occurred in year 1997 and 1998 transformed some parts of Lake Manyara National Park from woodland to wooded grassland, thus altering the normal distribution of large mammals in Manyara ecosystem. Similarly, extreme droughts and heavy rains in the Serengeti-Ngorongoro ecosystem (e.g. during El-Nino of 1996/98), have been reported to coincide with massive death of carnivores (especially lions) and wide-spread herbivores die-offs due to the outbreak of diseases such as Canine Distemper Virus (CDV) and Babesia<sup>40</sup>.

In the marine ecosystem, climate change and variability have resulted into changes in seawater temperature, salinity, acidification, wind speed and water current direction. All these changes have resulted in changes in behaviour of some marine species and alteration of fish breeding habitats and food supply for fish<sup>41</sup>. More than 80% of the tourism industry in Tanzania is nature-based, and the majority of the rural poor in the country depend on ecosystem services for their survival.

### *2.1.11 Project Zone Description and Specificities*

The project will work in the following sites, which were selected based on a set of vulnerability criteria, followed by a questionnaire submitted to local government authorities and extensive consultation with local government conducted through the Vice President's Office. The following criteria contributed to the site selection: ecosystem sensitivity (land degradation, deforestation), socio-economic vulnerability (crop yields, population and poverty indicators), exposure (occurrence of extreme weather events such as droughts and floods). They are detailed in Appendix 8. The site selection was approved by the Government of Tanzania.

A multi-regional focus was adopted in order for the project to cover multiple agro-ecological zones and livelihood zones, and to support several up-scaling strategies tailored to each of the zones covered by the project. Figure 5 presents the selected regions and respective districts for the implementation of the EBARR. The project will work in at least one ward in each of the following districts, which will be selected based on local government priorities during the inception period:

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<sup>38</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President's Office, URT

<sup>39</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President's Office, URT

<sup>40</sup> Munson L, Terio KA, Kock R, Mlengeya T, Roelke ME, Dubovi E, et al. (2008) Climate Extremes Promote Fatal Co-Infections during Canine Distemper Epidemics in African Lions. PLoS ONE 3(6): e2545. doi:10.1371/journal.pone.0002545

<sup>41</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President's Office, URT

- Simanjiro district (Manyara region, Mainland)
- Mpwapwa district (Dodoma region, Mainland)
- Mvomero district (Morogoro region, Mainland)
- Kishapu district (Shinyanga region, Mainland)
- Kaskazini-A Shehia, Kaskazini-Unguja, Unguja Island (Zanzibar)

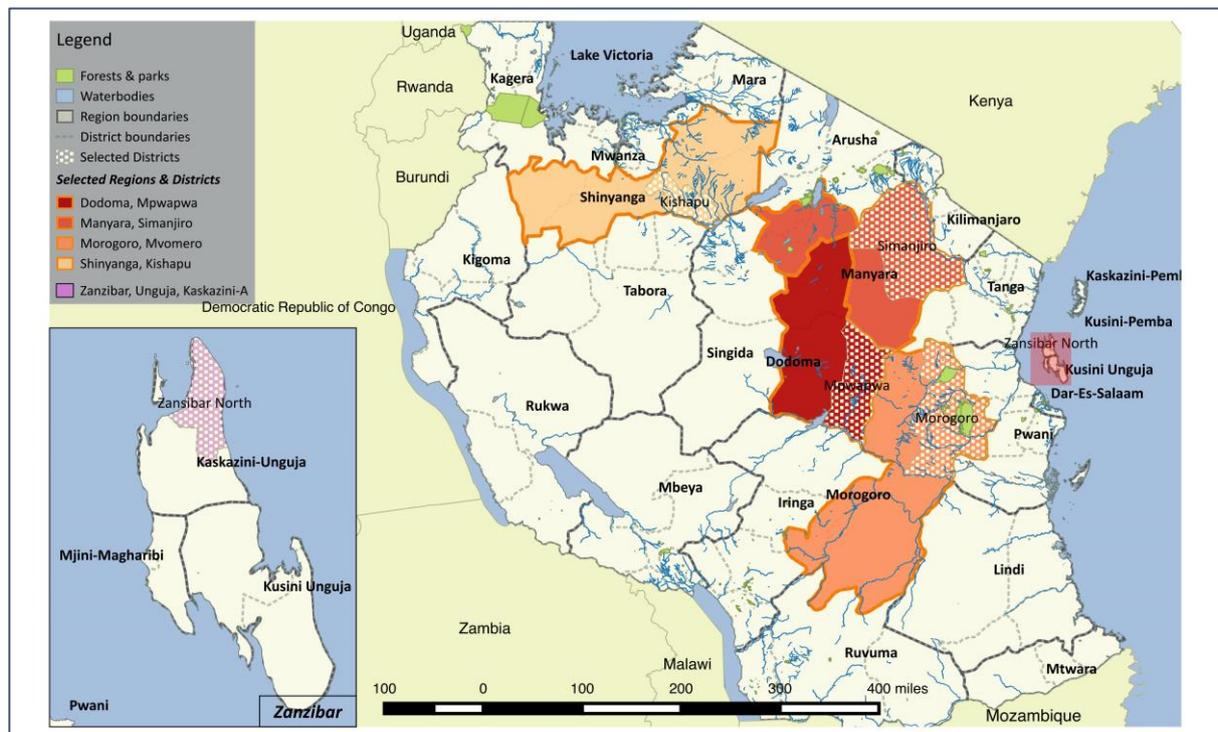


Figure 5: Map of selected regions and districts/shehias in mainland Tanzania and Zanzibar

Table 1: Population data in the selected districts in 2012 (Source: Census 2012)

Region	District / Shehia	Population	Male	Female	Number of households	Average household size
Dodoma	Mpwapwa District	305,056	147,306	157,750	66,811	4.60
Manyara	Simanjiro District	178,693	88,975	89,718	38,908	4.60
Morogoro	Mvomero District	312,109	154,843	157,266	72,519	4.30
Shinyanga	Kishapu District	272,990	135,269	137,721	43634	6.3
Kaskazini Unguja Unguja Island, Zanzibar <sup>42</sup>	Kaskazini-A Shehia	187,455	92,114	95,341	37053	5.10

### Simanjiro district (Manyara Region)

<sup>42</sup> Kaskazini means North in Swahili.

Simanjiro District is one of the six districts in Manyara Region, Northern Tanzania, covering an area of 20,591 km<sup>2</sup>. The district is situated in semi-arid areas and divided into different agro-ecological zones, which vary greatly in terms of altitude (e.g. flood plains, scatted ridges, row of hills), natural vegetation (e.g. acacia commifora woodland, bush lands, bushed grasslands and thickets), rainfall, temperature, topography, soil types, crops grown, animals kept and distribution of human settlements. The rainfall in Simanjiro is bi-modal with short rains occurring between November and December followed by a dry spell and by a longer period of rain from March to May. The short rains are very unreliable and show a high spatial variation. The long rains are more reliable both in distribution and total amount. The average annual rainfall in Simanjiro District is 500 mm<sup>43</sup>. The temperature in Simanjiro District ranges between 13°C to 30°C with the cold months being May to July and August to February being the hot months.

According to the population and housing census of 2012, Simanjiro District had a total population of 178,693 people, out of which 88,975 are males and 89,718 are females. The district population density is 9 people per square kilometer. The population distribution in Simanjiro District is skewed and unevenly distributed. Most people are concentrated in northern part of the district particularly in Msitu wa Tembo and Ruvu Remit wards. The two wards supports a number of livelihoods activities including irrigated agriculture along the Pangani River, and fishing in both the Pangani River and Nyumba ya Mungu dam. Agriculture is the predominant economic sector in Simanjiro District as it employs about 83% of the total population who mainly practice both crop production and livestock keeping. Different from many other districts in semi-arid areas,

In terms of ecosystems management, Simanjiro District is among the six districts that form the “Maasai Steppe-proper” of northern Tanzania. The Maasai steppe is located in Northern Tanzania and falls within an eastern limb of the East African rift valley and includes Tarangire and Lake Manyara National Parks, and the surrounding dispersion areas used by migratory wildlife. The Maasai steppe is dominated by Acacia and Commiphora plant species and contains the second-largest population of migratory wild ungulates in East Africa (after only the Serengeti-Mara system) as well as the largest population of elephants in northern Tanzania. The Simanjiro plains in Simanjiro District are one of the most important wet season distribution and calving areas for wildebeest and zebra in Northern Tanzania.

### **Mpwapwa district (Dodoma Region)**

Mpwapwa District is situated in semi-arid areas in Dodoma Region, Central Tanzania, and covers an area of 7,379 km<sup>2</sup>. The district lies at an altitude varying from 1000 to 1500 metres above sea level. Natural vegetation in the district consists of a dense deciduous thicket dominated by *Commiphora* and *Acacia genera*. The soil types in Mpwapwa are mainly alluvium, greyish sandy and red sandy loam textured. The rainfall pattern in Mpwapwa District is unimodal with one rainy season from November through May. Rainfall distribution is unreliable and there is a risk of drought in January and March. The driest months are between June-October with no rains at all. The total annual rainfall ranges between 250 mm to 750 mm with an average of 600 mm. The mean monthly temperature in these schemes is between 21.8°C - 26.7°C while the mean annual temperature is 24.6°C. From May to July, there is a slightly cooler period marked by the onset of the winds, which continues up to October.

Typical of semi-arid areas, most of the land in Mpwapwa is of marginal agricultural productivity with the exception of small pockets with high potential for irrigation, for instance Chipogolo and Msagali irrigation schemes, and several natural wetland areas<sup>44</sup>. The main ethnic groups in the area are Gogo (44%), Kaguru (25%) and Hehe (21%), who are agro-pastoralists integrating crop production and livestock keeping at different degrees depending on socio-economic and cultural situations.

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<sup>43</sup> Draft: Simanjiro District Socio-Economic Profile

<sup>44</sup> Makoi, H.J.R.J. (2014). Selected Soil Chemical Properties and Fertility Assessment in Some Traditional Irrigation Schemes of the Mpwapwa District, Tanzania. *Journal of Experimental Agriculture*, 4(5): 584-600, 2014

### **Mvomero district (Morogoro Region)**

Mvomero District is one of the six districts in Morogoro Region located in east-central Tanzania, and covers an area of 7,325 km<sup>2</sup>. Geographically, Mvomero is divided into three major ecological zones, namely; highland and mountains zone, Miombo woodland zone, and Savannah River Basin line. Characteristically, the highland and mountains zone occupies about 25% of the district area extending on Nguu Mountain Ranges. This zone lies within altitude of 1,200-2,000m asl. Major livelihood activities in this zone include agriculture, horticulture and marginal livestock keeping. Therefore the highland and mountains zone is very potential for growing food crops, cash crops, spices, fruits and vegetables in Mvomero. The Miombo Woodland zone occupies about 20% of the district area with low flat lowland physical features. The zone lies within the altitude of 600-1200m above the sea level. Average rainfall in the Miombo Woodland zone is between 6000- 12000 mm. Major livelihood activities include agriculture, livestock keeping, national parks and forestry. This zone is the best for optimum use of agriculture production and livestock grazing. Lastly, the Savannah River basin line is situated alongside the great rivers of Mkata, Wami, Mgeta, Mlali, Divue, Diburuma, Mkindo, Mburumi etc. Compared to other zones, Savannah River Basin Line is potential for irrigation, dry season cultivation, production of paddy, sugarcane, cotton, vegetables and fishing.

The rainfall pattern in Mvomero is bimodal, occurring approximately from March–May and October–December. The area experiences high average annual rainfall (1,100 mm). The temperature in the area ranges from a mean minimum of 19°C during the dry season (June–September), with October–March experiencing a mean maximum of 31°C.

### **Kishapu district (Shinyanga Region)**

Kishapu is one of the six districts in Shinyanga Region in northern Tanzania covering an area of 4,333 km<sup>2</sup>, and characterized by flat, gently undulating plains covered with low sparse vegetation mostly shrubs, thorn bushes and some trees in water-logged areas (seasonal wetlands) and along seasonal river banks<sup>45</sup>. The rainfall in Kishapu District is bi-modal ranging from 450 mm to 900 mm annually. The short rain starts between October and December and longer rains starts from February through April/May. The temperature in Kishapu District usually ranges between 18°C to 29°C. Majority of people in Kishapu District practice agro-pastoralism; including subsistence farming for food and cash crops and livestock keeping. Similar to other Sukuma lands areas, cattle are highly valued as a liquid asset in Kishapu, and many households have traditionally been keeping large herds of cattle beyond carrying capacity of their lands.

According to Tanzania Population and Housing Census of 2012, Kishapu District had a total population of 272,990 whereby 137,721 were females and 135, 269 males. Its population growth rate is over 2.9% with an average household size of 6.3, which is higher when compared with 4.8 at the national level. Moreover, population density in Kishapu is estimated at 63 people per km<sup>2</sup> which is higher when compared with 49 people per km<sup>2</sup> at the national level.

### **Zanzibar**

#### **- Kaskazini-A Shehia, Kaskazini Unguja, Unguja Island (Zanzibar)**

Zanzibar is a semi-autonomous part of Tanzania and consists of two main islands, Unguja (also referred to Zanzibar) and Pemba and a number of small islets. Unguja Island has three regions (West, North and South) and six districts or shehias (North A-36 shehia, North B-29 shehia, Central-40 shehia, South-21 shehia, West-39 shehia and Urban-West-45 shehia). Pemba Island has two regions (North and South) and four shehia (Wete and Micheweni shehias in the north, and Chake Chake and Mkoani shehias in the south). Zanzibar experiences a lowland tropical humid type of climate with a

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<sup>45</sup> Kishapu District Socio-Economic Profile, 2013.

bimodal pattern of rainfall influenced by the prevailing monsoon trade winds. There are two main rain seasons i.e. Masika, which occur between March and June; and Vuli rain which starting from October to December. Rainfall varies within the range of 1000 to 2500 mm/year. Mean annual rainfall for Unguja is 1700 mm, whilst that for Pemba is 1800 mm. The mean maximum temperature is 32°C and 27°C.

Zanzibar includes two major agro-ecological zones, namely the plantation zone and the coral rag zone. The two zones vary in terms of soils, resources and social economic patterns. Deep and fertile soils areas with good moisture content accommodates permanent, settled agricultural activities while shallow and stony soils with moisture stresses coral rag area is popular for root and other drought tolerant or seasonal crops, and activities such as production of charcoal and firewood, shifting cultivation and grazing.

Agriculture is one of the major sectors of economy in Zanzibar contributes to about 45.3% of the Zanzibar GDP with annual growth rate of 8.7 %. On average, agriculture contributes to about 82% to foreign exchange earnings in Zanzibar. Approximately 70% of the population in the isles derives their livelihoods directly or indirectly from the agriculture sector (Zanzibar Woody Biomass Survey of 2013). The estimated total cultivated land in Zanzibar is 370,645 acres (36% of land in Unguja Island) with small landholdings ranging from 1 and 1.5 hectares. The main food crops in Zanzibar are rice, banana, cassava, sweet potato and yams. Cereals such as maize, millet and sorghum are not widely grown in the isles. The main cash crops in Zanzibar include, cloves, seaweed and spice such as chilies, black pepper, and cinnamon, cardamom, ginger, nutmeg and lemon grass. Rice is considered as a major staple food in Zanzibar. However, local rice production is 1.4 tons/ha only, against a potential of 2.4 tons/ha.

#### *2.1.12 Gender*

Tanzania has made notable progress on gender equality and women's empowerment (GEWE). The Vision 2025 for Tanzania Mainland stipulates equality between men and women as laid down in the Constitution and recognizes gender equality and the empowerment of women in all socio-economic and political relations and cultures as one of the strategies to attain the vision. Key national policy frameworks such as the Strategy for Growth and Reduction of Poverty (MKUKUTA II and MKUZA II in Tanzania Mainland and Zanzibar respectively) have identified gender equality and women's empowerment (GEWE) as among the major development issues which require multi-sectoral approaches. But despite much progress, women and girls in rural areas still face significant challenges, which makes them inherently more vulnerable.

For example, access to land continues to be difficult for women, and their farms are smaller, largely rain fed and use less hired labour. A recent report shows that "women's mean wages when they are hired as casual farm labourers, are almost three times lower than those of men in agriculture(...) Most farm holders operate at subsistence level, comprising 89 percent of male holders and 92 percent of female holders. Farm holders cultivate between two and three different crops on average, with no major differences between sexes. Few farmers, either women or men, benefit from use of agricultural inputs, and there is a significant gender gap among market-oriented farmers with regard to the use of improved seeds"<sup>46</sup>.

In the proposed project, gender equity has been advocated during the Project Preparation Phase and will be promoted in each activity. During the focus groups of the consultation mission, vulnerable groups such as women, youth and the elderly were particularly active in expressing their concerns on their vulnerability. In order to ensure gender equity, women's voices will be included from the start of the project. The proportion of women involved in the project activities will be monitored during

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<sup>46</sup> FAO, 2014, Gender inequalities in rural employment in Tanzania

project implementation. Stakeholder decisions relating to project activities will only be made with a sufficient representation of women in attendance. Specific activities designed to improve access to productive assets and productivity enhancing techniques will also be targeted at vulnerable groups, including women, youth and the elderly. Finally, indicators and results will also be gender-disaggregated to measure how women are being empowered through the project. Based on initial calculations, an estimated 66% of project funds are targeted towards activities that will contribute to the empowerment of women and the reduction of their vulnerability.

### **The problems to be addressed by the project**

The principal problem that will be addressed by the proposed project is that rural communities and key economic sectors are vulnerable to the current and predicted effects of climate change. This vulnerability is a result of the following factors: i) the agricultural sector's dependence on rain-fed agriculture; ii) poverty and lack of economic opportunities; iii) widespread ecosystem degradation; iv) limited capacity of local and national institutions to understand climate change impacts and vulnerabilities and undertake adaptation planning; v) limited awareness and lack of adaptation capacity in communities and vi) Tanzania's rapid population growth.

## **2.2. Global significance of the project**

### ***Biodiversity***

Tanzania is one of the mega-biodiversity rich countries globally and known as a custodian of world heritage in the form of game reserves and national parks. The extensive game reserves, national parks, forest reserves, the Eastern Arc Mountains, wetlands, coastal forests, marine and fresh water systems in Tanzania are among the world's greatest reservoirs of biodiversity. Tanzania hosts two of globally known biodiversity hotspots (i.e. Eastern Afromontane biodiversity hotspots and Coastal Forests biodiversity hotspots shared by Kenya)<sup>47</sup>. The Selous Game Reserve, the Ngorongoro Crater and Serengeti National Park are World Heritage Sites. Lake Manyara National Park and the Serengeti-Ngorongoro ecosystem, have been designated as biosphere reserves.

Tanzania has designated about 40% of Tanzanian total surface area as forest, wildlife and marine protected areas. The country is home to 31 endemic species of amphibians, 43 species of butterflies, 18 endemic species of lizards, 9 species of snakes, 10 bird species (ranks twelfth globally in terms of bird species), 40% of the world's wild coffee varieties, about 80% of the famous African violet flowers, and is a home to about 20% of Africa's large mammals. In terms of flora, Tanzania accounts for more than one-third of total plant species in Africa (at least 800 other endemic species of plants); mostly found in the Somali-Maasai phytochorion, Zanzibar-inhambane mosaic, Zambezi phytochorion, Afromontane, and Lake Victoria mosaic).

Biodiversity is critical to the national economy contributing more than three quarters of the national GDP and sustaining livelihoods of majority of Tanzanians. Agriculture, livestock, forestry, and fisheries together contribute over 65% of GDP and account for over 80% of total employment and over 60% of the total export earnings. Furthermore, forests provides for over 90% of energy consumption in the country, while hydropower contributes about 37% of power supply in the country<sup>16</sup>. The average Total Economic Value (TEV) of catchment forest reserves was established to be more than 17,250 USD/ha. On the other hand, tourism industry is now worth over US\$1 billion annually<sup>16</sup>.

### ***Climate Change Mitigation***

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<sup>47</sup> <http://tz.chm-cbd.net/biodiversity>

Various climate change mitigation initiatives have been undertaken in Tanzania in the context of United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol. Tanzania ratified the UNFCCC in year 1996 and the Kyoto protocol in 2002. Prior to the ratification of the UNFCCC, the Government of the United Republic of Tanzania (URT) conducted an inventory of Greenhouse Gases (GHGs) with focus on Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O)<sup>48</sup>. The base year for the development of the inventory of GHGs emissions and removals in Tanzania was 1990. Major sectors addressed in the inventory were energy, agriculture, industrial process, waste management, and forestry and land use.

Total GHGs emissions in Tanzania in 1990 from the selected GHGs was estimated and presented at 64, 885 Gigagram (Gg)<sup>49</sup>. Carbon dioxide emissions from in 1990 amounted to 55,208 Gg<sup>50</sup>. Total emission evaluation using the Global Warming Potential Index (GWP) indicates that the emissions of CO<sub>2</sub> contributed 55% to potential warming due to the 1990 emissions, CH<sub>4</sub> provided 44%, and N<sub>2</sub>O provided 1%<sup>51</sup>. By tracing the sources of emissions, the study established that land-use changes and forestry sector made the largest contribution (53%) towards the warming that may result from the 1990 emissions of trace gas in Tanzania followed by agriculture (33%), energy (13%), and waste management (1%). Industrial processes contributed less than 1% of potential warming.

Land use changes and forestry had the largest contribution to emissions because wood fuel (charcoal and firewood), is the main source of energy to both rural and urban areas. It accounts for approximately more than 90% of the primary energy supply. Commercial energy sources, *i.e.*, petroleum and electricity, account for about 8% and 1% respectively of the primary energy used. Coal accounts for less than 1% of the energy used. Total annual fuelwood and charcoal use is estimated at 32 million cubic metres of which only 1/3 is obtained from clearing the forests for charcoal and fuelwood. The rest is obtained from agricultural clearing.

In year 2009, the Tanzanian government prepared the National Framework for Reducing Emission from Deforestation and Forest Degradation (National REDD Framework). The main objectives of National REDD framework are to facilitate effective and coordinated implementation of the REDD related policies, processes and activities so as to contribute to climate change agenda; and to establish mechanisms required for Tanzania to benefit from a post-2012 internationally approved system for forest carbon trading, based on demonstrated emission reductions from deforestation and forest degradation. The REDD framework in Tanzania was followed by a research program initiated to support the REDD implementation capacity in Tanzania (Climate Change Impacts, Adaptation and Mitigation in Tanzania-CCIAM). A number of REDD-related projects have demonstrated the feasibility and success of projects that facilitate community-driven forest conservation and create opportunities for non-forest based income generation, lessons that will be incorporated in this proposed project's design.

### **2.3. Threats, root causes and barrier analysis**

#### **Threats**

*Climate change and climate-related disasters:*

The frequency of occurrence of climate extreme events (e.g. droughts, heavy precipitations and associated floods) is already a threat to economic growth, long-term prosperity and survival of several communities in Tanzania. Given the low adaptive capacity of Tanzania (as a country and its citizens), extreme events are destroying livelihoods, assets, and sometimes leading to deaths. Frequent droughts over the years have resulted in massive crop failure and livestock loss in many parts of the country,

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<sup>48</sup> CEEST, URT, UNEP (1999). Climate Change Mitigation in Southern Africa: Tanzania Country Study

<sup>49</sup> United Republic of Tanzania-URT (2003). Initial National Communication under the UNFCCC, Division of Environment, Vice President's Office, URT

<sup>50</sup> CEEST, URT, UNEP (1999). Climate Change Mitigation in Southern Africa: Tanzania Country Study

<sup>51</sup> CEEST, URT, UNEP (1999). Climate Change Mitigation in Southern Africa: Tanzania Country Study

especially in the semi-arid areas. The value of loss of agriculture GDP from the impacts of climate change over the coming 50 years is estimated at US\$ 27 billion (Tanzanian Shillings 43,200 trillion) which is an annual average of about US\$ 540 million (Tanzania Shillings 864,000 billion)<sup>52</sup>. Due to extreme and persistent droughts, all major hydropower dams which are the main source of electrical power in the country (e.g. Kidatu and Mtera) have continuously dropped below their lowest water level during the dry season, resulting in long hours of power black-outs. Apart from droughts, rainfall is increasingly becoming sporadic, leading to flooding and often causing severe soil erosion.

### *Biodiversity loss*

Tanzania has diverse terrestrial and aquatic biodiversity located in various ecological zones and ecosystems. Human encroachment in high biodiversity areas is a problem in Tanzania. The largest parts of the global biodiversity hotspots in Tanzania are encroached and deforested for illegal lumbering, farming and settlements. Today, significant portions of the coastal forests and Eastern Arc Mountains have been encroached and cleared for illegal lumbering, farming, settlements and mining activities. Forest clearing is contributing to loss of catchment areas, wildlife habitats and other components constituting biodiversity in such forested areas.

Invasive Alien Species (IAS) of various categories have also been introduced accidentally or intentionally. Today, Tanzania has 67 reported IAS of different categories including plant pathogens (e.g. Grey leaf spot -*Cercospora zea-maydis*), invertebrate pests (e.g. larger grain borer – *Prostephanus truncatus*), vertebrate pests (e.g. Indian house crow –*Corvus splendens*), Aquatic weeds (e.g. water hyacinth-*Eichhornia crassipes*), terrestrial weeds (e.g. Lantana-*Lantana camara*), fish species (e.g. Nile perch-*Lates niloticus*) and tree species (e.g. *Maesopsis-Maesopsis eminii*). Some native species in major biodiversity rich areas in Tanzania such as the Eastern Arc Mountains (e.g. Amani Nature Reserve, East Usambara Mountains, Udzungwa Mountains), Serengeti National Park, Ngorongoro Conservation Area and Lake Victoria have been wiped out by IAS.

Poaching also contributes to biodiversity loss in Tanzania. For instance, it is estimated that Tanzania loses about 10,000 elephants annually due to poaching (equivalent to 12.5% of the total elephant population in the country). The same trend is recorded in other species such as rhinoceros. Apart from the fauna, hardwood demand for timber and other uses are threatening some hardwood species making them nearly to extinct in Tanzania (e.g. *Pterocarpus angolensis* (Mninga), *Dalbergia melanoxylon* (Mpingo), *Chlorophora excelsa* (Mvule) and *Azelia quanzensis* (Mkongo).

### *Unsustainable agricultural practices*

Cultivation is to a large extent marked by poor farming methods such as slash-and-burn shifting farming techniques, which is known as an agent for deforestation exposing land to agents of soil erosion such as wind and water. Slash-and-burn shifting farming practice has been a cause of deforestation and biodiversity loss in the biodiversity sensitive areas in Tanzania (e.g. Eastern Arc Mountains and the coastal forests). Annually, newly forested areas are cleared, and fire used to prepare new farm and settlement plots. Fire used to prepare farms (slash and burn) has been reported to destroy non-targeted forested lands and biodiversity, especially killing of slow moving organisms. Due to inadequate farming practices, among other factors, it is estimated that 61% of land in Tanzania is already degraded particularly in semi-arid areas including Dodoma, Manyara, Shinyanga, Singida, Simiyu, and Kilimanjaro Regions<sup>53</sup>. Furthermore, clearing of large tracts of land for biofuel production has also contributed to environmental degradation. Finally, overgrazing is also a problem in areas of relevance to this project, as traditional transhumance patterns have been gradually replaced by semi-sedentary agro-pastoral systems. This results in increased pressures on pastures, particularly when cattle herds are being maintained in high numbers during droughts, limiting the ability of pastures to regenerate naturally.

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<sup>52</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President’ s Office , URT

<sup>53</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President’ s Office , URT

## Root causes

**Rapid population growth and poverty** – Tanzania population is rapidly growing, increasing from 12.3 million people in 1967 to 44.9 million people in 2012 with almost doubling between 1988 and 2012 human population census<sup>54</sup>. About 34% of Tanzanians live below poverty line<sup>55</sup>. Poverty rates are highest in rural areas (where 74% of Tanzanian people live) and the majority of the poor Tanzanians rely heavily on biodiversity (natural resources) on their daily activities such as farming (using slash-and-burn shifting cultivation techniques), livestock keeping (grazing), firewood collection and charcoal making. Most of these activities are conducted in forested areas and go hand-in-hand with deforestation and forest degradation, thus a major threat to the country's biodiversity.

Apart from heavy reliance on biodiversity resources, the increasing population also requires more land for various uses and land is no longer allowed to lay fallow in most parts of Tanzania. As a result land is exposed to agents of soil erosion and constant loss of biodiversity. Encroachment into different protected areas is also becoming common. For instance, the Pugu-Kazimzumbwi Forest Reserve bordering the Dar es Salaam City is almost gone. Therefore, high dependence on natural resources has led to unsustainable exploitation of forest and wetland resources, and over-exploitation of wildlife species in different parts of the country.

It is estimated that, between 1990 and 2000, Tanzania lost an average of 412,300 ha of forest cover per year. Recent studies by Tanzania Forest Services Agency (TFS) show that Tanzania loses about 400,000 ha of forest cover per year. The impact of deforestation and forest degradation are loss of biodiversity due to land clearance and economic loss (poverty and unemployment) associated with unreliable power supply and this has been estimated at about US\$330 million for 2006 representing about 2 percent of GDP.

**Political and social instability in neighboring countries** – Since 1994, Tanzania experienced an influx of refugees from neighbouring countries of Rwanda, Burundi and the Democratic Republic of Congo. The influxes of refugees caused deforestation and other environmental degradation in and around refugee camp sites in Katumba, Mishamo, Ulyankuru, Mtabila and Mwese in North-western Tanzania (in Kigoma, Tabora and Kagera Regions). More than 50% of the Ulyankuru Forest Reserve is cleared to allow establishment of the refugee settlement and camps.

**Land tenure** – In Tanzania land is classified as: (1) reserved land; (2) village land; and (3) general land<sup>56</sup>. Deforestation and loss of biodiversity in Tanzania occurs mostly in non-reserved forested land<sup>57</sup>. Forest resources in the unreserved or general lands and the biodiversity therein (57% of the Tanzanian land) are open access resources due to unclear ownership and absence of security of tenure and formal user rights (poorly defined property rights). As a result, forest resources in the general lands are under constant pressure for conversion to other competing land uses such as agriculture (mainly shifting cultivation characterized by slash-and-burn), free-range livestock grazing, settlements and repeated forest fires. Reserved land includes statutorily protected or designated land such as national parks, land for public utilities, wildlife reserves and land classified as —hazardous, which designates land whose development would pose a hazard to the environment (e.g., river banks, mangrove swamps). Village land includes registered village land, land demarcated and agreed to as village land by relevant village councils, and land (other than reserved land) that villages have been occupying and using as village land for 12 or more years (including pastoral uses) under customary law. All other land is classified as general land.

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<sup>54</sup> United Republic of Tanzania-URT (2012). Poverty and Human Development Report 2011, Ministry of Finance, URT

<sup>55</sup> Poverty and Human Development Report 2011. Research on Poverty Alleviation (REPOA), Dar es Salaam, Tanzania

<sup>56</sup> The Land Act No. 4 of 1999, United Republic of Tanzania

<sup>57</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President's Office, URT

***Culture and beliefs*** – Some of the environmental problems in Tanzania are caused by some cultural beliefs of pastoral and peasant farming communities in the country. For instance, keeping large herds of cattle is often a prestige among the Sukuma, Maasai and Barbaig communities without considering the carrying capacity of grazing land. Under this culture, land is viewed as open access and the herdsmen move with their herds of cattle from one place to another in search of pasture and water. In many places, free movement of agro-pastoralists has resulted into massive degradation of wetlands and deforestation.

Regarding setting of wildfires, some people in Tanzania believe that if one sets a wildfire that ends up burning a long distance it provides an indication that that person will live a long life. Apart from cultural beliefs, majority of rural peasants in Tanzania also set fires to clear farmlands (e.g. in miombo ecosystems and coastal forest mosaic), to facilitate animal hunting, as well as to eradicate tsetse flies and ticks, or to induce growth of fresh grass in rangelands (prescribed burning). On average about 11 million hectares of forests are burnt annually in Tanzania (i.e. between 9%-12.9% of Tanzania's land area)<sup>58</sup>. About 75% of annual fires occur in Western Tanzania particularly in Miombo dominated regions such Kigoma, Tabora, Mbeya and Rukwa Regions. Observations over time have shown that fires occur sporadically in Morogoro, Lindi, Pwani, Mtwara, Ruvuma and Tanga Regions, thereby causing massive death of slow moving organisms, exposes land to various agents of land degradation and loss of biodiversity<sup>59</sup>.

## **Barriers**

***Incomplete technical & institutional capacity*** Despite the existence of policies and laws governing natural resource management (biodiversity conservation), there are some shortcomings in the capacity of the government to curb encroachment and illegal activities, partly due to inadequate human and financial resources as well as poor governance (corruption, lack of accountability, lack of transparency, limited engagement of stakeholders). In addition, while there is growing capacity at central level to understand vulnerability and to integrate climate change in policies, this capacity has yet to be transferred to local government and their jurisdictions. Local governments and local institutions also lack the technical capacities and tools to identify viable options for building local resilience through participatory mechanisms. Finally, there is a growing challenge in identifying and coordinating the various adaptation-related initiatives and in creating iterative progress where the successes of past programs can effectively be upscaled. Information that could be a valuable part of iterative planning is dispersed, and the relevant stakeholders cannot readily access it. This represents a missed opportunity for qualitative jumps and for learning from adaptation lessons learned. There is no way to identify best practices and to systematize methods and approaches for resilience building at the local level.

***Low investment in ecosystem services*** – many of the growing number of adaptation initiatives focus on single sector interventions, promoting solutions designed to relieve partial effects of climate change, such as drought and rainfall variability, or low agricultural productivity. To date, there has not yet been any documented and systematic approach to investing in ecosystem-based adaptation, which represents a most appropriate adaptation strategy for the rural areas of Tanzania. Failure to restore and maintain the ecosystem services that are at the basis of rural livelihoods will lead to continued unsustainable development and piecemeal approaches. There is therefore a need to complement the traditional approaches to adaptation with an effort to address environmental degradation as a primary objective. This will enable local communities to take control of the way they use their own natural resources and to identify development incentives that allow them to build their own resilience, rather than a reactive approach to development.

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<sup>58</sup> TFS (2013).

<sup>59</sup> United Republic of Tanzania –URT (2014). State of the Environment Report, Vice President's Office , URT

***Incomplete knowledge management systems for adaptation*** – while Tanzania has benefitted and continues to benefit from strong national and international support for adaptation and climate change issues, the information base that should support decision making remains concentrated within the hands of a few stakeholders and within a few key sectors. Despite the number of potential success stories from past and ongoing projects, many adaptation initiatives seem to be replicating the approaches and errors of the past. There is a dire need to create a forum or system whereby all adaptation stakeholders can share, debate and access information related to adaptation programming in the country. This begins with a knowledge management system to support decision making at all levels, and serves as a key mechanism for the replication and upscaling of the sound approaches identified. Awareness, knowledge and technical capacity among the local actors, and in particular local governments, is crucial in this respect.

## **2.4. Institutional, sectoral and policy context**

### **2.4.1 Legislation**

Environmental management in Tanzania is guided by the National Environmental Policy, the Environmental Management Act (2004),<sup>60</sup> the National Environmental Action Plan (NEAP-2013-2018), and related sectoral policies as well as legal instruments. Laws relevant to this project include:

- *Environmental Management Act (EMA 2014-Cap.191)*: The EMA 2014 (Cap. 191) is a framework environmental law, which provides for legal and institutional framework for sustainable management of the environment and natural resources in the country. The Act includes provisions for institutional roles and responsibilities with regard to environmental management; environmental impact assessments; strategic environmental assessments; pollution prevention and control; waste management; environmental standards; state of the environment reporting; enforcement of the Act; and a National Environmental Trust Fund.
- *Land Act No. 4 of 1999 and Village Land Act No. 5 of 1999*: The fundamental principle of the Land Act is to ensure that land is used productively and that, any such use complies with the principles of sustainable development. Among others, the Act provides prohibits any development activities in environmentally sensitive areas such as wetlands and swamps and 60 m from the shoreline and riverbanks. The Village Land Act (VLA) empowers the Village Government (VG) to have legal control on village land and its uses. The stipulated legal powers of the VG in the VLA includes prohibiting or controlling land-related problems such as bush fires and other land use conflicts mostly happening between the pastoralists and peasants.
- *Grazing-land and Animal Feed Resources Act No. 13 of 2010*: The Act provides for management and control of grazing-lands, animal feed resources and trade as well as provision for other related matters. The Act further gives mandates to the Local Government Authority in relation to soil conservation, prevention of adverse effects of soil and soil erosion in grazing land, rehabilitation, protection or improvement of grazing-land, make by-laws on clearing of land for the purpose of cultivation of crops other than animal feed; use of implements or machinery; introduction or removal of flora or fauna; gathering of natural produce; introduction, grazing, watering or movement of stock and other domestic animals; husbandry practices of grazing-land; and construction of infrastructures.
- *Forest Act No. 7 of 2002*: The Act provides for management of forests and requires carrying out of Environmental Impact Assessment (EIA) for certain development projects. The Act obliges establishment of forest management plan for all types of forest to ensure sustainable management in the long-term. Moreover, the Act provides for designation of Community

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<sup>60</sup> [http://www.climatechange.go.tz/?page\\_id=26](http://www.climatechange.go.tz/?page_id=26)

Forest Reserves, Mangrove Forest Reserve and encourages community-based natural resources management.

- *Wildlife Conservation Act No. 5 of 2009*: The Act makes provision with respect to management and conservation of biodiversity and wildlife, *i.e.* any wild and indigenous animals and plants, and their constituent habitats and ecosystems found on or in land or water, and provides for establishment and management of protected areas in mainland Tanzania. The Act also provides rules relative to trade in wildlife products and to breeding of wildlife.
- *Marine Parks and Reserves Act No. 29 of 1994*: The Act aims at protecting, conserving, and restoring species and genetic diversity of living and non-living marine resources and ecosystem processes of marine and coastal areas by management of marine and coastal areas so as to promote sustainability of existing resource use, and the recovery of areas and resources that have been over-exploited or damaged.
- *Plant Protection Act No.13 of 1997*: The Act provides for prevention of the introduction and spread of harmful organisms, to ensure sustainable plant and environmental protection, to control the importation and use of plant protection substances, to regulate export and imports of plant and plant products.
- *Fisheries Act No. 22 of 2003*: The Act regulates fishing activities in both fresh and marine by emphasizing conservation of fisheries resources in particular critical habitats or endangered species, and restricts the issuance of fishing licenses for fishing in any conserved areas. The Act also provides for enforcement in collaboration with other related agencies and fisher communities to ensure effective implementation of this Act. Furthermore, the Act requires formation of community-based management units for the purpose of protecting and conserving fishery resources.
- *Water Resource Management Act (WRMA) No. 11 of 2009* and *Water Supply and Sanitation Act (WSSA) No. 12 of 2009*: The WRMA provides the legal framework for the management of water resources within the integrated water resources management (IWRM) framework. The Act provides for pollution control and issues discharge permits of effluents to water bodies, including the underground strata. The WRMA also provides measures for flood mitigation and control to prevent or minimize the risk of flooding, flood damage and water pollution. The WSSA provides for a legal framework to ensure water quality by protecting water works and storage facilities against pollution. The Act further gives mandate to the Local Government Authorities to enact by-laws in relation to water supply and sanitation for efficient and sustainable provision of these services in their areas.
- *Local Government (Urban Authorities) Act No. 8 of 1982*: The Act assigns responsibility to Urban Authorities to take measures for conservation of natural resources, safeguard and promote public health. Urban Authorities are further required to take measures for maintaining the area of their authority in clean and sanitary condition and for preventing the occurrence of or for remedying or causing to be remedied any nuisance or condition likely to be injurious or dangerous to health.
- *Mining Act No. 14 of 2010*: The Act provides for regulation of mining, processing and dealing in minerals. The Mining Act requires all holders of mining licenses to take appropriate measures for the protection of the environment in accordance with the Environmental Management Act including undertaking EIA in mining activities.
- *Public Health Act No. 1 of 2009*: The Act provides for the promotion and maintenance of public health with a view of ensuring comprehensive functional and sustainable public health services. The Act also prohibits discharges into a sewer or into drain that may cause malfunctioning of the drainage systems.
- *National Environmental Action Plan (NEAP 2013-2018)*: The Tanzanian NEAP (2013-2018) was prepared in accordance with the Environmental Management Act No. 20 of 2004 that provides for the preparation of NEAP in the interval of five years. The NEAP (2013-2018) is the basis for integrating and/or mainstreaming of environmental concerns into development policies, plans and strategies. The NEAP (2013-2018) was deliberately prepared to devise strategic interventions while taking into account emerging issues which have a bearing on the

environment such as climate change, Genetically Modified Organisms (GMO's), biofuels, Invasive Alien Species (AIVs) and electronic water.

- *Strategy on Urgent Actions on Land Degradation and Water Catchments, 2006*: The strategy is a policy response towards widespread environmental degradation as a result of unsustainable agricultural activities (farming and livestock keeping) in water catchments and other fragile ecosystems in Tanzania. Listed urgent actions in the strategy to prevent land degradation and protect water catchments in Tanzania includes controlled movement of large herds of livestock, felling of trees (for firewood, charcoal, timber, etc), unsustainable irrigation and mining activities, frequent wild fires, and increase community participation in environmental management-related issues.
- *Strategy on Urgent Actions for the Conservation of Marine and Coastal Environment, Lakes and Rivers Ecosystems and Dams, 2008*: The strategy is a policy response towards environmental degradation in coastal environment, lakes, rivers ecosystems, and dams. The strategy aims at addressing problems related to coral and mangrove destruction, unsustainable agricultural activities and deterioration of water quality, sea level rise, and pollution.

## **2.4.2 Institutional framework**

In accordance with the Environmental Management Act (EMA 2004, Cap. 191), all environmental management issues in mainland Tanzania, including climate change, are coordinated by the Vice President's Office, Ministry of Environment, and Division of Environment. Even in Zanzibar, environmental issues (including climate change) are coordinated by the First Vice President's Office, Department of Environment. However, the direct operational role on management of specific natural resources and environmental services, such as agriculture, fisheries, forestry, wildlife, mining, water, and waste management is conferred to sector Ministries and Local Government Authorities. The EMA 2004 confers the role of enforcement to the National Environmental Management Council (NEMC), and gives power to Sector Ministries and Regional Secretariats to designate Sector Environmental Sections and Regional Environmental Management Experts charged with the responsibility to advise and oversee the implementation and enforcement of the Act.

Since its enactment, enforcement of the EMA 2004 has faced challenges such as low capacity in terms of human resources and infrastructure as well as inadequate financial resources in implementation, monitoring, and evaluation of environmental resources at all levels including NEMC, ministerial, regional and local governmental levels. Capacity at local government levels (e.g. at the district levels) has been remarkably low where actual interaction between people and the environmental resources exists. The majority of Environmental Officers in districts are engaged with natural resources with a focus on revenue collection (from timber, charcoal, sand mining, quarries, etc), and leaving other environmental issues (e.g. soil erosion, land degradation, over-utilization of environmental resources) untouched or remotely addressed.

To successfully implement the Ecosystem-Based Adaptation for Rural Resilience (EBARR) project in Tanzania, the project will be coordinated by VPO, and executed through relevant ministries according to their comparative advantage. For example, the Ministry of agriculture, livestock and fisheries (MALF) (currently implementing the Tanzania Agriculture Climate Resilience Plan 2014-2019; Climate-Smart Agriculture), will be the lead responsible partner for components related to crop and livestock production, alternative livelihoods, and sustainable agriculture. In addition, some of the Sector Ministries will be engaged as partners, namely, the Ministry of Natural Resources and Tourism (combating deforestation, and other initiatives such as CDM/REDD+), President's Office, Regional Administration and Local Governments, Public Service and Governance (PMO-RALG) and the Ministry of Lands, Housing and Human Settlements Development, to help land use planning and avoid land use conflicts in the selected sites through its National Land Use Planning Commission. The project will work closely with district administrations and local governments as key beneficiaries and stakeholders of the project. Linkages will also be made to non-governmental stakeholders and partners who may contribute to various components of the project, including as service providers, information providers, and in monitoring and evaluation.

## 2.5. Stakeholder mapping and analysis

A variety of stakeholders have been engaged in the project since the onset of the project preparation phase, which was initiated in April 2015. The Project Preparation Inception Workshop was held on August 6<sup>th</sup> 2015 in Morogoro, during the Inception mission that took place from August 2<sup>nd</sup> to August 14<sup>th</sup> 2015. The Inception Workshop brought together government entities at national and local levels, potential partners, and other prospective stakeholders that were identified during the course of project preparation. The Inception mission took the project preparation team to three of the four selected districts in the Mainland and to Zanzibar. The fourth district in the Mainland could not be reached during the Inception mission due to lack of time and long travel distances. Visits to each district included consultation meetings with district technical officers as well as community consultation in the form of focus group discussions with particular attention to hearing the voices of vulnerable groups, namely women, indigenous people, people with disabilities, elders, youth, farmers and pastoralists.

Following a site selection process (see Annex 8), a second mission took the project design team, with the support of the VPO, to another set of districts, to ensure adequate support and consultation in prospective project sites. Finally, the validation workshop, which took place on April 13<sup>th</sup>, 2016 in Morogoro, brought together project stakeholders from each selected project site, including VPO, and representatives from specific sectors (water, agriculture, livestock, forestry), CBOs, NGOs to discuss the final list of project activities and expected results. Detailed reports of the inception mission, consultations and validation workshops can be found in Appendix 16.

Stakeholders were consulted during the project development in order to:

- Identify and understand the current issues in each community including environmental problems
- Understand how community members wish to improve the situation and discuss adaptation options and strategies
- Identify and select criteria for site selection,
- Gather local climate change observations for each selected site,
- Validate the project's components, outcomes and outputs,
- Identify local needs and socioeconomic factors,
- Identify ongoing projects and other initiatives relevant to the project activities, and
- Define potential project stakeholders and partners as well as opportunities for coordination and synergies.

A key cornerstone of this project is the development of ecosystem-based adaptation and land use plans, in which all land users will participate. This will allow for the development of informal or formal agreements on land use sharing and benefit sharing, and provide a basis for enforcement. The participation of local stakeholders (communities, CBOs, NGOs, private sector) in the assessment of local vulnerability, the selection and implementation of adaptation interventions will promote local ownership and support for project activities in the implementation phase, as well as strengthening their sustainability after project completion.

The stakeholders are listed below:

1. **Government stakeholders:** The Vice President's Office has coordinated consultation and input provided by all relevant government sectors, starting first with the MALF, as well as ministries of water and irrigation, ministries responsible for women and youth, the Prime Minister's Office – Ministry of Regional and Administration and Local Government (PMO-RALG) and the NEMC. While the project will be coordinated by the VPO, other government entities and in particular local government authorities (LGAs) will be partners in the delivery of activities designed to rehabilitate ecosystem services and implement livelihoods diversification.

2. **Local communities** living in the project's selected districts and regions will be the primary beneficiaries of the project. They will not only be engaged in the implementation, but also in monitoring activities through participatory M&E and in sustaining and or contributing to the replication of ecosystem-based adaptation after the projects completion.

3. **Community Based Organizations CBOs** – These actors will be at the forefront of implementing the project's activities and will be the primary recipients of capacity building. This includes organizations whose activities focus on environmental awareness-raising through events, including days dedicated to cleaning, tree-planting, and domestic waste cleaning. Very often these associations are created and run by youth. Natural resources management groups as well as water user groups will also be included. Because of the role women play in managing natural resources, mainly through fuelwood collection and agriculture, the project will place special emphasis on ensuring that women are consulted and involved in project activities, through existing women's groups. Targeted capacity building efforts will be made and project activities will be designed in a way so as to ensure that women can benefit from resilient technologies and practices, including labor-saving technologies, while also ensuring that women benefit from any increased income from resilient watershed use practices and alternative livelihoods sources.

4. **Non-Governmental Organizations, Civil Society Organizations, and Educational Organizations** – NGOs, CSOs (such as Forum CC: Tanzania Civil Society Forum on Climate Change) and educational organizations (national institutions whose excellence is recognized in the field of climatology, agriculture, and climate change adaptation policies, such as the Institution of Resource Assessment at the University of Dar es Salaam) will provide linkages, research as well as logistical support when needed. They will also be part of consultative processes to ensure that the project has a bottom-up approach and responds to the needs of communities. These stakeholders will be identified and their capacity assessed during project inception.

5. **Private Sector** - The private sector will play a significant role in this project, particularly as Component 2 seeks to encourage alternative livelihoods. Options for new value chain development will be explored with key private sector partners, as will avenues for marketing and supply to ensure the sustainability and commercial viability of alternate, new or niche products identified by the project.

6. **International Partners** – International partners have been working in various capacities in Tanzania. Their experience, successes, lessons learned and logistical arrangements will all be drawn upon to ensure the success of this project. Coordination will be sought with some activities to ensure complementarity and harmonisation of development interventions, as outlined in Section 2.7. Key partners include: UNDP, FAO, WB, AfDB, and IFAD.

At the beginning of the project, workshops will be held to establish the basis for partnerships. Details on each type of stakeholder's participation in the project are provided in Section 5.

## 2.6. Baseline analysis and gaps

### Baseline situation of selected project sites

#### - Simanjiro District

About 83% of the population in Simanjiro is engaged in both crop production and livestock keeping. Only 11% of the population in Simanjiro constitutes the pure pastoralist group<sup>61</sup>. Crop failures and massive deaths of livestock have become common phenomena during the extreme dry years. Introduction of drought-resistant crops such as sunflower, pigeon peas, and onions are in the increase

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<sup>61</sup> Simanjiro District Socio-Economic Profile

in Simanjiro. Similarly, irrigation has been seen as one of the effective means of increasing food and cash crop production to curb food shortage and fight poverty in Simanjiro. Although the irrigation development level is still very low, Simanjiro has ear-marked about 5,416 hectares as potential area for small-scale irrigation in some wards such as Msitu wa Tembo, Shambarai, Lemkuna, Kiruani, Nomeuti, Loiborsoit, Ruvu Remit, Gunge and Ngage where some peasants are already cultivating some crops such as cassava, onions, water melons, rice, tomatoes and vegetables. To cope with increasingly livestock diseases such as trypanosomiasis, anthrax, black quarter, foot and mouth disease and Newcastle disease, annual vaccinations of livestock are mostly encouraged in Simanjiro to sustain vulnerable stocks especially the young animals.

About 36% of the land in Simanjiro District is degraded. Soil erosion with large gullies dominates some areas as a result of tree cutting for timber, charcoal, firewood and building poles. If left unchecked a large part of land in Simanjiro will fail to accommodate most of the land uses supporting the survival of the rural people in Simanjiro. Participatory conservation measures are also required to sustain functioning of the Lalatema village forest reserve (15,000 hectares), which is managed jointly by six villages, namely; Msitu wa Tembo, Kiruani, Magadini, Olchoronyori, Lengast, and Kambi ya Chokaa. If well protected, ecosystem goods and services from the Lalatema forests (e.g. beekeeping, medicine, fruits, etc) will sustain livelihood of the surrounding six villages in a changing climate. Already production of honey and beeswax production in Simanjiro District (about 2.894 tons for 2009 to 2013) is contributing to the households and district incomes. Generally, in order to improve honey production in Simanjiro and obtain many other ecosystem goods and services, supports is needed to improve extension services to beekeepers, improve their marketing network and learn modern beekeeping techniques.

Apart from the forests, Simanjiro is among the six districts that form the “Maasai Steppe-proper” of northern Tanzania. The Maasai steppe is located in Northern Tanzania and falls within an eastern limb of the East African rift valley and includes Tarangire and Lake Manyara National Parks, and the surrounding dispersion areas used by migratory wildlife. The area is dominated by Acacia and Commiphora species and contains the second-largest population of migratory wild ungulates in East Africa (after only the Serengeti-Mara system) as well as the largest population of elephants in northern Tanzania. During the wet seasons, the Simanjiro plains (in the eastern part of the district) are one of the most important distribution and calving areas for wildebeest and zebra in Northern Tanzania. It is the endurance of these wildlife movements across the wider landscape that gives northern Tanzania its unique character as one vast and interconnected set of ecosystems and wildlife ranges.

The livelihoods of majority of people in Simanjiro district depend on existence of healthy and functioning ecosystems. Irrigation options require effective management of watersheds. Integrated conservation and development planning in Simanjiro landscape will help to sustain biodiversity and livelihoods through ecosystem goods and services.

#### **- Kishapu District**

Kishapu District is situated in semi-arid areas experiencing annual crop failures and massive death of livestock due to extreme and persistent droughts. As a drought-devastated district, Kishapu is a food insecure district with less access to adequate and quality water for people and their livestock<sup>62</sup>. For more than 15 years, Kishapu District has been yearly receiving food aid packages from the government and other developmental partners<sup>63</sup>. As short term-measure, people in Kishapu are forced to dig water holes along the seasonal rivers to obtain water for domestic use and for their livestock. Otherwise, as a relatively permanent solution, agro-pastoralists from Kishapu, similar to other drought-hit areas, are migrating from their areas into areas with pastures and adequate permanent water (e.g. lake shores wetlands, River basins, and other wetland areas). Some of the adaptation

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<sup>62</sup> Kishapu District Socio-Economic Profile, 2013

<sup>63</sup> Rapid Vulnerability Assessment Report on Food Shortage Areas in Tanzania, 2009, MNRT

measures underway at the district level include construction of rainwater harvesting structures (e.g. charco dam at Lunguya village), establishment of irrigation schemes (e.g. at Itilima and Nyenze irrigation schemes), and construction of pumped water schemes (e.g. at Mwamadulu, Bubinza, Mwamashima, Mwigumbi villages).

Kishapu District is among the highly degraded lands in semi-arid areas of Tanzania (96%). Historically, due to tse tse infestation in Sukuma area (where Kishapu District belong), Sukuma people (agro-pastoralists) were forced to clear trees as a control measure. With time, most areas remained without trees, a situation that led to a decline of the natural resource base (e.g. decreased biodiversity, soil and water quality); more rapid runoff and hence sedimentation of rivers; and lower productivity, increased rural poverty and vulnerability and further land-use pressures. Some patches of wooded grassland, wooded bush land, bushed grassland and woodlands dominated by trees such as *Terminalia catappa*, *Acacia*, *Balanites aegyptiaca*, *Senna siamea* are protected using indigenous and local knowledge, known as Ngitiri. Access and use to reserved areas (ngitiri) is governed by local institutions such as clan and/or village elders. It is from these protected patches people in Kishapu obtain a number of ecosystem goods and services, especially honey, medicine and pods for their livestock during the dry seasons.

Today, Kishapu district is food insecure, which is partly due to climate change and ecosystem degradation. To secure both livelihood and ecosystem management in Kishapu, integrated conservation and development measures are required.

### **Mvomero District**

Mvomero is one of the seven districts in Morogoro region. The economy and livelihood heavily depends on climate-sensitive sectors (e.g. crop production, livestock keeping, fishing, and forestry). At different times, production of both food crops (e.g. maize, paddy, cassava and sorghum) and cash crops (e.g. sugarcane, coffee, cotton and oil seeds) have been negatively affected by droughts and/or floods in Mvomero district. More than 80% of adult population in Mvomero earns their livelihood from agriculture. The Government of Tanzania through the Mvomero District Council are assisting people to cope and adapt to the impact of climate change by constructing irrigation schemes (e.g. Mgeta, Ndole, Dihombi irrigation schemes), constructing of gravity and pumped water facilities (e.g. at Doma, Kigugu, Kwadoli, Mlali-Kipera, Bumu, Bunduki villages) as well as rehabilitation and expansion of pumped water schemes (e.g. at Kambala, Melela and Hoza-Salawe villages). Other measures include strengthening agricultural extension services (farming and livestock keeping), and supporting intensive mechanised agriculture in order to discourage extensive slash and burn farming system. About 56% of land in Mvomero district is degraded. The remaining forests and woodlands in Mvomero district are estimated to cover about 447,388 hectares.

### **Mpwapwa District**

Crop failure due to extreme droughts is a common phenomenon in Mpwapwa district. Persistent droughts have made Mpwapwa one of the most food insecure areas in Tanzania. To cope and adapt to the changing climate, already farmers in Mpwapwa are engaged in irrigation farming systems and planting drought-resistant crops (e.g. sunflower and sorghum). At the district level, some of the adaptation measures implemented so far include: improved agricultural extension services (farming and livestock keeping), integrated pest management, environmental conservation, construction of irrigation infrastructure, and use of improved drought and pest resistant seeds. The challenge posed so far by irrigation in Mpwapwa is severe leaching and laterisation in some irrigated sites<sup>64</sup>.

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<sup>64</sup> Makoi, H.J.R.J. (2014). Selected Soil Chemical Properties and Fertility Assessment in Some Traditional Irrigation Schemes of the Mpwapwa District, Tanzania. *Journal of Experimental Agriculture*, 4(5): 584-600, 2014

About 43% of land in Mpwapwa District is degraded. Being a semi-arid area characterized by crop failure (as a result of extreme droughts), pressure on wetlands found in Mpwapwa has also increased. The high dependence of people on wetland-based livelihood options is a potential danger for the wetlands in Mpwapwa to become extinct in the near future<sup>65</sup>. To a large extent, livelihoods in Mpwapwa District depend on rain-fed agriculture and on wetland-based activities (small-scale irrigation and fishing). In other words, wetlands in Mpwapwa district are contributing greatly to the livelihood of the rural poor in the district. Wetlands in different parts of the district have been used in high value crop production, as sources of fodder for livestock, water for domestic purposes and many other uses. Even during the drought years, wetlands-based livelihood activities are supplementing dryland sunflower and sorghum farming.

### **Zanzibar (Unguja island)**

#### **- Kaskazini-A Shehia, Kaskazini-Unguja, Unguja Island (Zanzibar)**

Most of the economic sectors in Zanzibar's two islands are already affected by the climatic variability and change. For instance, the agriculture sector is rain-fed and dominated by small-scale subsistence farming using poor technologies. To cope with the changing climate (incidence of seasonal rainfall shifts), most peasants are already practicing intercropping system by planting both annual and permanent crops and irrigation system. Supported by the Government of Zanzibar, large-scale irrigation systems are increasingly been promoted in Zanzibar. The potential land for irrigation in Zanzibar is about 8,521 ha<sup>66</sup>. Currently less than 700 ha are under irrigation. Irrigation development is constrained low efficiency of schemes due to improper canal construction and poor water management. So far paddy is the major irrigated crop. There are a few farmers who grow vegetables and fruits under irrigation system. To date, groundwater is the main source of water for both agriculture and domestic consumption in Zanzibar. There are only a few natural rivers and ponds, which also get completely dry during the dry season.

Zanzibar is not immune from land degradation and other negative impacts affecting sustainability of healthy and functioning ecosystems. Key environmental problems in Zanzibar include poor fishing and agricultural practices, deforestation, encroachment into water catchments and poor drainage systems. Agriculture is the mainstay of Zanzibar economy, contributing about 21% of the GDP. Already climatic and non-climatic stressors have been significantly affecting the agriculture sector and local communities in Zanzibar. For instance, clove farmers were particularly affected with the farm gate price of cloves falling from Tshs 3,500 per kilogram to Tshs 1,200 per kilogram in the year 2002. In 2003 Zanzibar also suffered a decline in tourism arrivals leading to over 1000 formal sector jobs being lost and large number of people engaged in casual tourist related activities facing a significant reduction in income.

### **Baseline Projects**

The proposed project will build on the ongoing activities of the two selected baseline programs described below.

The first baseline program is the **Second Agricultural Sector Development Programme - (ASDP-2, \$US 35 million; World Bank: 2016-2021)**, which is the second phase to ASDP, which ended in 2013-14 (180.9 million US\$, seven years over 2006-2013). The first phase was set out through the Agricultural Sector Development Strategy and included the following objectives: i) to enable farmers to have better access to and use of agricultural knowledge, technologies, marketing systems and infrastructure, all of which contribute to higher productivity, profitability, and farm incomes and ii) to

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<sup>65</sup> Shemdoe R.S., Kingazi S.P., Kitula R. and Chaggu E.J (2007). Reducing Stresses on Wetland Resources in Dryland Ecosystems of Mpwapwa District, Central Tanzania: Where Do We Start? *Journal of Sustainable Development in Africa* 9, No.1, 2007.

<sup>66</sup> Revolutionary Government of Zanzibar (2003). Zanzibar Poverty Reduction Plan

promote private investment based on an improved regulatory and policy environment. The ASDP's interventions involved building capacity of both farmers and institutions: on the one hand, it aimed to improve farmers' capacity to articulate demand for agricultural services and to build partnerships with service providers, on the other hand, to improve capacity of public and private agricultural service providers to farmers. The ASDP had activities in each district and focused on empowering local government and communities to control their planning processes and create an enabling environment for private sector investment in agriculture.<sup>67</sup>

The ASDP-2 aims to implement activities to reach Tanzania's Vision 2025 through a wider coordination framework to involve more agricultural sector development initiatives than in the first phase, with its broad goals including: food and nutrition security, commercialization, trade, growth, agriculture extension services, gender equality and women's empowerment, youth employment and environmental protection. Learning from ASDP-1, specific objectives of ASDP-2 will include strengthening farmer organizations, developing market and productive infrastructures, supporting agribusinesses linked to farmer organizations, and disseminating technologies. Finally, ASDP-2 will focus on fewer districts, it will also target a selection of prioritized commodities (rice, maize, oil seeds namely sunflower and sesame, sugarcane and horticultural crops) in order to increase their productivity and enhance farmers' access to agricultural inputs and financial services.<sup>68</sup>

Although ASDP-1 and ASDP-2 both aim at increasing productivity, profitability and farm incomes of the vulnerable Tanzanian population, it does not take into account future impacts of climate change, nor does it enhance coordination over best practices between projects. It also does not fully consider the impact of agriculture on ecosystem services, or vice versa, the need to restore and maintain ecosystem services to ensure resilient agricultural income. This proposed LDCF project will add a resilient and sustainable aspect to the ASDP-2 by supporting the implementation of locally-specific climate change vulnerability, risks and adaptation options identified by local stakeholders, thus engaging them to increase their income, enhancing their food security by also maintaining ecosystem services and fostering sustainable development. An Adaptation Knowledge Management System (AKMS) will enable the government and other stakeholders to share information on adaptation, vulnerability, projects and technologies using an online platform and a GIS-based system. Climate-smart agricultural practices will also be promoted, such as minimum tillage to reduce soil erosion and direct seeding and mulching to maintain soil cover and promote better ecosystem services.

Current and upcoming ASDP activities in each selected district vary, as they are based on local demand and local plans, but are framed within a set of guidelines based on the overarching objective, which is mainly to improve agricultural productivity. A survey was conducted in each district asking for the list of activities already implemented or to be implemented under the ASDP. Table 2 shows at a quick glance of what activities are done in each district, based on summarized categories. Priorities vary from one district to another, but in general, ASDP-supported activities can be grouped in 10 categories, as below:

1. *Construction, rehabilitation and installation of irrigation schemes*: construction or rehabilitation of irrigation intakes, headworks, lining canals, installation of hydraulic structures, charcoal dams, drip irrigation, reservoir dams; development of irrigation; establishment of block farms by using drip irrigation.
2. *Construction, rehabilitation and stabilization of agricultural market places*: construction or rehabilitation of warehouses, markets, slaughter slabs, abattoirs, crop storage structures, grain banks, feeder roads.
3. *Improvement of cropping practices*: increase of crop production; purchase of tractors, threshing machines, power tillers; management of plantations (e.g. cashew); procurement of modern farming implements; control of pests and insects; distribution of pesticides; facilitation of participatory crop research.

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<sup>67</sup> MALF Annual Report 2014-2015

<sup>68</sup> MALF, Agriculture Climate Resilience Plan ACRP, 2014-2019 (September 2014)

4. *Facilitation of access to Quality Declared Seeds (QDS)*: seed distribution, multiplication (e.g. sorghum, coffee, beans, and sunflower).
5. *Procurement of value adding equipment and infrastructure*: purchase and installation of pulping units, grain processing machines, cultivators and sorghum shelling machines; facilitation of technology transfer and quality control on hides and skins; establishment of processing plants; improvement of post-harvest practices in agro processing and proper crops marketing.
6. *Improvement of livestock breeds and husbandry*: increase of animal products production (milk, egg, cattle); decrease of livestock deaths; facilitation of genetic improvement; insemination of indigenous cattle and poultry using AI or breeding bulls; purchase of Heifers; construction of dip tanks, poultry houses, shade shelters; improvement of cow, bull, dairy goats and chicken breeds; vaccination of animals against diseases; access to new technologies; construction of veterinary centers.
7. *Facilitation of training and capacity-building*: improvement of knowledge and skills of staff; facilitation of training to farmers and livestock keepers; strengthening of Water User Association (WUA); training for farmers on conservation agriculture; training on improved agricultural practices; establishment of Farmers and Livestock Field Schools; training of irrigators to practice their farming according to the National Comprehensive Irrigation Development guideline; establishment of agriculture and marketing cooperative societies (AMCOS); empowerment of agriculture projects implementation committees.
8. *Diversification of local economies*: promotion of bee keeping; fish farming and sustainable fisheries.
9. *Promotion of sustainable environmental management*: tree planting; soil and water conservation.
10. *ASDP support services and extension services*: facilitation of agriculture service delivery; monitoring and evaluation of projects; facilitation of budget preparation; purchase of motorcycles; improvement of working environment by ensuring housing, transport facilities, fuel and working gears and tools to field staff; construction or rehabilitation of ward resource centers (WARC); maintenance services to vehicles; implementation of Agriculture Routine Data System (ARDS); facilitation of participation to agricultural shows.

In Zanzibar, the ASDP is run under a different name, namely: the Zanzibar Agricultural Transformation for Sustainable Development, however, the main activities are the same, therefore they are categorized in the table below.

**Table 2: Current and upcoming ASDP activities in each district<sup>69</sup>**

Activities	Mvomero	Mpwapwa	Kishapu	Simanjoro	Kaskazini Unguja, Zanzibar
1. Construct, rehabilitate and install irrigation schemes	X	X	X	X	X
2. Construct, rehabilitate and secure agricultural market places	X	X	X	X	X
3. Improve cropping practices	X	X		X	
4. Facilitate access to QDS	X	X		X	X
5. Procure value adding equipment and infrastructure		X	X	X	X

<sup>69</sup> Based on consultations during project preparation. Subject to change depending on evolving priorities at district level, and based on available financing.

6. Improve livestock breeds and husbandry	X	X		X	X
7. Provide training and facilitate capacity-building	X	X	X	X	X
8. Diversify local economies		X			
9. Promote sustainable environmental management		X			
10. ASDP Support services and extension services	X	X			

The second baseline program is the **Water Sector Development Programme** (WSDP, 2006-2025, funded by development partners and the Government of Tanzania, with a total of \$US 3,366.38 million over 2006-2025; 889,720,000 \$US for the 2016-2020 period). The WSDP, which enters its second phase in 2016, aims at “supporting the Government of Tanzania’s poverty alleviation strategy through improvements in the governance of water resources management and the sustainable delivery of water supply and sanitation services”. The WSDP is implemented by several institutions, namely, the Ministry of Water and Irrigation, the Ministry of Health and Social Welfare, the Ministry of Education and Vocational Training, the Prime Minister’s Office, Regional Administration and Local Government as well as other implementing agencies, such as Water Basin Offices, urban water supply and sanitation authorities and local government authorities (LGAs).

While the WSDP focuses on the sustainable delivery of water supply and sanitation services, providing water management capacity building at basin level, it does not include climate change risk management in its approaches, nor does it support a resilience-based approach or considers the role of ecosystem services in the provisioning and conserving of water. As a result, the Water Basin authorities, as well as local water users, are not well equipped for making decisions under a climate change scenario. The proposed project will train key local stakeholders on adapting communities to climate change using ecosystem-based adaptation approaches. More specifically, the proposed project will complement and extend water supply for crop production and livestock through water conservation technologies in order to support communities to become more productive thanks to the promotion of alternative livelihood income-generating strategies.

In each district, the main WSDP activities are related to the improvement of water infrastructure<sup>70</sup>:

- In Mvomero, the WSDP supports the construction, rehabilitation and expansion of pumped and gravity water schemes.
- In Mpwapwa, WSDP will support the construction of water supply projects, such as boreholes, wells.
- In Kishapu, the program will support construction and rehabilitation of pumped and piped water schemes and also rehabilitates and installs hand pumps to deep wells and shallow wells.
- In Simanjiro, WSDP will drill boreholes and distribute water in villages.
- In Zanzibar, In Zanzibar, the WSDP is run under a different name, namely: the Zanzibar Water Authority Strategic Plan. The program will support the establishment of water meters; the identification/development of new water sources; the extension and replacement of pipelines, worn pumps and electrical fittings; and the protection of water sources in urban areas.

The implementation of the WSDP currently depends on a business-as-usual water balance scenario. The WSDP planned investments do not currently take into consideration the possible impacts of climate change. These increased incidences of climate change hazards including increased temperatures, drought, delayed onset of the rainy season and flooding are expected to place more

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<sup>70</sup> Id.

pressure on water resources and water availability.

## **2.7. Linkages with other GEF and non-GEF interventions**

The proposed project will also coordinate with existing projects in order to promote synergies when appropriate, support other interventions, share knowledge, share resources when possible, avoid duplication and ensure value-added to the adaptation efforts in Tanzania. The key initiatives that the project will coordinate with are listed below:

The **Implementation of concrete adaptation measure to reduce vulnerability of livelihoods and economy of coastal communities of Tanzania** (UNEP Adaptation Fund, \$US 5,008,564). This project aims at implementing infrastructure and ecosystem based adaptation measures in the coastal area. The project includes a component aiming at strengthening the central government's capacity to understand coastal vulnerability, as well as activities to rehabilitate or construct coastal protection infrastructure. Linkages with this proposed initiative will include the sharing of approaches and methodologies for vulnerability assessment, integration of the coastal vulnerability observation system within the knowledge management system proposed in this EBARR project, and, where possible, joint interventions for cost savings.

**Tanzania Climate-Smart Agriculture Programme** (2015-2025, US\$ 32,158,00, funded by DFID) coordinated by VPO and MALF and part of the Agriculture Climate Resilience Plan 2014-2019, which is part of the Agricultural Sector Development Strategy. This project has six strategic priorities, namely: i) improved productivity and incomes; ii) building resilience and associated mitigation co-benefits; iii) value chain integration; iv) research for development and innovations; v) improving and sustaining agricultural advisory services, and vi) improved institutional coordination. Coordination with this project will occur through the development of coordination mechanisms such as a joint Steering Committee and Project Management Unit coordination meetings. Coordination within the VPO and MALF will be developed to ensure synergy and cooperation, sharing of methods and lessons learned. These synergies will enable the proposed LDCF project to build on this programme's outcomes, mainly the improved productivity and incomes and the sustainability of agricultural advisory services, in order to deliver appropriate ecosystem-based adaptation strategies. As this project gradually becomes operational and clarity as to interventions emerges, the potential for cooperation in this initiative's sites will also be explored through the VPO and MALF.

**The Agricultural Sector Development Programme: Livestock: Support for Pastoral and Agro-Pastoral Development** (ASDP-L: 2005-2015: US\$ 32.8 million, supported by IFAD) is part of the ASDP and aims at improving food security and increasing incomes of the poorest members of herder and agro-pastoralist groups who rely on livestock for their livelihoods. The proposed LDCF project will support rangeland rehabilitation and a livestock management strategy to eventually develop livestock value chains, such as meat processing and hides. Coordination with ASDP-L will therefore enable lessons learned in the ASDP-L to be monitored and incorporated in the proposed LDCF through the cross-sectoral and multi-stakeholder group in the Adaptation Knowledge Management System.

**The Marketing Infrastructure, Value Addition and Rural Finance Support Programme** (MIVARF: 2010-2017, US\$ 169.5 million supported by IFAD) aims at enhancing incomes and food security in all 26 regions of the mainland and Zanzibar, through increased access to financial capital, services and markets. Interventions made by this programme include: increasing access to more financial services and to sustainable agricultural input and output market opportunities. Coordination with this programme will occur through the exchange of lessons learned on value chain development in order to ensure only successful ones are identified and build upon to guarantee a 15% increase in income and maintained across all seasons.

The **Bagamoyo Sugar Infrastructure and Sustainable Community Development Programme** (BASIC: 2015-2024, US\$ 136.6 million supported by IFAD) is a public-private sector programme that aims at transforming rural areas of 27 villages in the Bagamoyo District within a 40km-radius of a sugar mill, providing villagers with income generating opportunities in the sugar industry. This programme will introduce an inclusive business model for smallholder farmers, promoting a climate-smart production system through IFAD's Adaptation for Smallholder Agricultural Programme (ASAP), building capacity to sustainably manage natural resources and financing land use planning in villages to obtain land certificates. The proposed LDCF project will coordinate with BASIC to learn from Bagamoyo District about climate-smart practices and exchange knowledge on integrated natural resources management developing commercial agriculture and leading to agribusiness development.

The **Rural Micro, Small and Medium Enterprise Support Programme** (2006-2015, US\$ 25.3 million – Swahili acronym: MUVI, supported by IFAD), aims at supporting development of value chains delivering improved sustainable margins to producers and thus increasing their incomes and reducing poverty. There are three goals to this programme: i) to improve the awareness of rural entrepreneurs of market opportunities and how these can be exploited through the development and implementation of a communication strategy (including radio linkages to poor and remote areas) and the training of the entrepreneurs to improve their businesses, ii) to improve the coordination and cohesion of selected value chains, through the creation and strengthening of backward and forward linkages for the selected chains, and iii) to strengthen public and private sector institutions to provide efficient and effective support to rural enterprises. Skills training, knowledge and access to markets are provided to medium and small-scale rural entrepreneurs in order for them to increase productivity, profitability as well as off-farm incomes. Coordination with this project will occur through the development of coordination mechanisms to incorporate lessons learned about successful value chain development and monitoring and evaluation activities to include into the AKMS.

**The Feed the Future program in Tanzania**, supported by USAID through the Global Hunger and Food Security Initiative (2011-2017, 30 million US\$). In Tanzania the program is aiming at reducing food insecurity through investments aimed at improving agricultural productivity, improve market access through roads, increased trade through value chain efficiency, supplementary feeding programs. The FTF program is focused on rice, maize and horticulture and works in the project regions, including Morogoro, Dodoma, Iringa, beya, Manyara, and Zanzibar. The FTF program also works with the Tanzania National Agricultural Research service and University to support the production of improved seeds and technologies, core agricultural statistics and to tackle institutional issues related to inputs, credit markets and land tenure.

**The Global Climate Change Alliance Program**, supported by the EU (2.2 million Euro). The overall objective of this program is to increase local capacity to adapt to climate change. It is supporting the establishment of a number of eco-villages where adaptation measures are tested in sectors such as agriculture, rangeland management, water management, sanitation and biomass energy. In Zanzibar the project is implemented on Pemba Island through a local NGO and in the mainland, the project is implemented in Chololo village near Dodoma with national organizations such as the Tanzanian Organic Agriculture Movement (TOAM). Another project is located in the Uluguru mountains, in seven villages across Morogoro and Mvomero districts. Main activities of these projects include climate smart agriculture, water use efficiency, diversification and renewable energies. Cooperation with implementers of local projects in project districts has been sought during project preparation and partnerships with local NGOs such as TOAM have been initiated. In particular, local NGOs with implementation experience can become service providers for key interventions under this project. They can also play a key role in coordinating civil society and in supporting the development of a knowledge management system, including by creating websites and promoting the use of innovative information technology. Additional avenues for cooperation will be pursued during inception.

**The Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA, UNEP)** will provide the tools and methods that will be used in this project. PROVIA aims

to “provide direction and coherence at the international level for research on vulnerability, impacts and adaptation (VIA) and responds to the critical need to harmonize, mobilize and communicate the growing knowledge base on VIA.<sup>71</sup> Its priority activities include: international agenda of research, advice and scientific information, communication with VIA-Community and guidelines and VIA-Assessment Tools. The proposed project will use VIA guidelines to conduct climate change vulnerability impact assessment (VIA) in order to assist local communities in identifying best adaptation options, according to a variety of criteria, including sustainability, resilience and inter-seasonal variability, profitability and access to markets. This information will then be submitted for integration into the knowledge management system proposed under this project, hence enabling the monitoring of the evolution of vulnerability in the same sites across time, and it will also complement the existing data on VIA within PROVIA resources.

Coordination with other **GEF-funded** initiatives will also be pursued, as follows:

The project **Strengthening Climate Information and Early Warning Systems in Tanzania to Support Climate Resilient Development and Adaptation to Climate Change** (2013-2017, US\$ 4,500,000) funded by the LDCF and implemented through UNDP and the Tanzania Meteorological Agency (TMA). This project aims to provide more technologies to reinforce capacity of the national early warning network to better anticipate and respond to extreme climate events. The project includes substantive investment in the agro and hydro meteorological capacity of the country, both in terms of observation infrastructure and in terms of scientific and technical capacity. Coordination with this project will be sought to raise awareness of smallholder farmers on the utility and usability of agro-meteorological forecasts and information in their livelihoods.

**Securing watershed services through Sustainable Land Management in the Ruvu and Zigi catchment, Eastern Arc Region.** This project, while not in the same area as the proposed EBARR, is implemented through UNDP-GEF (3,648,858 US\$). Cooperation between the two projects will include sharing of information on land degradation, climate smart agriculture, as well as options for restoring ecosystem services at the watershed level. Methodologies and scientific data will be shared, and co-implementation of targeted activities will be explored through VPO coordination.

**Sustainable Land Management of Lake Nyasa Catchment in Tanzania** (UNEP-GEF, \$1,298,980). This project, which is under preparation, will also share information and knowledge on methodologies, and in particular on the state of catchment-level ecosystem services in the targeted area. The project will also coordinate with the similar **Kihansi Catchment conservation and management project** implemented through WB-GEF, which can deliver useful information on catchment-based management approaches.

On aspects related to reducing deforestation, the project will also seek collaboration with the project named **Mini-Grids Based on Small hydropower sources to augment rural electrification**. In particular, this UNIDO-supported project could provide useful avenues for creating incentives at local level for local energy production, particularly in a context where ecosystem management of upper watershed areas can help conserve water bodies and hence to generate energy for local consumption.

The project will also coordinate with the “**Developing Core Capacity to Address Adaptation to Climate Change in Productive Coastal Zones**”, which is coordinated through the VPO and is expected to contribute to creating a level of institutional capacity among the key ministerial stakeholders in terms of vulnerability assessment, climate risk management and adaptation planning.

Given that coordination among the various adaptation-related initiatives is a key feature of this project, namely through the creation of an adaptation knowledge management system, the project will

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<sup>71</sup> About PROVIA: <http://www.unep.org/provia/ABOUT/WhatIsPROVIA/tabid/55216/Default.aspx>

dedicate resources towards the identification and mapping of relevant initiatives and the integration of their lessons, data and information, into a comprehensive knowledge platform (Component 1). It is expected that VPO, as lead for coordination on climate adaptation issues, will take a lead role in gathering partners and contributors to this platform.

Finally, the project will also pursue close collaboration with the Tanzania child-project under the regional Integrated Approach Program for Food Security, also funded by GEF. Under this program, the Tanzania sub-project (7.1 million US\$) is currently under design. It comprises of three components: one focusing on ecosystem services, another on knowledge and monitoring services, and a third focusing on the strengthening of rural food value chains in the drylands with a strong focus on livestock. With the exception of Dodoma, the IAP project does not operate in the same project sites as this initiative. However, there may be some similarities between the interventions being proposed; since both projects are to be coordinated by the VPO, options for cost-sharing and joint delivery will be explored once the IAP project is formulated. In addition, this initiative will make linkages between the AKMS (Outcome 1) and the regional project under the IAP, which promotes joint monitoring and assessment and the sharing of methodologies under a South-South approach.

## **SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)**

### **3.1. Project rationale and policy conformity**

#### *Project rationale*

The proposed project seeks to address challenges faced by rural communities and economic sectors that are vulnerable to climate change. This vulnerability is exacerbated by the agricultural sector's continued dependence on rain-fed agriculture, despite ongoing efforts to increase water mobilization. The project also seeks to create opportunities for local growth, so that communities can experience economic development while building their own resilience. In order to achieve that, the project must address the constraints posed by ecosystem degradation, in terms of productivity as well as in terms of health and well-being.

In recent years, Tanzania has benefited from a number of projects and programs that sought to reduce vulnerability and promote adaptation. This project forms part of this continuum, by seeking to provide incremental capacity at national level and by broadening the geographic scope of adaptation-related investments. For example, the selected project sites have benefited from less adaptation-related programming than other areas, but rural development investments are being made, namely under the ASDP and WSDP, that are currently not resilient. This builds on the emerging adaptation capacity among the key central planning stakeholders, such as VPO and PMO, but will expand the reach to decentralized and local governments, using national resources to the extent possible. In that sense, the project intends to leverage existing capacity among central and sectoral ministries to train and disseminate knowledge at decentralized levels. This is in line with the current government's priorities for decentralization and it is necessary if local communities are to be able to plan for their own long-term resilience.

In addition, the project intends to build on the baseline of sector-based programming to enhance the use of ecosystem-based approaches as a useful entry point for adaptation. There is a growing body of knowledge that points to the need to restore and maintain ecosystem services in order to ensure continued growth in the agriculture sector. This includes the development of ecosystem-relevant data and knowledge, as well as the capacity for local actors, government and stakeholders, to implement effective, integrated strategies.

#### *Policy conformity*

7. The EBARR project is in conformity with the National Environmental Policy of 1997 and several other sectoral policies that are developed to address various environmental conservation matters so as to sustain healthy and functioning environments and ecosystems in Tanzania. In general, the National Environmental Policy of 1997 provides the framework needed to mainstream environmental considerations into decision-making, guidelines to help determine priority actions, as well as monitoring and reviewing of policies, plans and programmes in the country.

8. Some of the sectoral policies to which implementation of the EBARR project will conform include the National Forest Policy of 1998, National Land Policy of 1995, National Agriculture Policy of 2013, National Livestock Policy of 2006, National Energy Policy of 2003, National Human Settlements Development Policy of 2000, National Population Policy of 2006, National Water Policy of 2002 and the National Wildlife Policy of 2007.

9. The Tanzanian National Forest Policy of 1998 aims at guiding sustainable conservation and management of forest resources in Tanzania. The ultimate goal of the policy is to ensure sustained functioning forest ecosystems capable of supporting livelihood of the rural poor from various forest products (e.g. firewood, mushrooms, honey, medicine, food, etc). At the national level, healthy forest ecosystems support the national economy through tourism, timber, hydro-electric power, water supply, etc. Similarly, the National Land Policy of 1995 advocates for the protection of land resources from degradation by addressing issues related to land use planning, proper management of land

resources, land resource sharing, and promote multiple land use techniques in conflicting land uses, as well as involving communities in resource management, land uses and conflict resolution.

10. The project also supports the National Agriculture Policy of 2013, which aims at promoting agricultural practices that sustain the environment by improving adaptation measures to climate change (Tanzania Agriculture Resilience Plan 2014-2019), public awareness on sustainable agriculture and enforcing relevant environmental laws and regulations. As aforementioned, Tanzania has also the National Livestock Policy of 2006, which recognizes that increased livestock population and human activities related to livestock production have resulted in over exploitation of natural resources, soil erosion and land degradation. Thus, the policy seeks to strengthen technical support services on environmental issues, promote proper land use planning for livestock production and strengthen inter-sectoral coordination on environmental issues.

11. Regarding the use of different energy sources to reducing emission of GHGs in Tanzania, the National Energy Policy of 2003, stresses the use of renewable and alternative energy sources such as wind, solar, mini-hydropower generators and use of liquefied petroleum gas (LPG) as well as natural gas. The National Energy Policy encourages use of alternative energy sources such as biogas, briquettes both for domestic and industrial uses to minimize the use of charcoal and firewood and ultimately prevent massive deforestation.

12. The National Climate Change Communication Strategy aims at facilitating effective communication on climate change information at national and lower levels linking to regional and international communication strategies in order to enhance management of climate change impacts and explore associated opportunities.<sup>72</sup> The EBARR is in conformity with this communication strategy, namely through Component 1 (see below), which aims at developing an Adaptation Knowledge Management System to respond to the need for reliable communication channels and information flows.

13. The proposed project is also in line with the process and roadmap for formulating national adaptation plans (NAPs) for Tanzania, which was launched in July 2015 and aims to “address the country’s medium- and long term adaptation needs by mainstreaming climate risks into all sector-specific and national development planning, as well as to reinforce coordination, and promote evidence-based decision-making in order to facilitate adaptation planning”<sup>73</sup>. The NAP process is also coordinated by the VPO and work is underway to develop the Roadmap and the stocktaking assessments. It is expected that this exercise will form a key contribution to the AKMS, which is proposed under component 1. Once the AKMS is implemented, the VPO will integrate the AKMS and its steering committee within its regular budget allocations, in order to ensure its continued relevance within the ongoing national adaptation plans (NAPs).

14. Finally, the project supports Tanzania’s Intended Nationally Determined Contributions (INDCs), which goal is to place Tanzania on a climate resilient development pathway, by reducing climate related disasters from 70% to 50% and impacts from frequent droughts and floods. More specifically, the intended contributions target the following sectors: agriculture, livestock, forestry, energy, coastal, marine environment and fisheries, water resources, tourism, human settlements, and health sectors. Increasing yields through sustainable land practices, such as climate-smart agriculture, protecting farmers through crop insurance, and strengthening capacity of agricultural research institutions and extension workers to target climate actions are some examples of Tanzania’s INDCs in the agricultural sector.

#### *Overall GEF conformity*

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<sup>72</sup> National Climate Change Communication, 2012-2017

<sup>73</sup> <http://www.adaptation-undp.org/laying-foundations-nap-process-tanzania>

The project is consistent with GEF policies for adaptation, in particular the 2014 programming strategy on adaptation<sup>74</sup> for the LDCF. As such, it contributes to the following outcomes for adaptation:

CCA -1: Reduce the vulnerability of people, livelihoods, physical assets and natural systems to the adverse effects of climate change. The project contributes to both outcome 1.1 on reduced vulnerability of physical assets and natural systems, as well as outcome 1.2 on diversification of livelihoods and sources of income. This will be mostly achieved through Component 2.

CCA-2: Increased awareness of climate change impacts, vulnerability and adaptation. This project contributes to outcome 2.3 on the strengthening of institutional and technical capacities and human skills to identify, prioritize, implement, monitor and evaluation adaptation strategies. This will be achieved through Components 1 and 3.

The EBARR is well aligned with priorities identified by the NAPA (2007), namely agriculture and food security including livestock, water resources, energy, forestry, health and wildlife. In addition, one of NAPA's priority projects required improving food security in drought-prone areas by promoting drought-tolerant crops, which targeted Shinyanga and Dodoma regions, among others.

### **3.2. Project goal and objective**

The project *objective* is to increase resilience to climate change in rural communities of Tanzania by strengthening ecosystem resilience and diversifying livelihoods. It contributes to the overarching *goal* of reducing the vulnerability of rural populations.

### **3.3. Project components and expected results**

The project will seek to achieve its objective through four interlinked outcomes and eight outputs. The GEF funded interventions will complement the baseline interventions (described in Section 2.6) deployed by the ASDP and the WSDP in the targeted regions by addressing key barriers to resilience, such as the degradation of the ecological services at the basis of production, and the limited opportunities for sustainable local growth.

#### **Outcome 1: Improved stakeholders capacity to adapt to climate change through EbA approaches and to undertake resilience-building responses.**

There is increasing institutional and individual capacity to plan adaptation-related initiatives among key central-level stakeholders, such as PMO, VPO and the sectoral ministries. Over the past few years, these stakeholders have been involved in the development and management of a growing number of adaptation related activities. However, only a few of these activities concerned ecosystem-based adaptation, an adaptation strategy that is very promising for Tanzania, given the continued economic reliance on natural resources. In order to continue building the capacity of the Tanzania government to plan, manage and evaluate adaptation progress in the country, a few key actions are required. These concern notably the coordination and understanding of adaptation results throughout the country, the development of shared knowledge management systems that will enable the government at all levels to undertake iterative planning, and the dissemination of ecosystem-based adaptation tools and methodologies to a broader set of stakeholders nationally and locally.

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<sup>74</sup> GEF Programming Strategy on Adaptation to Climate Change for the Least Developed Countries Fund [LDCF] and the Special Climate Change Fund [SCCF] (GEF/LDCF.SCCF.16/03)

*Output 1.1 A GIS-based adaptation knowledge management system (AKMS) on climate change adaptation is operationalized.*

Under this output, the GEF funds would support the development of a much needed adaptation knowledge management system (AKMS) that will serve as a tool for planning future adaptation initiatives. This knowledge system will enable the government and other stakeholders to share information on adaptation, vulnerability, projects and technologies using an online platform and a GIS-based system. On one hand, this will enable stronger coordination among the various sectors and institutional actors, and a more systematic identification of gaps and needs in terms of resilience and adaptation. At the same time, the knowledge system will serve as a gateway for sharing knowledge and best practices on adaptation planning, programming, including technological successes that are applicable elsewhere in the country. The platform would build on existing networks, such as Adaptationlearning.net, the Climate Technology Center and Network (CTCN), and the IW-learn platform, but will add a GIS mapping component in order to be able to represent visually the various aspects of adaptation programming and vulnerability in different regions.

In order to achieve this result, the project will support the formation of a cross-sectoral and multi-stakeholder group or steering committee who will be tasked with steering the development and maintenance of the platform. These stakeholders, who will include government, non-government, private sector, the research and academic community and development partners, will participate in the definition and design of the platform structure through a first needs assessment and stocktaking (linked to the NAP process). Experience from national institutions in creating similar platforms, such as those set up by the Tanzania Organic Agriculture Movement, for example, will be integrated into the new AKMS. The AKMS will make use of all new ICTs and will provide online access to resources including documents, data, maps and GIS-based information, as well as case studies, blogs and links. Support from all stakeholders in creating and populating the knowledge system will be enlisted on the basis of voluntary contributions. Data submission and access will be made open to all stakeholders, but a quality assurance function will be established within the steering committee, to ensure harmonization. During the project, GEF funds will support the identification of information and data relevant to the AKMS from all sources, including academic sources, which will be compiled through annual reports and recommendations on adaptation planning and programming. For example, each year, the annual reports could include case studies as well as recommendations on upcoming gaps, opportunities for upscaling good practices, and a list of ongoing projects, programs and policies. These recommendations will also be useful as an evidence-based advocacy tool to promote EBA among donors and donor groups and to support the development of EbA-friendly development programming (e.g. UNDAF). The project will also support the initial operating costs and meetings of the AKMS steering committee. At the end of the project, the VPO will integrate the management of the AKMS and its steering committee within its regular budget allocations, in order to ensure its continued relevance. Furthermore, the VPO will endeavour to link the AKMS to other regional and global level networks, to promote South-South Cooperation and the exchange of best practices. For example, the AKMS may feed into the South-South exchanges foreseen under the Regional Integrated Approach Program for Food Security, financed by the GEF, and which has a regional hub project, to which Tanzania is participating.

*Output 1.2 Training and guidance provided to a cadre of knowledgeable resource persons on ecosystem-based adaptation.*

Under this output, the project will continue to build on existing initiatives and proven project results to further build the capacity of key adaptation stakeholders on the principles, approaches and tools related to Ecosystem-based adaptation. This will begin by developing materials and tools, using existing sources of knowledge such as UNEP's EbA Decision-Support tool that can be adapted to the

Tanzania government decision-making processes. Using this material, a training of trainers will be organized to create a cadre of knowledgeable resource persons on ecosystem-based adaptation. Registration for the training will be open to civil servants in ministries, NGOs, as well as consultants who have worked on adaptation programs in the past, in order to build on an existing level of capacity. The project will also support a training of trainer session for staff from the VPO, who is normally in charge of coordinating all adaptation and climate change initiatives, representatives of the National Climate Change Steering Committee and working groups, climate change and disaster management focal points in all ministries, as well as staff in the National Environment Management Council. This will ensure that those who are most often called upon to plan and implement adaptation related initiatives at central level have the most recent knowledge on ecosystem-based adaptation and how it may be applied in a Tanzanian context. These newly trained stakeholders will then be able to pass on the information and training to the local level stakeholders, chief among them local governments as part of activities under Outcome 2.

**Table 3: Outcome, Outputs, Activities for Component 1**

1.Improved stakeholders capacity to adapt to climate change through EbA approaches and undertake resilience building responses	1.1 A GIS-based knowledge management system on climate change adaptation that supports planning	1.1.1 Design and develop the basic structure of the knowledge management system utilizing available open source tools
		1.1.2 Form a cross-sectoral multi-stakeholder group to support the management and maintenance of the knowledge system and its use for adaptation planning
		1.1.3 Verify the data produced by the stakeholders and identify capacity gaps and opportunities for collaboration on all levels
		1.1.4 Identify currently available data in GIS format and additional data needs for planning appropriate climate change responses
		1.1.5 Provide annual recommendations on gaps and needs for adaptation planning and programming based on findings from the knowledge system
1.2 <i>Training and guidance provided to a cadre of knowledgeable resource persons on ecosystem-based adaptation</i>	1.2 .1 ToT training material on ecosystem based adaptation approach developed	
	1.2.2 ToT training for VPO staff, National climate change steering committee and working groups members, climate change and disaster management focal points in relevant ministries at decentralized levels	

### **Outcome 2 – Increased resilience in project sites through demonstration of EbA practices and improved livelihoods**

The larger part of the GEF funds will be allocated to this second outcome, which is oriented towards the mobilization of concrete investments on the ground to facilitate EbA. This outcome will be delivered in close collaboration with local authorities, committees and user groups, whose capacity will also be strengthened by the project. The project will also undertake some targeted research into the vulnerability of the project sites, and the information will be linked and uploaded to the AKMS developed in Outcome 1. Vulnerability and impacts assessment conducted for each district at the beginning of the project will then be monitored annually through participatory M&E (Outcome 3) in order to understand the reduction in vulnerability from implementing adaptation options. The investments that will be deployed will support both the restoration of ecosystem services and the deployment of more sustainable and more resilient forms of livelihoods at local level, hence reducing

vulnerability of beneficiaries by 45% by the end of the project<sup>75</sup>. This will be done on the basis of sound local knowledge and assessment.

*Output 2.1 Local authorities, committees and user groups trained on adapting communities to climate change using EbA*

Following up on the Training of Trainers that took place under Component 1, the project will support a training of key local stakeholders on the deployment of climate vulnerability assessments tools and techniques, including disaster risk monitoring and assessment, as well as on the principles, tools and approaches related to EbA. This training will be designed for local authorities, district administrations, local committees (ie disaster risk committees), and user groups (ie water user associations, etc). Representatives of regional administrations may also participate in the training, along with water basin organization representatives. The purpose of this broad training is to ensure that all local stakeholders have the required level of knowledge to guide communities in an EbA planning exercise, and to identify resilience-building options in the long term.

*Output 2.2 Locally-specific climate change vulnerability, risks and adaptation options are identified by local stakeholders*

Under this output, the project will support the deployment of a comprehensive consultative process through which local communities will identify their own vulnerabilities and the most viable adaptation options, using best available practices. First, a participatory climate change vulnerability and impacts assessment (VIA) will be conducted in each project site, using guidelines for VIA under the UNEP PROVIA program. This will assist local communities in identifying best adaptation options, according to a variety of criteria, including sustainability, resilience and inter-seasonal variability, profitability and access to markets. This will include a gender-based assessment of vulnerability, which will also inform the design of gender-specific adaptation solutions.

Simultaneously, a diagnostic and indicators of climate-change affected ecosystem services will be conducted, using tools developed by UNEP's World Conservation Monitoring Centre (WCMC), such as the Toolkit for Ecosystem Service Site-based Assessment (TESSA)<sup>76</sup>, to measure ecosystem services and value nature. This diagnostic will contribute to identifying impacts of potential changes on the ecosystem services, informing locally-specific adaptation options. Information from these exercises will be submitted for integration into the AKMS, enabling the monitoring of the evolution of vulnerability in the same sites across time.

This exercise will also inform the development of a map of major hazards and risks, including droughts, floods, pest and diseases, both under the baseline and the 2090 climate scenario. This will be done using information from available climate scenarios, downscaled to the local level wherever possible. This will be followed by an assessment of the physical and economic impacts of climate change on the project sites, using tried and tested methodologies, such as the Economics of Adaptation exercise that was conducted at a national level in 2009. The purpose of this exercise is to understand the value of ecosystem services and the trade-offs involved in selecting local development options and pathways. This will also link to the 3 activities on monitoring and evaluation, as well as provide a useful basis of information on which to undertake planning in other regions, through the AKMS.

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<sup>75</sup> This vulnerability reduction target is set high to reach visible impact, given that the no vulnerability and impact assessments were ever conducted in these districts.

<sup>76</sup> UNEP's World Conservation Monitoring Centre (WCMC): <http://www.birdlife.org/worldwide/science/assessing-ecosystem-services-tessa>

On the basis of knowledge gathered during the VIAs and ecosystem assessments above, communities will then be mobilized to develop new resilience and season-based land use and management plans (LUMPs). These LUMPs would incorporate all forms of natural resource use, including potential enclosures and regeneration set-aside zones, as well as inter-seasonal and inter-annual rotation patterns. The LUMPs would also formalize the community-based NR management systems for rangeland and pasture, cropland, forests and water and would include the specification of resilient livelihoods elected by the communities as new or enhanced development ventures. This will help ensure that the entire community invests the resources and shares in the benefits of increased livelihoods options (Output 2.4).

During this planning process, communities will also be able to identify alternative income generating options and promising value chains that will be explored under output 2.4.

### *Output 2.3 Ecosystem services are rehabilitated through the implementation of EbA practices*

On the basis of agreed land use decisions, activities under this output will focus on the restoration of the ecosystem services' main functionalities, including soil fertility and moisture conservation, carbon and nutrient cycling, protective services against floods and droughts, and water conservation. In line with the diagnostic posed during the project preparation and following an analysis of key ecosystem vulnerability, the project will support four types of ecosystem rehabilitation activities: natural regeneration of degraded lands, rangeland rehabilitation, reforestation and river bank stabilisation. Based on current knowledge, these measures are expected to provide increased soil quality, carbon sequestration in soils and biomass, increased land productivity and moisture retention, reduced erosion and risk of flooding and improved water quantity and quality. The specific details of each interventions, including for example areas selected and total coverage, species used, access and management systems, would be spelled out in the district LUMPs:

Rehabilitation activities could include the establishment of enclosures and no-take zones, using a participatory approach, in degraded areas, to assist the natural regeneration of pastures, grasslands, and agricultural lands. Monitoring of the regeneration would be undertaken with communities through Outcome 3 and would include vegetative cover as well as biodiversity indicators. An estimated minimum of 50 ha could be set aside for regeneration in each project site as an initial demonstration of the speed and benefits of natural regeneration.

Furthermore, the project could support the rehabilitation of rangelands in up to 6000 hectares (around 500 ha per district, to be specified during the LUMP exercise). This would include the procurement and planting of drought resistant grasses, shrubs and trees, along with a community-based rangeland and livestock management strategy. This latter strategy should also include mechanisms to rotate grazing, activities to develop low-grazing livestock species, and activities (under output 2.4) to develop fodder making as a value chain for sedentary livestock. The project would also support the rehabilitation and reforestation of key watershed areas, in particular those that are near headwaters, river banks or sources. Based on initial estimates during project preparation, an estimated maximum of 3000 ha could be reforested (500 ha pr district) using local endemic species that have proven to have a good drought tolerance and whose water needs are low. Finally, riverbank rehabilitation and anti-erosion measures would also be implemented through the project as a means to restore the protective ecosystem services, along a maximum of 200 hectares in targeted districts.

### *Output 2.4 Income is increased and maintained across seasons, through sustainable and resilient livelihoods*

On the basis of plans developed under Output 2.3, the project will seek to support an increase in crop production through the implementation climate smart agricultural practices. This will include minimum tillage to reduce soil erosion, conservation agriculture and land preparation techniques, direct seeding, mulching, maintenance of soil cover, and crop rotation, to name a few. It will also include water harvesting, sand dams, conservation-based irrigation techniques, cattle troughs and other available technologies to increase water availability for crop production and livestock, which has thus far been a significant barrier to development in the area. This will help support communities in becoming more productive while maintaining the ecosystem services and production base. Crop diversification will also be encouraged, including through the use of household gardens, to ensure continued supply of vegetables and diverse nutrition. In the livestock sector, the project will also support agro-pastoral communities in implementing strategies designed to increase the productivity of rangelands and cattle. This will include training on herd management, breeding and health practices (in conjunction with local extension services), as well as rangeland rehabilitation and management, feedlots and hay making.

In parallel with the efforts on cropping and livestock, the project will also introduce or strengthen alternative income generation mechanisms for vulnerable groups, particularly women. This will be based on the consultations foreseen under Outcome 1 and under the LUMPs, as well as on the repository of tested best practices in Tanzania that would be integrated in the AKMS. The project will support training for local government authorities, extension services, communities and producer groups on various income generating activities and value-chains, as well as provide required inputs and seed funding to launch any new ventures. Market analysis will also be conducted in order to support the value chains and to ensure their long-term economic feasibility and viability.

Specific income generating activities include, but may not be limited to, the following:

- Strengthening of the livestock value chain: encouraging meat processing (e.g. drying, salting), hide processing and marketing, milk processing, egg production, piggeries and raising of small stocks (chickens, goats). The project would work through local NGOs and CBOs to identify producer groups, provide training and initial start up inputs, and to support business management skills.
- Piloting Efficient Charcoal production: The project would work with local communities and interested producer groups to set up efficient charcoal production systems. This will include setting aside land for soft-wood woodlots, creation of nurseries for continued plantation, efficient charcoal making techniques to reduce losses, as well as the promotion of sustainable wood harvesting such as coppicing, and the production and marketing of efficient cooking stoves.
- Strengthening the beekeeping value chain: The project would build on ongoing experience and local expertise to create and support producing groups for bees, honey and wax products, including technical training, provision of safety and production inputs and equipment, support for packaging and marketing.
- Piloting other non-timber forest product value chains: On the basis of lessons learned in other areas, and based on voluntary engagement by local producer groups and associations, the project would support the production of aloe (e.g. for soap making), pharmaco-cosmetic products (e.g. incense, dyes, fragrances, natural medicine), and fabrics (e.g. from sisal). For these, technical and market-based feasibility studies would be performed before engaging with local communities to ensure low risk and economic viability of these ventures.

In order to further support the efforts under output 2.3 and 2.4, the project will also seek to reduce deforestation. In order to create incentives for the maintenance of forest and vegetative cover, and in the absence of any immediate progress in terms of rural electrification, the project will support the introduction of efficient cooking stoves and efficient charcoal production and, where feasible, the production of biogas. This will ensure that wood that is harvested for fuel is maximized, while creating mechanisms to protect larger areas of forest cover, and enabling communities to keep their energy making potential. The sustainable charcoal value chain will be strengthened in collaboration with established producer groups, particularly youth groups, using for example existing tree nurseries and land set asides to establish forest reserves dedicated to local charcoal production.

**Table 4: Component 2 outcomes, outputs, activities**

2. Increased resilience in project sites through demonstration of EBA practices and improved livelihoods	2.1 Local authorities, committees and user groups trained on adapting communities to climate change using EbA.	2.1.1 Training (ToT) on climate change vulnerability assessment (including disaster risk) and EbA/adaptation planning for local authorities, committees and user groups
	2.2 Locally-specific climate change vulnerability, risks and adaptations options are identified by local stakeholders.	2.2.1 Undertake participatory Climate Change Vulnerability Impact Assessments in project sites using guidelines for VIA under PROVIA and identify recommended adaptation actions
		2.2.2 Develop a diagnostic and indicators of climate-change affected ecosystem services, based on recognized methodologies for measuring ecosystem services such as the UNEP-WCMC ToolKit
		2.2.3: Establish a map of drought, flood, pest and diseases risk zones (baseline and climate change scenario) in selected sites and incorporate results to knowledge management system
		2.2.4 Assess the physical and socio-economic impacts of climate change on selected project sites and incorporate results to Output 1.2.
		2.2.5 Establish, through consultations with local communities, exclosure and no-take zones to support the natural regeneration of degraded areas
	2.3 Ecosystem services are rehabilitated through the implementation of EBA practices (ecosystem rehabilitation, sustainable management and conservation of natural resources)	2.3.1 Develop new, resilience and seasonality based, land use and management plans with communities
		2.3.2. Undertake rangeland rehabilitation in 6000 ha
		2.3.3 Undertake watershed rehabilitation and reforestation, using local species, in 3000 ha
		2.3.4 Undertake riverbank rehabilitation in degraded areas (200 ha)
	2.4 Income is increased and maintained across seasons, through sustainable and resilient livelihoods	2.4.1 Implement climate smart agricultural practices, including conservation-based irrigation, water harvesting, crop rotation, etc.
		2.4.2 Improve resilience of current livelihoods and introduce alternative, income-generating, climate resilient livelihood activities for vulnerable groups, particularly women (livestock value chain, beekeeping...)

		2.4.3 Introduce and promote efficient cooking stoves and efficient charcoal production technologies to reduce pressures on forest resources
		2.4.4 Training and support to LGAs, extension services and key producer groups on resilient livelihoods

**Outcome 3 – Strengthened information base on EbA supports an upscaling strategy.**

This outcome links directly to activities undertaken under Outcome 1 to set up the knowledge management system. Under this outcome, the project will support the deployment of a Monitoring and Evaluation system for the project that is integrated into the AKMS and that is designed to support the development of an upscaling strategy. This will include the documentation of best practices, the deployment of a communication strategy and an upscaling and replication plan. The project will also support local participatory monitoring of project indicators and EbA targets.

*Output 3.1 Project lessons, knowledge on CCA, EbA and resilient livelihoods, are captured, stored and widely disseminated.*

Under this output, the project will support the identification, together with local government authorities, of best practices and most appropriate technologies within the EbA framework. This will include the production of case studies, visual and print documentation, as well as the production of briefs to support the policy process. This activity will be linked to the deployment of a communication strategy which will see the dissemination of training and communication material to different target audiences, using various media: decision-makers at local, regional and national level, agricultural advisory services at local level, local NGOs and CBOs, and the general public. It is important that the producer groups who succeed in developing viable, profitable income generating activities be at the forefront of this effort, so as to ensure a broad dissemination of the technology. The project will work with print media, as well as radio, television and social media to ensure that the targeted audiences are reached.

In order to support this effort as well as efforts under outcomes 1 and 2, the project will deploy a participatory M&E strategy where local communities and project beneficiaries will be directly involved in the continuous monitoring of project results. This will require initial training of local groups, following which communities will be able to undertake monitoring of various project indicators, such as for example, the areas under conservation and the rate of vegetative regeneration, biodiversity indicators, productivity of crop and livestock, and income generated from resilient livelihoods. Having local communities participate in the project’s M&E system helps build ownership of results and a deeper understanding of the conditions for success.

Finally, through a learning-by-doing approach, the project will provide an information basis on which to further replicate and upscale the project’s successes and lessons, particularly identifying best practices and ensuring that all relevant stakeholders are involved through participatory monitoring and have increased knowledge and awareness. This will directly contribute to the project’s sustainability and up-scaling strategy.

**Table 5: Component 3 outcomes, outputs, activities**

3. Strengthened	3.1 Project lessons,	3.1.1 Document best practises, applicable technologies,
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information base on EbA supports an upscaling strategy	knowledge on Climate change adaptation and resilient livelihoods using ecosystems captured, stored and widely disseminated	success stories to inform policies and adaptation planning, linked to the knowledge management system in Outcome 1
		3.1.2 Develop and disseminate practical and applied training and communication material for different target audiences (policy decision makers, planning, agricultural advisory services at local level) using print, radio and social media
		3.1.3 Undertake participatory monitoring of ecosystem services, project indicators and livelihoods
		3.1.4: Develop a sustainability and upscaling strategy using lessons learned through project implementation.

### 3.4. Intervention logic and key assumptions

The interventions designed in the proposed project will: i) improve stakeholders capacity to adapt to climate change through EbA approaches and undertake resilience building responses; ii) increase resilience in project site through demonstration of EbA practices and improved livelihoods, iii) strengthen information base on EbA to support an upscaling strategy. Interventions in Component 2 are designed to act in an integrated manner, based on the understanding that a more robust ecological base can provide more resilient livelihoods, under the appropriate management system. Furthermore, the project is based on the assumption that diversified livelihoods offer more prospects for resilience at the community level. Activities under Components 1 and 3 will come as support to activities under Component 2, to provide the knowledge base and coordination platform, so that lessons learned can be effectively identified, understood, disseminated and replicated.

The key assumptions underlying the project design are as follows:

- Stakeholders are interested in improving adaptation planning both at the national and decentralized level, building on the existing capacity among key stakeholders.
- Economic benefits derived from sustainable and diversified livelihoods will become visible and will provide an incentives for communities to maintain adequate NRM practices
- Where an unsustainable natural resource use practice cannot be effectively eradicated, for example in the case of charcoal production, increasing its effectiveness and decreasing its environmental impact is a useful mitigation approach.
- Knowledge information products will directly benefit the target audiences leading to action

### 3.5. Risk analysis and risk management measures

The risks and countermeasures are summarised in Table .

**Table 6: Summary of the risks to project objectives of the proposed project and suggested risk management measures**

	Description of risk	Potential consequences	Risk rating	Mitigation measures/proposed interventions	Risk category	Probability & Impact (1–5)
1	Current climate and seasonal variability and/or hazard events prevent implementation of planned activities.	Economic loss or physical damage to infrastructure is a challenge to the timely implementation of project activities.	Medium	<ul style="list-style-type: none"> <li>Consider current climatic variability during the rehabilitation/reforestation process.</li> <li>Focus on climate-resilient species and techniques to: i) assist plant growth particularly in the seedling/sapling phase; and ii) reduce risk of damage from hazard events.</li> <li>Take meteorological predictions and seasonal variability into account to reduce the risk of damage to plants.</li> </ul>	Economic	P = 3 I = 5
2	Climate change adaptation priorities undermined by national emergencies	Project activities are interrupted. Natural and financial capital is lost.	Medium	<ul style="list-style-type: none"> <li>The project manager and the PCU will keep abreast of national events and politics to plan contingency activities when/if necessary.</li> </ul>	Social, environmental	P = 2 I = 5
3	Lack of funds after project may reduce sustainability of project outcomes	Financial instability may undermine the efforts established during the project implementation, leading back to maladaptive practices (institutional and social) due to lack of funding.	Medium	<ul style="list-style-type: none"> <li>The project will pay particular attention to the key factors of success in the implementation of resilient ecosystem-based adaptation as a strategy for the rest of the country.</li> <li>The project will support the development district-based consultative platforms (with district level technicians) to discuss project outcomes, assess their potential for replication, develop an up-scaling strategy, a mainstreaming strategy, and a financing strategy that will consider all possible future sources.</li> </ul>	Economic	P = 2 I = 2
4	Poverty and other social factors prevent local communities from adopting resilient ecosystem-based	If local communities do not fully get involved in the project due to social factors, they will perpetuate maladaptive practices that will result	High	<ul style="list-style-type: none"> <li>Actively involve local communities in project planning and implementation. In particular communities should have the final say in the selection of alternative livelihoods so that risk is not overly placed on their households.</li> <li>Foster a bottom-up, grassroots approach throughout</li> </ul>	Social, environmental	P = 2 I = 4

	adaptation measures for the long-term, instead opting for maladaptive activities for short-term benefits.	in a spiralling of the root causes underlying what the project seeks to address – i.e. unsustainable use of natural resources, which will then lead to further degradation of ecosystems. Consequently, communities will continue to be vulnerable to climate-induced natural hazards.		<p>the project’s development and implementation phases.</p> <ul style="list-style-type: none"> <li>• The project will carry out information dissemination activities at the local level ensuring that communities are aware of the benefits of ecosystem-based adaptation approaches.</li> <li>• The emphasis on livelihoods will also place people’s socioeconomic welfare at the heart of the project and offset some of the risks they may incur in choosing adaptive measures.</li> <li>• Implement alternative livelihoods that have proved to be financially, technically and socially viable/feasible to reduce reliance on intensive land use.</li> <li>• Inclusive interventions such as developing land use management plans for water management will ensure that individuals have a role and stake in the project.</li> </ul>		
5	Institutional capacity and relationships between line ministries are not sufficient to provide effective solutions to climate problems that are complex and multi-sectoral.	Multi-sectoral adaptation interventions are compromised and interventions are confined to those sectors willing to engage in cross-sectoral dialogue. The vulnerability of certain sectors and Tanzania as a whole is not fully addressed.	High	<ul style="list-style-type: none"> <li>• Promote the development of institutional capacity throughout the project design. This will ultimately lead to the development of an appropriate institutional framework for analysing climate change impacts, amending policy and implementing EbA interventions for climate change adaptation.</li> <li>• The component 1 AKMS system is also intended to help resolve some of the issues related to inter-sectoral coordination.</li> <li>• The project will promote inter-ministerial collaboration so as to ensure cross-departmental accountability and cooperation.</li> <li>• Training and capacity building will also be provided, which will allow this project to provide learning incentives.</li> </ul>	Institutional	P=4 I=4
6	Loss of government support may result in poor prioritisation of proposed project activities.	Project activities are delayed.	Medium	<ul style="list-style-type: none"> <li>• Engage with the government to maintain its commitment to the proposed project.</li> <li>• Integrate the objectives of national development policy in decision-making throughout the project to maintain government commitment.</li> </ul>	Institutional	P=1 I=3
7	There is a lack of procurement capacity	The procurement procedure is not well established, which delays	Medium	<ul style="list-style-type: none"> <li>• The PCU will start procurement well in advance and grouping procurement as much as possible.</li> </ul>	Operational	P=2 I=2

		implementation of the project's activities.				
8	Limited technical capacity to conduct preliminary studies and design the implementation of activities.	Preliminary studies do not take place resulting in delayed implementation of project activities.	Medium	<ul style="list-style-type: none"> <li>Identify and develop human resource capacity as required.</li> <li>Include funds in the project budget for preliminary studies to hire international consultants to complement the research team.</li> <li>Engage field officers to work closely with the project manager of the proposed project to ensure timely delivery of project outputs.</li> </ul>	Technical	P=2 I=2
9	Priority interventions implemented are not found to be cost-effective.	Project interventions are not upscaled for large-scale EbA programmes	High	<ul style="list-style-type: none"> <li>Conduct baseline studies on cost-effectiveness and pilot each proposed alternative livelihoods in demonstration sites.</li> <li>Record detailed information on cost-effectiveness. Such information will be widely disseminated to allow future projects to use them</li> <li>Use cost-effectiveness as a core principle in the implementation of adaptation measures.</li> </ul>	Economic	P=2 I=4
10	The Project Coordination Unit (PCU) is located too far from the project sites which creates delays for successful implementation	Project funds are not transferred to the PCU; Poor communication prevents the project to progress in time.	Low	<ul style="list-style-type: none"> <li>It is proposed that the PCU be located within a decentralized government, near the project sites. The Project Steering Committee (PSC) will analyse the costs and benefits in the choice of the PCU's location.</li> <li>Communication channels and transfer procedures between VPO and other partners will be clearly established, based on already established decentralized governance structures to facilitate funds transfer.</li> </ul>	Operational	P=2 I=4

### 3.6. Consistency with national priorities or plans

Tackling environmental-related problems (including climate change) has remained among the top priorities in Tanzania. Since the ratification of the United Nations Framework Convention on Climate Change (UNFCCC) in 1996 and the Kyoto Protocol in 2002, the Government of Tanzania in collaboration with development partners has undertaken a number of initiatives to integrate climate change concerns in national policies and development plans. Some of the initiatives include development of the National Adaptation Programme of Action (NAPA) in the year 2007 (Zanzibar Adaptation Plan of Action-ZAPA), National Strategy for Growth and Reduction of Poverty (NSGRP/MKUKUTA II- 2011/2015 and MKUZA-II strategy for Zanzibar), the National Development Vision 2025 (Zanzibar Development Vision 2020), the National Adaptation Strategy and Action Plan of 2009, the National Climate Change Strategy (NCCS) and the National Strategy/Framework for Reducing Emissions from Deforestation and Forest degradation (National REDD Strategy 2009).

The Tanzanian NAPA (for Tanzanian mainland) and ZAPA (for Zanzibar) were prepared with the primary objective of identifying and promoting activities that address urgent and immediate needs for adapting to the adverse impacts of climate change in the country. In the development of the NAPA and ZAPA, key adaptation options and strategies that would best address vulnerabilities in major sectors such as agriculture water, health, energy, wildlife and forestry were developed (e.g. Tanzania Agriculture Resilience Plan 2014-2019). More specifically, the project is aligned with NAPA's priority project on improving food security in drought-prone areas by promoting drought-tolerant crops, which targeted Shinyanga and Dodoma regions.

The proposed EBARR project is also consistent with the ending Second National Strategy for Growth and Reduction of Poverty II in Tanzania (NSGRP II) – MKUKUTA II in its Kiswahili acronym). MKUKUTA II was a medium term framework (2010-2015) that translated Vision 2025 aspirations into measurable broad outcomes organized under three clusters namely Cluster I: Growth for Reduction of Income Poverty which include ensuring food and nutrition security, environmental sustainability and climate change adaptation and mitigation; Cluster II: Improvement of Quality of Life and Social Well-being; and Cluster III: Governance and Accountability. MKUKUTA II recognizes inter-sectoral linkages and synergies as well as the need to address vulnerability, human rights and social protection issues. Therefore, under MKUKUTA II, sector policies and strategies were linked through the operational targets and Action Programmes<sup>77</sup>.

In line with other development projects, plans and programs across sectors in Tanzania, the EBARR is consistent with the Tanzania Development Vision 2025 and the Zanzibar Development Vision 2020. Implementation of the Tanzania Development Vision 2025 (i.e. becoming a Middle Income Country) is guided by the Long Term Perspective Plan (LTPP) of 2012 and the Tanzania Five Year Development Plan (TFYDP) of 2012<sup>78</sup>. The LTPP reviews environment and climate change issues in the context of their negative impact on development while the TFYDP notes a considerable number of risks to the development of industry and the cost to GDP that may be due to climate change, and recommends mitigation and adaptation measures as well as the creation of a financial framework.

15. In 2012 Tanzania released the National Climate Change Strategy (NCCS of 2012) to address both mitigation and adaptation in the context of the existing national and international frameworks. To address mitigation-related issues, the Tanzanian government also developed the National REDD+ Strategy based on the National Framework for REDD+ developed in 2009. The main goal of the strategy is to facilitate effective and coordinated implementation of REDD+ related policies, processes and activities so as to contribute to climate change mitigation/adaptation and overall sustainable development<sup>79</sup>.

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<sup>77</sup> [http://www.climatechange.go.tz/?page\\_id=26](http://www.climatechange.go.tz/?page_id=26)

<sup>78</sup> <http://www.lse.ac.uk/GranthamInstitute/legislation/countries/tanzania/>

<sup>79</sup> <http://thereddesk.org/countries/plans/national-strategy-reduced-emissions-deforestation-and-forest-degradation-redd>

### 3.7. Additional cost reasoning

Outcome	Baseline and Gaps	GEF Alternative	Additional adaptation cost
<p>1.Improved stakeholders capacity to adapt to climate change through EbA approaches and undertake resilience building responses</p>	<p>There is a low institutional and technical capacity to plan and implement climate change adaptation at local level. There is also a lack of systematic integration of lessons learned through past projects and a lack of coordination between policies as well as among adaptation and development projects in Tanzania. There is also no systematic coordination among adaptation interventions in the country, making planning more ad hoc.</p> <p>None of the baseline programs provide any plan to improve knowledge on impacts of climate change, nor to provide technical capacity on ecosystems-based adaptation approaches. None of the baseline programs provide useful avenues for coordinating and strengthening the adaptation planning at central and decentralized levels.</p>	<p>LDCF financing will support the development of shared knowledge management systems that will enable the government to undertake iterative planning, and the dissemination of ecosystem-based adaptation tools and methodologies to a broader set of stakeholders nationally and locally. This knowledge system will enable the government and other stakeholders to share information on adaptation, vulnerability, projects and technologies using an online platform and a GIS-based system.</p> <p>LDCF financing will therefore add a sustainable and resilient aspect to both the ASDP and WSDP by building on existing initiatives and proven project results to further build the capacity of key adaptation stakeholders on the principles, approaches and tools related to Ecosystem-based adaptation.</p>	<p>US\$ 305,000</p>
<p>2. Increased resilience in project sites through demonstration of EBA practices and improved livelihoods</p>	<p>Tanzanian ecosystems and their biodiversity are under increasing pressures due to poor agricultural practices and population pressures. In addition, the lack of economic value and knowledge about ecosystem goods and services contributes to land degradation and biodiversity loss. Poverty in Tanzania’s rural communities is mainly due to the low diversity of livelihood strategies within but also beyond agriculture. For instance, the livestock sector is not contributing to livelihoods as it could, due to unsustainable and unproductive livestock keeping.</p> <p>While there are projects promoting the rehabilitation of watersheds and integrated water resources management (WSDP), as well as the improvement of agricultural extension services (ASDP), these do not systematically include future climate change impacts, nor plan their activities within EbA approaches. Isolated environmental restoration initiatives are also not supported by adequate land use plans and there is no explicit monitoring of the impacts of ecosystem services on</p>	<p>For this outcome, LDCF financing are intended to mobilize concrete investments on the ground to facilitate the implementation of EbA.</p> <p>Investments will be deployed to support both the restoration of ecosystem services and the deployment of more sustainable and more resilient forms of livelihoods at local level.</p> <p>LDCF financing will include a participatory climate change vulnerability impact assessment (VIA) which will be conducted in each project site, using guidelines for VIA under the UNEP PROVIA program. This will assist local communities in identifying best adaptation options, according to a variety of criteria, including sustainability, resilience and inter-seasonal variability, profitability and access to markets.</p>	<p>US\$ 6,475,233</p>

	the agricultural sector.		
3. Strengthened information base on EbA supports an upscaling strategy	The lack of coordination among existing policies and projects is an obstacle to strengthen knowledge management and of best practices. While it is planned in the ASDP and WSDP that the secretariat liaise with other cross-sector activities to learn and disseminate good practices and lessons learned from their projects implementations, there are no plans of sharing that at the national level within an adaptation knowledge management system at the implementation and M&E stages.	LDCF financing will support the deployment of a Monitoring and Evaluation system for the project, which will be integrated into the AKMS and will be designed to support the development of an upscaling strategy, through the documentation of best practices, communications strategies and a replication and upscaling plan.	US\$ 326,000

### 3.8. Sustainability

In order to ensure that the continued achievement of the objectives and outcomes of the EBARR project are supported and sustained, several key principles that support sustainability will be adopted. Country ownership will be ensured through the following strategies:

- Partnering with public institutions including national, departmental and local governments and structures (district authorities and selected wards),
- Working closely with community-based organizations (including traditional institutions) and supporting them to establish their own effective management structures during implementation,
- Supporting interventions that reinforce government plans and activities, and that can be integrated into government policies, which will make project interventions and consequences more relevant to government institutions. For instance, the EBARR project promotes conservation and management of existing landscapes and ecosystems (to rescue and sustain ecosystem goods and services) in the proposed project sites, which is in line with; i) national forest management programmes/strategies, ii) NEAP 2013-2018, iii) Water Sector Development Programme 2006-2015, iv) Agricultural Sector Development Programme, v) the National Strategy for Growth and Reduction of Poverty II in Tanzania (NSGRP II: 2010-2015); *i.e.* Cluster I: Growth for Reduction of Income Poverty which include ensuring food and nutrition security, environmental sustainability and climate change adaptation and mitigation, etc.
- Promoting a learning-by-doing approach. This will allow beneficiaries of the project to put into practice the activities and strategies proposed in the EBARR project. The project will be adaptive in nature for this very purpose: to identify the activities that are most sustainable and beneficial leading to improved livelihoods. The improved livelihood strategies will be piloted and adapted to achieving results.
- Implementation of effective communication strategies and the deployment of a comprehensive knowledge management system which will assist in coordinating all stakeholders working on adaptation in the country.
- Training programs (enforcement officers at the district and ward level, village forest scouts, village environmental committees, local communities).

Furthermore, the project's sustainability is also encompassed within the scope of Components 1 and 3. The Adaptation Knowledge Management System (AKMS) under Component 1 will be wholly owned by the Tanzanian government as a tool to plan, coordinate and manage adaptation interventions, as well as to allow building on key lessons learned and success examples. This will create conditions for long-term sustainability of this and other projects. In addition, the strengthening of capacity at local level, involving local government authorities and extension staff will contribute to the further dissemination of adequate adaptation technologies at the local level. As understanding of vulnerability increases among local stakeholders, so will their ability to self-identify adaptation strategies. It is also hoped that the creation of economic incentives and increased opportunities for development using sustainable techniques will help communities maintain appropriate natural resource use practices. Finally, activities under Component 3 will provide an information basis on which to further replicate the project's successes and lessons, particularly identifying conditions of

success and ensuring that all relevant stakeholders are involved and have increased knowledge and awareness.

### **3.9. Replication**

All project activities have the potential to be replicated at the national level and ensure greater aggregate impacts. Through training at the national level (Component 1), and thanks to the implementation of a GIS-based AKMS, the project will improve stakeholders' access to knowledge on climate change adaptation and ecosystem-based adaptation. The project will seek to learn from lessons learned and best practices gained through project implementation to develop an upscaling strategy as well as a sustainability strategy (Component 3). Thanks to training of local authorities and user groups on climate change vulnerability and adaptation planning, stakeholders will undertake participatory climate change vulnerability impact assessment in selected project sites in order to identify drought, flood, pest and diseases risk zones and assess the physical and socio-economic impacts of climate change (Component 2). Ecosystem rehabilitation through EbA practices, such as sustainable management and conservation of natural resources, and climate resilient livelihoods, conducted in Component 2 will prove that the concept of ecosystem-based adaptation approach works in the Tanzanian context and will provide an example for replication. The interventions on alternative livelihoods (Component 3) is a foray into upscaling community and private sector activities for income generation, and provides a pivotal first step for enhancing economic activity at a larger scale.

More specifically, this project will be replicated and up-scaled not only through a robust knowledge management plan that will be supported and maintained by a cross-sectoral multi-stakeholder group and used for adaptation planning (activity 1.1.2), but also through local NGOs who will take part in the implementation of local activities. Replication will be possible because of the training provided among VPO staff, national climate change steering committee, working group members as well as climate change and disaster management focal points in relevant ministries on the environment, forest, water and agriculture sector on the benefits of ecosystem-based adaptation (activities 1.2.1 and 1.2.2). Indeed, the upscaling strategy will include the development and dissemination of practical and applied training and communication material for different target audiences, such as policy decision makers, planning, agricultural advisory services at the local level (activity 3.1.2). Finally, through the participatory climate change vulnerability impact assessment using guidelines for VIA under PROVIA, stakeholders will be fully engaged in the identification of adaptation actions (activity 2.2.1), and will be able to transfer lessons learned and new knowledge to neighbouring communities in order to upscale the project's results.

### **3.10. Public awareness, communications and mainstreaming strategy**

This project will develop a strategy for public awareness and communications, which will emphasize the importance of learning by doing. Indeed, the participatory climate change vulnerability and impacts assessment will engage local authorities and communities in identifying risk zones for drought, flood, pest and diseases and climate adaptation actions (Component 2 – activity 2.2.1). Local communities will then be consulted in establishing land use plans, in selecting suitable alternative livelihoods and in planning rehabilitation activities, such as exclosures and no-take zones for their livestock to support natural regeneration of degraded areas (Component 2 – activity 2.3.1).

Local training will also be provided to support the implementation of the ecosystem-based adaptation interventions in Component 2 and mainstream climate change adaptation at the local and national levels (activity 2.1.1). Lessons learned and best practices gained through project implementation of climate change adaptation and resilient livelihoods using ecosystems will be captured and stored in the knowledge management system and widely disseminated to ensure sustained access to knowledge on EbA at the national level (Component 3).

Finally, communication and mainstreaming of alternative livelihood strategies will occur through national and international consultants working closely with communities on developing alternative,

income-generating, climate resilient livelihood activities for vulnerable groups, particularly women (Component 2).

The project will also develop and implement an awareness raising strategy under Component 3 that will target specific groups of stakeholders such as decision and policy makers, planners, agricultural extension workers, local NGOs and communities, using print, radio and social media.

### **3.11. Environmental and social safeguards**

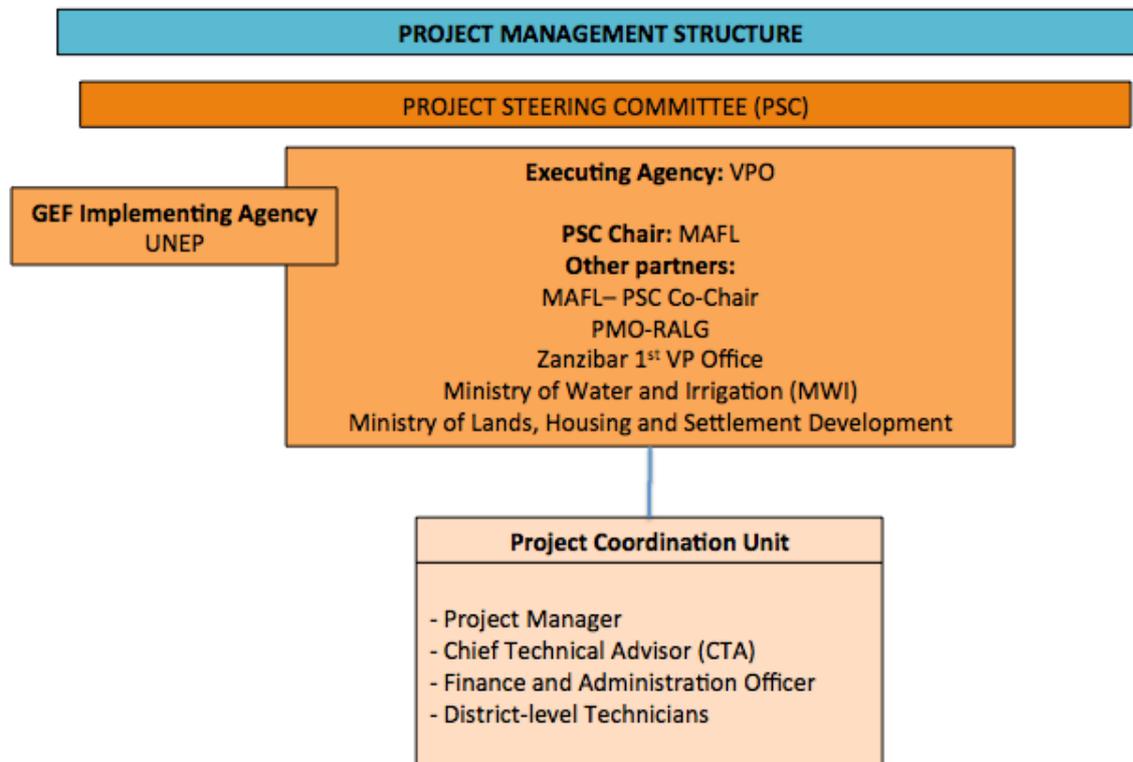
The UNEP checklist for Environmental and Social Safeguards (Appendix 15) reflects the positive environmental and social impacts of the project. The Project Manager, Chief Technical Advisor and UNEP Task Manager will be responsible for overseeing adherence to these guidelines throughout the implementation of the project.

In the proposed project, gender equity will be promoted in each activity. Gender equity is defined here as the equal participation of men and women in project activities. During the focus groups of the consultation mission, vulnerable groups such as women, youth and the elderly were particularly active in expressing their concerns on their vulnerability. In order to ensure gender equity, women's voices will be included from the design of the project to its completion. Therefore, they will be specifically targeted in this project, in particular through Component 2, which will provide activities designed around their specific needs, capacities, knowledge and social roles. The proportion of women involved in the project activities will be monitored during project implementation. Stakeholder decisions relating to project activities will only be made with a sufficient representation of women in attendance. Finally, results will also be gender-disaggregated to measure how women are being empowered through the project.

In terms of environmental impacts, the proposed project will restore and build the resilience of degraded ecosystems using an EBA approach during the implementation phase. The degradation of the watersheds and forest ecosystems where the project activities will be implemented is mainly human induced. Moreover, the proposed adaptation interventions will undergo UNEP's Environmental, Social and Economic risk screening process. This will identify potential environmental, social and economic risks of the proposed interventions in order to address them adequately by avoiding, mitigating or minimizing them in a structured, consultative and planned manner, and to ensure that the selected adaptation measures provide positive environmental and social benefits.

The project activities are likely to result in the sequestration of carbon in soils and plant biomass. This will be achieved by replanting both forests and multiple other tree species (e.g. by implementing agroforestry techniques).

## SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS



**Figure 6: Organogram of the project management structure**

The Implementing Agency for the GEF will be UNEP. A UNEP Task Manager will provide technical and administrative support and monitor the implementation of the project according to the UNEP regulations and procedures.

The national Executing partner will be the Vice President’s Office, who will coordinate the project on behalf of the government. The VPO will provide administrative housing for the project coordination unit, which will, to the extent feasible, be located close to the project sites (e.g. in Morogoro). The VPO will work closely with other responsible executing partners, including for example the Ministry of Agriculture, Fisheries and Livestock and the Ministry of Water and Irrigation, for the successful implementation of activities that fall within their sector. MoUs and letters of agreements between ministries will be established during the inception period, and will specify the activities to be implemented through sectoral ministries, responsibilities and accountabilities, and financial accountability procedures.

A **Project Steering Committee (PSC)** will be established at the outset of the project. The PSC will be composed of the following members:

- Vice-President’s Office (VPO)
- Ministry of Agriculture, Livestock and Fisheries (MALF) (Chair) and directorates responsible for rural water, crop production and extension,
- President’s office - Regional Administration and Local Government, Public Service and Good Governance.
- Ministry of Natural Resources and Tourism
- Ministry of Industry and Trade
- Ministry of Energy and Minerals
- Ministry of Water and Irrigation

- Ministry of Finance and Planning
- Ministry of Land, Housing and Settlement Development
- Office of the first Vice President of Zanzibar,
- Ministry of lands, water, energy and environment (Zanzibar)
- District Councils
- A representative of NGOs and civil society
- UNEP

The PSC members will be Permanent Secretaries or their designated alternates and members from the district councils will be represented at the level of District Executive Directors. The PSC will be responsible for making management decisions for the project, in particular when guidance is required by the Project Manager (PM). The PM will serve as secretary to the PSC. The PSC will play a critical role in project monitoring and evaluation by assuring the quality of these processes and products, and using evaluations for performance improvement, accountability and learning. The PSC will ensure that required resources are committed and will arbitrate on any conflicts within the project or negotiate solutions to any problems encountered with external bodies. The PSC will consider and approve the Annual Work Plans and approve any deviations from the original plans, if deemed necessary. Overall, the PSC will serve as decision-making support, as appropriate throughout project implementation. It will meet at least twice yearly. The PSC will have the authority to create and support other ad hoc committees, such as for example technical committees. District administrations participating in the project will also be able to create their own steering committees to oversee the implementation of activities within their areas of jurisdiction.

In order to ensure UNEP's ultimate accountability for the project results, the PSC's decisions will be made in accordance with standards that ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. If consensus cannot be reached within the PSC, the final decision shall rest with the UNEP Task Manager(s).

UNEP will be responsible of the supervision and coordination of the government contribution to the project, working in close collaboration with the implementation team and processing the requests for disbursement of funding and production of financial reports, in compliance with the rules and procedures of UNEP.

The **Project Assurance** role will support the project by carrying out objective and independent project oversight and monitoring functions, and will be held by a UNEP staff member (usually a Task Manager).

#### The Project Coordination Unit (PCU)

The project will be coordinated by a Project Coordination Unit, comprised of key project personnel, who will oversee the general administration of the project. Members of the PCU will be recruited by the VPO, based on open recruitment processes, in consultation with UNEP. While VPO will provide administrative housing for the PCU, if possible, the PCU will be located in proximity to the project sites, within the offices of a decentralized sectoral ministry among the responsible executing partners for this project. The PCU will be comprised of the project manager, chief technical advisor and a financial and administrative assistant.

**The Project Manager** (PM) has the authority to run the project on a day-to-day basis on behalf of the Implementing Partners within the constraints laid down by the PSC. The PM's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The PM will also be responsible for the overall overseeing and management of the project, i.e. the specific work plans. Stringent communication channels and lines will be established to guarantee that the decentralized design of this project will be successful. The PM will be accountable to the PSC through VPO, and will be enabled to work directly with focal points designated in each Ministry to support this project.

The PM will be responsible for overall management, reporting and financial management according to UNEP guidelines. The PM will guide and supervise the work to be conducted by the financial and administrative officer, district-level technicians as well as the national and international consultants, who will be hired in support of project implementation. The PM will be recruited by the VPO in collaboration with UNEP and will function under the authority of the PSC.

The **Chief Technical Advisor** (CTA) will be recruited as a consultant to provide technical guidance on the implementation of the project to the PM. The CTA will also assist the PM in leading the project. The CTA will fulfill the following functions: i) quality assurance and technical review of project outputs (e.g. studies and assessments); ii) assistance in drafting ToRs for technical consultancies and supervision of consultants work; iii) assistance in monitoring the technical quality of project M&E systems, including annual work plans, indicators and targets; iv) providing advice on best suitable approaches and methodologies for achieving project targets and objectives; v) provide a technical supervisory function to the work carried out by the other technical assistance consultants hired by the project; and vi) assisting in knowledge management, communications and awareness raising.

The **Financial and Administrative Officer** (FAO) will work under the direct supervision of the PM and will be based at the national coordination office. She/he will assist the PM in the effective execution of the project and will be required to undertake intensive coordination with the local level technical coordination committee and with other relevant partners. The FAO is responsible for the development of annual budgets, maintenance of regular records of accounts, annual auditing, payment of invoices, as well as the development of regular cash statements and requests for advances, working with UNEP Financial Management Officer, and the CTA. The FAO is also responsible for logistical assistance and preparation for missions, and managing the project's physical assets. All accounting actions shall be implemented in strict adherence to Tanzanian and internationally recognized accounting standards.

The project will also appoint part-time **District-level technicians** (DTs) to support the execution and supervision of local level works. They will be appointed by the MALF from within each project district and will work under the direct supervision of the PM. They will act as a liaison between the PM and the service providers, local communities and local governments in each district.

The project will develop sub-contracting agreements with national institutions whose excellence is recognized in the field of climatology, agriculture, and climate change adaptation policies (such as the Institution of Resource Assessment at the University of Dar es Salaam) in order to deliver specific outputs or activities. This may include private sector service providers. Procurement of services and goods will be undertaken in accordance with Tanzanian policies and in line with internationally upheld standards.

## SECTION 5: STAKEHOLDER PARTICIPATION

Stakeholders	Contributions to the project
<b>1. Government Stakeholders</b>	
Ministry of Agriculture, Livestock and Fisheries (MALF)	<ul style="list-style-type: none"> <li>- Will chair the PSC</li> <li>- Will act as lead executing partner on output 2.4 and any activities related to the agricultural sector.</li> <li>- Lead the implementation of activities designed to promote the sustainable management of livestock and rangelands</li> <li>- Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> <li>- Recipient of training on individual and institutional capacities on ecosystem-based adaptation (Outcome 1: Output 1.2).</li> </ul>
Vice President Office (VPO)	<ul style="list-style-type: none"> <li>- Will act as lead national executing agency, to coordinate the project.</li> <li>- Lead in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> <li>- - Recipient of training on individual and institutional capacities on ecosystem-based adaptation (Outcome 1: Output 1.2).</li> </ul>
Prime Minister's Office - Ministry of Regional Administration and Local Government (PMO-RALG)	<ul style="list-style-type: none"> <li>- Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> <li>- Recipient of training on adapting communities to climate change using ecosystem-based adaptation approaches (Outcome 2: Output 2.1).</li> <li>- Provide key advice on the development of district level capacity</li> </ul>
Ministry of Water and Irrigation (MWI)	<ul style="list-style-type: none"> <li>- Lead activities designed to demonstrate sound water mobilization and conservation practices, in the context of climate smart agriculture</li> <li>- Participate in the implementation of the knowledge management system</li> <li>- Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> <li>- - Recipient of training on individual and institutional capacities on ecosystem-based adaptation (Outcome 1: Output 1.2).</li> </ul>
Ministry of Energy and Minerals	<ul style="list-style-type: none"> <li>- Lead on activities designed to demonstrate alternative energy sources and fuel efficiency</li> <li>- Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> <li>- - Recipient of training on individual and institutional capacities on ecosystem-based adaptation (Outcome 1: Output 1.2).</li> </ul>
Ministry of Land and Settlement Development	<ul style="list-style-type: none"> <li>- Provide key advice on activities related to the participatory land use planning processes</li> <li>- Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> <li>- - Recipient of training on individual and institutional capacities on ecosystem-based adaptation (Outcome 1: Output 1.2).</li> </ul>
Ministry of Lands, Water, Energy and Environment - Zanzibar	<ul style="list-style-type: none"> <li>- lead the delivery of activities in the water and energy sectors in zanzibar project sites</li> <li>- Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> <li>- - Recipient of training on adapting communities to climate change</li> <li>-</li> </ul>
<b>- 2. Local Communities</b>	
	<ul style="list-style-type: none"> <li>- Participate in the participatory CCVIA and in the development of</li> </ul>

Stakeholders	Contributions to the project
	<p>new, resilience and seasonality based, land use and management plans (Outcome 2: Output 2.2)</p> <ul style="list-style-type: none"> <li>- Participate in the establishment of exclosure and no-take zones to support the natural regeneration of degraded areas (Outcome 2: Output 2.3)</li> <li>- Take part in the rehabilitation of watershed, riverbank as well as reforestation (Outcome 2: Output 2.3)</li> <li>- Implement CSA practices (Outcome 2: Output 2.4)</li> <li>- Adopt alternative income-generating activities (value chain development) (Outcome 2: Output 2.4)</li> <li>- Recipient of awareness raising and introduction of efficient cooking stoves and efficient charcoal production technologies to reduce pressures on forest resources (Outcome 2: Output 2.4)</li> <li>- Recipient of training on participatory monitoring of ecosystem services.</li> <li>- Take part in participatory monitoring of ecosystem services, project indicators and livelihoods (Outcome 3: Output 3.1)</li> </ul>
<b>3. Local Community Organizations (CBOs)</b>	
	<ul style="list-style-type: none"> <li>- Recipient of training on adapting communities to climate change using ecosystem-based adaptation approaches (Outcome 2: Output 2.1).</li> <li>- Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1)</li> </ul>
<b>4. NGOs, CSOs and Educational Organizations</b>	
<p>Environmental NGOs, Civil Society Organization concerned with climate change; Educational organizations in the field of climatology, agriculture, and climate change adaptation policies.</p>	<ul style="list-style-type: none"> <li>- Recipient of training on adapting communities to climate change using ecosystem-based adaptation approaches (Outcome 2: Output 2.1).</li> <li>- Contributor to the following outputs: <ul style="list-style-type: none"> <li>• Participate in the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1).</li> <li>• Rangeland rehabilitation (Outcome 2: Output 2.3)</li> <li>• Watershed rehabilitation (Outcome 2: Output 2.3)</li> <li>• Riverbank rehabilitation (Outcome 2: Output 2.3)</li> </ul> </li> </ul>
<b>5. Private Sector</b>	
<p>Options for new value chain development will be explored with key private sector partners, small rural businesses and medium-sized market oriented producers, as will avenues for marketing and supply to ensure the sustainability and commercial viability of alternate, new or niche products identified by the project.</p>	<ul style="list-style-type: none"> <li>- Support the design and development of the basic structure of the knowledge management system (GIS-based) utilizing available open source tools; Contribute to the identification of capacity gaps and opportunities for collaboration on all levels and provide annual recommendations on gaps and needs for adaptation planning based on the findings from the knowledge system (Outcome 1: Output 1.1).</li> <li>- Support to the creation of a cross-sectoral multi-stakeholder group to encourage the management and maintenance of the knowledge system and its use for adaptation planning (Outcome 1: Output 1.1).</li> <li>- Provide support for the organization of the participatory climate change vulnerability assessment in project sites using guidelines for VIA and PROVIA and identify recommended adaptation actions (Outcome 2: Output 2.2).</li> <li>- Support the establishment of exclosure and no-take zones to support the natural regeneration of degraded areas, through consultations with local communities (Outcome 2: Output 2.3).</li> <li>- Promote resilience of current livelihoods and introduce alternative, income-generating, climate resilient livelihood activities, such as livestock value chain development or bee keeping, for vulnerable groups, particularly women (Outcome 2: Output 2.4).</li> <li>- Support the documentation of best practices and develop corresponding dissemination and practical communication materials (Outcome 3: Output 3.1).</li> </ul>



## SECTION 6: MONITORING AND EVALUATION PLAN

The proposed project will follow UNEP standards for monitoring, reporting and evaluation of processes and procedures. Additionally, substantive and financial project reporting requirements are summarised in Appendix 7. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.

The project's monitoring and evaluation (M&E) plan is consistent with the GEF Monitoring and Evaluation Policy. The Project Results Framework presented in Appendix 3 includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. While these indicators will be the main tools for assessing project implementation progress and whether project results are being achieved, the deliverables and benchmarks included in Appendix 5 will complement the indicators. In addition to the standard M&E activities, a participatory M&E strategy will be deployed within Component 3 of the project, in which local communities and project beneficiaries will be directly involved to continuously monitor project results. Consequently, communities will be able to undertake monitoring of various project indicators, such as for example, the areas under conservation and the rate of vegetative regeneration, productivity of crop and livestock, and income generated from resilient livelihoods. Furthermore, the AKMS developed in Component 1 will also have an in-built M&E element, that will allow for tracking its usefulness, relevance and use among different type of stakeholders. Other M&E related costs are presented in the Appendix 6 and are fully integrated in the overall project budget.

The M&E plan will be reviewed during the project inception workshop. This process will enable project stakeholders to understand their roles and responsibilities in terms of M&E. Indicators and their methods of verification will also be adjusted at the inception workshop if necessary. In addition, day-to-day project monitoring is the responsibility of the project management team. Project partners will have to be responsible for collection of specific information to track the indicators. It is the responsibility of the PM to inform UNEP of any delays or difficulties faced during implementation. This communication allows the appropriate support or corrective measures to be implemented with minimal delay.

The Project Steering Committee (PSC) will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. The Task Manager (TM) in UNEP-GEF is responsible for confirming that the project meets UNEP and GEF policies and procedures. The TM will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to enhance the quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. Accordingly, the TM will develop a project supervision plan at the inception of the project. This plan will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring. However, he/she will also be responsible for project financial management and implementation monitoring. Additionally, progress on delivering the agreed project adaptation benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and by UNEP. Furthermore, risk assessment and rating is an integral part of the PIR. The quality of project monitoring and evaluation will be reviewed and rated as part of the PIR. The main financial parameters will be monitored quarterly to promote cost-effectiveness.

The project will be reviewed or evaluated at mid-term (tentatively in March 2019 as indicated in the project milestones). The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is: i) to provide an independent assessment of project performance at mid-term; ii) to analyse whether the project is on track, what problems and challenges the project is encountering; iii) and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the

most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools. The Project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP TM to monitor whether the agreed recommendations are being implemented. The MTR will be managed by the UNEP Task Manager. The MTE will be managed by the Evaluation Office of UNEP. . If project is rated as being at risk, a Mid-Term Evaluation will be conducted by the Evaluation Office. The Evaluation Office will determine whether a MTE is required or whether an MTR is sufficient

An independent terminal evaluation (TE) will take place at the end of project implementation. The Terminal Evaluation will be initiated no earlier than six months prior to the operational completion of project activities and, if a follow-on phase of the project is envisaged, should be completed prior to completion of the project and the submission of the follow-on proposal. Terminal Evaluations must be initiated no later than six months after operational completion. The Evaluation Office of UNEP will be responsible for the TE and liaise with the UNEP Task Manager throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners. The direct costs of the evaluation will be charged against the project evaluation budget. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the Evaluation Office in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. The final determination of project ratings will be made by the Evaluation Office when the report is finalised. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process.

The GEF tracking tools are attached as Appendix 14. These will be updated at mid-term and at the end of the project. In addition, the tracking tools will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

## SECTION 7: PROJECT FINANCING AND BUDGET

### 7.1. Overall project budget

**Table 7.** A breakdown of total project financing.

	LDCF Funds	Co-Financing	Total Costs
Total project cost (US\$)	7,571,233	20,750,000	28,321,233

### 7.2. Project co-financing

**Table 8.** Breakdown of project financing by funder.

	US\$	%
LDCF Funds	<b>7,571,233</b>	<b>27%</b>
<b>Co-financing</b>		
MALF	10,075,000	<b>36%</b>
MWI	10,075,000	<b>36%</b>
VPO	<b>600,000</b>	<b>2%</b>
<b>Co-financing sub-total</b>	<b>20,750,000</b>	
<b>GRAND TOTAL</b>	<b>\$28,321,233</b>	<b>100%</b>

### 7.3 Project Cost-effectiveness

Cost-effectiveness has been a guiding principle in designing and identifying the project activities through its overall focus on an EBA approach, building on a growing body of scientific research demonstrating that past initiatives, which included EBA measures, have resulted in a greater ratio of benefit/cost compared to the use of hard infrastructural measures. For example, an economic analysis of the restoration and rehabilitation of grasslands and woodlands estimated internal rates of return of 20–60% and benefit/cost ratios of up to 35:1<sup>80</sup> for grasslands. It has been found that the more resilient ecosystem services become, the less maintenance costs and further restoration costs will be. A frequently cited example of the cost-effectiveness of EBA is an economic analysis undertaken in Lami, Fiji<sup>81</sup>. This study included assessments of the costs and benefits of three approaches to watershed management: i) solely EBA measures; ii) “hard” engineering options and a hybrid approach; and iii) combining both hard engineering and EBA interventions. The analysis demonstrated that EBA watershed management options can be at least twice as cost-effective as hard engineering options – e.g. a benefit/cost ratio of US\$19.50 for EBA compared with US\$9 for hard engineering<sup>82</sup>. The project has been developed based on a careful assessment of the cost effectiveness of various options selected. In particular, the project considered alternative strategies and options, within the framework of ecosystem-based approaches to adaptation, in order to maximize impact achievement. Options that were not integrated in this project’s design for reasons of cost effectiveness include the following:

- Investing in hard water infrastructure: water availability continues to be a major constraint to increased production, however the project has opted – in line with the EBA principles – to adopt softer measures for ensuring water availability. This includes the restoration of key watersheds, the promotion of water use effectiveness and the rehabilitation of soil properties, including

<sup>80</sup> De Groot et al. 2013. Benefits of investing in ecosystem restoration. *Conservation Biology* 27: 1286-1293.

<sup>81</sup> Rao et al. 2013. *An economic analysis of ecosystem-based adaptation and engineering options for climate change adaptation in Lami Town, Republic of the Fiji Islands*. A technical report by the Secretariat of the Pacific Regional Environment Programme. Apia, Samoa.

<sup>82</sup> A combination of EBA and hard engineering options is the most effective option to decrease vulnerability to floods according to this study. However, EBA interventions are prioritised in the proposed project as it focuses mainly on reducing the negative effects of droughts and bushfires.

moisture retention. Since the project is building on baseline interventions in the water sector, there was a sufficient baseline of water availability to make any further investment into the water sector beyond the cost effectiveness of this project.

- The project will also not seek to develop non-agricultural diversification. Because most communities continue to rely on agriculture for their livelihoods, and because agriculture is heavily vulnerable to climate variability, the project could have opted for an out-of agriculture diversification strategy to reduce vulnerability. However, it was determined that this would require the provision of more intense and expensive training, cultural changes, and the provision of significant production inputs, which were beyond the means of this project.
- The project has also opted to build on existing capacities and efforts from other ongoing projects, and to avoid duplication. The project will therefore rely on existing capacity within the Tanzanian government, particularly among MALF and VPO staff, to train and transfer knowledge to other levels of government. Rather than relying on outside expertise to develop training, the project will use a train-the-trainer approach, which will create an autonomous level of capacity in the country, which in turn can be useful for future initiatives.

The project will also be cost-effective in that the project design and implementation include a variety of stakeholders, each with their value added in supporting implementation. There will be stakeholders from the environment, agriculture, water resources and energy sectors engaged in the project, acting both as project beneficiaries and implementers. NGOs and existing cooperatives will also be able to bring their expertise to support project implementation. The proposed project includes training for local authorities, committees and user groups on adapting communities to climate change using EBA as well as a participatory identification of locally specific climate change vulnerability, risks and adaptation options by local stakeholders. This will enhance community ownership of the project interventions, which will in turn reduce the cost of monitoring and maintenance of the activities as well as promoting the sustainability of the project interventions beyond the lifespan of the project.

In addition, in order to ensure that cost-effective strategies are adopted throughout implementation, the project will support the development of key studies, including for example market-based feasibility studies for the diversification value chains, which will all be part of the AKMS. This will help ensure that only the most economically viable opportunities are pursued, reinforcing the need to create rapidly visible benefits and impacts for local communities.

## SECTION 8: APPENDICES

### APPENDIX 1: BUDGET BY PROJECT COMPONENTS AND UNEP BUDGET LINES IN US \$

Project Title: Ecosystem Based Adaptation for Rural Resilience - Tanzania													
Project ID: 5695													
Input	Outcome 1	Outcome 2	Outcome 3	PMC	M&E	Total GEF	Exp Y1	Exp Y2	Exp Y3	Exp Y4	Exp Y5	Total GEF	Budget notes
<b>STAFF AND OTHER PERSONNEL COSTS</b>													
Chief Technical Advisor		150,000				150,000	35,000	35,000	35,000	25,000	20,000	150,000	1
District level Technicians		225,000				225,000	45,000	45,000	45,000	45,000	45,000	225,000	2
Financial & Administrative Officer				75,000		75,000	15,000	15,000	15,000	15,000	15,000	75,000	3
IC - EbA trainer	35,000	31,000				66,000	35,000	31,000	-	-	-	66,000	4
IC - Ecologist (ecosystem services monitoring)		105,000				105,000	25,000	80,000	-	-	-	105,000	5
NC - CC VA and disaster risk assessment specialist		15,000				15,000	15,000	-	-	-	-	15,000	6
NC - EbA trainer	15,000	46,000				61,000	30,000	31,000	-	-	-	61,000	7
NC - Ecologist		95,000				95,000	25,000	70,000	-	-	-	95,000	8
NC - GIS specialist		30,000				30,000	-	30,000	-	-	-	30,000	9
NC - Land use planning		31,000				31,000	-	31,000	-	-	-	31,000	10
NC - M&E specialist			60,000			60,000	12,000	12,000	12,000	12,000	12,000	60,000	11
NC - Policy and programme specialist			50,000			50,000	-	-	-	50,000	-	50,000	12
PM				150,000		150,000	30,000	30,000	30,000	30,000	30,000	150,000	13
Sub-Total STAFF AND OTHER PERSONNEL COSTS	50,000	728,000	110,000	225,000	-	1,113,000	267,000	410,000	137,000	177,000	122,000	1,113,000	
<b>TRAVEL AND TRAININGS</b>													
Meetings and workshops (AKMS development)	10,000					10,000	10,000	-	-	-	-	10,000	14
Meetings and workshops (AKMS steering group)	12,000					12,000	-	3,000	3,000	3,000	3,000	12,000	15
Training workshops	40,000					40,000	40,000	-	-	-	-	40,000	16
ToT - Training workshops on vulnerability assessment and EbA		40,000				40,000	40,000	-	-	-	-	40,000	17
Workshops and meetings (conduct VIA assessments)		50,000				50,000	50,000	-	-	-	-	50,000	18
Workshops and meetings (activity 2.2.2)		40,000				40,000	20,000	20,000	-	-	-	40,000	19

Workshops & meetings (LUMPs)		72,000				72,000	-	72,000	-	-	-	72,000	20
Travel costs for local and regional staff		30,000				30,000	-	30,000	-	-	-	30,000	21
Training workshops (renewable energies)		70,000				70,000	35,000	35,000	-	-	-	70,000	22
Training workshops (resilient livelihoods)		200,000				200,000	-	50,000	50,000	50,000	50,000	200,000	23
Travel costs for work supervision		100,000				100,000	20,000	20,000	20,000	20,000	20,000	100,000	24
Travel costs for Project Management				15,000		15,000	3,000	3,000	3,000	3,000	3,000	15,000	25
PSC meetings				15,000		15,000	3,000	3,000	3,000	3,000	3,000	15,000	26
Sub-total TRAVEL AND TRAININGS	62,000	602,000	-	30,000	-	694,000	221,000	236,000	79,000	79,000	79,000	694,000	
												-	
<b>CONTRACTUAL SERVICES</b>												-	
Sub-contract to private sector firm (Knowledge management system)	168,000		216,000			384,000	75,000	76,500	81,500	76,500	74,500	384,000	27
Sub-contract to private firm (VA, Ecology and socio-economics specialists)		100,000				100,000	100,000	-	-	-	-	100,000	28
Sub-contract to private firm (to install fences: cost of labour)		85,000				85,000	-	-	85,000	-	-	85,000	29
Sub-total CONTRACTUAL SERVICES	168,000	185,000	216,000	-	-	569,000	175,000	76,500	166,500	76,500	74,500	569,000	
												-	
<b>TRANSFER AND GRANT TO COUNTERPARTS</b>												-	
Sub-contract to an NGO for rangeland rehabilitation		300,000				300,000	-	150,000	150,000	-	-	300,000	30
Sub-contract to an NGO for watershed rehabilitation		300,000				300,000	-	150,000	150,000	-	-	300,000	31
Sub-contract to an NGO for riverbank rehabilitation		150,000				150,000	-	75,000	75,000	-	-	150,000	32
MoU with MALF		2,600,000				2,600,000	100,000	750,000	650,000	650,000	450,000	2,600,000	33
Sub-contract to an NGO (specialised in renewable/sustainable energy and use of cooking stoves)		140,000				140,000	140,000	-	-	-	-	140,000	34
Sub-contract to an NGO (specialised in resilient livelihoods)		240,000				240,000	-	60,000	60,000	60,000	60,000	240,000	35
Subtotal TRANSFER AND GRANT TO COUNTERPARTS	-	3,730,000	-	-	-	3,730,000	240,000	1,185,000	1,085,000	710,000	510,000	3,730,000	
												-	
<b>SUPPLIES, COMMODITIES, MATERIALS</b>												-	
Printing costs		10,000				10,000	-	10,000	-	-	-	10,000	36
Expandable seed material (rangeland rehabilitation)		300,000				300,000	-	150,000	150,000	-	-	300,000	37
Expandable seed material (reforestation)		300,000				300,000	-	150,000	150,000	-	-	300,000	38
Expandable seed material (riverbank rehabilitation)		150,000				150,000	-	75,000	75,000	-	-	150,000	39

Printing costs	15,000	10,000				25,000	20,000	5,000	-	-	-	25,000	40
SUB-TOTAL SUPPLIES, COMMODITIES, MATERIALS	15,000	770,000	-	-	-	785,000	20,000	390,000	375,000	-	-	785,000	
												-	
<b>EQUIPMENT, VEHICLES AND FURNITURE</b>												-	
Equipment: servers, computers, software (FGIS)	10,000					10,000	10,000	-	-	-	-	10,000	41
Equipment (GPS, camera...)		5,000				5,000	5,000	-	-	-	-	5,000	42
Equipment (software...)		5,000				5,000	-	5,000	-	-	-	5,000	43
Fencing material		200,000				200,000	-	-	200,000	-	-	200,000	44
Material and equipment (renewable energies)		200,000				200,000	100,000	100,000	-	-	-	200,000	45
Vehicle		50,233				50,233	50,233	-	-	-	-	50,233	46
SUB-TOTAL EQUIPMENT, VEHICLES AND FURNITURE	10,000	460,233	-	-	-	470,233	165,233	105,000	200,000	-	-	470,233	
												-	
<b>GENERAL OPERATING AND OTHER DIRECT COST</b>												-	
												-	
IC - baseline study					30,000	30,000	30,000	-	-	-	-	30,000	47
IC - MTR					30,000	30,000	-	-	30,000	-	-	30,000	48
IC - TE					30,000	30,000	-	-	-	-	30,000	30,000	49
Audit Firm					20,000	20,000	-	5,000	5,000	5,000	5,000	20,000	50
Operating expenses (gasoline, telecom, office supplies)				100,000		100,000	20,000	20,000	20,000	20,000	20,000	100,000	51
SUB-TOTAL GENERAL OPERATING AND OTHER DIRECT COST	-	-	-	100,000	110,000	210,000	50,000	25,000	55,000	25,000	55,000	210,000	
												-	
<b>GRAND TOTAL</b>	<b>305,000</b>	<b>6,475,233</b>	<b>326,000</b>	<b>355,000</b>	<b>110,000</b>	<b>7,571,233</b>	<b>1,138,233</b>	<b>2,427,500</b>	<b>2,097,500</b>	<b>1,067,500</b>	<b>840,500</b>	<b>7,571,233</b>	

	<b>Budget notes</b>
1	<p>The CTA will provide technical guidance on the implementation of the project to the PM and will also assist the PM in leading the project. The CTA is likely to be sourced as an international consultant as the technical expertise required is currently unavailable within Tanzania. Importantly, the CTA should be fluent in French.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> <li>• Undertake technical review of project outputs (e.g. studies and assessments).</li> <li>• Assist in the drafting of TORs for technical consultancies.</li> <li>• Supervise the work of consultants.</li> <li>• Assist in monitoring the technical quality of project M&amp;E systems (including AWP, indicators and targets).</li> <li>• Provide advice on best suitable approaches and methodologies for achieving project targets and objectives.</li> <li>• Provide a technical supervisory function to the work carried out by the other technical assistance consultants hired by the project.</li> <li>• Assist in knowledge management, communications and awareness raising</li> </ul>
2	<p>Six district-level technicians will be hired part-time. They will be appointed by the MALF from within each project district and will work under the direct supervision of the PM.</p> <p>Responsibilities of the six district-level technicians:</p> <ul style="list-style-type: none"> <li>- To support the execution and supervision of local level works.</li> <li>- To act as a liaison between the PM and the service providers, local communities and local governments in each district.</li> </ul>
3	<p>The project will be supported by a Finance and Administration Officer whose main responsibilities will be as follows:</p> <ul style="list-style-type: none"> <li>• Assist in the financial management tasks under the responsibility of the Project Manager, including information on the transfer and conversion of funds at the Bank,</li> <li>• Verify financial entries in the appropriate Accounting Software</li> <li>• Prepare annual and semi-annual budgets, quarterly expenditure reports, cash advance requests and any other financial management tools required by UNEP or the Ministry</li> <li>• Prepare inventory reports, reports on goods and services acquired</li> </ul>

	<ul style="list-style-type: none"> <li>• Coordinate with the Ministry of Finance as relevant,</li> <li>• Make timely payments of contractual fees and procurements,</li> <li>• Provide support in the use of financial management software for financial monitoring and reporting on project financial flows</li> <li>• Set up and maintain project files,</li> <li>• Collect and archive project related data and information;</li> <li>• Establish document control procedures;</li> <li>• Compile, copy and distribute all project reports (Consultancies, workshops, training sessions, etc.)</li> <li>• Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.</li> <li>• Assist in the timely issuance of contracts and assurance of other eligible entitlements of the project personnel, experts, and consultants by preparing annual recruitment plans.</li> <li>• Undertake any other administrative tasks delegated by the Project Manager</li> </ul>
4	This IC will serve as an expert in ecosystem-based adaptation and as a trainer on EbA approaches and will be responsible for the development of training materials adapted to the Tanzanian context.
5	This IC - Ecologist will be specialized in ecosystem services monitoring and will work with a NC - ecologist to develop a diagnostic and indicators of ecosystem services affected by climate change, using methodologies such as the UNEP-WCMC toolkit.
6	This NC specialized in climate change vulnerability assessment will work with the NC - EbA trainer to train local authorities, committees and user groups on EbA approaches and climate change vulnerability assessment.
7	This NC will be working with the IC - EbA trainer to train VPO staff, national climate change steering committee and working group members on EbA approaches.
8	This NC - Ecologist will work with an IC - ecologist to develop a diagnostic and indicators of ecosystem services affected by climate change, using methodologies such as the UNEP-WCMC toolkit.
9	This NC specialized in GIS will work with 2 ecologists to develop a map of drought, flood, pest and diseases risk zones and will incorporate the results in the KMS developed in Output 1.1
10	This NC specialized in land use planning will develop in collaboration with the 2 EbA trainers from Activity 2.1.1, new, resilience and seasonality based land use and management plans, with communities.

11	A NC, expert in M&E will be responsible for annual participatory monitoring and evaluation of ecosystem services, project indicators and livelihoods in each selected community of the 6 districts.
12	An expert in policy and programmes will be hired to develop an upscaling and sustainability strategy using lessons learned through the implementation of the project.
13	<p>The Project Manager will be recruited for the duration of the project. The Project Manager will undertake responsibilities associated with the execution of the project activities, which include:</p> <ul style="list-style-type: none"> <li>• Organize project activities</li> <li>• Manage the work of the regional technicians, finance and administrative officer as well as other consultants and sub-contracted private firms and NGOs.</li> <li>• Monitor and report project performance and delivery to the Project Steering Committee, MALF VPO and UNEP</li> <li>• Facilitate collaborative and consultative processes to ensure participation by government stakeholders</li> <li>• Facilitate public awareness activities</li> <li>• Lead organizer of training workshops and meetings</li> <li>• Draft documents and reports for Project Steering Committee</li> <li>• Manage organizational and logistical issues related to project execution per UNEP guidelines and procedures</li> <li>• Keep records of project documents, including financial in accordance with audit requirements</li> <li>• Facilitate timely preparation and submission of financial reports and settlement of advances, including progress reports and other substantial reports</li> <li>• Identify and resolve logistical and organizational problems, under the guidance of the Project Steering Committee</li> </ul>
14	Meetings and workshops will be held at the beginning of the project to conduct a needs assessment of what is needed for the management system.
15	Meetings and workshops will be held each year of the project to gather the cross-sectoral multi-stakeholder group in order to maintain the KMS and improve its use for adaptation planning.
16	Training workshops at the national level will be held in the first year of the project on EbA approaches and provided by one IC and one NC, both specialized in EbA approaches.
17	Training workshops at the local level (6 different districts) will be held in the first year of the project on EbA approaches and climate change vulnerability assessment and will be provided by one NC specialized in EbA approaches and one NC specialized in climate change vulnerability assessment.
18	Workshops and meetings will be held in each of the 6 districts during the first year of the project to conduct participatory CCVA and to review their results and identify recommended adaptation actions.

19	Workshops and meetings will be held in the end of the first year and through the second year of the project in each of the 6 districts to develop a diagnostic and indicators of ecosystem services affected by climate change, using methodologies such as the UNEP-WCMC toolkit.
20	Workshops and meetings will take place to develop new land use and management plans with each selected community in the 6 districts.
21	The travel costs for local and regional staff concerned with land use planning will be covered by the project.
22	Training workshops will be held by the sub-contracted NGO in the selected communities of the 6 districts.
23	Training will be provided to LGAs, extension services and key producer groups on resilient livelihoods, this will be sub-contracted to an NGO.
24	Travel costs of the regional technicians to supervise the appropriate and timely implementation of activities sub-contracted to private firms and NGOs.
25	Costs of travel from one project site to the next
26	Costs of PSC meetings (annually)
27	A private sector firm will be sub-contracted to design and develop the structure of the knowledge management system. The private sector firm will need a knowledge management specialist and a GIS/IT specialist to complete this activity.
28	This participatory CCVA will be sub-contracted to a private firm and will be conducted in each of the 6 districts selected for the project. This private firm will need a vulnerability assessment expert, an ecologist and a socio-economic specialist in order to complete the participatory CCVA.
29	The establishment of exclosure and no-take zones will with the consultation of local communities will be sub-contracted to a private sector firm, which will include labour costs of installing the fences.
30	Rangeland rehabilitation will be sub-contracted to a local NGO (using methods such as aerial broadcasting). The NGO will be responsible for the costs of workshops in each community.
31	Watershed rehabilitation will be sub-contracted to a local NGO. The NGO will be responsible for the costs of workshops in each community.
32	Riverbank rehabilitation and land reclamation will be sub-contracted to a local NGO. The NGO will be responsible for the costs of workshops in each community.
33	A MoU with the Ministry of Agriculture and Food Security will be established to implement CSA practices in each selected community of the 6 districts. MALF will be responsible for the procurement of a private firm providing the equipment for irrigation, water harvesting materials (seeds will be covered by the project).

34	This activity will be sub-contracted to an NGO specialized in renewable/sustainable energy and improved cookstoves.
35	This activity will be sub-contracted to an NGO. Training will be provided to LGAs, extension services and key producer groups on resilient livelihoods in each selected community of the 6 districts.
36	Maps will be printed for each community to participate in the mapping exercise and once the maps are final to be able to consult them easily on paper.
37	Cost of seed material used for rangeland rehabilitation.
38	Cost of seed material used for reforestation using local species.
39	Cost of seed material used for riverbank rehabilitation.
40	Cost for printing materials to facilitate the training.
41	The equipment needed to design the basic structure of the KMS will include servers, softwares and computers.
42	Equipment such as GPS, cameras and software to process collected data will be needed to conduct the diagnostic and develop indicators of climate change affected ecosystem services.
43	Equipment such as software (GIS) and computers will be needed to make the map and transfer all the results into the KMS.
44	Cost of fencing material.
45	Cost of improved cookstoves or materials to build improved cookstoves.
46	Cost of vehicles for regional technicians, project manager and project management team in general.
47	The baseline study will be part of Activity 2.2.4 which will be undertaken by hired consultants (ecologists and GIS) as well as the PMU.
48	The mid-term evaluation and report will be conducted by an independent M&E firm/consultant.
49	The terminal evaluation and report will be conducted by an independent M&E firm/consultant.
50	Financial auditing will take place annually and will be conducted by an independent private firm.
51	Costs of operating expenses (gasoline, telecom, office supplies)

**APPENDIX 2: CO-FINANCING BY SOURCE AND UNEP BUDGET LINES**

Project Title: Ecosystem Based Adaptation for Rural Resilience - Tanzania					
Project ID: 5695					
<b>Input</b>	<b>Total GEF</b>	<b>ASDP</b>	<b>WSDP</b>	<b>VPO</b>	<b>TOTAL Co\$</b>
<b>STAFF AND OTHER PERSONNEL COSTS</b>	-	-	-	-	-
Chief Technical Advisor	150,000	-	-	-	-
District level Technicians	225,000	-	-	-	-
Financial & Administrative Officer	75,000	-	-	-	-
IC - EbA trainer	66,000	50,000	50,000	55,000	155,000
IC - Ecologist (ecosystem services monitoring)	105,000	-	-	-	-
NC - CC VA and disaster risk assessment specialist	15,000	-	-	-	-
NC - EbA trainer	61,000	50,000	50,000	30,000	130,000
NC - Ecologist	95,000	-	-	-	-
NC - GIS specialist	30,000	100,000	100,000	-	200,000
NC - Land use planning	31,000	2,750,000	2,750,000	-	5,500,000
NC - M&E specialist	60,000	-	-	35,000	35,000
NC - Policy and programme specialist	50,000	-	-	15,000	15,000
PM	150,000	-	-	200,000	200,000
Sub-Total STAFF AND OTHER PERSONNEL COSTS	1,113,000	2,950,000	2,950,000	335,000	6,235,000
-	-	-	-	-	-
<b>TRAVEL AND TRAININGS</b>	-	-	-	-	-
Meetings and workshops (AKMS development)	10,000	-	-	-	-
Meetings and workshops (AKMS steering group)	12,000	-	-	-	-
Training workshops	40,000	-	-	-	-
ToT - Training workshops on vulnerability assessment and EbA	40,000	-	-	-	-
Workshops and meetings (conduct VIA assessments)	50,000	-	-	-	-

Workshops and meetings (activity 2.2.2)	40,000	-	-	-	-
Workshops & meetings (LUMPs)	72,000	-	-	-	-
Travel costs for local and regional staff	30,000	-	-	-	-
Training workshops (renewable energies)	70,000	-	-	-	-
Training workshops (resilient livelihoods)	200,000	1,000,000	1,000,000	-	2,000,000
Travel costs for work supervision	100,000	-	-	-	-
Travel costs for Project Management	15,000	100,000	-	90,000	190,000
PSC meetings	15,000	-	100,000	-	100,000
Sub-total TRAVEL AND TRAININGS	694,000	1,100,000	1,100,000	90,000	2,290,000
-	-	-	-	-	-
<b>CONTRACTUAL SERVICES</b>	-	-	-	-	-
Sub-contract to private sector firm (Knowledge management system)	384,000	205,000	205,000	65,000	475,000
Sub-contract to private firm (VA, Ecology and socio-economics specialists)	100,000	-	-	10,000	10,000
Sub-contract to private firm (to install fences: cost of labour)	85,000	-	-	-	-
-	-	-	-	-	-
Sub-total CONTRACTUAL SERVICES	569,000	205,000	205,000	75,000	485,000
-	-	-	-	-	-
<b>TRANSFER AND GRANT TO COUNTERPARTS</b>	-	-	-	-	-
Sub-contract to an NGO for rangeland rehabilitation	300,000	300,000	-	-	300,000
Sub-contract to an NGO for watershed rehabilitation	300,000	-	300,000	-	300,000
Sub-contract to an NGO for riverbank rehabilitation	150,000	20,000	20,000	-	40,000
MoU with MALF	2,600,000	3,500,000	3,500,000	-	7,000,000
Sub-contract to an NGO (specialised in renewable/sustainable energy and use of cooking stoves)	140,000	-	-	-	-
Sub-contract to an NGO (specialised in resilient livelihoods)	240,000	-	-	-	-

Subtotal TRANSFER AND GRANT TO COUNTERPARTS	3,730,000	3,820,000	3,820,000	-	7,640,000
-	-	-	-	-	-
<b>SUPPLIES, COMMODITIES, MATERIALS</b>	-	-	-	-	-
Printing costs	10,000	-	-	-	-
Expandable seed material (rangeland rehabilitation)	300,000	-	-	-	-
Expandable seed material (reforestation)	300,000	-	-	-	-
Expandable seed material (riverbank rehabilitation)	150,000	-	-	-	-
Printing costs	25,000	-	-	-	-
SUB-TOTAL SUPPLIES, COMMODITIES, MATERIALS	785,000	-	-	-	-
-	-	-	-	-	-
<b>EQUIPMENT, VEHICLES AND FURNITURE</b>	-	-	-	-	-
<b>Equipment: servers, computers, software (fGIS)</b>	10,000	-	-	-	-
Equipment (GPS, camera...)	5,000	-	-	-	-
Equipment (software...)	5,000	-	-	-	-
Fencing material	200,000	2,000,000	2,000,000	-	4,000,000
Material and equipment (renewable energies)	200,000	-	-	-	-
Vehicle	50,233	-	-	-	-
SUB-TOTAL EQUIPMENT, VEHICLES AND FURNITURE	470,233	2,000,000	2,000,000	-	4,000,000
-	-	-	-	-	-
<b>GENERAL OPERATING AND OTHER DIRECT COST</b>	-	-	-	-	-
-	-	-	-	-	-
IC - baseline study	30,000	-	-	-	-
<b>IC - MTR</b>	30,000	-	-	100,000	100,000
IC - TE	30,000	-	-	-	-
Audit Firm	20,000	-	-	-	-
Operating expenses (gasoline, telecom, office supplies)	100,000	-	-	-	-
SUB-TOTAL GENERAL OPERATING AND OTHER DIRECT COST	210,000	-	-	100,000	100,000
-	-	-	-	-	-
<b>GRAND TOTAL</b>	<b>7,571,233</b>	<b>10,075,000</b>	<b>10,075,000</b>	<b>600,000</b>	<b>20,750,000</b>



### APPENDIX 3: RESULTS FRAMEWORK

Overall Goal: Building resilience of rural communities						
Project Objective: Increasing resilience to climate change in rural communities of Tanzania by strengthening ecosystem resilience and diversifying livelihoods						
Outcome/Outputs	Indicator	Baseline	Midterm Target	End of project Target	Means of Verification	Risks (R) & Assumptions (A)
<b>Component 1. Capacity to adapt to climate change through EbA approaches.</b>						
<i>Outcome 1. Improved stakeholders capacity to adapt to climate change through EbA approaches and undertake resilience building responses</i>	<i>Number of AKMS users who report strengthened capacity to plan for adaptation</i>	<i>0</i>	<i>30% of AKMS users are reporting strengthened capacity to plan for adaptation by mid-term</i>	<i>90% of AKMS users are reporting strengthened capacity to plan for adaptation by end of project</i>	<i>AKMS surveys, reports</i>	<i>R: The individuals trained or institutions are not empowered enough to influence the project implementation. A: Stakeholders are interested in improving adaptation planning through learning and using the AKMS.</i>
<i>1.1 A GIS-based adaptation knowledge management system (AKMS) that supports planning</i>	<i>Existence of a fully operational GIS-based adaptation knowledge management system (AKMS)</i>	<i>0</i>	<i>Structure and organization of the AKMS are in place by mid-term</i>	<i>The AKMS is fully operational and used by multi-stakeholder partners by end of project</i>	<i>Project website, reports, consultations</i>	<i>R: Limited continuous stakeholder engagement in populating and updating the AKMS (governments, donors, NGOs, CSOs, private sector) A: The AKMS is a web-based adaptation tool providing immediate benefits for stakeholders planning climate change adaptation activities and baseline data on EbA</i>
1.1.1 Design and develop the basic structure of the knowledge management system utilizing available open source tools						
1.1.2 Form a cross-sectoral multi-stakeholder group to support the management and maintenance of the knowledge system and its use for adaptation planning						
1.1.3 Verify the data produced by the stakeholders and identify capacity gaps and opportunities for collaboration on all levels						
1.1.4 Identify currently available data in GIS format and additional data needs for planning appropriate climate change responses						
1.1.5 Provide annual recommendations on gaps and needs for adaptation planning and programming based on findings from the knowledge system						

1.2 Training and guidance provided to a cadre of knowledgeable resource persons on ecosystem-based adaptation	# of people trained	0	At least 50 people per district, among which half are women, by mid-project	At least 100 people per district, among which half are women, by end of project	training reports, surveys	R: Individual capacity may not be sufficient to lift any remaining institutional barriers to the broader dissemination of EbA A: The government continues to support, through VPO leadership, EbA as a viable adaptation approach.
1.2.1 Develop ToT training material on ecosystem based adaptation approach						
1.2.2 ToT training for VPO staff, National climate change steering committee and working groups members, climate change and disaster management focal points in relevant ministries						
<b>Component 2. EbA for rural resilience</b>						
<b>Outcome 2. Increased resilience in project sites through demonstration of EBA practices and improved livelihoods</b>	<b>Vulnerability Index as measured by Vulnerability and Impacts Assessments (VIAs)<sup>83</sup></b>	<b>N-A</b>	<b>N-A</b>	<b>a 45% reduction in vulnerability of beneficiaries in project sites, among which 40% are female-headed households, by end of project</b>	<b>VIAs will be conducted during year 1 of project, and monitored annually through participatory M&amp;E</b>	<b>R: perception-based vulnerability indexes may be insufficient in revealing changes in resilience. A: A similar methodology can be used and repeated at various milestones during the project.</b>
2.1 Local authorities, committees and user groups trained on adapting communities to climate change using EbA.	Number of people trained in EbA to adapt to climate change	0	At least 30 people per district trained on EbA among which half are women, by mid-project	At least 60 people per district trained on EbA among which half are women, by end of project	Project reports; List of participants to training (by gender) Training reports, training manuals	R: Local authorities, committees and user groups are not engaged in EbA approaches. A: Local authorities, committees and user groups will learn adaptation through EbA approaches and improve their practices and livelihood strategies.
2.1.1 Training (ToT) on climate change vulnerability assessment (including disaster risk) and EbA/adaptation planning for local authorities, committees and user groups						

<sup>83</sup> The VIA would use the PRO-VIA methodologies, or any other methodology successfully used by the Tanzanian government in other adaptation projects, for comparability of results.

2.2 Locally-specific climate change vulnerability, risks and adaptation options are identified by local stakeholders.	Number of Vulnerability and Impacts Assessment (VIAs) conducted	0	1 VIA conducted per district, that identifies adaptation options	N-A	Activity reports, VIAs, maps	R: Communities do not feel engaged in conducting VIAs A: The benefits of VIAs are explained to communities and seen as a useful tool to identify adaptation options.
2.2.1 Undertake participatory Climate Change Vulnerability and Impact Assessments in project sites using guidelines for VIA under PROVIA and identify recommended adaptation actions						
2.2.2 Develop a diagnostic and indicators of climate-change affected ecosystem services, based on recognized methodologies for measuring ecosystem services such as the UNEP-WCMC ToolKit						
2.2.3 Establish a map of drought, flood, pest and diseases risk zones (baseline and climate change scenario) in selected sites and incorporate results to knowledge management system						
2.2.4 Assess the physical and socio-economic impacts of climate change on selected project sites and incorporate results to Output 1.2.						
2.3 Ecosystem services are rehabilitated through the implementation of EbA practices (ecosystem rehabilitation, sustainable management and conservation of natural resources)	Number of hectares of forest and rangeland rehabilitated and under sustainable and climate resilient management	0	Up to 1500 ha of forest (250 ha per district), 3000 ha of rangeland (500 ha per district) rehabilitated and under sustainable and climate resilient management, by mid-project (as specified in the LUMPs)	Up to 3000 ha of forest (500 ha per district), 6000 ha of rangeland (1000 ha per district) rehabilitated and under sustainable and climate resilient management, by end of project, as specified in the LUMPs	project reports, land use plans, surveys, field observations	R: Communities are not willing and able to participate in ecosystem restoration and activities improving livelihoods A: Local authorities and communities are engaged in EbA thanks to training and successful information sharing through the AKMS
2.3.1 Develop new, resilience and seasonality based, land use and management plans with communities						
2.3.2 Establish, through consultations with local communities, exclosure and no-take zones to support the natural regeneration of degraded areas						
2.3.3 Undertake rangeland rehabilitation on 6,000 ha						
2.3.4 Undertake watershed rehabilitation and reforestation, using local species on 3,000 ha						
2.3.5 Undertake riverbank rehabilitation in areas						

2.4 Income is increased and maintained across seasons, through sustainable and resilient livelihoods	Number of people reporting a sustained increased income from alternative IGAs introduced by the project, among which a percentage are female-headed households	0	Targeted communities are reporting a 5% increase in all season income, among which 40% are female-headed households, by mid-project.	Targeted communities are reporting a 15% increase in all season income, starting on year 1 of the project and maintained on the 4 following years, for smallholder farmers/HH, among which 40% are female-headed households, by end of project	Annual reports on production numbers for each value chain, per district; Project reports; Producer surveys	R: Targeted communities are too risk-averse to try adopting alternative activities.  A: Communities are willing and able to adopt climate smart agricultural practices and activities improving livelihoods
2.4.1 Implement climate smart agricultural practices, including conservation-based irrigation, water harvesting, crop rotation, etc.						
2.4.2 Improve resilience of current livelihoods and introduce alternative, income-generating, climate resilient livelihood activities for vulnerable groups, particularly women (livestock value chain, beekeeping)						
2.4.3 Introduce and promote efficient cooking stoves and efficient charcoal production technologies to reduce pressures on forest resources						
2.4.4 Training and support to LGAs, extension services and key producer groups on resilient livelihoods						
<b>Component 3. Knowledge management on climate change adaptation and upscaling.</b>						
<b>Outcome 3. 3. Strengthened information base on EbA supports an upscaling strategy</b>	<b>Availability of an exit and upscaling plan at the end of the project</b>	0		<b>One documented and agreed exit/upscaling strategy is approved at the end of the project</b>	<b>Project reports, Information products</b>	<b>R: Stakeholders do not agree on the lessons learned and upscaling plan. A: Information base on EbA is disseminated and benefits targeted audiences leading to action.</b>
3.1 Project lessons, knowledge on Climate change adaptation and resilient livelihoods using ecosystems captured, stored and widely disseminated	Number of information products distributed by the end of the project	0	At least 10 information products developed	At least 15 information products disseminated	Project reports, Information products	R: The majority of stakeholders maintain business-as-usual approach or have improved attitudes but do not take action. A: Information products are developed with and for specific target groups to ensure utilization.
3.1.1 Document best practices, applicable technologies, success stories to inform policies and adaptation planning, linked to the knowledge management system in Outcome 1						

3.1.2 Develop and disseminate practical and applied training and communication material for different target audiences (policy decision makers, planning, agricultural advisory services at local level) using print, radio and social media

3.1.3 Undertake participatory monitoring of ecosystem services, project indicators and livelihoods

3.1.4 Develop a sustainability and upscaling strategy using lessons learned through project implementation.

**APPENDIX 4: WORKPLAN AND TIMETABLE**

Component	Outputs	Activities	Exp Y1	Exp Y2	Exp Y3	Exp Y4	Exp Y5
<b>Component 1. Capacity to adapt to climate change through EbA approaches.</b>	1.1 A GIS-based knowledge management system on climate change adaptation that supports planning	1.1.1 Design and develop the basic structure of the knowledge management system utilizing available open source tools					
		1.1.2 Form a cross-sectoral multi-stakeholder group to support the management and maintenance of the knowledge system and its use for adaptation planning					
		1.1.3 Verify the data produced by the stakeholders and identify capacity gaps and opportunities for collaboration on all levels					
		1.1.4 Identify currently available data in GIS format and additional data needs for planning appropriate climate change responses					
		1.1.5 Provide annual recommendations on gaps and needs for adaptation planning and programming based on findings from the knowledge system					
	1.2 <i>Training and guidance provided to a cadre of knowledgeable resource persons on ecosystem-based adaptation</i>	1.2.1 Develop ToT training material on ecosystem based adaptation approach					
		1.2.2 ToT training for VPO staff, National climate change steering committee and working groups members, climate change and disaster management focal points in relevant ministries					

<b>Component 2:EbA for rural resilience</b>	2.1 Local authorities, committees and user groups trained on adapting communities to climate change using EbA.	2.1.1 Training (ToT) on climate change vulnerability assessment (including disaster risk) and EbA/adaptation planning for local authorities, committees and user groups					
	2.2 Locally-specific climate change vulnerability, risks and adaptations options are identified by local stakeholders.	2.2.1 Undertake participatory Climate Change Vulnerability Impact Assessments in project sites using guidelines for VIA under PROVIA and identify recommended adaptation actions					
		2.2.2 Develop a diagnostic and indicators of climate-change affected ecosystem services, based on recognized methodologies for measuring ecosystem services such as the UNEP-WCMC ToolKit					
		2.2.3 Establish a map of drought, flood, pest and diseases risk zones (baseline and climate change scenario) in selected sites and incorporate results to knowledge management system					
		2.2.4 Assess the physical and socio-economic impacts of climate change on selected pilot sites and incorporate results to Output 1.2.					
		2.2.5 Develop new, resilience and seasonality based, land use and management plans with communities					

	2.3 Ecosystem services are rehabilitated through the implementation of EBA practices (ecosystem rehabilitation, sustainable management and conservation of natural resources)	2.3.1 Establish, through consultations with local communities, exclosure and no-take zones to support the natural regeneration of degraded areas						
		2.3.2. Undertake rangeland rehabilitation in 6,000 ha						
		2.3.3 Undertake watershed rehabilitation and reforestation, using local species, in 3,000 ha						
		2.3.4 Undertake riverbank rehabilitation						
	2.4 Income is increased and maintained across seasons, through sustainable and resilient livelihoods	2.4.1 Implement climate smart agricultural practices, including conservation-based irrigation, water harvesting, crop rotation, etc.						
		2.4.2 Improve resilience of current livelihoods and introduce alternative, income-generating, climate resilient livelihood activities for vulnerable groups, particularly women (livestock value chain, beekeeping...)						
		2.4.3 Introduce and promote efficient cooking stoves and efficient charcoal production technologies to reduce pressures on forest resources						
		2.4.4 Training and support to LGAs, extension services and key producer groups on resilient livelihoods						

<b>Component 3: Knowledge management on climate change adaptation and upscaling.</b>	3.1 Project lessons, knowledge on Climate change adaptation and resilient livelihoods using ecosystems captured, stored and widely disseminated	3.1.1 Document best practises, applicable technologies, success stories to inform policies and adaptation planning, linked to the knowledge management system in Outcome 1					
		3.1.2 Develop and disseminate practical and applied training and communication material for different target audiences (policy decision makers, planning, agricultural advisory services at local level) using print, radio and social media					
		3.1.3 Undertake participatory monitoring of ecosystem services, project indicators and livelihoods					
		3.1.4 Develop a sustainability and upscaling strategy using lessons learned through project implementation.					
<b>M&amp;E</b>		Baseline Study					
		Mid-Term Review					
		Terminal evaluation					
		Audit					

## APPENDIX 5: KEY DELIVERABLES AND BENCHMARKS

Outcomes	Deliverables	Benchmarks (midway through the project)
<p>1.Improved stakeholders capacity to adapt to climate change through EbA approaches and undertake resilience building responses</p>	<ul style="list-style-type: none"> <li>- GIS-based knowledge management system on climate change adaptation that supports planning</li> <li>- Cross-sectoral multi-stakeholder group to support the management and maintenance of the knowledge system and its use for adaptation planning</li> <li>- Training of Trainers on ecosystem-based adaptation approaches for VPO staff, National climate change steering committee and working group members, CC</li> </ul>	<p>All deliverables from Outcome 1 should be completed by mid-project.</p>
<p>2. Increased resilience in project sites through demonstration of EbA practices and improved livelihoods</p>	<ul style="list-style-type: none"> <li>- Training of Trainers on climate change vulnerability assessment</li> <li>- Participatory Climate Change Vulnerability Impact Assessments in project sites using guidelines for VIA under PROVIA and identify recommended adaptation actions</li> <li>- A diagnostic and indicators of climate-change affected ecosystem services</li> <li>- A map of drought, flood, pest and diseases risk zones (baseline and climate change scenario) in selected sites and incorporate results to knowledge management system</li> <li>- Assess the physical and socio-economic impacts of climate change on selected sites</li> <li>- New, resilience and seasonality based, land use and management plans</li> </ul>	<p>These deliverables from Outcome 2 should be completed by mid-project.</p>
	<ul style="list-style-type: none"> <li>- Ecosystem services are rehabilitated in up to 9,000 ha through the implementation of EbA practices (ecosystem rehabilitation, sustainable management and conservation of natural resources).</li> <li>- A 15% increase in livelihoods, maintained across seasons, through sustainable and resilient livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>- Exclosure and no-take zones to support natural regeneration of degraded areas; rangeland rehabilitation; watershed rehabilitation and reforestation; riverbank rehabilitation in progress of being established in consultation with local communities</li> <li>- Climate smart agricultural practices have been introduced in demonstration sites and are being monitored and evaluated for success, best practices and potential upscaling in other project sites.</li> <li>- Alternative income-generating livelihood strategies such as livestock related value chains (meat or milk production for instance) have been introduced in demonstration sites and are being monitored and evaluated for success, best practices and potential upscaling in other project sites.</li> <li>- Efficient and improved cookstoves and efficient charcoal production technologies to reduce pressures on forest resources have been introduced in demonstration sites and are being monitored and evaluated for success, best practices and potential upscaling in</li> </ul>

	<ul style="list-style-type: none"> <li>- Training and support to LGAs, extension services and key producer groups on resilient livelihoods.</li> </ul>	<p>other project sites.</p> <ul style="list-style-type: none"> <li>- Training and support on resilient livelihoods is continuously provided to LGAs, extension services and key producer groups.</li> </ul>
<p>3. Strengthened information base on EbA supports an upscaling strategy</p>	<ul style="list-style-type: none"> <li>- Project lessons, knowledge on climate change adaptation and resilient livelihoods using ecosystems included in the adaptation knowledge management system and disseminated widely.</li> </ul>	<ul style="list-style-type: none"> <li>- Best practices and success stories are continuously being documented and linked to the knowledge management system.</li> <li>- Practical and applied training and communication material for different target audiences are continuously being developed and disseminated.</li> <li>- Participatory monitoring of ecosystems services, project indicators and livelihoods is continuously being undertaken (annually).</li> <li>- The development of a sustainability and upscaling strategy using lessons learned through the project implementation will start in Year 4.</li> </ul>

**APPENDIX 6: COSTED M&E PLAN**

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>Budget US \$ (Excluding project team staff time)</b>	<b>Time frame</b>
Inception workshop	<ul style="list-style-type: none"> <li>• PM</li> <li>• UNEP</li> </ul>	-	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> <li>• PM</li> </ul>	-	One month after Inception Workshop
Baseline assessment	<ul style="list-style-type: none"> <li>• PM</li> </ul>	\$30,000	Two months after Inception Workshop
Measurement of means of verification for project progress on output and implementation	<ul style="list-style-type: none"> <li>• Oversight by Steering Committee (UNEP, VPO )</li> <li>• PM</li> </ul>	-	Annually prior to PIR and to the definition of annual work plans
Project Implementation Review (PIR)	<ul style="list-style-type: none"> <li>• UNEP</li> </ul>	-	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> <li>• PM</li> <li>• UNEP</li> </ul>	-	Quarterly
Audit	<ul style="list-style-type: none"> <li>• Private firm</li> </ul>	\$20,000	Annually from Year 2
MTR	<ul style="list-style-type: none"> <li>• UNEP TM manages</li> <li>• UNEP Evaluation office</li> </ul>	\$30,000	At the mid-point of project implementation.
Terminal evaluation	<ul style="list-style-type: none"> <li>• UNEP Evaluation office with UNEP</li> </ul>	\$30,000	At least three months before the end of project implementation
Project terminal report	<ul style="list-style-type: none"> <li>• PM</li> </ul>	-	On completion of the terminal evaluation, maximum of three months after the end of the project
Visits to project sites	<ul style="list-style-type: none"> <li>• UNEP</li> <li>• M&amp;E Specialist</li> <li>• PM</li> <li>• PSC representatives</li> </ul>	-	Yearly
<b>TOTAL indicative COST</b>		US \$110,000	

**APPENDIX 7: SUMMARY OF REPORTING REQUIREMENTS AND RESPONSIBILITIES**

<b>Reporting requirements</b>	<b>Due date</b>	<b>Responsibility</b>
Final Procurement Plans	2 weeks before project inception	PM
Inception Report	1 month after inception meeting	PM
Expenditures Report accompanied by explanatory notes	Every six months	PM, Admin and Financial Manager, VPO
Cash advance request and details of anticipated disbursements	Every six months	PM, Admin and Financial Manager, VPO
Audited report	Yearly, or before December 31	Firm contracted by executing agencies
Inventory of non-expendable equipment	Yearly or before December 31	PM
Co-financing Report	Yearly or before December 31	PM, VPO
Project Implementation Review (PIR) Report	Yearly or before December 31	PM, Task Manager, Admin and Financial Manager
Minutes of Steering Committee Meetings	Bi-annually	PM
Mission reports and “aide memoire” for executing agency	Within 2 weeks of return	Task Manager, Admin and Financial Manager
Final Report	2 months of project completion date	PM, Admin and Financial Manager
Final inventory of non-expendable equipment	2 months of project completion date	PM, Admin and Financial Manager
Equipment transfer letter	2 months of project completion date	PM, Admin and Financial Manager
Final Expenditure statement	3 months of project completion	PM, Admin and Financial Manager
Midterm review or midterm evaluation	Midway through project completion	Task manager
Final expenditure report for expenditures of project	6 months of project completion	Independent firm as contracted by executing agencies
Independent terminal evaluation report	6 months of project completion	Evaluation oversight unit

## APPENDIX 8: SITE SELECTION PROCESS FOR THE PROJECT ACTIVITIES

The site selection process began during the preparation of the Project Identification Form, and followed a number of key steps, leading to the final decision and agreement as embodied in this project document. During the PIF design, a set of summary criteria was established to help guide preliminary selection. This included: level of poverty, food insecurity, exposure to climate extremes and presence of previous adaptation investments. An initial list was therefore obtained and detailed questionnaires were sent to the district administrations to gather further information on vulnerabilities, baseline investments, planned investments and capacity gaps.

When the project preparation phase began, the site selection process was relaunched in order to take into consideration the evolving priorities of the government, the change in status in some of the pre-selected district, and considerations related to feasibility, including the need to focus the project geographically in order to maximize impact. For example, while the PIF included Stone Town in Zanzibar (Unguja Island), Kondo district in Dodoma region and Mbinga district in Ruvuma region, it was decided to forego any intervention there for the following reasons: Stone Town was removed because it was agreed to focus the project on rural areas where poverty rates are higher and alternatives fewer, and to avoid diluting the focus; Ruvuma region was removed because of remoteness and inaccessibility. Finally, rather than selecting multiple districts in one region, it was agreed to focus on one district, which would enable the implementation of activities in all three components in an integrated manner in all the sites.

The site selection process used the following criteria for establishing an initial long list of sites, which was then submitted to the Government of Tanzania for further consultation. Consultation was led by the Vice President's office and input was gathered from districts and regions throughout the process, including through the provision of key data. A final round of consultations on proposed sites was held during the validation workshop. The final data was compiled, as can be seen in the table below.

It was agreed that, should the circumstances that prevail in the selected sites vary drastically between approval and inception, further consultation would be undertaken to reconfirm project sites at the start of the project under the supervision of the Project Steering Committee.

**Table 9.** Selection of the sites based on various criteria

		Socio-economic criteria									Ecological criteria							Feasibility criteria		
		Populat ion*	Male	Fem ale	Number of househ olds*	Averag e house hold size*	Proport ion of female- headed househ olds	rati ng	Num ber of peop le belo w pove rty line	rati ng	Land degrada tion	rati ng	Deforest ation	rati ng	Cro p yiel d	rati ng	Repor ted incide nts of persit ent droug hts in the past 5	Repor ted incide nts of persit ent floods	Presenc e of progra mme (ASDP activitie s)	Presence of programme (WSDP activities)



## **APPENDIX 9: TERMS OF REFERENCE FOR KEY PROJECT GROUPS, STAFF AND SUB-CONTRACTORS**

### **TERMS OF REFERENCE FOR PROJECT MANAGER (PM)**

The Project Manager will be recruited for the duration of the project. The Project Manager will undertake responsibilities associated with the execution of the project activities, which include:

- Organize project activities
- Manage the work of a finance and administrative officer, district-level technicians as well as the national and international consultants
- Monitor and report project performance and delivery to the Project Steering Committee, VPO and UNEP
- Facilitate collaborative and consultative processes to ensure participation by government stakeholders
- Facilitate public awareness activities
- Lead organizer of training workshops and meetings
- Draft documents and reports for Project Steering Committee
- Manage organizational and logistical issues related to project execution per UNEP guidelines and procedures
- Keep records of project documents, including financial in accordance with audit requirements
- Facilitate timely preparation and submission of financial reports and settlement of advances, including progress reports and other substantial reports
- Identify and resolve logistical and organizational problems, under the guidance of the Project Steering Committee

The Project Manager will have a post-graduate degree in public administration, or natural resources management or related field, and have a minimum of seven (7) years' experience in progressively responsible and substantive areas in environmental and natural resource governance programming and planning.

### **TERMS OF REFERENCE FOR FINANCE AND ADMINISTRATION OFFICER (FAO)**

The project will be supported by a Finance and Administration Officer whose main responsibilities will be as follows:

- Assist in the financial management tasks under the responsibility of the Project Manager, including information on the transfer and conversion of funds at the Bank,
- Verify financial entries in the appropriate Accounting Software
- Prepare annual and semi-annual budgets, quarterly expenditure reports, cash advance requests and any other financial management tools required by UNEP or the Ministry
- Prepare inventory reports, reports on goods and services acquired
- Coordinate with the Ministry of Finance as relevant,
- Make timely payments of contractual fees and procurements,
- Provide support in the use of financial management software for financial monitoring and reporting on project financial flows
- Set up and maintain project files,
- Collect and archive project related data and information;
- Establish document control procedures;
- Compile, copy and distribute all project reports (Consultancies, workshops, training sessions, etc.)
- Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.

- Assist in the timely issuance of contracts and assurance of other eligible entitlements of the project personnel, experts, and consultants by preparing annual recruitment plans.
- Undertake any other administrative tasks delegated by the Project Manager

### **TERMS OF REFERENCE FOR CHIEF TECHNICAL ADVISOR (CTA)**

The CTA will provide technical guidance on the implementation of the project to the PM and will also assist the PM in leading the project. The CTA is likely to be sourced as an international consultant as the technical expertise required is currently unavailable within Tanzania. Importantly, the CTA should be fluent in French.

#### *Responsibilities*

- Undertake technical review of project outputs (e.g. studies and assessments).
- Assist in the drafting of TORs for technical consultancies.
- Supervise the work of consultants.
- Assist in monitoring the technical quality of project M&E systems (including AWP, indicators and targets).
- Provide advice on best suitable approaches and methodologies for achieving project targets and objectives.
- Provide a technical supervisory function to the work carried out by the other technical assistance consultants hired by the project.
- Assist in knowledge management, communications and awareness raising

### **TERMS OF REFERENCE FOR DISTRICT-LEVEL TECHNICIANS**

Five (one per selected district) district-level technicians will be hired part-time. They will be appointed by the MALF from within each project district and will work under the direct supervision of the PM.

Responsibilities of the six district-level technicians:

- To support the execution and supervision of local level works.
- To act as a liaison between the PM and the service providers, local communities and local governments in each district.

**APPENDIX 10: CO-FINANCING COMMITMENT LETTERS FROM PROJECT PARTNERS**

**APPENDIX 11: OFP ENDORSEMENT LETTER**

**APPENDIX 12: DRAFT PROCUREMENT PLAN**

Input	Exp Y1	Exp Y2	Exp Y3	Exp Y4	Exp Y5	Total GEF	Description
Chief Technical Advisor	35,000	35,000	35,000	25,000	20,000	<b>150,000</b>	<p>The CTA will provide technical guidance on the implementation of the project to the PM and will also assist the PM in leading the project. The CTA is likely to be sourced as an international consultant as the technical expertise required is currently unavailable within Tanzania. Importantly, the CTA should be fluent in French.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> <li>• Undertake technical review of project outputs (e.g. studies and assessments).</li> <li>• Assist in the drafting of TORs for technical consultancies.</li> <li>• Supervise the work of consultants.</li> <li>• Assist in monitoring the technical quality of project M&amp;E systems (including AWP, indicators and targets).</li> <li>• Provide advice on best suitable approaches and methodologies for achieving project targets and objectives.</li> <li>• Provide a technical supervisory function to the work carried out by the other technical assistance consultants hired by the project.</li> <li>• Assist in knowledge management, communications and awareness raising</li> </ul>
District level Technicians	45,000	45,000	45,000	45,000	45,000	<b>225,000</b>	<p>Five district-level technicians will be hired part-time. They will be appointed by the MALF from within each project district and will work under the direct supervision of the PM.</p> <p>Responsibilities of the six district-level technicians:</p> <ul style="list-style-type: none"> <li>- To support the execution and supervision of local level works.</li> <li>- To act as a liaison between the PM and the service providers, local communities and local governments in each district.</li> </ul>

Financial & Administrative Officer	15,000	15,000	15,000	15,000	15,000	<b>75,000</b>	<p>The project will be supported by a Finance and Administration Officer whose main responsibilities will be as follows:</p> <ul style="list-style-type: none"> <li>• Assist in the financial management tasks under the responsibility of the Project Manager, including information on the transfer and conversion of funds at the Bank,</li> <li>• Verify financial entries in the appropriate Accounting Software</li> <li>• Prepare annual and semi-annual budgets, quarterly expenditure reports, cash advance requests and any other financial management tools required by UNEP or the Ministry</li> <li>• Prepare inventory reports, reports on goods and services acquired</li> <li>• Coordinate with the Ministry of Finance as relevant,</li> <li>• Make timely payments of contractual fees and procurements,</li> <li>• Provide support in the use of financial management software for financial monitoring and reporting on project financial flows</li> <li>• Set up and maintain project files,</li> <li>• Collect and archive project related data and information;</li> <li>• Establish document control procedures;</li> <li>• Compile, copy and distribute all project reports (Consultancies, workshops, training sessions, etc.)</li> <li>• Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.</li> <li>• Assist in the timely issuance of contracts and assurance of other eligible entitlements of the project personnel, experts, and consultants by preparing annual recruitment plans.</li> <li>• Undertake any other administrative tasks delegated by the Project Manager</li> </ul>
IC - EbA trainer	35,000	31,000	-	-	-	<b>66,000</b>	This IC will serve as an expert in ecosystem-based adaptation and as a trainer on EbA approaches and will be responsible for the development of training materials adapted to the Tanzanian context. The IC will work in the context of component 1
IC - Ecologist (ecosystem services monitoring)	25,000	80,000	-	-	-	<b>105,000</b>	This IC - Ecologist will be specialized in ecosystem services monitoring and will work with a NC - ecologist to develop a diagnostic and indicators of ecosystem services affected by climate change, using methodologies such as the UNEP-WCMC toolkit.
NC - CC VA and disaster risk assessment specialist	15,000	-	-	-	-	<b>15,000</b>	This NC specialized in climate change vulnerability assessment will work with the NC - EbA trainer to train local authorities, committees and user groups on EbA approaches and climate change vulnerability assessment.

NC - EbA trainer	30,000	31,000	-	-	-	<b>61,000</b>	This NC will be working with the IC - EbA trainer to train VPO staff, national climate change steering committee and working group members on EbA approaches.
NC - Ecologist	25,000	70,000	-	-	-	<b>95,000</b>	This NC - Ecologist will work with an IC - ecologist to develop a diagnostic and indicators of ecosystem services affected by climate change, using methodologies such as the UNEP-WCMC toolkit.
NC - GIS specialist	-	30,000	-	-	-	<b>30,000</b>	This NC specialized in GIS will work with 2 ecologists to develop a map of drought, flood, pest and diseases risk zones and will incorporate the results in the KMS developed in Output 1.1
NC - Land use planning	-	31,000	-	-	-	<b>31,000</b>	This NC specialized in land use planning will develop in collaboration with the 2 EbA trainers from Activity 2.1.1, new, resilience and seasonality based land use and management plans, with communities.
NC - M&E specialist	12,000	12,000	12,000	12,000	12,000	<b>60,000</b>	A NC, expert in M&E will be responsible for annual participatory monitoring and evaluation of ecosystem services, project indicators and livelihoods in each selected community of the 6 districts.
NC - Policy and programme specialist	-	-	-	50,000	-	<b>50,000</b>	An expert in policy and programmes will be hired to develop an upscaling and sustainability strategy using lessons learned through the implementation of the project.

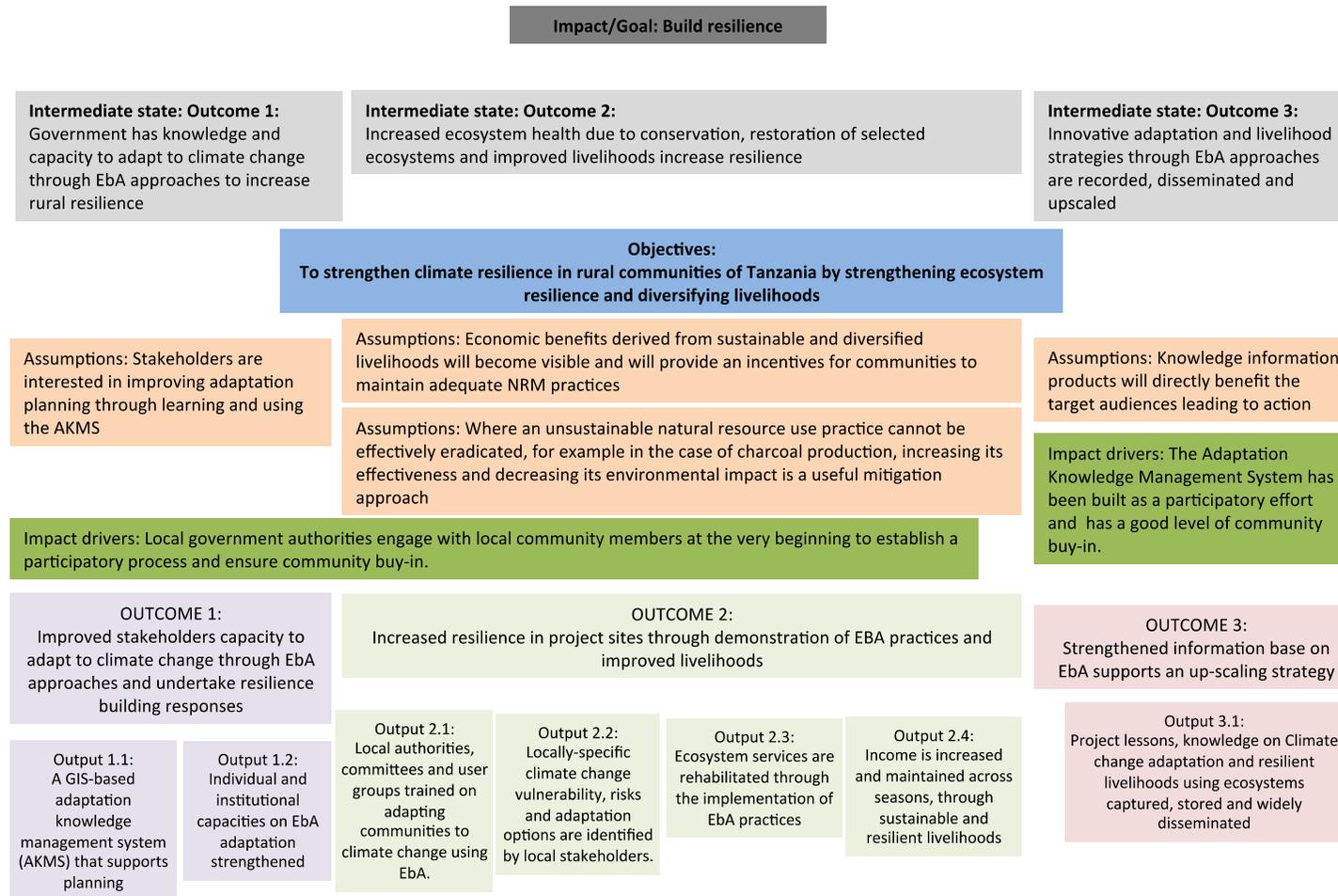
PM	30,000	30,000	30,000	30,000	30,000	<b>150,000</b>	The Project Manager will be recruited for the duration of the project. The Project Manager will undertake responsibilities associated with the execution of the project activities, which include: <ul style="list-style-type: none"> <li>• Organize project activities</li> <li>• Manage the work of the regional technicians, finance and administrative officer as well as other consultants and sub-contracted private firms and NGOs.</li> <li>• Monitor and report project performance and delivery to the Project Steering Committee, MALF VPO and UNEP</li> <li>• Facilitate collaborative and consultative processes to ensure participation by government stakeholders</li> <li>• Facilitate public awareness activities</li> <li>• Lead organizer of training workshops and meetings</li> <li>• Draft documents and reports for Project Steering Committee</li> <li>• Manage organizational and logistical issues related to project execution per UNEP guidelines and procedures</li> <li>• Keep records of project documents, including financial in accordance with audit requirements</li> <li>• Facilitate timely preparation and submission of financial reports and settlement of advances, including progress reports and other substantial reports</li> <li>• Identify and resolve logistical and organizational problems, under the guidance of the Project Steering Committee</li> </ul>
Sub-contract to private sector firm (Knowledge management system)	75,000	76,500	81,500	76,500	74,500	<b>384,000</b>	A private sector firm will be sub-contracted to design and develop the structure of the knowledge management system. The private sector firm will need a knowledge management specialist and a GIS/IT specialist to complete this activity.
Sub-contract to private firm (VA, Ecology and socio-economics specialists)	100,000	-	-	-	-	<b>100,000</b>	This participatory CCVA will be sub-contracted to a private firm and will be conducted in each of the 6 districts selected for the project. This private firm will need a vulnerability assessment expert, an ecologist and a socio-economic specialist in order to complete the participatory CCVA.
Sub-contract to private firm (to install fences: cost of labour)	-	-	85,000	-	-	<b>85,000</b>	The establishment of enclosure and no-take zones will with the consultation of local communities will be sub-contracted to a private sector firm, which will include labour costs of installing the fences.

Sub-contract to an NGO for rangeland rehabilitation	-	150,000	150,000	-	-	<b>300,000</b>	Rangeland rehabilitation will be sub-contracted to a local NGO (using methods such as aerial broadcasting). The NGO will be responsible for the costs of workshops in each community.
Sub-contract to an NGO for watershed rehabilitation	-	150,000	150,000	-	-	<b>300,000</b>	Watershed rehabilitation will be sub-contracted to a local NGO. The NGO will be responsible for the costs of workshops in each community.
Sub-contract to an NGO for riverbank rehabilitation	-	75,000	75,000	-	-	<b>150,000</b>	Riverbank rehabilitation and land reclamation will be sub-contracted to a local NGO. The NGO will be responsible for the costs of workshops in each community.
MoU with MALF	100,000	750,000	650,000	650,000	450,000	<b>2,600,000</b>	A MoU with the Ministry of Agriculture and Food Security will be established to implement CSA practices in each selected community of the 6 districts. MALF will be responsible for the procurement of a private firm providing the equipment for irrigation, water harvesting materials (seeds will be covered by the project).
Sub-contract to an NGO (specialised in renewable/sustainable energy and use of cooking stoves)	140,000	-	-	-	-	<b>140,000</b>	This activity will be sub-contracted to an NGO specialized in renewable/sustainable energy and improved cookstoves.
Sub-contract to an NGO (specialised in resilient livelihoods)	-	60,000	60,000	60,000	60,000	<b>240,000</b>	This activity will be sub-contracted to an NGO. Training will be provided to LGAs, extension services and key producer groups on resilient livelihoods in each selected community of the 6 districts.
Printing costs	-	10,000	-	-	-	<b>10,000</b>	Maps will be printed for each community to participate in the mapping exercise and once the maps are final to be able to consult them easily on paper.
Expandable seed material (rangeland rehabilitation)	-	150,000	150,000	-	-	<b>300,000</b>	Cost of seed material used for rangeland rehabilitation.
Expandable seed material (reforestation)	-	150,000	150,000	-	-	<b>300,000</b>	Cost of seed material used for reforestation using local species.
Expandable seed material (riverbank rehabilitation)	-	75,000	75,000	-	-	<b>150,000</b>	Cost of seed material used for riverbank rehabilitation.

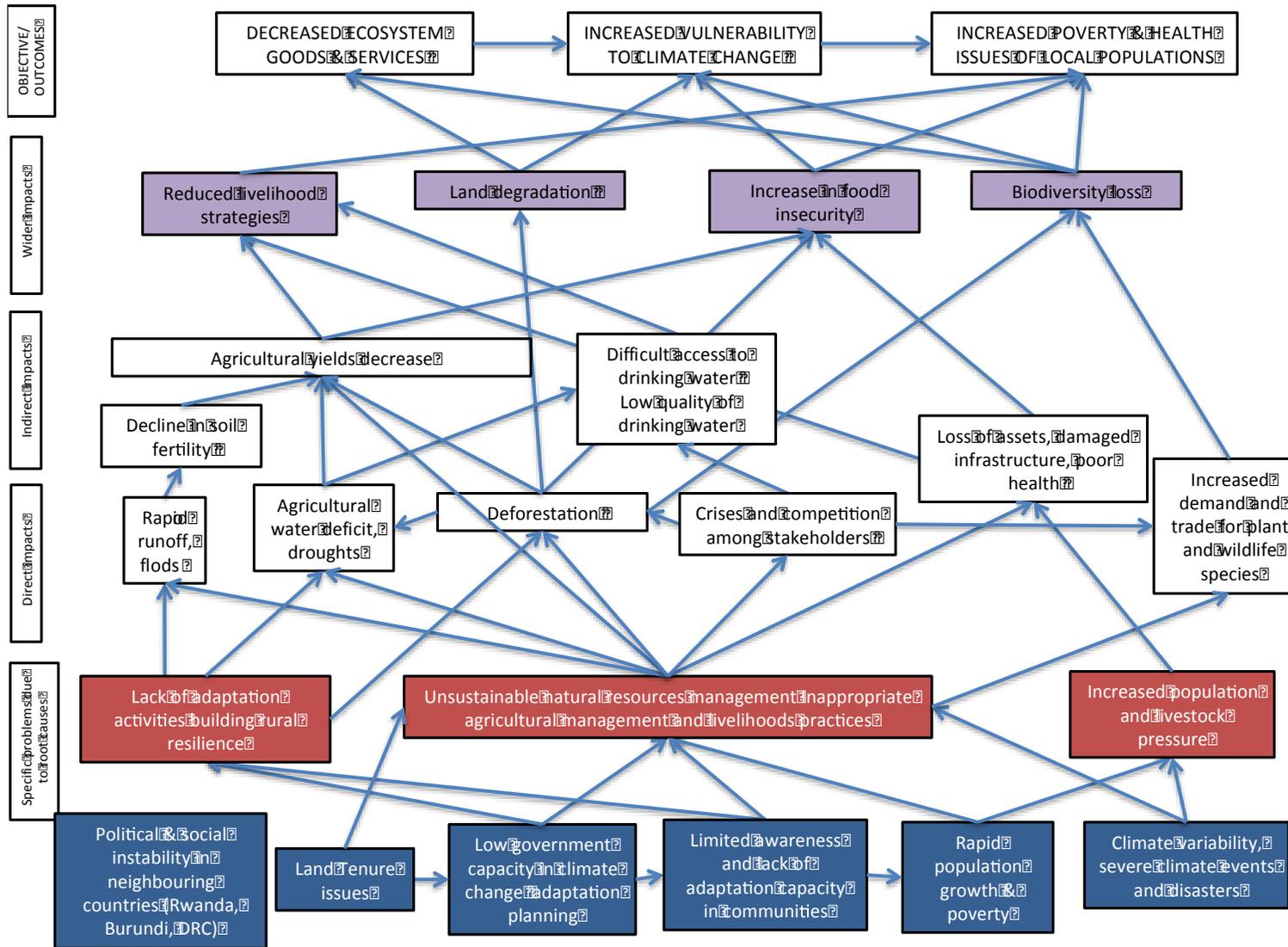
Printing costs	20,000	5,000	-	-	-	<b>25,000</b>	Cost for printing materials to facilitate the training.
SUB-TOTAL SUPPLIES, COMMODITIES, MATERIALS	<b>20,000</b>	<b>390,000</b>	<b>375,000</b>	-	-	<b>785,000</b>	0
<b>Equipment: servers, computers, software (fGIS)</b>	10,000	-	-	-	-	<b>10,000</b>	The equipment needed to design the basic structure of the KMS will include servers, softwares and computers.
Equipment (GPS, camera...)	5,000	-	-	-	-	<b>5,000</b>	Equipment such as GPS, cameras and software to process collected data will be needed to conduct the diagnostic and develop indicators of climate change affected ecosystem services.
Equipment (software...)	-	5,000	-	-	-	<b>5,000</b>	Equipment such as software (GIS) and computers will be needed to make the map and transfer all the results into the KMS.
Fencing material	-	-	200,000	-	-	<b>200,000</b>	Cost of fencing material.
Material and equipment (renewable energies)	100,000	100,000	-	-	-	<b>200,000</b>	Cost of improved cookstoves or materials to build improved cookstoves.
Vehicle	50,233	-	-	-	-	<b>50,233</b>	Cost of vehicles for regional technicians, project manager and project management team in general.
IC - baseline study	30,000	-	-	-	-	<b>30,000</b>	The baseline study will be part of Activity 2.2.4 which will be undertaken by hired consultants (ecologists and GIS) as well as the PMU.
<b>IC - MTR</b>	-	-	30,000	-	-	<b>30,000</b>	The mid-term evaluation and report will be conducted by an independent M&E firm/consultant.
IC - TE	-	-	-	-	30,000	<b>30,000</b>	The terminal evaluation and report will be conducted by an independent M&E firm/consultant.
Audit Firm	-	5,000	5,000	5,000	5,000	<b>20,000</b>	Financial auditing will take place annually and will be conducted by an independent private firm.

**APPENDIX 13: TRACKING TOOLS**  
(Attached)

## APPENDIX 14: THEORY OF CHANGE



Problem tree



## APPENDIX 15: CHECKLIST FOR SOCIAL AND ENVIRONMENTAL SAFEGUARDS

Note that as part of the GEFs evolving Fiduciary Standards, Implementing Agencies are required to address “Environmental and Social Safeguards”.

To address this requirement, UNEPF has developed a checklist and has supplied the following guidance:

1. The checklist must be filled in initially during concept development to help guide the identification of possible risks and activities that will need to be included in the project design.
2. A completed checklist must accompany the PIF.
3. The checklist must be reviewed during the PPG phase and updated as required.
4. The final checklist must be submitted with the Project Package and must clearly show which activities are being undertaken to address the issues identified

<b>Project Title:</b>	<i>Ecosystem-Based Adaptation for Rural Resilience in Tanzania</i>		
<b>GEF project ID and UNEP ID/IMIS Number:</b>	<b>GEF Agency Project ID:</b> 5695	<b>Version of checklist:</b>	<i>of 1</i>
<b>Project status (preparation, implementation, MTE/MTR, TE):</b>	<i>Preparation</i>	<b>Date of this version:</b>	<i>March 2016</i>
<b>Checklist prepared by (Name, Title, and Institution):</b>	<i>Joana Talafré (CEO and Principal Consultant) and Clara Champalle (Environmental Consultant), Okapi Environmental Consulting Inc.</i>		

### Section A: Project location:

If a negative impact is identified or anticipated, the Comment/explanation field needs to include: i) the stage of the proposed project in which the problem will be addressed; ii) who is responsible for addressing the issue; iii) budget implications of addressing the problem; and iv) other comments.

	<b>Yes/No/N.A.</b>	<b>Comment/explanation</b>
- Is the project area in or close to -		
- densely populated area	Yes	The goal of the project is to impact as many beneficiaries as possible, therefore it will be implemented in densely populated areas.
- cultural heritage site	No	
- protected area	No	
- wetland	No	
- mangrove	No	
- estuarine	No	
- buffer zone of protected area	No	
- special area for protection of biodiversity	No	
- Will project require temporary or permanent support facilities?	No	
If the project is anticipated to impact any of the above areas, an Environmental Survey will be needed to determine if the project is in conflict with the protection of the area or if it will cause significant disturbance to the area.		

### Section B: Environmental impacts

If a negative impact is identified or anticipated, the Comment/explanation field needs to include: i) the stage of the proposed project in which the problem will be addressed; ii) who is responsible for addressing the issue; iii) budget implications of addressing the problem; and iv) other comments.

	Yes/No/N.A.	Comment/explanation
- Are ecosystems related to project fragile or degraded?	Yes	The proposed project will restore – and build the resilience of – degraded ecosystems using an EbA approach during the implementation phase. Note that the land and watershed degradation and forest ecosystems where the project activities will be implemented is mainly human induced.
- Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	No	No infrastructure construction is planned.
- Will project cause impairment of ecological opportunities?	No	Ecological opportunities will be increased.
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	No	The resilience of local communities to floods will be increased.
- Will project cause air, soil or water pollution?	No	No pollution will be generated by the project activities.
- Will project cause soil erosion and siltation?	No	Soil stability and water infiltration will be enhanced by planting trees in the project areas, thereby reducing erosion and sedimentation.
- Will project cause increased waste production?	No	No increase in waste production will result.
- Will project cause hazardous waste production?	No	No hazardous waste will be generated.
- Will project cause threat to local ecosystems due to invasive species?	No	The project will promote planting indigenous and resilient tree species instead of exotic tree species.
- Will project cause greenhouse gas emissions?	No	Project activities are likely to result in the sequestration of carbon in soils and plant biomass. This will be achieved by replanting both forests and multiple other tree species (e.g. by implementing agroforestry techniques).
- Other environmental issues, e.g. noise and traffic	No	
Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily, both in the short and long-term, can the project go ahead.		

### Section C: Social impacts

If a negative impact is identified or anticipated, the Comment/explanation field needs to include: i) the stage of the proposed project in which the problem will be addressed; ii) who is responsible for addressing the issue; iii) budget implications of addressing the problem; and iv) other comments.

	Yes/No/N.A.	Comment/explanation
- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness	Yes	All project interventions were developed in accordance with internationally proclaimed human rights and UN guidelines. In addition,

and rights of indigenous people?		all activities were developed in consultation with stakeholders. Consequently, no rights or laws will be infringed upon by the proposed activities.
- Are property rights on resources such as land tenure recognized by the existing laws in affected countries?	Yes	The project interventions will not cause conflicts related to land tenure or impact land tenure in any other way.
- Will the project cause social problems and conflicts related to land tenure and access to resources?	No	
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	Yes	The proposed project will reduce the vulnerability of stakeholders by providing information on climate risks and opportunities and ensuring feedback on the application of such information. Additionally, on-the-ground activities will be community based.
- Will the project affect the state of the targeted country's institutional context?	Yes	The proposed project will strengthen institutional capacity in Tanzania to adapt to climate change using EbA. National and local authorities will be trained in the implementation of EbA. Additionally, knowledge sharing will be promoted through meetings, creation of an adaptation knowledge based system and the establishment of a cross-sectoral platform and trainings.
- Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries))?	No	The proposed project is designed to enhance ecosystem services and access to resources. This includes reduced flooding and sedimentation at intervention sites as a result of the project activities.
- Will the project cause technology or land use modification that may change present social and economic activities?	Yes	The proposed project will increase the efficiency of current land use systems to enhance the social and economic benefits of these systems. While the establishment of community conservation zones may lead to the exclusion of certain types of land use, the project intends to replace or provide sustainable alternatives to unsustainable land uses, and to ensure that all families have resilient livelihoods.
- Will the project cause dislocation or involuntary resettlement of people?	No	The proposed project will restore degraded ecosystems in selected sites. It will not cause any population dislocation or involuntary settlements.
- Will the project cause uncontrolled immigration (short- and long-term) with opening of roads to areas and possible overloading of social infrastructure?	No	No infrastructure works are planned.
- Will the project cause increased local or regional unemployment?	No	On the contrary, the project should improve the livelihoods of the local communities as well as their resilience to the effects of climate change.

- Does the project include measures to avoid forced or child labour?	Yes	The proposed project conforms to all national and international guidelines and laws regarding forced labour. Extensive community engagement will prevent the use of forced labour. In addition, all required labour – which will consist only of short-term employment for meeting specific objectives – will be provided through community engagement and will be remunerated in accordance with national law.
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	Yes	Satisfactory offices with proper workstations and equipment, fair salaries, and adequate staff to ensure management of project without overburdening staff are part of the project design
- Will the project cause impairment of recreational opportunities?	No	
- Will the project cause impairment of indigenous people's livelihoods or belief systems?	No	
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	No	The proposed project will help reduce the exposure of climate-vulnerable groups including women, children and farmers. Gender equity will also be promoted in each activity
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	No	No cultural heritage will be damaged by project operations.
- Does the project include measures to avoid corruption?	Yes	As per UNEP norms and standards
Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily, both in the short and long-term, can the project go ahead.		

#### Section D: Other considerations

If a negative impact is identified or anticipated, the Comment/explanation field needs to include: i) the stage of the proposed project in which the problem will be addressed; ii) who is responsible for addressing the issue; iii) budget implications of addressing the problem; and iv) other comments.

	Yes/No/N.A.	Comment/explanation
- Does national regulation in affected country require EIA and/or ESIA for this type of activity?	No	
- Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country?	No	
- Is the project addressing issues, which are already addressed by other alternative approaches and projects?	No	
- Will the project components generate or contribute to cumulative or long-term	Yes	The proposed project will enhance climate resilience of ecosystems and local

environmental or social impacts?		communities. No negative impacts are anticipated and positive impacts will accrue.
- Is it possible to isolate the impact from this project to monitor E&S impact?	Yes	The project SMART indicators are designed to measure the impacts of the project and will help monitor E&S impacts.
Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily, both in the short and long-term, can the project go ahead.		

# Inception Mission Report

## Ecosystem-based adaptation for rural resilience Tanzania



August 2015

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## 1. Project background

The Inception mission for the Ecosystem-Based Adaptation for Rural Resilience took place from 2<sup>nd</sup> to 14<sup>th</sup> August, 2015. The project concept (PIF) was approved by the GEF Council in July 2014. The project preparation phase (PPP) was initiated in April 2015.

The project objective is *to strengthen climate resilience in rural communities of Tanzania by building adaptive capacities to implement EbA approaches and diversifying livelihoods*. The project is structured to be implemented through the following outcomes and outputs:

Component	Outcome	Outputs
1. Capacity to adapt to climate change.	1. Improved stakeholders' capacity to adapt to climate change impacts and undertake resilience building responses.	1.1 A multi-disciplinary national committee established that facilitates cross cutting national dialogue on climate change adaptation in vulnerable sectors.
		1.2 Local authorities, committees and user groups trained on supporting adapting communities to climate change.
		1.3: A stocktaking exercise undertaken and revisions of existing climate change policies and strategies produced to identify entry points for climate change adaptation.
		1.4 Policy briefs and technical guidelines developed and distributed for policy – and decision makers on increasing the resilience of local community livelihoods to climate change using appropriate ecosystem based adaptation and knowledge gained from demonstration activities in Component 2.

2. EbA for rural resilience	2.Reduced vulnerability in four vulnerable rural districts of the central Plateaux and Zanzibar through demonstration of EBA practices	2.1: Locally-specific climate change vulnerability and risks for are identified and adaptations options are identified by local stakeholders.
		2.2: EBA practices (ecosystem rehabilitation, resilient livelihoods, sustainable management and conservation of natural resources ) and climate resilient alternative livelihoods implemented in project districts
3. Knowledge management on climate change adaptation and upscaling	Strengthened information base, upscaling and knowledge on Climate change adaptation are readily available for various uses.	3.1 Project lessons, knowledge on Climate change adaptation and resilient livelihoods using ecosystems captured, stored and widely disseminated among stakeholders at all levels.
		3.2: An upscaling strategy developed based on lessons learned and best practices gained through project implementation.
		3.3. Project dedicated web-site established and linked to national, regional and global networks

## 2. Project Preparation Phase (PPP)

The Inception mission was conducted by Okapi consulting, supported and coordinated by Tanzania’s Vice President’s Office (VPO) and overseen by UNEP Task manager Lars Christiansen. The team leader, Ms. Joana Talafre, was represented by Ms. Susanna Pykälä during the Inception mission.

The team from the Vice President’s Office; Mr. Daniel Nkondola and Dr. Shayo facilitated all the consultations, site visits and the Inception workshop. The mission was supported by VPO staffs.

The purpose of the inception mission was to:

- Launch the Inception Workshop and the PPG process
- Share the parameters of the project with key stakeholders
- Visit project sites, stakeholder groups, and proposed beneficiaries to identify key issues
- Obtain an improved understanding of the baseline
- Begin the articulation of project activities
- Build linkages, identify synergies with ongoing and ‘pipeline’ projects and programming

## 3. Summary of national level consultations

Consultations were held with a variety of stakeholders and potential beneficiaries both on national and local level. Prior the start of the consultations a Project formulation briefing note was sent to all participating stakeholders (see: Annex 2).

The national level consultations included government Ministries, Departments and Agencies (MDAs), UN Agencies, and multilateral partners (see below).

**August 4, 2015**

**Meeting with Ministry of Agriculture, Food Security and Cooperatives (MAFC), Mama Natai, Head of Environment Unit**

**Key points:**

- The National Climate Change Strategy mandates all the vulnerable sectors to develop an action plan. Hence, Agricultural Climate Resilience Plan (ACRP) 2014 - .2019 was developed by MAFC
- The ACRP presents a wide range of adaptation options including but not limited to improving agricultural land and water management; accelerating uptake of Climate Smart Agriculture; reducing impacts of climate-related shocks through risk management; and strengthening knowledge and systems to target climate action.
- The follow-up action was to develop Tanzania Climate Smart Agriculture (CSA) programme 2015-2025 which is coordinated by MAFC and VPO. It is a sub-programme of ASDP II and it includes six programmatic or results areas;
  - Improved productivity and nutrition
  - Irrigation and water management
  - Improved food storage and distribution
  - Research for development and innovations
  - CSA Knowledge, Extension and Agro-weather Services
  - Improved Institutional Coordination
- Each CSA result area includes several outcomes and outputs with identified actions. The CSA has been prepared in participatory fashion with input from other Ministries and it includes livestock keeping and fisheries.
- Currently MAFC is developing guidelines for CSA
- The CSA programme has not yet received any direct funding but it is a component of ASDP II, which has confirmed financing from World Bank (see meeting WB). The first phase the ASDP II will be concentrating on improving irrigation infrastructure which could be directly contributing to the CSA result area: Irrigation and water management as well as the proposed EbA programme
- Recent studies indicate that there are in fact 64 agro-ecological zones, also 16 different livelihood zones have been identified, vulnerability assessment for crop sector is in place including cost-benefit analysis
- More future focused research needed as the agro-ecological regions have already shifted
- Further gaps included the lack of integration of climate change into current curricula of the zonal training centers which train the extension service officers. It was also noted that no independent course for climate change is in place which could be offered to current extension service officers.

**Follow-up required:**

- We need to obtain the map of the 64 agro-ecological zones and their descriptions
- We need to obtain the vulnerability assessment for agricultural sector
- More detailed data on training needs on local level need to be obtained

**Meeting with Ministry of Livestock, Mr.N.N.**

**Key points:**

- The livestock sector has participated in the preparation of CSA but ‘smart livestock’ is needed

- National Policy (2006) does not encourage pastoral livestock keeping and balancing livestock keeping with available land is challenging at its best as 98% of livestock keeper are pastoralists.
- Drought is a major problem for livestock keeping. The Ministry has encouraged building water infrastructure for the livestock and gazetted areas for grazing.
- Out of the 60 million hectares that are suitable for grazing approximately 40% can be used (other infested by tse tse fly) but only 1,9 million hectares have been gazetted for livestock keeping. The uptake of land use planning by districts has been slow
- Gazetting areas for grazing has reduced land use conflicts
- One suggested solution was that LGAs should allocate funds through DAADS to priority projects, particularly to development of livestock infrastructure
- Another identified gap is a Livestock EWS
- Improved breeds, zero-grazing should be encouraged particularly in dry-areas
- Construction of boreholes is preferable to dams, better performance.

**Follow-up required:**

- More detailed information is needed regarding the water availability (IWRM assessments). Further investigation is needed regarding the challenges for the ground water usage identified by MoW (see MoW meeting notes below) especially in the hot spot areas as groundwater usage seems to be the preferred solution for livestock sector
- Also link up with Care and OXFAM to learn best practices working with pastoralists
- The PPG process could perhaps facilitate linkages with ongoing EWS programme to investigate possibilities to establish a livestock EWS

**Meeting with Ministry of Water, Mr, Hamza Sadiki, Director of Water Resources**

**Key points:**

- Second phase of the Water Sector Development Plan (WSDP II) started in July 2014 without any donor funds. Currently negotiations are under way with World Bank (60million USD for 5 years) regarding water resources management (Component1 in WSDP)
- Integrated Water Resource Management Plans (IWRM). Resource assessments have been completed in all the water basins and (IWRM) plans are in place or are being finalized. Each basin has started work on Strategic social and environmental assessments (SESA).
- 93 water users association has so far been registered with a mandate for issuing water use permits. Response to water use permits has been good. However, uncoordinated groundwater usage is a real issue. 3 hotspots have been identified: Wami-Ruvu basin, Dar es Salaam, Arusha.
- Current needs include physical interventions on the ground (for example rain water harvesting, Chaco dams etc.).

**Follow-up required:**

- We need to obtain the relevant assessments (water demand and supply, environmental flows etc.) and plans for each basin that the pilot sites are located in

- Mapping of the relevant water sector stakeholders working in same sub-catchments/basin as coordination is needed to ensure that there is no duplication of efforts

### **Meeting with Tanzania Meteorological Agency (TMA), Mr. Hamza Kabelwa, Director of Forecasting services**

#### **Key points:**

- TMA has several ongoing programmes and initiatives that can directly contribute the proposed project. Particularly interesting are the activities supporting of downscaling climate change scenarios:
  - Regional climate change modelling, increasing the resolution
  - Rescue of data archives supported by UK Met, DFID
  - Longer term modelling
- Other activities include improvements to the observation network expected to lead into more accurate forecasting on different temporal scales (now, seasonal), drafting of standard operating procedures (SOPs) for users of data particularly MoW, MAFC and other government entities

#### **Follow-up required:**

- We need to obtain the downscaled climate change predictions once available which are expected to be finalized before the implementation of the proposed project starts
- Investigate further the potential contributions/collaboration with the Global Framework for Climate Change Services, and the Climate Information and Early warning systems programmes. Areas of interest would be seasonal forecasts, EWS for droughts, floods, agriculture, livestock and PMOLG's role if any.

### **August 5, 2015**

### **Meeting with World Food Programme (WFP), Mr. Juvenal Kisanga, Senior Programme Officer**

#### **Key points:**

- Key concern for WFP is food security which is hampered mainly by droughts and floods in the country. The baseline vulnerability assessment was done in 2010
- Shift in the approach from response to reducing food insecurity; food for work, food for assets, access to markets and financing
- Major issue is agro-pastoral seasonality. Managing adaptation on 3-4 month scale when the land use plans do not accommodate seasonality. Background studies regarding issues relating to seasonality were completed in last part of 2014
- Current projects relevant to the proposed project include Global Framework for Climate Services working in Kondoa.
- Recommended action for the proposed project is mapping of stakeholders and lesson learned in district level (list of partners, multisectoral approach, including CSOs, NGOs, complementing activities)

#### **Follow-up required:**

- We need to obtain the vulnerability assessment (2010) and the background studies to agro-pastoral seasonality

- Coordination needed in regard to GFCS activities in the same districts as the proposed project will be working.

**Meeting with UNDP, Mrs. Gertrude Lyatuu, GEF Focal point and Mr. Abbas Kitogo, Energy and Climate change, Practise Specialist**

**Key points:**

- Undp has developed a PIF (GEF 6) with a working title: Ecosystems, Biodiversity protection in the face of climate change in Zanzibar. It's a 5 year project with expected GEF financing in the region of 8 million dollars. The PPG phase is expected to soon. The process for the PIF development was very thorough and includes similar activities as the proposed EbA project.
- Wami-Ziggi watershed GEF project is in the Inception phase and it was recommended that watershed project and the proposed EbA project should work together when possible. Msitu wa Tembo was the area mentioned that the two project could possibly complement each other.
- Best practises have been documented on landscape level planning in particularly relating to sustainable land management that the proposed project could build upon. Lessons learned and MTE for the SLM Kilimanjaro project are available.
- Adaptation awareness raising, training and lessons learned have been produced by Poverty Environment 1 & 2, Mainstreaming Climate change in national plans projects. It was noted that Blandina Cheche, NEMC would have the information readily available in which districts the trainings have taken place.

**Follow-up required:**

- We need to obtain the PIF for Zanzibar to ensure that the EbA project can feed into this one. It must be noted that the GEF6 funds for Tanzania are 29 million USD and it is uncertain whether 8 million USD would be allocated to Zanzibar only. We need to ascertain if this project is going ahead (it doesn't appear on the GEF website).
- We need to obtain the lesson learned and best practises produced by the SLM Kilimanjaro project and the mid-term evaluation
- We need to obtain the list of Districts that mainstreaming environment and climate change into local plans trainings have taken place. Also, any lesson learned that the EbA project can build upon.

**August 14, 2015**

**Meeting with UNEP Representative, Mrs. Clara Makenya**

**Key points:**

- Clara had kindly provided her inputs in writing prior to the meeting suggesting to pick lessons learned from the Coastal Adaptation project, but to also ensure there is no overlap.
- Recommendations included to investigate if in the knowledge sharing component could include the major differences in addressing the climate change vulnerability in different geographical zones (inputs from the Coastal Adaptation project)
- During the meeting it was also noted that some vulnerability assessment are in place and can be shared.

- Given the strides Tanzania has made on policy, strategy etc., documents it was further highlighted to build upon the achievements made but to really concentrate on the livelihoods- especially diversification of livelihoods.

**Follow-up required:**

- Ensure that PPG process has all the vulnerability assessments available
- Ensure that there is no duplication of efforts

**Meeting with DFID, Mr. Abdullah Shah, Climate change Advisor**

**Key points:**

- DFID Tanzania has received 300 million pounds funding ICF for climate change 2015-2020
- A few programmes are currently ongoing that could contribute directly to EbA for rural resilience namely:
  - Aim for resilience programme (33 million for 5 years) which is mainly an Institution and capacity building programme and part of DFID's private sector development portfolio. It includes greening and mainstreaming climate change support to SMEs and specifically solar energy.
  - As part of their private sector development DFID also supporting micro financing through BRAC
  - Urban resilience programme is currently being finalized and can be shared only at a later point. The programme includes a water component that could be relevant to EbA.
  - DFID is also funding Climate smart agriculture for Southern and Eastern Africa which is being developed by UNDP, Adam Smith in South Africa

**Follow-up required:**

- Same of the ongoing programmes are working in the same areas and it was agreed to keep updating each other as the programmes develop.
- It was noted that in the area of livelihoods there are ample opportunities for collaboration. We should ensure that the linkages to the ongoing programmes are made.

**August 17, 2015**

**Meeting with World Bank, Mrs. Jane Kibassa, Head of Environment**

**Key points:**

- The support for ASDP (220 million USD) has been confirmed but negotiations with the government are ongoing regarding the Bank's social and environmental safeguards which include Indigenous people. However, the Tanzanian government is of the opinion that there is no such thing as indigenous people in Tanzania as all people in Tanzania are indigenous. The safe guard issue is expected to be resolved shortly to allow the start of implementation of the ASDP II
- 58 districts have been selected to be part of the first phase of ASDP II focusing on irrigation schemes contributing directly to the EbA project. For example the ASDP II will be supporting irrigation schemes in Morogoro. As part of the irrigation schemes planning more detailed environmental flow assessment will be produced that could also directly contribute to EbA programme.

- It is envisioned that there will be another phase for ASDP II with follow-up projects
- The Bank's climate change resilience project for natural resources growth in taking place in Southern Tanzania but perhaps there are some lessons to be learned that can be shared
- The Urban resilience programme formulation has produced several climate change studies that the EbA formulation project could benefit from
- The relevant programmes for the EbA would be ASDP II and the WSDP II with potential opportunity for the Bank to sign the co-financing letters

#### **Follow-up required:**

- We need to ensure that the connection to the team leaders of ASDP II and WSDP II are made
- We need obtain the ASDP and WSDP documents when available
- Urban resilience studies to be obtained from Amy Faust, WB

#### **4. Inception Workshop**

The Inception workshop was held 6<sup>th</sup> August, 2015 in Morogoro, at the Edema Hotel. Participants included a good cross section of government entities both national and local level.

After welcoming remarks of the guest of honour Permanent Secretary Mr. Sazi Salula and Dr. J.K. Ningu, Director of Environment, Vice President's Office (VPO), the National implementation strategies and priorities were presented by Mr. Muyungi, Assistant Director of Environment, VPO. Mr. Nkondola, VPO presented; On-going projects and programs –opportunities for synergies, coordination and co-financing. Susanna Pykala, Okapi Consulting, introduced the project concept: over all approach and results framework, components and preparation phase. All presentations can be found in the Annexes.

Overall, the project was well received at the Inception Workshop. There were some excellent recommendations and a few concerns that were expressed to take into consideration in the formulation/development of the activities.

- The Inception workshop participants recommended that PMORLG, Ministry of community development and appropriate MDAs From Zanzibar should be included as executing partners of the project
- It was also recommended that government structures and mandates should be clearly understood , articulated and that the project design should reflect those in terms of implementation arrangements
- The Inception workshop participants highlighted the need for coordination in order to avoid duplication of efforts, ensuring that the project builds up on current achievements and lessons learned and recommended mapping exercise
- It was noted that there are lessons learned on landscape level planning but EbA approaches have not been previously been applied which should be taken into consideration while assessing training needs
- It was also noted that particularly for Component 1 many of the proposed output and activities have been achieved or were currently ongoing.

More specific recommendations on improvement of the outputs in the PIF and the activity budgets were formulated during the afternoon group work session. The Inception workshop participants were divided in to 3 groups, each assessing one component. The results of the group works can be found in Annex 5.

## 5. Summary of local level consultations

### **Methodology and selection criteria of local consultations**

During the PIF process vulnerable districts were identified and survey questionnaire were sent to each district requesting among other thing them to identify 2-3 most vulnerable communities in the district. Due to time constrains 3 districts out of the six proposed districts, and Zanzibar, were selected for consultation during the Inception Mission. In each district the local authorities identified one of the 3 proposed communities to visit. Prior to the community visit the district authorities, organising the visits, had been briefed that it would be desirable to have a good representation of vulnerable and potential beneficiary groups present namely:

- Women headed households
- People with disabilities or chronic disease
- Indigenous people
- Farmers, pastoralists
- Members of Village natural resources committee, members of water user association
- Youth

It must be noted that due to time constrains, Nane nane celebrations and other obstacles the community consultations did not include participants from the most vulnerable groups.

Some of the communities visited were 2-3 hours drive away from the District Head Quarters and with additional time constraints it was decided to concentrate on two questions:

- What are the current issues in the community?
- What ideas/suggestion for improvement the community members have?

This was done in order to assess if the spontaneous received responses would fall under the scope of project. In case the most pressing challenges were something other than the project can address, communities were prompted to discuss items relating to environment. The second question was designed to gain some insight into conflicting interests of different groups and to assess the level of adaptation knowledge. Particular attention was paid to ensure that women's voices were also heard.

**August 7, 2015**

**Meeting with Wami-Ruvu Water Basin, MRS. N.N. Water Basin Officer**

**Key points:**

- The Wami-Ruvu basin consists of four catchment areas and all of the assessments for IWRM have been completed including environmental flows. The IWRM has following programme areas:
  - Conservation of rivers and water sources
  - Control of pollution
  - Guide user to use water sustainably
- Current challenges:
  - Activities need to be integrated with other sectors
  - In Kondoa, water users association is the first priority
  - Mvomero:
    - Not all irrigators have permits
    - Lots of siltation as result of illegal mining upstream
    - River gauges in place, water users association taking readings daily, reporting monthly (pilot initiative), challenge for monitoring is silting/river shifting, gauges can be out of order at 3-4 month at the time

- Communities need to understand what is the water users association, its role and that it can solve conflicts
- Water users associations need to be capacitated
- Water use management plan needs to be developed
- Alternative livelihoods should be introduced for example bee keeping, fish farming
- Wetland area, pasture, no way of getting water for the livestock other than the river (no infra for livestock in place)
- Good infrastructure for irrigation needed
- River bank protection, vegetation cover needed (upstream), damming, water brakes needed

**Follow-up required:**

- Soft or hard copies were received of IWRM assessments and plans. However, we need to ensure that we have all the relevant documents and plans for WSDP II

**Meeting with Mvomero District Officers**

**Key points:**

- Most pressing issues:
  - Drought, floods, deforestation in Kiteto
  - Land use conflicts
- Projects/programmes ongoing or completed or NGO/CBO working in the district:
  - I Wash, Care, NAFARA, TTAP, CUSO (Assessment for water distribution)
  - Mazobora, training on nutrition for women
- Several suggestions for improvement was made:
  - To enhance and enforce by-laws, limit the number of livestock according the availability of the land
  - Support Vikoba (village community bank) as they are widely accepted in the communities
  - Upscaling of irrigation scheme for rice
  - Introduce fish farming
  - Construct Chaco dam, introduce improved breeds (Melela, Doma)
  - Introduce improved farming practices as over soughing is common practise in all 3 wards

**Follow up required:**

- We need to obtain following documents:
  - VCA and preparedness plan from PMO-DMD, district doesn't have
  - Research on impact of CC
  - Flood and drought reports
  - Data on crop the change from 20 bags to 8 bag per hectare
  - TTAP project, drip irrigation, construction of irrigation infrastructure
  - CUSO assessment for the water distribution system
  - Feasibility study for irrigation

**Community consultation in Lukenge Village, more than 20 people in attendance**

- The main issue in the community is water, too little or too much and the wrong places
- The river has shifted, water intake has been build by some previous project but there is no distribution system in place.
- Due to drought maize harvest has dropped from 20 bags/ha to 8 bags/ha, also soil has become compacted due to over grazing
- Floods have resulted in food insecurity, children chased out of school for not paying the fees
- Access to potable domestic water is an issue as water point 3-4km away from the village
- Loss of vegetation due to cows from other villages grazing in the area
- Not enough land has been allocated to sugar cane farming and livestock grazing
- Invaders/newcomers in the area has resulted in conflicts
- Participatory land use plan in place, gazetted areas for example for pasture. However, due to population and livestock growth the land use plan is not functional/not followed
- Pollution in the river, diarrhoea
- The water from the river is used for domestic purposes, livestock

Suggestions for priority actions:

- First priority irrigation system for rice, water supply, domestic water

**August 8, 2015**

**Meeting with Mpwapwa District Officers**

**Key points:**

- In all the villages and sub-villages the availability of water is an issue, distribution (amount, timing, area)
- Chronic food insecurity affecting particularly pregnant, lactating women and children, district receives food assistance on a regular basis
- Some farmers have shifted from sorghum and millet to maize farming
- Mosaic disease is a serious issue for cassava farming,
- Availability of pasture and water
- Water table is low in the area, evaporation has increased, seasonal rivers
- Hydropower plan in the area, part of Rufiji basin
- Deforestation upstream, agricultural land charcoal making
- Most of the extension services officers were first employed in 2014
- Area has hard pan but council has financed purchase of power tillers, credit/loan scheme
- Livestock diseases, pasture, water are the big problems

Suggestions for priority actions:

- Improve the water distribution systems, 2-3 new water distribution points (estimated costs (300 million TSh)
- Introduce improved seeds and breeds
- Water harvesting and contours, irrigation schemes
- Introduce grape farming
- Utilize ecocenters as information point for adaptation
- Cattle troughs

- More power tillers needed, community members are ready to buy the provided suitable credit/loan scheme
- Timely access to seasonal forecast (currently received but very late)
- Construction of Dip tanks, and chaco dams for livestock
- Reforestation activities
- Introduction of Fish farming activities

### **Community consultation in Kazania – 21 people present**

#### **Key points:**

- Water major issue, the village is unable to retain health workers and teachers due to lack of water
- Education and health also major issues
- Closest water distribution point is a borehole 4km away from the village
- Pest for the crop and chickens
- Destructive birds also is a problem
- Manure cannot be used as fertilizer as it has termite in in
- The child participant: ‘ no book, no food at school, no food at home and thirsty’
- Food insecurity, school food programme had ended

#### Suggestion for improvement:

- If the water issues are resolved, all other issues get fixed as well. The project should consider the water distribution from the existing borehole.
- There is demand for biogas (missionaries in next village have it), there is someone that know how to build biogas digesters, but water would be needed
- Improved sunflower seeds (Drought tolerant)

### **Meeting with Simanjiro District Officers**

#### **Key points:**

- Naberra, Msitu wa Tembo, Oljoro No:5 are vulnerable to drought and erosion is major problem
- The issues of sustainability was raised: some previous project had achieved great results but there was no money for up-scaling
- Also improving things in one village shifts the problems elsewhere, improved environment attract new people to the area creating new problems
- Soil erosion is serious issues, also floods particularly in Msitu wa Tembo, lots of waterborne disease
- Mining and charcoal making were identified as contributing factors
- Invasive species in pasture lands
- Charcoal making is illegal in the district (By-law 2004), 70% people of fire wood
- Village community banks are popular, especially with women groups
- Trees and vegetation gone, lots of run offs, riverbanks are in need of rehabilitation

Msitu wa Tembo

- Water availability and quality is an issue, the spring water include fluoride, lot of microbes in the river water, the quality of water in the borehole is good, but distribution lacking
- Floods
- Food insecurity
- Water user association has been trained by LAPM project (land management project)
- Land use plan in place but is not sustainable due to increase in population and livestock
- During dry periods conflicts
- Soil erosion (Gullies) is a big problem

#### Oljoro No: 5

- Only agriculture, no livestock
- Bare land, gully erosion, small springs
- Chronic food insecurity, short term and long term agricultural solutions needed
- Soil conservation, agroforestry, reforestation needed

#### Suggestions:

- Alternative livelihoods,
- Training for the livestock keepers
- Oljoro No:5 needs alternative crops, sorghum did well there
- Potential for beekeeping in Naberra
- Establishment of nursery (trees)

#### **Community consultation in Msitu wa Tembo – 18 people present**

- Water quantity has reduced while population has increased
- Other source of water needed as the one borehole is not enough, also during rainy season the distribution system is effected
- Gully erosion serious issues , not possible to visit the neighbour due to gully erosion
- Floods, worried about houses washed away when it rains
- Crop yields have decreased from 10kg to 3kg per hectare leading to food insecurity
- On the other side of the river irrigation schemes are in place and the yields are much higher but the land is hired at a rate of Tsh. 150,000/= per hectare
- Health is an issues only one dispensary for 4 villages, waterborne diseases, typhoid UTI?
- Overgrazing, the cow need to be taken elsewhere
- Availability of land to be rented is an issues for Masai women

#### Suggestions:

- Address the water issues, distribution, gully erosion as well
- Support the community bank (small businesses, agricultural inputs)
- May be provide husbands awareness raising that children can enrol in secondary schools (Masai women),

## **Meeting with First Vice President's Office and sectoral participants, Zanzibar**

### **Key points:**

- Climate change impact report, Economics of Climate change, Biomass mapping, assessment of water supply and demand, other studies done
- Climate change strategy in place
- Costing of the CC strategy is still ongoing
- 148 areas suffering from saltwater intrusion, coastal erosion, coral reef bleaching, increased water temperature, exploitation of fish, composition of fish species changing
- Fisheries have a sectoral action plan
- Pest control for agriculture is a serious problem, new pests.
- Pest control for livestock keeping is also challenging with the new pests
- Big shift in the production patters. Few years ago 80% fruits and vegetables were imported in mainland. Now fruits, watermelons, tomatoes and other fruit and vegetables are cultivated in Znz (more water intensive crops)
- Znz staple food is rice. If no rice available, it means no food available regardless what other food stuffs are available like the surplus of cassava that they have had.

### **Community consultation Kijini – 7 people\* in attendance**

*(\*all council members and men)*

- Domestic water is a major issues in the area, the water pumps and tanks are far from the village. They have no pump but there is one gravity pipeline, currently broken.
- Rain is not enough for agricultural purposes
- The water level in the beach area has reduced substantially. The area used to be a nursery for fish, now there is too little water and it's too hot.
- Livestock has no pasture
- There used to be a windmill (Nemba Hotel project) 8-10 years ago, currently the wind mill is not working. The windmill could be used for pumping water.
- During the dry season there salt in the water
- Every school has a water tank, some are functional some not
- Some areas has been set aside and cleared for the women to practise horticulture
- Women engage in handicraft but they don't have access to markets

### **Suggestions:**

- Improve the water situation, domestic and irrigation
- Fruit trees as alternative livelihood

## **6. Key Findings and Follow--- Up**

From the national level consultations and Inception workshop, it became apparent that Tanzania has advanced rapidly and many of the outputs in the PIF particularly in Component 1 and 3 have already been achieved or are currently ongoing. Therefore, some of the outputs in Component 1 and 3 are in need of redesign. During the consultations some additional gaps were identified that could directly, if filled, contribute to the programme outcomes 1 and 3. The Inception Workshop also provided some useful suggestions towards this end.

All the stakeholders emphasised the need to see results being achieved on the ground. National ownership, the need for coordination and particularly mapping of current achievements to build upon and ‘not to invent the wheel again’ was very much in the center of attention. Therefore perhaps it might be an idea to investigate what could be done to improve the coordination on one hand on national level and also on local level.

This could perhaps be achieved during the PPG phase as a survey by utilizing freely available GIS based online tools producing easy to use maps for planning and coordination purposes which could then be embedded to VPO’s climate change website once online. The different vulnerability assessment could also be later incorporated to the same data set making into a practical tool for planning and coordination for all stakeholders (national, local, NOGs, CBOs etc.)

During the inception mission the vastness of Tanzania became apparent and the currently identified pilot sites are geographically very far apart. In terms of low overhead cost, practical action, sustainable results the geographical scope might need to be reconsidered. Perhaps select fewer districts but more wards in each to increase efficiency. In order to identify the most vulnerable areas a sub-set of selection criteria should be developed.

The observed shifts in rain patterns, agro-ecological zones, and livelihood strategies (for example Masai engaging in agriculture), the limited climate change data (Interpolated from regional data) or actually the resolution of the data in practice means that the measuring points are so far apart that its currently impossible to accurately predict what might be happening in between the measuring points. For example there is data available for Dar es Salaam and for Morogoro but no measuring points in between i.e. the distance of the two places is more than 200km and there is no verifiable data to predict what is happening in between these two measuring points. This requires rather robust project design and systemic approaches to climate change and as the situation is rapidly changing. Therefore, perhaps the project design should place bit more emphasis on increasing adaptive capacities on all levels.

In some of the proposed pilot areas the increase in the population (both population growth and migration) and/or increase in the livestock (migration) has rendered participatory land use plans obsolete even before they were implemented. Perhaps some more emphasis should be put on alternative livelihoods and broader view of adaptation alternatives should be incorporated for example the Masai women proposed to educate their husbands in order to their children to be able to enrol in secondary schools which could be seen as an excellent adaptation activity.

The context-driven nature of resilience, the different challenges that the rural communities in different agro-ecological zones are facing, the differences in the state of the environment, the differences in livelihood strategies, the limited or in some instances sporadic understanding of long term impacts of climate change and adaptation options on all levels highlighted the need for systemic approach to climate change impacts truly making the case for EbA approaches for rural resilience.

#### **Other observations**

- The delay in the recruitment of the national consultant is seriously jeopardizing the proposed schedule of the formulation process. We recommend that the TORs be developed for the recruitment of a technical expert, and to speed up the recruitment process. We also propose to use any innovative approaches that may be needed to ensure smooth and timely delivery of the project document. In the meantime, an expansion of the role of the VPO focal point person may be required to deliver tasks that would otherwise fall within the responsibility of the NC.
- In order to ensure quick project uptake on the ground, we recommend to align the formulation process to the government planning and budgeting process (Nov-Dec). Therefore, the results framework and ABB should be finalized with adequate notes by the

end of October. This also requires immediate action regarding the issue of recruitment of national consultant.

## 7. Next Steps

The consultants' team, with support from VPO, will in the next four months seek to:

- Confirm the validity of the results (outcomes and outputs);
- Finalize the list of activities which will lead to the desired outputs and outcomes;
- Establish baseline data;
- Develop implementation plans and budgets;
- Confirm the arrangements for co-financing;
- Continue consultations with stakeholders;
- Develop the project document

The following is the proposed schedule of activities:

Activity	Deadline	Description
Consultations	Ongoing	Consultations with key stakeholders at distance to support data gathering
Results Framework	October 2015	Finalize results framework with list of activities and associated budget*
First draft of project document	December 2015	Circulate first draft of the project document within the project team
Validation mission & validation workshop	January/February 2016	Confirm results framework and activities, implementation arrangements and co-financing
Submission to PRC	February 2016	Sharing of the document with UNEP experts, reviews and revisions
Final submission to GEF	April 2016	Deadline for submission of project document and CEO endorsement

**APPENDIX 16B: VALIDATION WORKSHOP REPORT**

(see separate file).