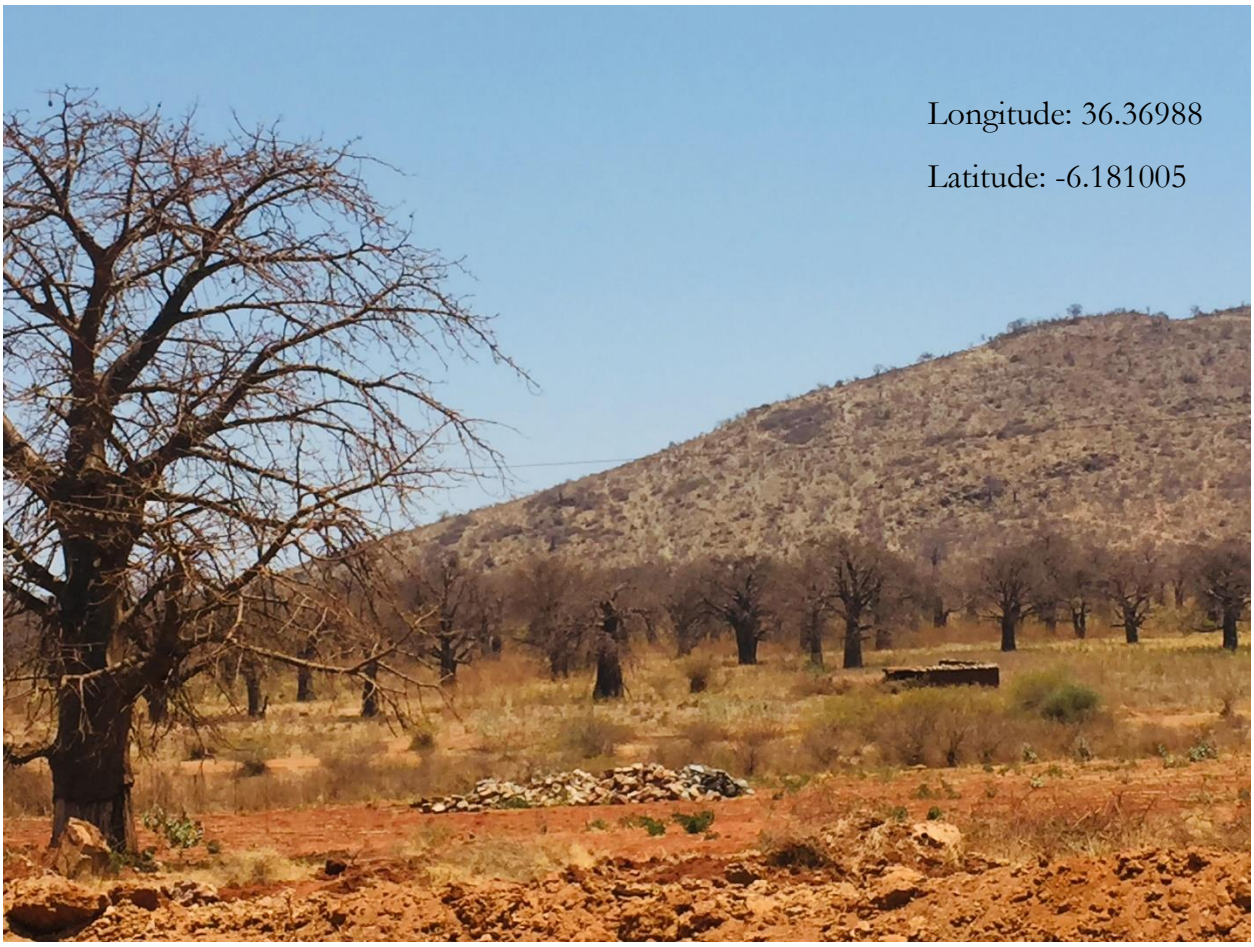
Project Title: Restoration and Conservation of the Dryland Unique Ecosystem of Dodoma Landscape



Submitted to JAFTA, JAPAN

FINAL PROPOSAL

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1.0 Background

Tanzania is rich in natural resources, including terrestrial ecosystems among others, with diverse habitats and species. The country's forest covers about 48.1 million hectares (ha) equivalent to 55% of total land area. Woodlands cover 44.6 million ha (93%) of the forestland while catchment forests, mangroves, coastal forests and government forest plantations occupy 3.4 million ha (7%) of the forestland (NAFORMA, 2015)[1]. Despite that large forest land area is under protected status (approximately 38%), demographic, economic pressures and widespread poverty create significant challenges in trying to resolve the trade-offs between conservation and basic human survival. Deforestation and loss of biodiversity in Tanzania occurs mostly in non-reserved forested land[1], though there is some increasing encroachment onto Protected Areas (PA) due to expanding agriculture and grazing. The current deforestation rate in Tanzania is approximately 373,000 hectares per annum (NAFORMA, 2015)[1]. The country has lost at least one-third of its important ecosystems over the past few decades undermining livelihoods of many people who depend directly on them.

Dryland unique ecosystems such as *Acacia-Commiphora-Baobab* (ABC) ecosystem in Dodoma region are under constant pressure from conversion to other competing land uses such as agriculture, free-range livestock grazing and settlements. There is also persistent seasonal wildfire that affect structure and composition of forest remnants. The ongoing disturbances if remain unchecked may result into unstable population structures that may eventually cause decline of ecosystem services, such as non-timber forest products (fruits, fibre, wild vegetables and herbal medicine) which are important to the local livelihoods. Other ecosystem services include habitats for wildlife, preservation of biodiversity, conservation of watersheds and control of soil erosion through both water and wind. Presence of intact forest patches of the ABC ecosystem provide environmental amelioration to the neighbouring land uses including farmlands through enhancing adaptation of the crops to climate change through protection against heat waves which are common in the drylands of Tanzania.

The importance of the ABC ecosystem is contributed by its potential for commercialization of the non-timber forest products and strengthening ecosystem integrity to support other land productivity functions. This unique ecosystem is dominant in the Dodoma landscape and merits conservation efforts in order to ensure its population structure is maintained and remain stable and viable. In areas that have witnessed diminishing population due to human disturbances, at a higher rate than it could naturally be replaced; therefore restoration is advocated. Previous study in the same area (Kimaro *et al.*, 2012)[2] have indicated that both forestland and farmland contains sizable populations of the Baobabs, Acacia sp. and Commiphora sp.

Dominant Acacia sp. in the proposed project ecosystem include *Acacia tortilis, Acacia nilotica,* and *Acacia hockii*. They serve as vital source of fodder for browsing livestock especially leaves and pods. They also serve as key source of woodfuel for supply cooking energy. The spread of these species has been

[1] MNRT, 2015. National Forest Resources Monitoring and Assessment of Tanzania Mainland: Main Results.
[2] Kimaro et al., 2012. Evidence-Based Scaling-Up of Evergreen Agriculture for Increasing Crop Productivity, Fodder Supply and Resilience of the Maize-Mixed and Agro-Pastoral Farming Systems in Tanzania and Malawi.

through seed dispersal by animals and vegetative propagation through root activities. Most of the species are found scattered on farm and also widely distributed in forest remnants.

One species of Baobab (*Adansonia digitata*) is found in the proposed project ecosystem. Observations of the baobab trees across the Chamwino and Kongwa districts in the drylands of Dodoma region, have indicated diverse differences in terms of stem structure, size, and fruit and seed morphology, suggesting existence of different meta populations (Mathew *pers. com.*)[3]. Other studies have speculated that the differences in the baobab might be both genetic and environmental driven (Sanchez et al., 2011)[4]. Baobab is currently listed as Least Concern (LC) according to the IUCN Red List Criteria (The IUCN Red List of Threatened Species, 2016). However, there are records of increased reduction in baobab populations across Africa (Leach et al., 2011).

The dominant Commiphora species include *Commiphora ugogensis, Commiphora eminii,* and *Commiphora africana.* The species use is mainly for construction poles and woodfuel. Typical forest remnants contain large number of Commiphora species, though currently they are facing excessive overharvesting. The three species have not yet been assessed for the IUCN Red List, despite higher number of species in the same genera that have been listed as Threatened.

1.1 Rational of project formulation

The *ABC* dryland ecosystem is the main vegetation type in the drylands of Dodoma region. In recent years, there has been threats to this ecosystem due to accelerated changes introduced by conversion of the vegetation cover into other categories due to human-induced activities such as crop farming and grazing. Currently, the ABC ecosystem witnessed removals of its main constituency species faster than they can be replaced naturally. Therefore, the sustainability and integrity of this ecosystem is now in jeopardy and thus merit collective actions to address the negative transformation that is trending towards land degradation.

Given the above listed challenges, reversing ecosystem degradation trends in Dodoma, appears as a means of supporting food production and security through NTFPs. This entails addressing drivers for unsustainable land management and land degradation as well as biodiversity loss. There is need to support responsible land use for the conservation of forest remnants through participatory forest management (PFM). The proposed project aims to support conservation management and maintaining sustainable utilization of the NTFPs in dryland ecosystem in Chamwino and Kongwa Districts, within Dodoma region.

The project will further engage in re-greening of the Dodoma city. Under the urban settings, the project will devise and implement a strategy for afforestation and enhanced natural regeneration to allow parts of the city to remain green. The strategy will promote maintenance of the open spaces and public areas to be enriched with trees and shrubs native to the agro-ecological zone.

[3] Mathew Mpanda, personal communication. Baobab distribution in the drylands of Tanzania. 2018.

[4] Sanchez AC, Smedt SD, Haq N, and Samson R. 2011. Variation in baobab seedling morphology and its implications for selecting superior planting material. *Scientia Horticulturae* 130: 109–117.

1.2 Project area and Potential beneficiaries

The envisaged project focuses to reach communities in Chamwino, Kongwa and Mpwapwa districts (Fig. 1), with an estimated population of 330,543, 309,973, and 305,056 respectively. Kongwa, Chamwino and Mpwapwa are among the six districts of Dodoma region. The elevation of project area ranges from 900 to 1,000 meters above sea level. The project site has a dry Savannah type of climate, which is characterized by a long dry season starting late April to early December, and a short single wet season starting December to mid-April. The rainfall ranges between 500 - 800mm annually. The rainfall in the district is relatively low and unpredictable in frequency, amount and distribution particularly in January when most of the crops are generally sown. The annual temperature varies from mean minimum of 18°C to a maximum of 34°C[5]. The characteristic vegetation of the district is of woodland type.

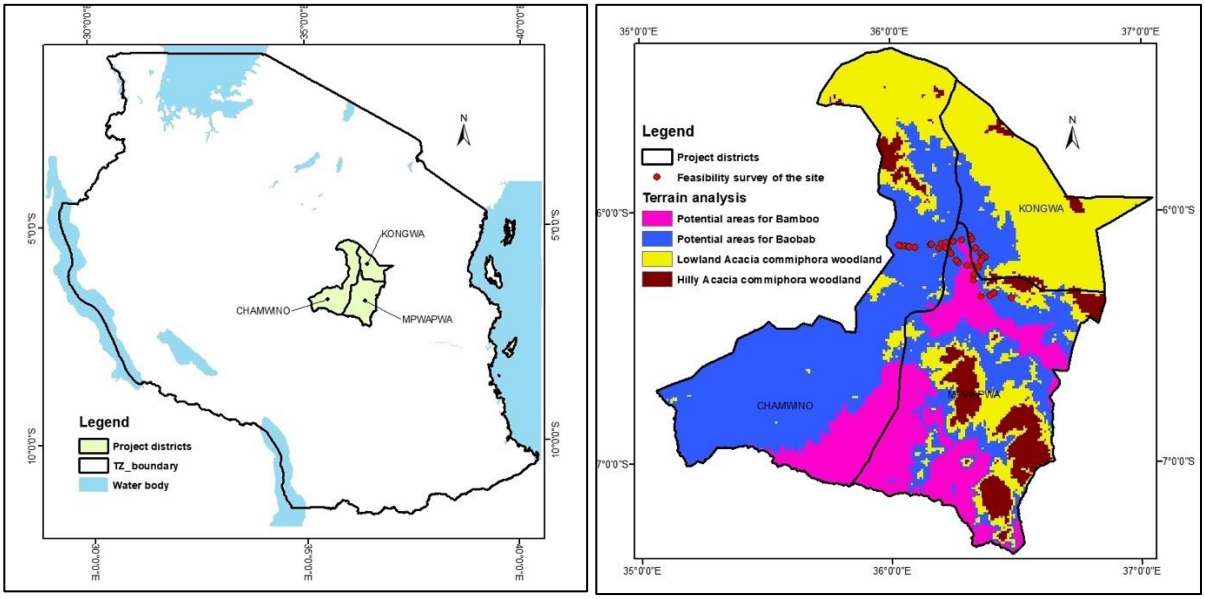

Figure 1: Map of Tanzania (left) showing the location of the project site. Right, map of project site showing areas for potential interventions.

[5] Kimaro et al., 2012. Evidence-Based Scaling-Up of Evergreen Agriculture for Increasing Crop Productivity, Fodder Supply and Resilience of the Maize-Mixed and Agro-Pastoral Farming Systems in Tanzania and Malawi.

The project targets to work with 10 wards with a total population of 118,184 from the three project districts. However, in case funds is inadequate the project will narrow down the project sites to 5 priority wards with a total population of 68,311(Fig. 2) and Table 1).

District	Ward	Total Population
	Sejeli*	19,097
	Nghambi*	8,377
	Ugogoni	17,048
Kongwa	Kongwa*	13,531
	Mazae	8,021
Mpwapwa	Chunyu	11,593
	Ikowa	6,325
	Manchali*	10,485
	Buigiri*	16,821
Chamwino	Majeleko	6,886
TOTAL		**118,184**

*Priority wards

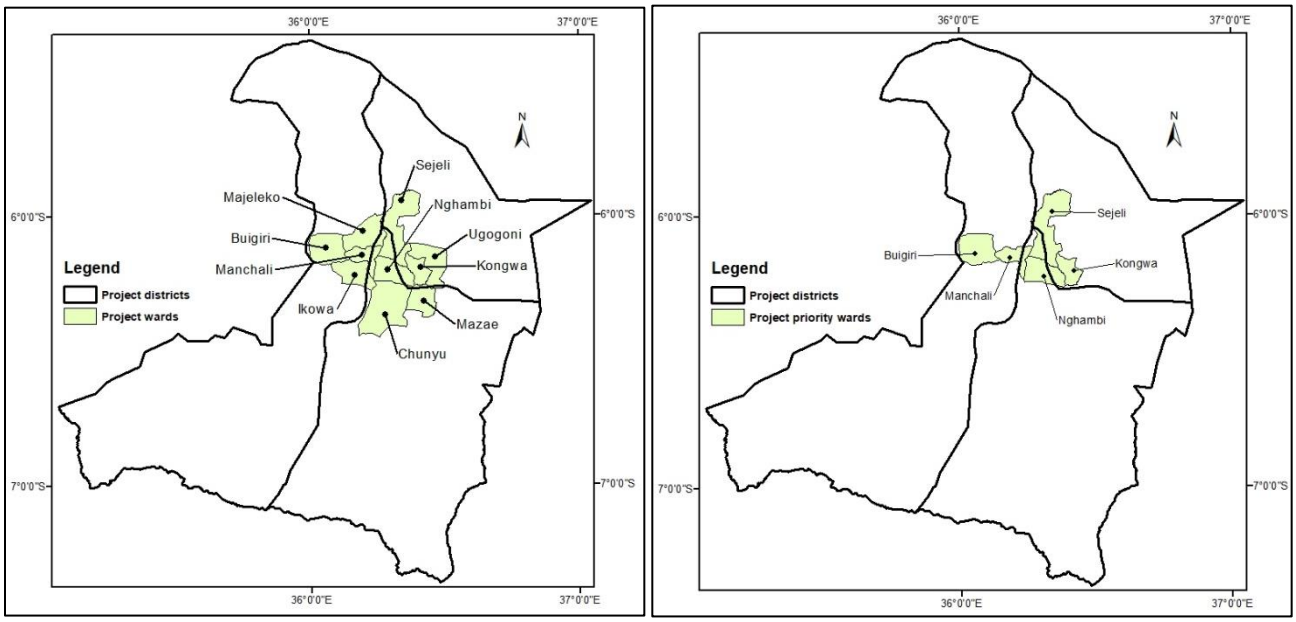

Figure 2: Map of Tanzania (left) showing the project wards. Right, map showing project priority wards.

Specific beneficiary villages for the project interventions will be later refined as the ABC ecosystem spread throughout the districts although with different stocking levels (Figure 1). Stocking parameters of baobabs on farmlands in Kongwa district is estimated at 20 stems/ha., with an average volume of

259.7 m^3/ha[6], while stocking levels for Acacia sp. and Commiphora sp. is not yet well established. Communities living adjacent to these forest ecosystems are the primary beneficiaries. They will benefit through well-established management systems that will ensure sustainable flow of ecosystem services. Communities in the area have been highly affected by frequent incidences of drought that often times leads to famine, and these surrounding forest ecosystems have been serving as safe nets for provision of food and fodder. The communities will also benefit from enterprises development for the NTFP at commercial level. Women, girls and youth will be the target of the project to ensure they participate in the NTFP enterprises and other livelihood interventions.

The secondary beneficiary will be the local government authorities in Chamwino and Kongwa districts. Inadequate capacity has been shown by the Local government to manage these forest patches that are either in general lands or within village lands, hence the project will provide the significant boost. The expected benefits will range from improved forest conditions, establishing relevant structures to management these forests, and increased revenue through taxation from sustainable harvesting of allowed forest goods and services. Improved management effectiveness due to project intervention deter unwise use of the forests and hence better protection of the ABC ecosystems.

The private sector and local NGOs will be another layer of beneficiaries through improved awareness of the communities that they work with. Improvement of NTFP value chain will create more opportunities for the private sector through trading activities ranging from inputs supply to post-harvest handling, processing, and packaging. The local NGOs working in the area will benefit through participation in the advocacy and awareness creation that will support both conservation of the forests and also promote best-bet livelihood interventions.

1.3 Alignment with global conventions and national policies

The proposed project will directly contribute to two of the 17 Sustainable Development Goals (SDGs), namely SDG 13: take urgent action to combat climate change and its impacts, and SDG 15: protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss. The proposed project will also contribute to the 2015 Paris agreement under the Framework Convention on Climate Change in the areas of greenhouse gases emission mitigation and adaptation to the impacts of climate change through the work to reduce pressure on natural resources and restore healthy ecosystems in ledge management systems and links to policy makers for scaling up of successful approaches.

The geographical focus of the proposed project on semi-arid areas is aligned with the United Nations Convention to Combat Desertification (UNCCD) and its 10-Year Strategy (2008-2018), adopted in 2007 with specific goals "*to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability*".

[6] Kimaro et al., 2012. Evidence-Based Scaling-Up of Evergreen Agriculture for Increasing Crop Productivity, Fodder Supply and Resilience of the Maize-Mixed and Agro-Pastoral Farming Systems in Tanzania and Malawi.

The three districts targeted by the proposed project belong to the seriously degraded areas identified in Tanzania's revised National Action Plan to combat desertification (NAP, 2014).

The proposed project is also aligned with Tanzania's National Biodiversity Strategy and Action Plan (NBSAP: 2015-2020), which supports the implementation of the Aichi Biodiversity goals and targets (2011 – 2020) under the Convention on Biological Diversity. Proposed project will notably contribute to reducing the rate of degradation and fragmentation of ecosystems and the loss of habitats by 2024 (Target 5), through the promotion of participatory forest management and enrichment planting.

The National Tree Planting and Management Strategy of Tanzania launched in 2017 is in-line with the proposed conservation project. The strategy calls for the improvement of the tree cover including restoration of the degraded landscapes through multiple interventions. Moreover, the current national strategy of greening Dodoma is in line with this conservation project. The strategy calls for the greening Dodoma by planting trees and conserving natural habitats of ABC.

The propose project is also well aligned with national policies, such as:

a. National Forest Policy of 1998 of which the ultimate goal is to ensure sustained functioning forest ecosystems capable of supporting livelihood of the rural poor from various forest products.
b. The National Land Policy of 1995, which 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.

1.4 Socio-economic features

The main tribe in the project area is the Gogo, who are the agro-pastoralists. Mixed farming which include crop farming and livestock keeping is the dominant livelihood system. Households in the project area normally maintains low to medium size of the livestock mainly cattle. Few households keep large number of households. Traditionally, wealth is associated with number of cattle that a given household has. However, due to drought condition this has limited the livestock productivity due to diminishing land carrying capacity.

Millet and sorghum are the main food crops, though maize is also produced in good quantities. Recently, introduction of sunflower has out-competed ground nuts as source of cooking oil for domestic use and cash crop. Economically, the project site has been backward due to several disadvantages including climate condition which is not favourable to most crops. Incidences of famine in the project site has been reported since 1910s, affecting both human and livestock. Overgrazing has been one of the challenge, even prompted colonial government in early 1900s to slaughter large number of livestock to keep its population down.

Project site is connected with major cities of Tanzania through tarmac road and central railway line. This connectivity has made it easier for transportation of both crop and livestock produce to the major markets. Feeder roads to the rural areas of the project site are well maintained.

2. Objectives

2.1 Broad objective

The broad objective of the proposed project is support conservation management and maintaining sustainable utilization of the NTFPs in dryland unique ecosystem of Dodoma region. The expected outcome is to have a dryland unique ecosystem conserved and sustainably used to enhance livelihood of rural community and biodiversity preservation.

2.2 Narrow objectives

- Support sustainable forest management in dryland areas through value addition of NTFPs to enhance livelihood of rural community in the project areas. *The expected outcome is reduced deforestation and forest degradation and increased income generation of individual households and communities from NTFPs.*
- Support climate smart forestry through planting and retention of multipurpose indigenous tree species in the project areas. *The expected outcomes is increased climate resilience of individual households and communities, as well as increased forest cover.*
- Strengthening institutional capacity at District and Village levels to support sustainable forest management and trees on farm for conservation of ecosystem products and services at the landscape level in the project areas. *The expected outcomes is institutional capacity is in place at District and Village levels to support sustainable forest management and conservation of ecosystem products and services at the landscape level.*

3. Implementing Partners

The implementing partners are Forestry and Beekeeping Division (FBD), Tanzania Forest Services (TFS) Agency, and the three District Councils (Chamwino, Mpwapwa and Kongwa) where the project areas fall. The Forestry and Beekeeping Division will be the lead implementing partner while the rest are the collaborators.

4. Activities of the project

The proposed project targets to implement the following Major activities:

- **Establishment and strengthening of community-based forest management**

  Tanzania advocate decentralized forest management through involvement of communities living adjacent to forests for better care and equitable sharing of the benefits including those related to ecosystem services. Promotion of the community-led forest management attract investment in decision making to the people to allow wilfully setting aside forest patches within village land for designation to become protected areas. This is possible especially when huge chunk of forests are under communal, clan or family ownership. Supporting protection of forest patches under private holdings will also be promoted including enrichment planting in the rangelands.

In areas that has already been cleared of vegetation for establishment of farms and other land uses, the communities will be encouraged to undertake tree retention and planting of trees through farmers managed practices. Enrichment planting in degraded areas under village land will be promoted including public places such as schools, open spaces and in rangelands. Native fruit trees of importance including *Tamarindus indica* and *Sclerocarya birrea* will be promoted through planting on farm and also through enrichment planting in the degraded areas. Seed source for all tree species to be planted will be collected within the ecological range of the dryland ecosystem in Dodoma region in order to maintain the native population. Native species of bamboo will be planted maintained and propagules harvested for dissemination in other areas for enrichment planting especially in areas that are prone to excessive soil erosion and in in valleys.

- **Improve value addition of the NTFPs and other livelihood options**

  Promotion of the value addition along the value chain of the NTFPs will be undertaken. Beekeeping activities will form part of forest-based products that will be promoted both in the farmland and in the forestlands. Value addition for baobab fruits including seeds, powder, and oil. Additional promotion of baobab tender leaves as vegetable for local and commercial exploitation will be enhanced. Furthermore, other livelihood options that are not forest dependent will be supported including development of community leather tanneries. Since the inhabitants of the area are agro-pastoralists, the project will strive to make use of the skins through introducing artisanal vegetable leather tanneries to add value to livestock products. Successful community leather tanneries witnessed in Chololo eco-village funded by the EU will be replicated in the suitably identified village by the project.

- **Institutional strengthening for forest management**

  Village government and their institutions will be targeted for capacity building to enhance proper forest management. Village bodies responsible for forest management and environment such as the Village Natural Resources Committee (VNRC) and Village Environmental Committee (VEC) will be provided with adequate skills and knowledge to enable address challenges and exploit opportunities for forest management. Bylaws and other appropriate guidelines for the management of the forest resources will be developed and endorsed by decision making bodies. District Authorities responsible for supporting forest management and tree cover on farmland will be supported to improve their technical capabilities. Individuals and groups involved in tree nursery activities will be strengthened through training and material support such as nursery equipment and tree seeds. Farmers management natural regeneration will be promoted through field support to farmers groups and individuals through trainings and with use of demonstrational plots.

  Appropriate rangeland management will be instituted through creation of proper land use plans. The land use plans will prevent encroachment to the designated area for forest protection.

5. Period of the project

The proposed project will span over the period of four years.

6. Budget

SN	Activities	Year 1	Year 2	Year 3	Year 4	Totals
1	**Personnel Costs (*top up allowances*)**	**US$**	**US$**	**US$**	**US$**	**US$**
1.1	Project Coordinator/Manager	9,600	9,600	9,600	9,600	38,400
1.2	District Forest Officer	7200	7200	7200	7200	28,800
1.4	District Extension Officer	5000	5000	5000	5000	20,000
1.5	Assistant Accountant	4800	4800	4800	4800	19,200
1.6	Driver	3600	3600	3600	3600	14,400
	Sub Totals					**120,800.00**
2	**Support establishment of community-based forest management**					
2.1	Facilitate Village Land Use Plan (VLUP) one village in each ward	5,000	20,000	20,000	7,000	52,000.00
2.2	Support demarcation of Village Land Forest Reserves(VLFRs)	4,000	15,000	15,000	5,000	39,000.00
2.3	Support development of Forest Management Plans	3,000	20,000	10,000	2,000	35,000.00
2.4	Support establishment of multipurpose tree nurseries	5,000	10,000	10,000	5,000	30,000.00
2.5	Restoration of degraded lands using both FMNR and Tree planting	3,000	10,000	15,000	10,000	38,000.00
	Sub Totals					**194,000.00**
3	**Strengthening value chain of the NTFPs**					
3.1	Procure equipment and materials	4,000	30,000	30,000	3,000	67,000.00
3.2	Training (sustainable harvesting, processing, packaging)	7,000	7,000	7,000	8,000	29,000.00
3.3	NTFP Marketing (Linkage between producers and consumers)	30,000	10,000	10,000	10,000	60,000.00
3.4	Strengthen NTFPs associations with Regulatory Institutions	3,000	15,000	10,000	5,000	33,000.00
	Sub Totals					**189,000.00**
4	**Institutional strengthening for forest management**					
4.1	Training on Forest governance	5,000	7,000	7,000	7,000	26,000.00
4.2	Support community involvement through awareness campaigns	5,000	5,000	5,000	5,000	20,000.00
4.3	Support institutions and private sector in forest management	4,000	4,000	5,000	5,000	5,000
	Sub Totals					**46,000.00**
5	**Operation and Maintenance of project office**					
5.1	Office running and upkeep	3,000	5,000	5,000	5,000	18,000.00
5.2	Vehicle running and upkeep	4,000	4,000	4,000	4,000	16,000.00
5.3	Vehicle maintenance and repair	3,000	4,000	4,000	4,000	15,000.00
5.4	Communication and office utilities	3,000	3,000	3,000	3,000	12,000.00
5.5	Office Consumables	4,000	4,000	3,000	3,000	14,000.00
	Sub Totals					**75,000.00**
	Grand Totals					**624,800.00**

7. Benefits

The restoration and sustainable management of the Baobab-led ecosystem provided the following benefits:

- Maintaining the genetic diversity of the Baobab species through enhanced farmers managed natural regeneration, and planting
- Provision of the Baobab fruits that provide food nutrition. The seeds are a source of significant quantities of lysine, thiamine, calcium and iron
- Support provision of medicinal values through the use of leaves, fruits and barks. Baobab has numerous biological properties including antimicrobial, anti- viral, anti-oxidant and anti-inflammatory activities amongst others. The plant parts are used to treat various ailments such as diarrhoea, malaria and microbial infections.
- Sustaining fruit harvest for commercialization that offers income to the communities, including the seed oil for cosmetics formulations due to its high fatty acid composition.
- Amelioration of the micro-climate to support crop farming and livestock keeping through protection against heat waves, hence improve livelihoods of the communities.
- Sustaining enterprises development for the NTFPs and bamboo at commercial level.

8. Monitoring and evaluation

Reporting will be the overall responsibility of the FBD. However, given that different activities of the proposed project are being managed by different partners, project monitoring reports will in principle be a joint venture as each partner will have to participate in one way or another. The proposed project will develop simple reporting formats for assessing the progress of each of the three implementing partners (FBD, TFS and DCs) as it will be stipulated in the sub-contracts and relevant work plans and budgets. Project monitoring will be done on a quarterly, semi and annual basis and submitted to the Project Advisory Committee for consideration.

Monitoring and evaluation of progress with regard to the achievement of Project's outputs and objectives will be undertaken through the tracking of Project indicators. Overall responsibility for tracking progress of indicators will be with the submitting agency. The Project will be subject to a mid-term and final evaluation. These external evaluations will provide an independent assessment of Project progress and where necessary provide recommendations regarding how any constraints could be overcome. The consultants selected to undertake the review will be identified by, and report to the Project Advisory Committee.

9. Risk assessment

The proposed project has the following expected positive environmental and social impacts: (i) Reduced deforestation and forest degradation prevalence; (ii) Increase household income; (iii) Increased household resilience to climate variability and change.

The main environmental and social risks to the project and their mitigation measures are as follows:

SN	Risk	Description	Impact	Likelihood	Mitigation measures
1	Social tensions and conflicts due to income increases	There is a risk that increases in income could create social conflicts and rivalries within and across villages	Low	Low	The project expects to put in place a strategy to ensure that all social groups are representing and benefit from the project
2	Lack of institutional capacity to upscale and replicate successful interventions from the project	There is a risk that village and local government authorities do not have the capacity to maintain the developed institutional mechanisms beyond the duration of the project	Medium	Medium	The project will strengthen district and village level capacities at institutional and individuals levels. Repeated trainings will ensure that knowledge remains within the institutions even if staff departs.
3	Difficulties in tree propagation	In order to provide planting material to the communities, then propagation of the baobabs in large quantities need to be undertaken, which as of now remained untested.	Medium	Medium	The project resort to use vegetation propagation and use of farmers managed natural regeneration.