Concept Note

Makueni Climate Resilience and Food Security Project

Kenya | NEMA

27 May 2019

GREEN CLIMATE FUND

Simplified Approval Process
Concept Note

Project/Programme Title:	**Makueni County Climate Resilience Project**
Country(ies):	Kenya
National Designated Authority(ies) (NDA):	The National Treasury Dr.Kamau Thugge Principal Secretary Treasury Building, Harambee Avenue, Box 30007-00100, Nairobi, Kenya. Tel.: +254 20 2240051 Email: ps@treasury.go.ke
Executing Entities:	Africa Sustainability Centre (ASCENT) Government of Makueni County National Environment Trust Fund Ministry of Agriculture, Livestock and Fisheries
Accredited Entity(ies) (AE):	NEMA, Kenya
Date of first submission/ version number:	*[2018-12-17] [V.1] [2019-03-21] [V.2]*
Date of current submission/ version number	*[2019-05-22] [V.3]*

Please submit the completed form to **sap@gcfund.org**,
using the following name convention in the subject line and file name:
"CN-[Accredited Entity or Country]-YYYYMMDD"

A. Project / Programme Information (max. 1 page)			
A.1. Project or programme	☒ Project ☐ Programme	**A.2. Public or private sector**	☒ Public sector ☐ Private sector
A.3. Indicate the result areas for the project/programme	Mitigation: Reduced emissions from: ☐ Energy access and power generation ☐ Low emission transport ☐ Buildings, cities and industries and appliances ☐ Forestry and land use Adaptation: Increased resilience of: ☒ Most vulnerable people and communities ☒ Health and well-being, and food and water security ☐ Infrastructure and built environment ☐ Ecosystem and ecosystem services		
A.4. Estimated mitigation impact (tCO2eq over lifespan)		**A.5. Estimated adaptation impact (number of direct beneficiaries and % of population)**	215,600 (20% of the total population) 50 per cent of which will be women
A.6. Indicative total project cost (GCF + co-finance)	Amount: USD 10M	**A.7. Indicative GCF funding requested (max 10M)**	Amount: USD 9.9 M
A.8. Type of financial instrument requested for GCF funding	☒ Grant ☐ Loan ☐ Guarantee Other: specify_____		
A.9. Estimated duration of project/ programme:	Disbursement period: 4 years	**A.10. Estimated project/ Programme lifespan**	5 years
A.11. Is funding from the PPF needed?	Yes ☐ No ☒	**A.12. Confirm overall ESS category is minimum to no risk[1]**	☒ C or I-3
A.13. Provide rational for the ESS categorization (100 words)	The proposed project will not introduce the construction or development of new facilities that support the local production systems, rather, it will focus on rehabilitating already existing facilities and also climate proofing them. Envisioned activities will include a switch over from electric and fossil fuel pumps to solar pumps for the already existing water points or introduction of cleaner technologies in cases where the water points are not equipped with a pumping mechanism. In proposing these upgrades, the project will carry out a detail borehole analysis to ensure that the pumps match the wells capacity. Further, the project will facilitate rehabilitation of existing rain water harvesting and small irrigation systems e.g. water tanks, household level irrigation systems and shallow wells. The project will also aim at increasing farm-level water efficiency by encouraging and facilitating a transition to drip irrigation for farmers already practising farm-level irrigation. The project will also aim at introducing proven on-farm practices for reducing post-harvest losses by promoting basic household-level post-harvest handling techniques.		
A.14. Has the CN been shared with the NDA?	Yes ☒ No ☐	**A.15. Confidentiality**	☐ Confidential ☒ Not confidential
A.16. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	Even though there are very few studies on climate change impacts on the study area, the few studies conducted in the region were the project area is situated indicates that Makueni county is one of the most vulnerable counties to climate change impacts(Omoyo et al., 2015). A study comparing maize production (a major staple crop in the county) between the county and her neighbours concluded that climate change impacts on maize production were more pronounced in Makueni, where on average the production has decline continuously by approximately 15kg/acre per year for the period spanning from1994 to 2008 (Mumo et al., 2018; Omoyo et al., 2015). From climate models 68% of this reduction in agricultural productivity was mainly attributed to changing climate and especially increasing temperature and reduction in seasonal rainfall (Mumo et al., 2018). This decrease is also projected to continue as the planet continues to warm, which will threaten the already fragile food security status in the county.		

[1] Refer to the SAP ESS Guidelines

Makueni' vulnerability to climate change impacts is driven by its ecological zoning which is classified as arid and semi-arid (ASA). Approximately, 80% of the population in this county depends on rain-fed agriculture for their livelihood. The major agricultural commodities include local poultry, green grams, cowpeas, maize, mangoes and dairy cows. This county is one of the most hard-hit by climate change impacts; since 1994, agricultural yields have been declining steadily, especially during drought years. For instance, during the 2013 drought, there was a 70 - 90% crop failure in the county with major crops like maize, cowpeas and greengrams registering 42%, 74%, and 79% decreases in productivity (MoALF, 2016). This left approximately 60,000 people dependent on food aid.

For the period spanning from 1994 to 2008 the county has experienced continuous increase in temperature at an average rate of 0.03˚C/year (see figure 1 below), during the same period precipitation has continuously declined by up to 3mm/year (Ayugi and Tan, 2018; Omoyo et al., 2015). An increase in temperature and a reduction in precipitation especially during planting months (March, April and May) has been shown to have significant impact on agricultural productivity, especially for areas under moisture stress, like Makueni. For such areas, an increase in temperature also translates to increased evapotranspiration and soil temperature, both of which, significantly reduce agricultural productivity.

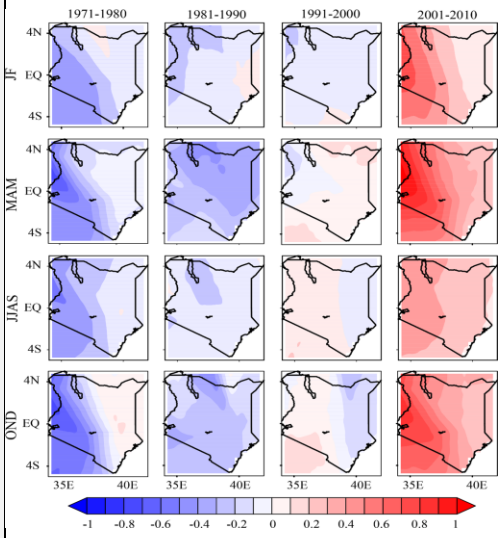


Figure 1: 1994 to 2008 the county has had continuous increase in temperature at an average rate of 0.03˚C/year (Ayugi and Tan, 2018)

With the projected changes in agricultural productivity as a result of increased temperature and moisture stress, there is a need to build the capacity of farmers in Makueni county to effectively respond to this changes. This project therefore, aims at enhancing the adaptive capacity of the most vulnerable small holder farmers to climate change impacts. This will be achieved through an integrated approach with three specific objectives i.e.; climate proofing local production systems (mainly for small holder farms), enhancing the profitability of local drought resistant crop value chains and strengthening the capacity of local institutions to respond to climate stress. Some of the interventions will include facilitating sustainable rain water harvesting for domestic and agriculture use, climate-proofing existing water harvesting and supply infrastructure and supporting the development of existing climate resilient value chains among others. Lessons from this project will be documented and shared widely, especially to ecologically, socially and politically similar counties for maximum synergies to encourage sustainable replication.

The main approach in the implementation of the project will be informed by the fact that local communities have the experience and knowledge in tackling their local challenges. As such, the implementation approach will be to strengthen and scale-up the already existing resilience building initiatives. However, a close attention will be given to ensure that proposed solutions do not lead to maladaptation, for instance, for communities that have already established boreholes to supplement their water needs, a hydrological balance analysis will be conducted to ensure that the recharge rate is higher or equal to the discharge rate. In addition, the county government with be an integral part in the implementation of the project as it forms part of the first responders in cases of climate disasters. The county government will also guide in ensuring minimal duplication between the project and other already existing initiatives in the county.

B. Project / Programme details (max. 3 pages)

B.1. Context and Baseline (max. 1 page)

Kenya's Historical Climate Risks

Kenya ecological zoning varies widely from the coast to the highlands, which also translates to a complex set climatic conditions that vary from region to region, season to season and decade to decade. However, 70% of the country's land is characterised by Arid and Semi-Arid Lands (ASALs) which makes water availability the most critical driver for livelihoods. Rainfall patterns in the country are mainly driven by the Intertropical Convergence Zone and the El Niño Southern Oscillation (ENSO). Since the 1960 observable changes have occurred in rainfall patterns in the country. The intensity of the short rains (October – Decembers) have increased while the long rains (March-April) have become more unrealizable[2]. Over the same period, annual mean temperature have increased by 1.0°C, with an average increase of 0.21°C per decade[3].

Kenya is prone to extreme climatic condition, with floods and droughts being the most important climate related risks. Historically, severe droughts have occurred once every 10 years and lasted for a few months to a year[4], however in the last 20 years the country has experienced two major droughts that lasted between two to three years. The first drought occurred between 1999 and 2001, at the time, this was the worst drought that the country had experienced in 37 years and more than 4 million Kenyans were in need of food aid. This drought which affected approximately 23 million Kenyans was characterized by total crop failures and livestock deaths triggering severe food shortages in the country and more so in the ASALS. Between these two major droughts, several other droughts occurred, some of which were declared by the Government of Kenya as natural disasters. These droughts occurred between; 1999-2000, 2005-06, 2008-09 and 2016-17.

Drought occurrences have become so common that the non-drought years are rare, this increased frequency has increased the vulnerability levels for most citizens as there are few years left between droughts to recover before the subsequent drought. In some years these droughts occurs back to back thus reducing the capacity of the most vulnerable communities and household to participate in meaningful economic activities (Huho and Mugalavai, 2010). Future projections indicate that the country's average temperature will likely rise by an average of 1°C [6] in all seasons, with significant regional variations[5]. Rainfall projections indicate a decrease, although the short rains are likely to be wetter[3]. This will most likely translate to increased severity and frequency of droughts Therefore dry spells characterized by increased drought severity and frequency are likely to continue and worsen as the planet continues to warm.

Climate Change in Makueni County

Makueni County is located in the south eastern part of Kenya. It borders Taita Taveta County to the South, Machakos County to the North, Kajiado County to the West and Kitui County to the East. It covers an area of approximately 8,034.7 km^2, most of which is arid and semi-arid(GoK, 2014). The County is characterized by a low-lying terrain with a few hilly areas such as Kilungu Hills, Mbooni Hills and Chyulu Hills. Natural resources in the County include; forests, mainly in the hilly regions, National parks, four perennial rivers among others. As the rest of the country, the County receives long rains in March and April, and short rains in November and December, though not evenly distributed across the County. The hilly regions receive about 800- 1200 mm of rainfall whereas the lower receive about 300 mm. The temperatures range between 20.2 and 35.80˚C, with the hilly areas being relatively colder compared to the low-lying regions. Agriculture is the main economic activity and it employs approximately 78% of the population and contributes a comparable percentage to the household incomes(GoK, 2013). Agricultural activities practised in the County include crop farming (cash crops and food crops), livestock keeping (mainly dairy and beef cattle, goats, and poultry), bee keeping, and fish farming. In 2013, the County received about USD 20 million and USD 100,000 respectively from the major crop and livestock enterprises(GoK, 2014). In the livestock sector, the highest contribution came from milk (89%) whereas in the crops sector, mango, maize and cowpea contributed 26%, 23% and 20% respectively.

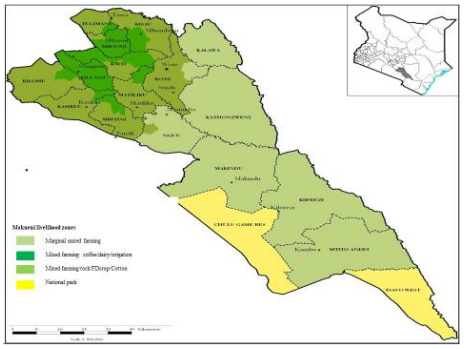


Figure 2:Makueni County Ecological Zones

In the 2009 national census Makueni county had a population of 884,527, projected to have been 939,879 in 2014 and just over 1 million in 2017, with nearly equal numbers of male and female populations. The population growth rate was estimated at 2.3%(GoK, 2013). The county has one of the highest poverty levels in the country which stands at 64% compared to the national absolute poverty level of 47%. The high poverty

level is attributed to several factors, among them low unemployment rates and low agricultural productivity as a result of water scarcity and degraded soils. The County also has a low Human Development Index, which stands at 0.48, mainly as a result of poor access to basic social services. Case in point, the distance to a source of water and health facility is about 8 and 6 km respectively. Food poverty rates resulting from poor agricultural productivity stands at 57%, which consequently translates to high malnutrition rates, which stands at 37%(GoK, 2013). The major economic activities include livestock rearing, crop farming, agroforestry, sand harvesting, charcoal burning, and brick making. The major livestock types found in the County include cattle, pig, sheep, goat, poultry and donkey. The major crops produced include green gram, sorghum, maize, mango, cowpea, bean, pigeon pea and citrus.

Makueni is one of the regions of Kenya that frequently affected by droughts, whose frequency and severity has increased in the past few decades, and due to the high poverty levels, these droughts whether major or minor have severe impacts on the local populace. Future predictions, suggest that prolonged moisture stress will occur across both seasons of the year, especially for first wettest season(MoALF, 2016). Within 30 years (by the early 2040's) temperature is projected to increase by 0.2ºC, with the first wet season projected to experience greater changes. By this time, precipitation is projected to increase by 2% in the first wet season, and 17% in the second wet season. Consecutive days of moisture stress are projected to more than double in the first wet season from approximately 60 days to over 80- 85 days depending on the amount of greenhouse gas emissions. In contrast, moisture stress in the second wet season is projected to reduce by approximately 8%(MoALF, 2016).

Kenya's National Priorities/Ownership

Cognizant of the challenges posed by climate change the Kenyan government has instituted several responses including; the National Climate Change Response Strategy (NCCRS 2010), National Climate Change Action Plan (NCCAP 2013), a National Adaptation Plan (NAP) and the Climate Change Act, 2016. The Kenya climate change Act provides a regulatory framework for an enhanced response to climate change, and adopts a mainstreaming approach that includes integration of climate change considerations into development planning, budgeting and implementation in all sectors and at all levels of government. Kenya has also developed its Nationally Determined Contribution (NDC) that seeks to achieve mitigation and adaptation goals in line with Paris Agreement that the country has ratified.

Kenya's NDC sets out priority mitigation and adaptation actions. However, more emphasis is given to adaptation actions as the country's GHG emission are considerably low, but its vulnerability to climate change is substantially high. This is well articulated in the NDC "*As a minimal contributor to global GHG emissions, Kenya places significant priority on adapting to the effects of climate change*". Most of the climate adaptation actions that the country prioritizes are outlined in the NAP, and the NCCAP. However, some of those priorities are also repeated in the NDCs. The priority actions highlighted in the NDCs that are also relevant to this proposal are: Enhance the resilience of ecosystems to climate variability and change; Enhance the adaptive capacity of the population, urbanization and housing sector; Strengthen the adaptive capacity of the most vulnerable groups and communities through social safety nets and insurance schemes; Mainstream climate change adaptation into county integrated development plans and implement the Ending Drought Emergencies Strategy.

To implement this action-plans and attain the NDCs, there is a clear need for financial assistance as illustrated within the Kenya's NDCs *"Kenya will ensure enhanced resilience to climate change towards the attainment of Vision 2030 by mainstreaming climate change adaptation into the Medium Term Plans (MTPs) and implementing adaptation actions. Any reasonable achievement of the adaptation goal will require financial, technology and capacity building support"*

[2] Awuor, C. (2009). Increasing drought in arid and semi-arid Kenya. In J. Ensor & R. Berger (Eds.), Understanding climate change adaptation: Lessons from community-based approaches (pp. 101–114). Rugby: Practical Action Publishing.
[3] McSweeney, C., New, M., & Lizcano, G. (2009). UNDP climate change country profile: Kenya. Retrieved from http://ncsp.undp.org/sites/default/files/Kenya.oxford.report.pdf
[4] AEA Group (2008). Final report. Kenya: Climate screening and information exchange (ED 05603, Issue 2).
[5] Funk, C., Eilerts, G., Davenport, F., & Michaelsen, J. (2010). A climate trend analysis of Kenya – August 2010 [Fact Sheet 2010-3074]. United States Geological Survey. Retrieved from http://www.fews.net/docs/Publications/FEWS%20Kenya%20Climate%20Trend%20Analysis.pdf

The Government also recognises that vulnerability of the agricultural sector to climate risks can be reduced through investments in rain water harvesting and promotion of irrigation at both household and national level, this has been well articulated in the country's Agriculture Sector Development Strategy, 2010–2020. Under this strategy, intensification of irrigation is projected to increase food production by up to 400%. This is also captured in the country's sustainable development blue print, the Vision 2030.

Barrier Analysis

The Makueni county government recognises the threats climate change poses to the county residents and as such it has initiated a variety of micro and small-scale climate resilient projects, these projects are currently implemented by a range of development partners and government institutions (for a full list of relevant baseline projects see attached annex). However, these projects are often uncoordinated and implemented in an ad-hoc manner without sufficient monitoring and evaluation frameworks. Furthermore, there is insufficient coordination between partners at the county and national level which often results in overlap and unnecessary competition. As a result, potentially successful interventions never reach scale. This project which was developed in close consultation with the county government intends to enhance the resiliency of vulnerable communities and at the same time enhance the coordination of climate resilience projects within the county. The project was developed with a keen understanding of the current barriers to adaptation and they are highlighted below.

<u>Root causes and adaptation barriers.</u>

1. Institutional barriers:
   - **1a)** Limited institutional capacity to deliver services, such as weather agro-advisories, climate information systems, research and development, and extension services greatly limits the adoption levels of climate resilience agricultural practices.
   - **1b)** Extension services lack the capacity to incorporate climate resilience into their outreach to farmers and have been proven to be ineffective at addressing land degradation issues.
   - **1c)** Actors on climate resilience support continue working in isolation, leading to duplication of efforts and waste of valuable resources.
   - **1d)** Local governance and cooperation structures (catchment management committees, water user groups, and agricultural cooperatives) have a very limited presence and capacity, hindering collective responses to climate change challenges.
   - **1e)** Weak coordination and information sharing limits the cross pollination of ideas and lessons meant which leads to duplication of efforts and thus minimal impacts.
2. Financial barriers:
   - **2a)** Although Kenya has developed the crop and livestock weather index-based insurance framework, and several commercial banks offer various insurance, credit, and loans schemes to farmers, their reach to resource-poor farmers throughout the country is still limited. This is partly due to limited knowledge and awareness of such products, among both extension service providers and the intended beneficiaries.
   - **2b)** Many activities that enhance climate resilience at a landscape level generate positive externalities for people throughout the County. However, they do not attract ample investment because they do not provide a direct, immediate financial benefit to individual farmers.
   - **2c)** Lack of accessible credit, mainly as a result of limited collateral, limits the ability of small scale farmers to invest in their lands and also in value addition for their products.
3. Technological and information barriers:
   - **3a)** Smallholder farmers have inadequate information, knowledge and skills which limit them from adopting resilient agricultural practices.
   - **3b)** Smallholders farmers have low levels of awareness on the impact of poor farming practices on water resources and soil fertility at the farm level or how those practices work at a landscape level to affect downstream ecosystems.
   - **3c)** Farmer's resilience is hampered by an inability to access timely and accurate information about weather related risks produced by the Kenya Meteorological Department and index-based weather insurance. This is mainly as a result of the platforms used to send out this information. This lack of information limits their ability to make appropriate decisions on adaptation measures.
   - **3d)** Advances in the adoption of resilient agricultural practices in the country are scattered and do not address climate risks along the entire commodity value chain.

3e) Lack of appropriate technology, most of the technologies available to increase small holder farmer resilience are for the most part imported or developed with minimal consideration of farmers' cultural norms thus leading to low adoption of the technologies.

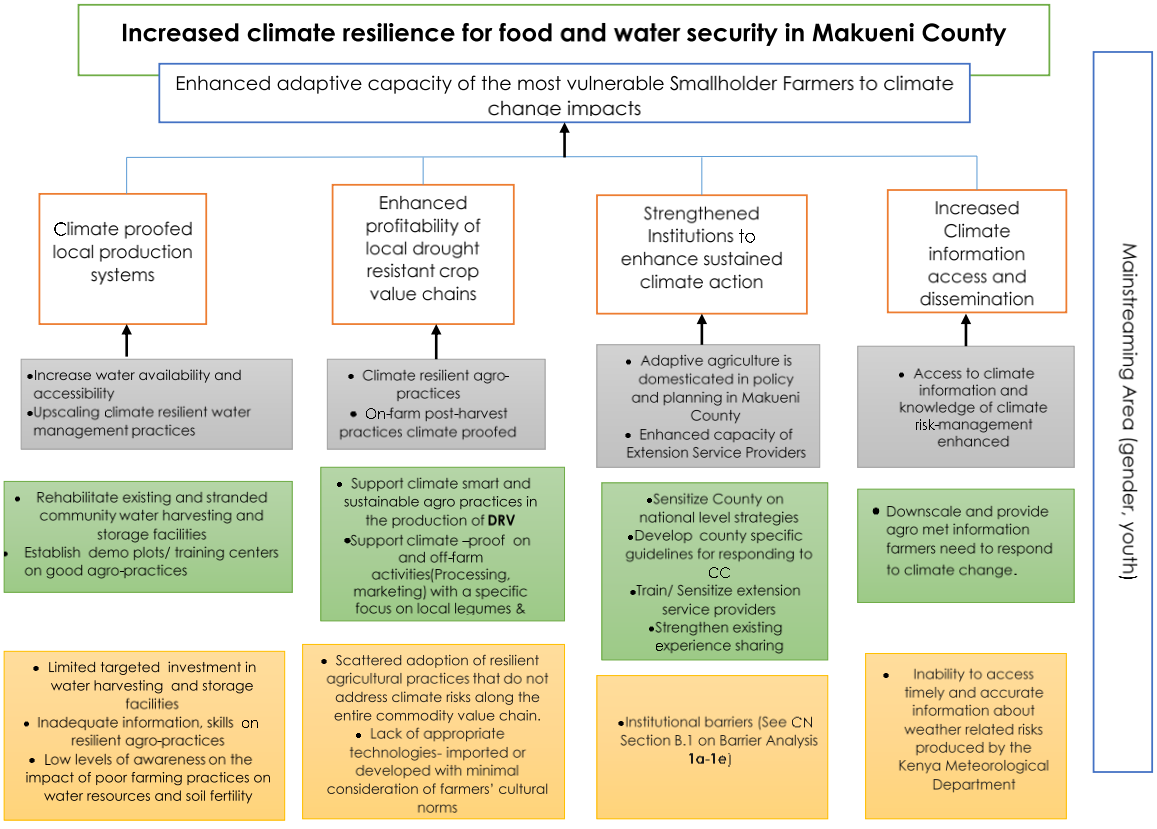
4. Gender barriers

4a) Weak land rights, especially to women, reduce the incentives for women to invest in land for productive use. In Kenya, women constitute over 70 percent of the agricultural labour force but hold less than 5% of agricultural land titles. Women also have less access to agricultural inputs. Such disparities make women more vulnerable and deprive them of a stable income.

4b) Cultural norms on gender roles limits the participation of women on activities that would otherwise increase their climate resilience and income. Such activities include participation in product value addition and marketing of the same.

B.2. Project / Programme description (max. 1 page)

This project therefore, aims at enhancing the adaptive capacity of the most vulnerable small holder farmers to climate change impacts. This will be achieved through an integrated approach with three specific objectives i.e.; climate proofing local production systems, enhancing the profitability of local drought resistant crop value chains, strengthening the capacity of local institutions to respond to climate stress and climate information access and dissemination. A summary of the project is presented in the theory of change below:



Component 1: Climate proofing local production systems

This component focuses on climate proofing local production systems, which will be achieved through various approaches including rehabilitation and introduction of household level rain harvesting structures, introduction and upgrading of local small scale irrigation systems (barrier 3d & 3e, Section B1), awareness creation and active promotion of agro practices that would reduce climate vulnerability (barrier 3a and 3b, Section B1), introduction of crop insurance schemes (barrier 2a, Section B1), facilitating access to climate information (barrier 3c, Section B1) and promotion of farm-scale shade among others.

This component's main aim is to climate proof small holder farmers production systems in Makueni County. This will be achieved through targeted investments in water harvesting and storage, promotion of best climate resilient agro-practices, capacity development on climate relevant practices and technologies that have a high adoption rate among smallholder farmers along selected commodity value-chains (barrier 3d, Section B1). The component will have several specific objectives among them; enhancing water availability, improving and conserving soil fertility, introduction and promotion of high yielding and drought resistance crops as well as promotion of on-farm value addition for farm produce and support to farm based enterprises.

Output 1.1: Increase water availability and accessibility

Key to enhancing resilience of agricultural production systems in arid areas is ensuring availability of water for domestic and agricultural use. This will be achieved mainly through rehabilitating existing and stranded community water harvesting and storage facilities. In Addition, the local community will be supported to acquire/upgrade new/existing on-farm rain water harvesting facilities to enhance storage and harvesting of more water during the rainy season. Some of the structures that will be rehabilitated include water pans, ponds, weirs, gutters and tanks. These water harvesting structures will in turn support small irrigation systems to improve food production in the county. To ensure the rehabilitated facilities are sustainably managed beyond the project duration, participatory approaches will be adopted in co-creating protection and maintenance plans for the water structures.

The harvested water will be used to increase farm productivity for both livestock and crops. However, the focus of this project will be crop production, where farmers who have access to water for irrigation will be encouraged to grow horticultural and more nutritious foods that can supplement produce from other farmers with no irrigation potential. Beneficiaries for this output will be drawn from households living close to the water point and will be dictated by the hydrological balance of the water resources to be rehabilitated. Farmers with no irrigation potential (covered under component 2) will be supported to grow drought resistant crops that are already produced in the region.

Output 1.2: Climate resilient water management practices

At farm level, the strategies adopted by farmers depend on various factors such as type of climatic hazards, education, income, location, availability of technology, and level of extension services. While a few current adaptation strategies adopted by isolated smallholder farmers in the county have proven to adequately address climate risks, there is a need to scaled-up these strategies to effectively address climate change related challenges in the agricultural sector. Proven adaptive crop production techniques that will be scaled up under this output include a combination of water and soil conservation techniques e.g. water-efficient irrigation systems, intercropping, conservation agricultural practices and shade-crop farming systems, among others. Additional practices will be covered under output 2.1.

In sensitizing farmers on best agro-practices, demonstration plots will be established in all the sub-counties and will act as training centres for communities. Participating farmers will also act as contact points in their localities to support and pass on the knowledge to their peers. These training centres will act as epicentres for sensitizing the farmers county-wide on good agro-practices.

Component 2: Enhancing the profitability and resilience of local drought resistant crop value chains

While component 1 beneficiaries (output 1.1) are mainly those around water points, this component will focus on households and communities that are further away from the water points. The component will focus on improving the profitability of local drought resistant crop value chains, with particular interest in local cereals (legumes & sorghum) and tropical fruits (mango and citrus). Interventions under this component will include; Promotion of climate resilient agro-practices, promotion of on-farm post-harvest handling techniques (barrier 3d & 3e, Section B1) and storage and collective community marketing and processing (barrier 2b, Section B1).

Output 2.1: Climate resilient agro-practices

This output will focus on promoting climate smart and sustainable agro-practices in the production of drought resistant crops. Some of these practices will include; Zai pits (see figure 3 below), strip catchment tillage,

contour bunds and meskat systems. These techniques are already in use in the county, though their use is not widely spread.

Figure 3: Zai pits in use in Makueni and Lower Eastern Kenya. Source: Makueni County Climate Change Fund Inventory for Adaptations Investments 2013-2017

Other approaches will include the scale up of the one-acre-rule strategy, which encourages the intensification of agriculture, rather than opening up new lands to increase productivity. These approaches will be promoted throughout the county so as to increase or sustain productivity without opening up new lands for cultivation. This strategy, combined with the Zai pits technique above, improves water and soil conservation. Other activities will include promotion of drip-irrigation and other water-efficient irrigation techniques along and around the rehabilitated water harvesting structures (barrier 3e & 2c). These water points are highlighted in an inventory of the Makueni County Climate Change Fund (CCCF) investments (attached with this Concept Note). The communities will also be supported to adopt soil erosion control and fertility improvement practices such as agro-forestry, mulching, minimum tillage and organic farming among others.

Output 2.2: On-farm post-harvest practices climate proofed

To address identified climate adaptation priorities for the county and increase the resilience of the vulnerable groups, the project will support on and off-farm activities with a specific focus on local legumes, sorghum, mango and citrus commodities. The activities will be based around two key stages of the value chain that occur on and off-farm, these are; a) storage and processing and b) product marketing stages. This particular output, will be biased towards support women entrepreneurs within these value chains (barrier 4a & 4b, Section B1). The following interventions aim to improve the resilience of local legumes, sorghum, mango and citrus production against increased/high temperature, floods, moisture stress, high/intense/dense rainfalls and droughts (barrier 3C).

Component 3: Institutional strengthening to enhance sustained climate action

This component will support the domestication of the Kenya Climate Smart Agriculture Strategy (KCSAS, 2017-2026) and the Climate Smart Agriculture (CSA) Implementation Framework (KCSAIF, 2018-2027) in the Makueni county. This will enable greater coherence, harmonization, coordination and integration between the national and county governments, stakeholders and processes relating to CSA-related issues. This will be achieved by building capacity of the county-level administration and extension services to undertake planning and provide services, including improved enforcement (addressing barrier 1a, section B1).

The component will also focus on promoting the coordination of actors within the climate resilience space, building the capacity of local authorities on disaster prediction, response and monitoring. This component will also promote the devolution of climate resilience planning and policy making, mainstreaming adaptive agriculture in county policy and planning.

Output 3.1 Adaptive agriculture is domesticated in policy and planning in Makueni County

The project will support domestication and implementation of the national climate change policies in Makueni county. This output will support the devolution of national level strategies and frameworks (KCSAS 2017-2026 and KCSAIF 2018 – 2027) to the counties through targeted capacity development and support to develop county specific strategies/plans/guidelines for responding to climate change. Further integration of Adaptation Planning into County Environment Action Plan and other planning processes will be undertaken.Throughout the projects implementation lessons learned will be gathered through the implementation of activities under Component 1 and 2 to inform evidence-based policy and strategies development under component 3.

Output 3.2: Enhanced capacity of Makueni County Extension Service Providers

Agronomical and related extension services are decentralized in Kenya, so extension officers in the County will always be in direct contact with farmers even beyond project period. Additionally, some of the proposed practices are more common in other regions and therefore there is need for cross-regional knowledge and experience sharing. County extension officers are best placed to facilitate this learning as they serve as the bridge between practitioners and policymakers.

The project will strengthen knowledge and experience sharing platforms that will facilitate such strategies as peer-to-peer learning, participatory learning, and demonstration farms, among others.

Component 4: Climate information access and dissemination

Timely access to accurate climate information is important to ensure that vulnerable farmers are able to make informed decisions and better manage risk, making them less vulnerable to climate risks. However, in Makueni County, climate information remains centralised and does not reach isolated farmers. A severe lack of resources also inhibits the ability of farmers to respond accordingly to climate hazards which leads to increased exposure and significant crop losses and loss of livestock. This component will improve the quality and timeliness of climate information and ensure that the information is reaching the most vulnerable farmers (barrier 3c, Section B1). It also aims to improve the capacity of county-level administration and staff to support farmers to access climate-related information (barrier 1a, & 1b, section B1) and ultimately help farmers in planning and other management practices that will minimise losses and, in some cases, lead to increased productivity and income.

Output 4.1 Access to climate information and knowledge of climate risk-management enhanced

These activities aim to downscale and provide agromet information farmers need to respond to climate change. This information will be provided through several local channels including radio stations, mobile phones, *and barazas,* among others. Regional and local level institutions and smallholder farmers will be able to make use of climate information provided to improve the responsiveness planning.

Implementation arrangements

Project Entities

Accredited Entity (AE)

The AE is the National Environment Management Authority (NEMA). NEMA is the recipient of the GCF grant, and responsible for fiduciary execution. The authority will be in charge of the overall management and supervision of the funded activities. The Accreditted entity will establish requisite governance structures, both at the National and County level to provide appropriate oversight.

Executing Entity (EE)

The EE is the Africa Sustainability centre (ASCENT). As executing entity ASCENT will manage, coordinate and oversee project activities through a project management unit comprised of the project coordinator and sub coordinators. ASCENT will establish a project technical committee (PTC) and a project management unit (PMU) through a competitive process.

Implementing Partners

The implementing partners are; Ministry of Agriculture, Livestock & Fisheries (MoAL&F) through the climate change unit (CCU), County Government of Makueni, Kenya Meteorological Department (KMD) and the National Environment Trust Fund (NETFUND). The implementing partners will receive the GCF grant for specific project activities through the EE. They will be charged with actual implementation of activities on the ground.

Project Governance Structure

The project will be managed through a project management unit (PMU) with specific roles and responsibilities for the project management unit (PMU) and the project technical committee (PTC).

Project Management Unit (PMU)

The project management unit will consist of a project coordination unit (PCU) which comprises the project coordinator and sub coordinators (figure 5). The roles and responsibilities of the PMU include;

- Carry out regular monitoring and evaluation and provide updates and feedback about the project to the PSC for guidance
- Execute project work plans
- Project assessment
- Documentation of success stories and sharing across counties and other stakeholders

Project Coordinating Unit (PCU)

Project coordinator (PC)

The PC will be responsible for overall management, coordination and administration of the project. The PC will be responsible for coordinating funds administration to other sub-executing entities, oversee the procurement of material and goods, production of research material, management of operations and activities, information generation and dissemination, and planning and lobbying for country policy strategy documents and framework. The PC will also oversee stakeholder engagements in all aspects of the project as well as compiling the report for the AE. The PC will be answerable to the ASCENT Director/Chairman. Under the PC will be project sub-coordinators (sub PC).

Project sub-coordinators (sub PC)

The sub-PCs will be responsible for coordinating activities related to different components of the project as well as supporting the work of the PC. They will report to the project coordinator.

Project Technical Committee (PTC)

The PTC will comprise of the Director/Chairman (ASCENT), Heads of Crop and Livestock Departments from the MoAL&F, Director Research and Planning from NETFUND, representatives from Makueni County government. The roles and responsibilities of the PTC will be:

- Overall coordination of the project.
- Consultation and Cooperation between the EE, sub-EEs and all stakeholders
- Receives progress reports of the project from the Project Coordination Unit and provide advice as appropriate
- Monitor implementation of project plans and recommend appropriate action
- Articulate issues of the project across targeted counties; analyse and appraise performance of the project at all levels; and use post project analysis to mobilize resources for up-scaling
- Dispute resolution

The project is intrinsically linked to the private sector through increased resilience in agro-value chains. Smallholder farmers and pastoralists. The linkages include market access, services, supplies and inputs.

ASCENT's management approach is summarized to the following elements:

- Establish a collaborative working relationship between implementing sub-EEs through identification, testing and dissemination of tested agricultural productivity technologies and products in crop and livestock value chains.

- Strengthen adaptive research and production of research products in the project through active participation of stakeholders engaged in agricultural production; smallholders crop farmers, pastoralists, MoAL&F, extensions agents / officers, market players, policy actors and researchers within the county.
- Initiate policy dialogue in collaboration with the MoAL&F among county agricultural actors and with active participation of the private sector, with an aim of developing climate resilient agricultural strategies and a subsequent CSA policy framework for mainstreaming CSA in respective counties development plans and budgets.
- Support private sector (agriculture and insurance industry companies and associations) involvement in market analysis of viable crop and livestock insurance products, post-harvest technologies in crops and livestock products and their involvement in county policy environment.
- Update, monitor and evaluate all project activities as a means of integrating feedback, successes and challenges into the continuous project cycle planning; enhance community resilience and meet development expectations of target beneficiaries and communities.

Capacity building, development of Policy and legal frameworks and establishment of knowledge hubs will be spearheaded by the MoAL&F in collaboration with Makueni County.

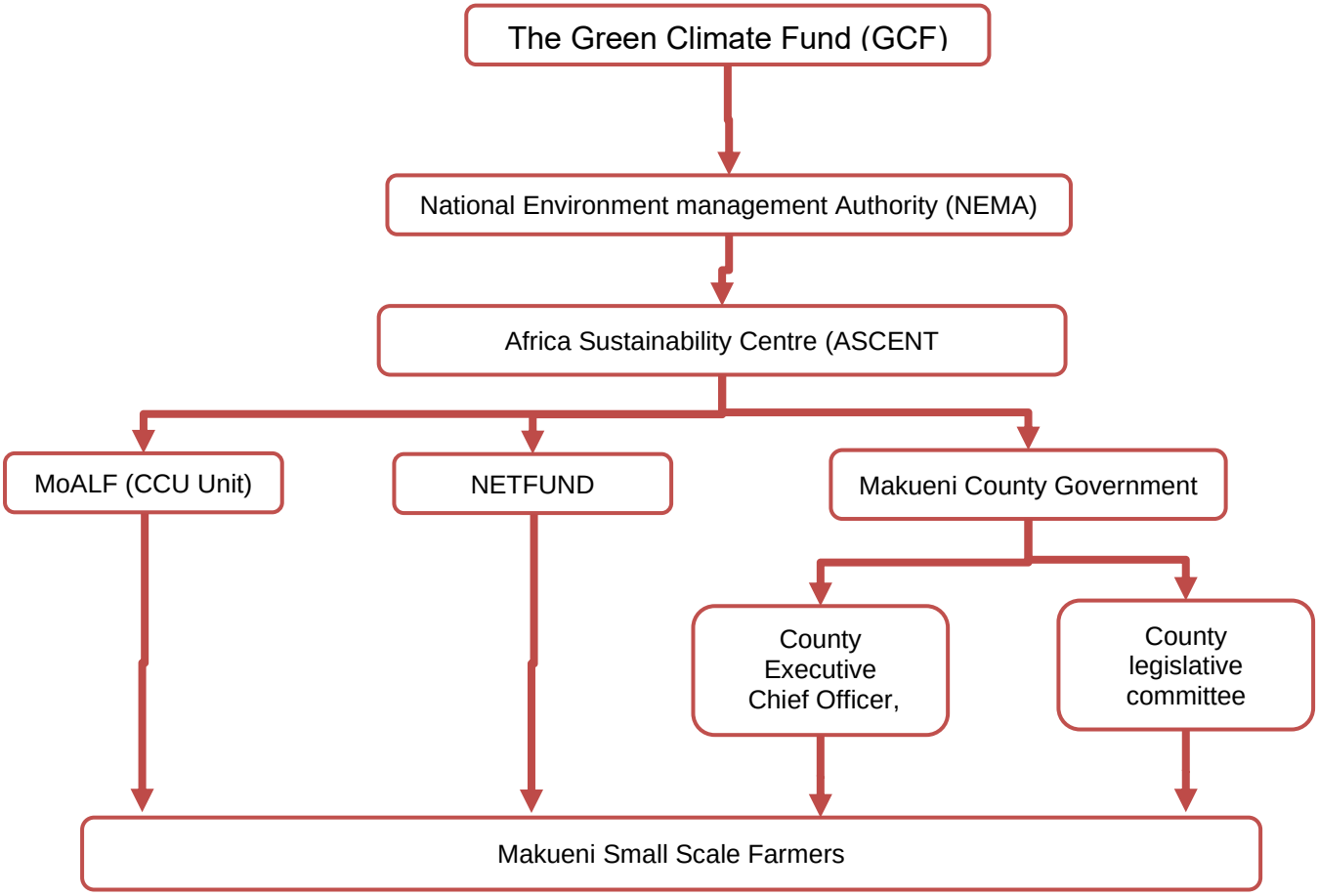


Figure 2: Key organisations and roles for project implementation

Key financial and operational risks and mitigation

Several financial and operational risk factors have been identified which may negatively affect project implementation and the achievement of desired results. Identified risks and proposed mitigation strategies are listed below:

Unwillingness of GCF beneficiary entities to collaborate and embed practices and interventions within the existing institutions	Drawing on experiences in countries with similar governance arrangements, joint planning and implementation of activities will be facilitated by the AE, NEMA which is also environment regulator, with support from County government of Makueni to harmonize implementation while accommodating location specific differences in priorities, norms and resource availability.
Smallholder farmers may return to or resist shift from unsustainable practices after project has ended.	The GCF project will promote proven and socially and economically acceptable agricultural practices that are being implemented by small holder farmers in the county or counties with similar cultural and political characteristics.
Existing disincentives like the relationships with middlemen and brokers that undermine smallholders' adoption of climate resilient practices.	The project will ensure the inclusion of middlemen and other value chain players in designing strategies to upgrade the value chains.
Climate shocks, like flooding experienced in Makueni, 2017 and 2018, can lead to a risk of damages to the project investments affecting implementation.	Special mitigation measures to cope with shocks such as droughts and floods will be part of the project proposal so as to minimize the impact on project implementation.
As private sector is driven by profits, it may not have the same goals or interest as other stakeholders, leading to misalignment in priorities to address climate resilience objective of the project.	The project will undertake due diligence of potential private sector partners; establish concrete and clear roles and responsibilities for each partner and ensure strict adherence to role and responsibilities. The models adopted will also ensure commitment from all players. The project will also focus on profitable value chains that can have enough produce to sustain the involvement of the private sector.
Limited awareness and preparedness of communities and community associations/government staff can slow down adoption of the technologies, techniques/practices as well as information flow	The project proposes capacity development and training initiatives for community members, community leaders and government authorities to accelerate adoption. NETFUND and MoALF have a proven experience of social mobilization in the country including the project area. Makueni County Government also has a strong community engagement system.
Political Risks: change of the Beneficiary Government Executive	The project will create a Project Management Office and a Project Implementation Committee based in the project area so that such changes, if any, do not have a strong impact on project progress.
Delayed implementation of ongoing baseline and complimentary projects by the government and other partners may negatively affects GCF Project outcomes.	The Makueni County government will ensure continuity of what is already planned and budgeted for as it forms baseline on which this Project is anchored. Continuous sensitization of and collaboration with the policy makers so as to communicate evidence from project sites and secure cooperation and resources commitment.

B.3. Expected project results aligned with the GCF investment criteria (max. 1 page)

Impact potential

The total number of beneficiaries from the project will be 215,600 individuals. This number was arrived at estimating that the project will directly impact 25% of residents in Makueni county, whose estimated population as of 2009 was 884,527(KNBS, 2019). This beneficiaries will benefit through increased climate resilience to their production systems. Most of the beneficiaries will be small holder farmers derived from locations in the county that receive rainfall below 320mm/year.

The number of indirect beneficiaries are estimated as approximately 1,553,000 persons, which is 3% of Kenya's national population. This figure has been arrived at by calculating 80% of Makueni county population and 20% of the population in the neighboring counties of Taita Taveta, Kitui, Kajiado and Machakos.

The project is cognizant that women play a greater role than men in certain post-harvest processes such as threshing, de-husking, and drying, but that they do not enjoy the same level of access and inclusion in most other stages of the post-harvest value-chain. In particular, women farmers in Kenya have lesser access to markets and to credit. Thus, as described in section B.2 of this project, this project will have a special focus on women and will apply a gender-sensitive approach to the design, location, operations, and employment opportunities and the climate-resilient post-harvest storage and market access systems.

Paradigm Shift (ToC provided in section B.2 above)
The project has clear potential for scaling up and replication, potential for knowledge-generation and learning, and potential to create or strengthen the enabling environment. The one-acre rule that has been proven to offer full food security while increasing household incomes will shift these smallholder farmers fully from dependency on rainfall. This is a highly replicable strategy and there will be a total paradigm shift. Once farmers have full control of their water resources through rainwater harvesting, Zai pits and one-acre rule strategy, there will be a total paradigm shift. The realisation that irrigation can be zero-emission while on-farm pre-processing or better handling of produce has the potential of increasing economic returns by up to 300 percent would bring better appreciation of and total shift to climate-smart agriculture (CSA). Therefore, the project will set in motion a shift in behaviour among agricultural sector stakeholders needed to sustain the productivity and incomes within Kenya's ASAL regions in the light of the projected climate change patterns.

The project will catalyse the shift by:
(i) ensuring that water insecurity stops being a key risk factor for smallholder farmers;
(ii) Ensuring better practices for smallholder farmers that produce higher yields with same acreage and a potential for year-round productivity hence eliminating all the reservations around dryland farming hence also the uncertainty drought events.

The field activities are designed to assist farming households and communities to make fundamental changes in their agricultural systems that will allow them to adapt to the changing climate. Other activities will set in motion transformation in the county and national policy-making and investment priorities.

Replicability: key structural elements of the project can be exported and translated to other sectors, regions, communities, or countries. The project brings together complementary elements of prior existing successful interventions on promoting small scale farmers increase their productivity and also income from their produce. This project will add into that body of knowledge especially for small holder farmers in ASALs.

Knowledge and learning: the project offers an important opportunity to understand how and to what small holder farmers, individually and collectively can improve of the overall countywide climate resilience. This project will be a concerted effort to learn from other such interventions, adopt best practice and at the same time develop best practice of its own, and will incorporate an element of knowledge-dissemination on the link between climate change, small holder farmers and climate resilient value chains, through its partners and networks. The exchange's website, for instance could be a platform for sharing insights, and the project could also develop training materials on climate change and post-harvest loss management for its beneficiaries.

Sustainable Development
The proposed project is characterised by environmental, social, economic, and gender-inclusivity co-benefits.

Expected positive environmental impacts: the project's anticipated positive environmental externalities include reduced application of chemical fertilizers (due to increased adaption of better agro practices), reduced soil degradation, reduced water usage and reduced post-harvest losses (due to the support of on-farm value addition, that reduced losses during storage).

Expected positive social and health impacts: the project's anticipated positive social and health externalities include improved food security in Kenya due to lower post-harvest losses, including reduced loss of both volume of food and nutritional value of food.

Expected positive economic impacts the project's anticipated positive economic externalities include greater income security for farmers, strengthened access to credit and liquidity that can be re-invested in working capital, particularly into methods and practices that improve yields, and help transition to climate-resilient (drought and

flood resilient) varieties etc. Broad-based economic resilience improves households' and communities' ability to respond to shocks and stressors across the board.

Expected positive gender-sensitivity impacts: the project's anticipated positive gender-related impacts include reduced inequalities in commodities value chain management and in access to markets. It will also increase women's participation in contributing to climate-resilience and food security outcomes.

Needs of Recipient

This project is tailored to the needs of Makueni county's small-holder grain farmers, and to the country's overall food security needs. Kenyans have been vulnerable in the past to rising food prices and low levels of domestic food reserves, which exacerbates climate change vulnerability during times of drought, flood, or famine when harvests are affected. Kenya is ranked 86th in global food security amongst other countries (Global Food Security Index, 2017), and (according to at least one global climate change vulnerability and risk index) Kenya is amongst the top one-third of all countries in terms of its vulnerability to climate change (Kreft, Eckstein, & Melchior, 2017). As an African nation, its adaptive capacity to cope with climate change is limited. Within Kenya, rural small-holder farmers constitute a more vulnerable sub-set of the population.

Further, climate-related risks have adversely affected Kenya's development in the past and are expected to continue to do so. An examination of climate risks in relation to Kenya's critical economic sectors—water, agriculture, health, energy, industry and social services—and their implications for particularly vulnerable groups can provide a better understanding of this relationship (to be provided in greater detail in funding proposal). This project will serve as reduction of the funding gap for climate action in Kenya. The country has significant vulnerability, in particular due to being a water-scarce country with a worsening water scarcity index and its increasing weather hazards.

- Water: Kenya is one of the most water-scarce countries in Africa. Despite 70% relying on rainfed agriculture, water resources are unevenly distributed, being denser in the central and western regions. With a changing climate, soil moisture is expected to decline in Kenya's ASALs (including Makueni, the project area) and increase in moist areas (MENR, 2002). Where rainfall increases, opportunities to harvest rainwater and store clean water could expand (UNICEF, 2010), which in turn may reduce the occurrence of water-borne diseases. These impacts will also influence reservoir systems, water quality and water supply infrastructure which support the rationale for this project.
- Agriculture: Agriculture being the backbone of Kenya's economy, continues to be of critical importance in terms of employment, food security, livelihoods and economic development (De Wit, 2006; ROK, 2010; Wong et al., 2005). 98 per cent of Kenya's agriculture depends on rain (WRI et al., 2007, p. 34), making rain-fed agriculture Kenya's major source of national food supply (Dyszynski et al., 2009). The sector directly generates about 26 per cent of annual GDP and indirectly creates 25 per cent of GDP through links to agro-based manufacturing, transport, and wholesale and retail trade (GOK, 2008; Harding & Devisscher, 2009; ROK, 2010). In rural Kenya, like Makueni, 70 per cent of the population derives its economic activities from agriculture, namely subsistence farming (primarily maize, sorghum, millet, cassava, Irish and sweet potatoes, bananas, mangoes and other fruits and vegetables), livestock and fishing (IFAD, 2007; Wong et al., 2005, p. 11). The sector's potential to promote rural development and alleviate poverty has not been fully achieved. Crop production takes place within a limited proportion of Kenya's total area; only 17% to 20% of Kenya is arable, primarily because of low and unevenly distributed rainfall (Harding & Devisscher, 2009; IFAD, 2007; Kandji, 2009). Makueni lies within high-potential arable lands that are generally found in areas 1,200 metres above sea level, however water availability restricts this potential (De Wit, 2006; ETC, 2006). Overall, it is estimated that only about 15 per cent of Kenya receives sufficient rainfall (about 762 millimetres per year) to support growth of maize and other non-drought-resistant crops in four out of every five years (WRI et al., 2007, p. 27). Approximately 13 per cent of Kenya receives 508 to 762 millimetres of rain per year, meaning that special dry farming or irrigation is needed to cultivate crops. The remaining 72 per cent of the country (the ASALs) lacks sufficient rainfall for reliable crop production (WRI et al., 2007, p. 27) and is generally used for rangeland (Kabubo-Marianra & Karanja, 2007) and is getting worse with increasing drought frequencies. Makueni is within the 72 per cent.

Country ownership

The project is designed in close consultation with the National Government, the National Designated Authority and with NEMA as the implementing agency which is also the environmental regulator. The Government has a commitment to reduce climate risks on the agricultural sector through investments in water storage, rainwater harvesting and irrigation infrastructure—as committed under the Agriculture

Sector Development Strategy, 2010–2020 (ROK, 2010). This project not only scales up what has already been piloted in Makueni and other ASAL areas, it contributes directly to this ambition.

Kenya's Vision 2030 which has as one of the foundations, "Enhanced Equity and Wealth Creation Opportunities" under which special attention is given to investment in arid and semi-arid lands (ASAL), communities with high incidence of poverty, unemployed youth, women and all vulnerable groups. Makueni County has all these qualities and therefore this Project fits into the objectives of the development blueprint. The Vision 2030 also notes that the devolved units of Government, one of which is Makueni, are expected to play a key and enhanced role in correcting existing economic and social inequalities as well as eliminate vulnerabilities. A strategy of particular importance under the Vision 2030 is adding value to Kenya's products and services. Specific focus is put on increasing value in agriculture, through local processing before going to market, that is projected to generate an additional 800 to 900 million dollars to the GDP.

Irrigation is central to this strategy as a way to galvanise this strategy from climate variabilities. Beyond institutional development and increased productivity, it also aims to develop niche products like organic foods which Makueni County is leading Kenya in the area of organic fruit production and processing; and seeks to get market access to advanced economies such as European Union through this quality control process. Studies show that post-harvest losses average 28% and that farmers only end up earning only 32% of the revenues from the 72% that gets sold (therefore effectively 23%). Losses are higher when the produce is aimed for export as almost 50% gets rejected.

The objectives and activities are in line with the strategic aims of the Kenya National Adaptation Plan 2015-2030, and governed by the Kenya Climate Change Act, 2016 which is the law created by national parliament to provide for a regulatory framework for enhanced response to climate change. Details will be given in greater details in funding proposal.

Efficiency and effectiveness

Using improved seed as a means to increasing resilience and of organic fertilizer can increase yields by up to 300 percent (AfDB, 2015). This project seeks to promote this practice among rural households living in the project area of Makueni. Due to the constraint of land and water resources, the productivity is increased from the better practices and synergies of the smallholder farmers rather than increased acreage and/or resource usage.

The efficiency of the project is enhanced from the management and executing point while the cost-effectiveness proposed adaptive investments can also be considered to enhancement of community adaptation, through community contributions (which also have a positive side effect of stronger ownership and sustainability). The communities could contribute in form of voluntary labour for community owned water assets and in kind contributions in site selection, irrigation system installations and knowledge sharing. Operational cost effectiveness of the project is enhancement through the following characteristics: 1) Throughout the project, the GCF resources will be used through have competitive procurement to ensure cost effectiveness; 2) During the project preparation phase, the project will mobilize and lock-in additional co-financing from public, private and other sources in order to diversify financial risks and increase financial flexibility.

B. Indicative financing / Cost information (max. 2 pages)

C.1. Financing by components (max ½ page)

Component	Indicative Activities	Indicative cost in '000 (USD)	GCF financing ('000)		Co-financing		
			Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1: Climate proofing local agricultural production system		**5,198.6**	**5,198.6**	**Grant**			
	• *Community mobilization*	19.8					

Output 1.1: Increase water availability and accessibility	• *Rehabilitate existing water assets (ponds, weirs, gutters, tanks)*	1,650					
	• *Hydrological studies/analysis*	330					
Output 1.2: Climate resilient water management practices	• *Beneficiary community trainings*	118.8					
	• *Establishment of demonstration farms*	990					
	• *Introduction of micro drip-irrigation (on demo farm and some beneficiaries)*	1,650					
	• *Promotion of shade-crops (nurseries, planting, etc.)*	440					
Component 2: Enhancing the profitability and resilience of local drought resistant crop value chains		***3,817***	**3,817**	**Grant**			
Output 2.1: Climate resilient agro-practices	• *Establishment and promoting climate smart and sustainable agro-practices in production of drought resistant crops (Zai pits (see figure 3), strip catchment tillage, contour bunds and meskat systems)- 30 wards*	1,177					
Output 2.2: On-farm post-harvest practices climate proofed	• *Value chain development DRVs and irrigated crops (on-farm storage facilities, on-farm-processing, market development).*	2,640					
Component 3: Institutional strengthening to enhance sustained climate action		**664.4**	**664.4**	**Grant**			
Output 3.1 Adaptive agriculture is domesticated in policy and planning in Makueni County	• *Development of county-specific smart agriculture policy and implementation plan, Integration of adaptation planning into County Environmnetal Action Plan*	165					
Output 3.2: Enhanced capacity of Makueni County Extension Service Providers	• *Training of technical/extension officers*	222.2					
	• *Inter-county knowledge sharing platform*	277.2					
Component 4: Climate information access and dissemination		**320**	**220**	**Grant**			
Output 4.1 Access to climate information and knowledge of climate risk-management enhanced	• Downscaling agromet information systems	100					
	• Dissemination of agromet information through various channels	220			100	Cash	Govt. of Kenya
Indicative total cost (USD)		**10,000**	**9,900**	**Grant**	**100**		

C.2. Justification of GCF involvement (max 1/2 page)

The Kenyan government always finds itself in a difficult position when allocating resources in the face the many competing interest and the limited resources. For instance, the more urgent needs are usually considered to be from health, education and security among others. This leaves very limited resources to support building climate resilience for local communities. As such, most responses to climate change stressors is on emergency basis, an approach that is not sustainable.

On the other hand, climate change adaptation investments are unconventional investments. It is therefore extr aordinarily rare and highly challenging to secure finance from conventional sources in the market for such resili ence-building interventions. The return on investment for such projects is often unattractive for private sector in vestors, and the element of innovation that often characterises climate adaptation initiatives is viewed by th e market as novelty and the absence of a track record of financial soundness. This translates into a high estim ation of risk.

At the same time, for Kenya to extend finance for the entire project would be exceedingly difficult given its curr ent level of external debt (in 2017 Kenya's external debt amounted to 30.3% of annual GDP (CEIC, 2017)). Th e country's overall debt reached US$ 49 billion (4.8 trillion KES) at the end of 2017 (Ngugi, 2018), prompting a warning from the International Monetary Fund (IMF) (Mwanza, 2017). In this fiscally constrained climate, Keny

a would need support from climate funders such as the GCF to avoid displacing other essential national invest ments.

In this context, the request for funding is consistent with Kenya's National Green Climate Fund (GCF) Strategy (National Treasury, 2017), and Kenya's National Policy on Climate Finance (National Treasury, 2016).

C.3. Sustainability and replicability of the project (exit strategy) (max. 1/2 page)

The project is designed to be implemented through the existing agricultural extension, disaster risk management, crop production, CBOs, natural resource management, and other Government structures involving farmers and farmers' organizations. This creates ownership at all levels. Technical support to the project beneficiaries will be provided through the existing Government systems, further strengthening its capacity to improve on technologies and practices. It is expected that the enhanced extension system will continue to provide participatory and demand-driven services in line with the new farming strategy beyond the lifespan of the project. The Government of Makueni and National Government of the Republic are committed to further support and strengthen the practices and systems set up by the project in line with national plans and strategies. This will provide increased opportunities for rolling-out project results. The project will be entrench on the constitutionally set public participation grassroots systems in the county governance structure on delivering the benefits of the services that covers not only gender equitability but also all forms of inclusion. This avoids biases and ensure that they are tailor-made to the specific needs of and demands of people groups.

The clear alignment with the country's strategies and plans, combined with a focus on capacity building, will ensure that by project completion the targeted areas; and that it can maintain sustained efforts in the participating beneficiaries, as well as extend learning to other regions of the country.

Private sector involvement: deliberate steps for ensuring private sector participation are included in the project. The active role private sector will play in marketing with provisions ensures that the results are market-based and responsive to the real economy, thereby can adapt and evolve actively. Farmers' capacity to play an active role is currently limited by the vulnerabilities which this project seeks to eliminate. Once eliminated, the results and impacts will be scaled up and sustained by the public sectors- both individual farmers and associations. Access to local, regional and national markets will thereby come once vulnerability to climate risks of farmers is removed from farmers.

Co-investments by government and communities: The Government co-finance will play two roles (i) embedding the project activities and ethos in government structures so that it becomes the norm and (ii) supporting baseline funding of the proposed interventions hence comingling of resources to support project implementation.

Technology and technical sustainability: The practices promoted by this project have a greater focus to skills and mindsets rather than hardware applications. By farmers learning the means to achieve desired results in climate resilience, they would be able to replicate and sustain it with minimal to no external support. Any credit requirements for initial capital would also be addressed through the enhanced local credit mechanisms that exists already.

C.4 Stakeholders engagement in the project or programme (max ½ page)

This project is being developed to deliver tangible adaptation benefits based on various processes and plans by both governments and other stakeholders. The concept note was approved by the County Government of Makueni as well as the National Treasury to be submitted under the Simplified Approval Process modality of the GCF. The project conceptualisation team (ASCENT, NETFUND, and MOAL&F) has had a number of meetings with the county Government of Makueni County, starting with an inception meeting with the Governor and the relevant ministries and technical experts. After consultations with the Governor Makueni County, The National Designated Authority and the National Implementing entity we agreed to have the entire Makueni County as the project area.

The project development team has made field trips to the Makueni County- in September 2017, January 2018, and June 2018 to further discuss and refine the project activities with key stakeholders at the local level. Further consultations have been made between NEMA and Governor following initial feedback from GCF.

The NDA has been involved every step of the way and has been advising the GMC and developers on the content, national priorities and technical aspects of the preparation. NEMA (accredited by GCF as an NIE) has also been consulted. The developers have also consulted with IEs and selected NEMA after in-depth consultations.

C.5 Monitoring and Evaluation and reporting plans (max ¼ page)

The project will, at early stage develop an MERL Framework and Project Management Systems. This will be a comprehensive beneficiary-led monitoring and reporting framework for tracking and reporting progress. The principles to be applied include:

- Institute quarterly, semi-annual and annual meetings for review and sharing of lessons learned for continuous improvement of the Project deliverables
- ensure transformative and permanent changes are instituted
- Ensure financial propriety in running the systems established for sustainability

C. Annexes

☒ ESS screening check list (Annex 1)

☒ Map indicating the location of the project/programme (as applicable)

☒ Evaluation Report of previous project (as applicable)- The fruit Processor business

Annex 1: Environmental and Social Screening Checklist

Part A: Risk Factors

The questions describe the "risk factors" of activities that would require additional assessments and information. Any "Yes" response to the questions will render the proposal not eligible for the Simplified Approval Process Pilot Scheme. Proposals with any of the risk factors may be considered under the regular project approvals process instead.

Exclusion criteria	YES	NO
Will the activities involve associated facilities and require further due diligence of such associated facilities?	☐	☒
Will the activities involve trans-boundary impacts including those that would require further due diligence and notification to downstream riparian states?	☐	☒
Will the activities adversely affect working conditions and health and safety of workers or potentially employ vulnerable categories of workers including women, child labour?	☐	☒
Will the activities potentially generate hazardous waste and pollutants including pesticides and contaminate lands that would require further studies on management, minimization and control and compliance to the country and applicable international environmental quality standards?	☐	☒
Will the activities involve the construction, maintenance, and rehabilitation of critical infrastructure (like dams, water impoundments, coastal and river bank infrastructure) that would require further technical assessment and safety studies?	☐	☒
Will the proposed activities potentially involve resettlement and dispossession, land acquisition, and economic displacement of persons and communities?	☐	☒
Will the activities be located in protected areas and areas of ecological significance including critical habitats, key biodiversity areas and internationally recognized conservation sites?	☐	☒
Will the activities affect indigenous peoples that would require further due diligence, free, prior and informed consent (FPIC) and documentation of development plans?	☐	☒
Will the activities be located in areas that are considered to have archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values or contains features considered as critical cultural heritage?	☐	☒

Part B: Specific environmental and social risks and impacts

Assessment and Management of Environmental and Social Risks and Impacts	YES	NO	TBD
Has the AE provided the E&S risk category of the project in the concept note?	☒	☐	☐
Has the AE provided the rationale for the categorization of the project in the relevant sections of the concept note or funding proposal?	☒	☐	☐
Are there any additional requirements for the country?	☐	☒	☐
Are the identification of risks and impacts based on recent or up-to-date information?	☒	☐	☐
Labour and Working Conditions	**YES**	**NO**	**TBD**
Are the proposed activities expected to have impacts on the working conditions, particularly the terms of employment, worker's organization, non-discrimination, equal opportunity, child labour, and forced labour of direct, contracted and third-party workers?	☐	☒	☐
Will the proposed activities pose occupational health and safety risks to workers including supply chain workers?	☐	☒	☐
Resource Efficiency and Pollution Prevention	**YES**	**NO**	**TBD**
Are the activities expected to generate (1) emissions to air; (2) discharges to water; (3) activity-related greenhouse gas (GHG) emission; and (5) waste?	☐	☒	☐
Are the activities expected to utilize natural resources including water and energy?	☐	☒	☐
Will there be a need to develop detailed measures to reduce pollution and promote sustainable use of resources?	☐	☒	☐
Community Health, Safety, and Security	**YES**	**NO**	**TBD**
Will the activities potentially generate risks and impacts to the health and safety of the affected communities?	☐	☒	☐
Will there be a need for an emergency preparedness and response plan that also outlines how the affected communities will be assisted in times of emergency?	☐	☒	☐
Will there be risks posed by the security arrangements and potential conflicts at the project site to the workers and affected community?	☐	☒	☐
Land Acquisition and Involuntary Resettlement	**YES**	**NO**	**TBD**
Will the activities likely involve voluntary transactions under willing buyer-willing-seller conditions and have these been properly communicated and consulted?	☐	☒	☐
Biodiversity Conservation and Sustainable Management of Living Natural Resources	**YES**	**NO**	**TBD**
Are the activities likely introduce invasive alien species of flora and fauna affecting the biodiversity of the area?	☐	☒	☐
Will the activities have potential impacts on or be dependent on ecosystem services including production of living natural resources?	☐	☒	☐
Indigenous Peoples	**YES**	**NO**	**TBD**
Are the activities likely to have indirect impacts on indigenous peoples?	☐	☒	☐
Will continuing stakeholder engagement processes and a grievance redress mechanism be integrated into the management / implementation plans?	☐	☒	☐
Cultural Heritage	**YES**	**NO**	**TBD**
Will the activity allow continuous access to the cultural heritage sites and properties?	☐	☒	☐
Will there be a need to prepare a procedure in case of the discovery of cultural heritage assets?	☐	☒	☐

Sign-off: *Specify the name of the person responsible for the environmental and social screening and any other approvals as may be required in the accredited entity's own management system.*

Wangare Kirumba

Annex 2a: Maps indicating the location of the project/programme (as applicable)

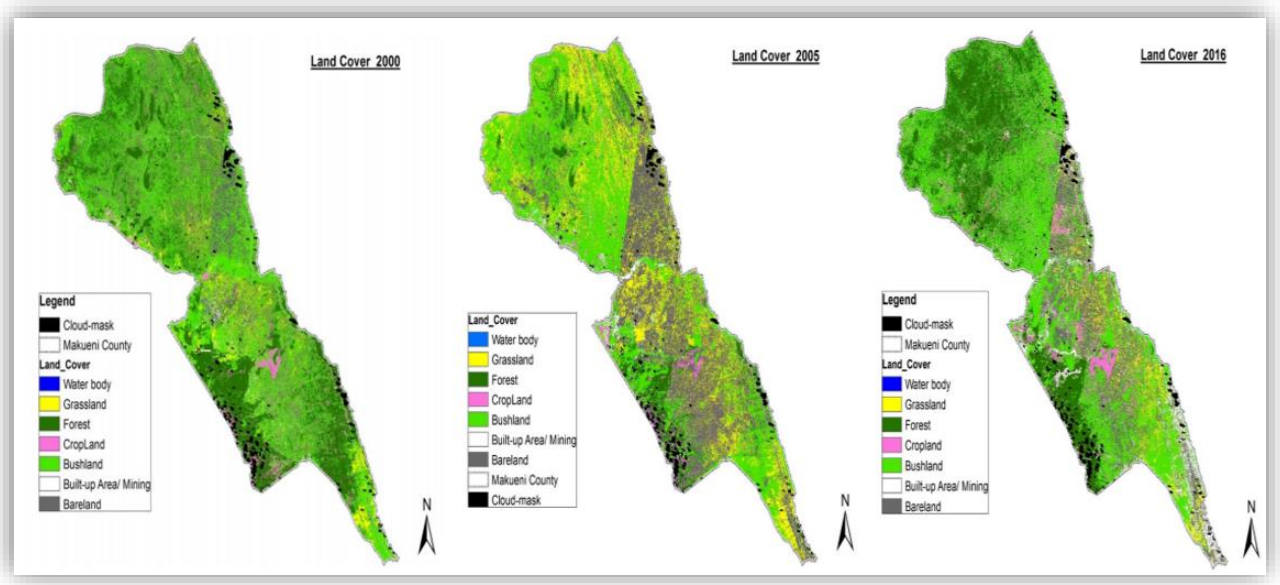


Figure 3: Map of Makueni County land use

Annex 2b: Land use Change partly driven by climate change

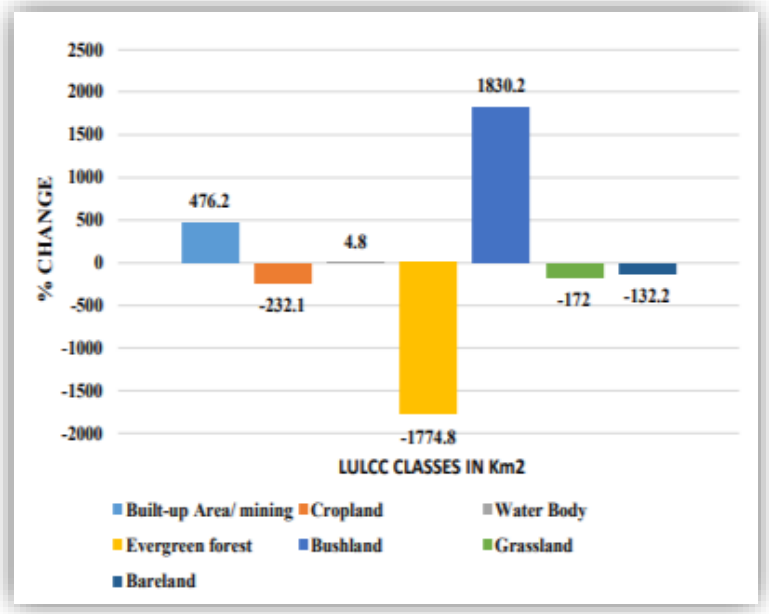


Figure 4: Gross Percentage of Land Use Change from 2000-2016.

Notes:

- 15.4% of bare-lands and 8.7% of croplands were converted to grasslands
- 36% of bare-lands, 30% of bush-lands and 15% of evergreen trees were converted to bare-lands by the year 2005.
- Bush-lands were majorly converted to grasslands (42.4%) and bare-lands (30%)
- Cropland is shrinking as smallholder farmers abandon crop farming due to climate risk

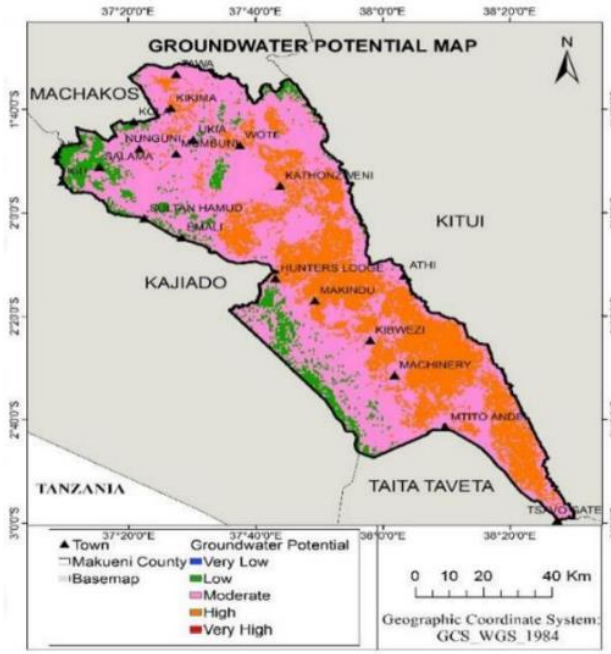


Figure 6 (a):Groundwater potential map

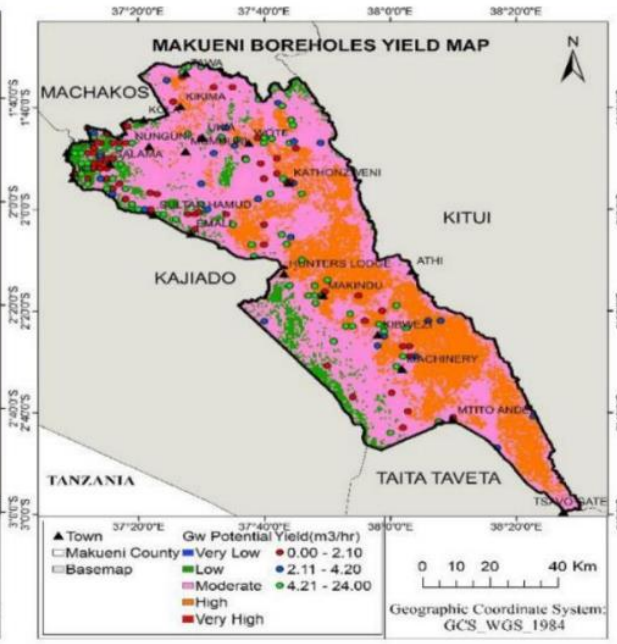


Figure 6 (b): Groundwater potential map with existing boreholes

Figure 5: Ground water Potentials of the county.

Figure 6: Zai pits in use in Makueni and Lower Eastern Kenya. Source: Makueni County Climate Change Fund Inventory for Adaptations Investments 2013-2017

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