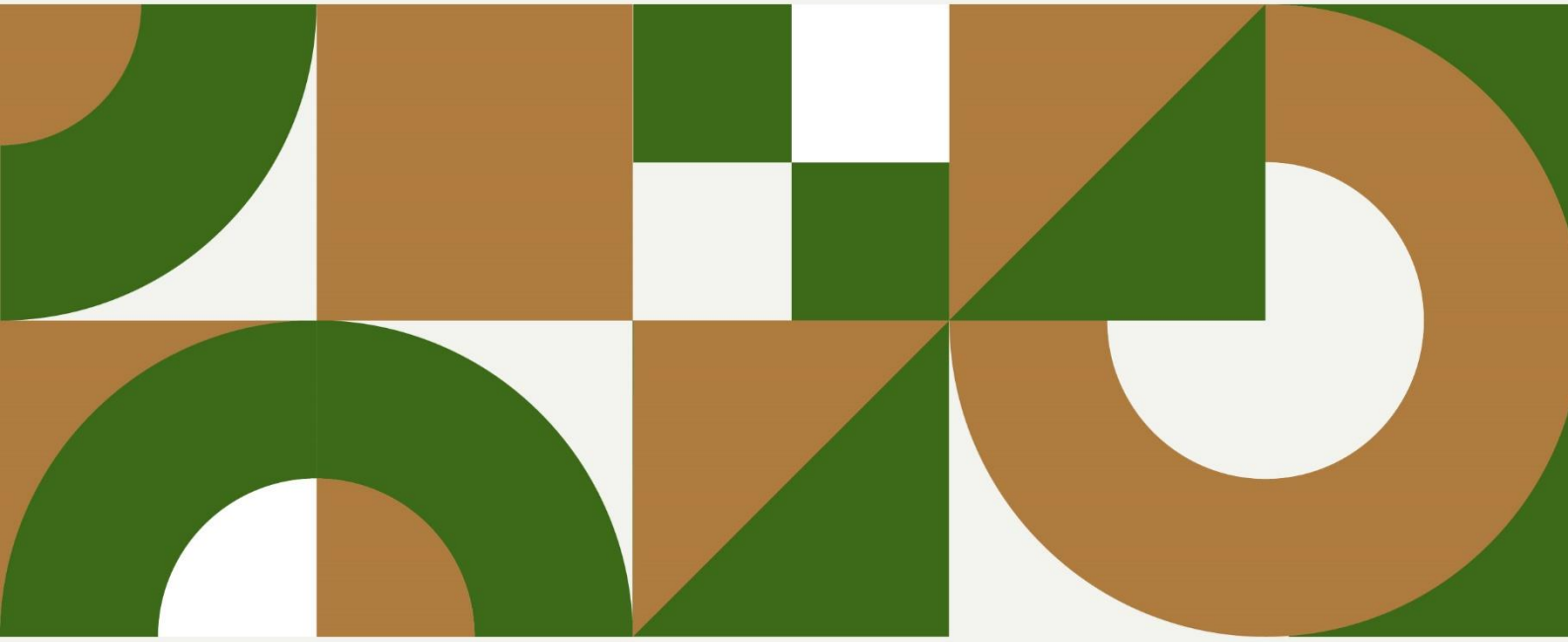

PRE-FEASIBILITY STUDY

MSMEs' Climate Sound Technologies for Production Efficiency and Business Value Programme in Kenya

12 April 2023

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1. Executive summary

The MSMEs' Climate Sound Technologies for Production Efficiency and Business Value Programme in Kenya (MSMEs CST – Kenya) is a 20-year Programme (2024-2044) designed to provide access to finance for adoption and scale up of climate and environmentally sound technologies (CSTs) and practices by MSMEs in Kenya. Thus, it aims to address the key challenge MSMEs face with regard to uptake of climate smart technologies, improve production efficiency, boost productivity, enhance climate resilience and promote sustainability in multiple sectors. 60% of funding will be allocated to adaptation efforts, in relation to 40% to mitigation. In addition, a target of allocating at least 50% of funding to female led MSMEs aims to support gender equality. Overall, the Programme expects to contribute to the resilience of 5.4 million people directly benefitting from the activities proposed under this Programme. Notably CO2 and CH4 emissions are expected to be avoided from energy efficiency, renovated, and upgraded industrial processes, agricultural practices. Over its lifetime the Programme is expected to deliver 11 million tCO2 eq.

The Programme will establish an MSMEs CST credit facility (50 million from KCB and 30 million from the GCF) backed by the 12.5% guarantee equivalent to 10 million USD from the GCF. This facility will provide dedicated financial products to MSMEs to adopt climate compatible technologies and achieve more efficient operations. The proposal also incorporates technical assistance and capacity building components. After demonstrating investment benefits in the first five years of the Programme (the grace period), increased awareness and investment interest will allow the Programme to catalyze blended finance through the insurance of KCB green bonds. This will target an additional 83 million USD from co-financiers and 17 million USD in guarantee for the program's scaling up. The level of the guarantee will be reduced to 10%, rate of NPLc before the pandemic.

Overall, the prefeasibility study assesses the Programme to be a good project to overcome key assessed barriers for MSME participation in climate change adaptation and mitigation. The prefeasibility study provides twenty recommendations, based on identified strengths, weaknesses, opportunities, and threats. These recommendations span many different aspects of Programme development and implementation that are important to consider in order to ensure the viability, effectiveness, and efficacy of the Programme. Some recommendations are minor comments for optimalization of the Programme, while others are crucial to consider in order to ensure reaching Programme aims.

Key strengths relate to the alignment with national priorities, policies, plans and actions; suitability of technological solutions; financial innovations in the Programme; the addressing of key barriers; the holistic approach of the Programme; and the capacity and expertise of

implementing partners. Weaknesses relate to the quantified targets of the Programme; the adaptation-mitigation balance; the proposed information sharing and capacity building activities; the underdeveloped timeline of Programme implementation; and the underdeveloped rationale for waste management. Opportunities are related to the ability of the Programme to support enabling policy and fiscal environments; and the developed principles for credit guarantee schemes that can be used to improve the Programme. Threats include the doubtful sufficiency of technical assistance and capacity building for MSMEs and service providers; an inability to reach MSMEs in key adaptation and mitigation priority sectors and locations; a predominant focus on the low-hanging fruit; insufficient information on loan implementation and support needs monitoring; higher capacity building needs for women; and doubtful effectiveness of the data hub.

2. Context and Justification of the project

2.1. Baseline assessment including analysis of climate adaptation and mitigation & MSME financing Kenya.

Key characteristics and dynamics of the MSMEs sector in Kenya: There are about 1.56 million licensed There are about 1.56 million licensed MSMEs in Kenya. The majority of MSMEs unlicensed (80 percent or more than 5.85 million unlicensed micro firms, with fewer than five employees) and most likely dominates the service sectors. Significant number of MSMEs operate in the agro-processing sub-sector makes up a significant portion of manufacturing activities accounting for about 40% of total production[1] . Of the new jobs created in Kenya annually, MSMEs contribute 92% of the total, being therefore crucial for Kenya's economic development and growth[2]. Finally, industrial SMEs account for about 11% of the total SME establishments in the country and contribute about 25% to the gross domestic product[3]. . Over the last few years, the manufacturing sector's performance has mainly been driven by the textiles and apparels; pharmaceutical products, food, and beverages; wood and wood products and basic metals subsectors; all subsectors with high energy intensive operations and some of them locked into high carbon intensive and unsustainable processes. Promoting the adoption of climate smart technologies by MSMEs is expected to significantly increase their resilience to climate risks and or reduce their carbon footprint with larger negative impacts to the environment resulting from current manufacturing processes. The adoption of these technology will also ensure that the targeted MSMEs make significant savings on energy costs, address the issue of waste, and ultimately contribute to production efficiency.

Finance for MSMEs: Kenyan MSMEs face critical issues in accessing funding and business development support, especially those operating in informality[4]. The IFC estimates that there is a shortage of $19.33 billion in financing for small and medium enterprises (SMEs) in Kenya, representing 30.48% of the country's GDP. Despite measures taken by the Central Bank of Kenya (CBK) to increase liquidity, firms are still facing challenges accessing finance. The current decline in lending to MSMEs in Kenya has been attributed to market distortions caused by the interest rate cap on loans and interest floor on deposits introduced in 2016. This led to a shift in commercial banks towards investing in government securities instead of lending to the private sector, especially SMEs. The impact of the lifting of the cap in November 2019 on SME lending and lending rates is yet to be seen. COVID-19 has exacerbated these impacts. In general, private sector credit growth remains modest in Kenya and access to finance, primarily inadequate access to affordable tailored financing due to unfavorable credit terms, limited access to international markets opportunities and high upfront cost required inhibit the capacity to invest in climate and environmentally sound technologies (ESTs) facilitating acquisition and adoption. This is especially so for MSME, as these businesses often do not qualify for commercial financing given their funding requirements fall below the threshold of commercial financiers and/ or they do not have the collateral to support the facilities. At current, the Kenyan commercial lenders are highly risk-averse and offer no tailored offering for MSMEs to finance broad range of climate and ESTs[5]. Direct government financing is usually limited to specific public programmed based on prevailing government priorities and largely focus on the micro sector thus closing out growth-oriented businesses and businesses falling outside the programming criteria.

The NDC finance and implementation gap (see figure below) shows the key areas in need of additional finance: Agriculture (2), water (3), Environment devolution and waste management (5), manufacturing (7) and energy (8). In all these areas, MSMEs play a significant role. Overall, for mitigation Kenya intends to bear 21% of the mitigation costs of USD 17,725 million up to 2030 from domestic sources, while 79% is subject to international support in the form of finance, technology development and transfer, and capacity building[6]. On adaptation, Kenya intends to mobilize domestic resources to cover 10% of the adaptation costs of in total USD 43,927 million up to 2030, while 90% is thus needed to be covered by other financing streams[7].

Considering Kenya vulnerability and its legitimate development prospects, it is important to ensure the country meet its ambitions set under the NDC and other climate policy frameworks. Kenyan MSMEs as a contributor to 40% of the national GDP are critical to support the country's efforts toward achieving its climate ambition centered around its revised 2020 NDC. Financing low carbon and climate resilient measures through the banking system seems to be a very way to quickly reach a large segment of the population across all sectors economy wide.

Table A 1: Financing gap for priority actions on climate change adaptation and climate resilience

MTEF SECTORS : CC INTERVENTION AREAS/STRATEGIC OBJECTIVES	TOTAL IN $ MILLIONS
1. Social protection, devolution and ASAL/Disaster (drought and flood) risk management : Reduce risks resulting from climate-related droughts, floods, etc.	918
2. Agriculture, livestock and fisheries/ Food and nutrition security : Increase food and nutrition security through enhanced agricultural systems	2738
3. Water and irrigation/Water and the blue economy. Enhance resilience of the water sector for economic uses	4.261
4. Health, environment and sanitation/Health, sanitation and human settlements : Reduce incidence of vector diseases and strengthen climate resilient settlement	500
5. Environment and devolution/Solid waste management : Put solid waste management infrastructure in place in urban and rural areas	274
TOTAL ($ MILLIONS)	**8.691**

The table below summarizes financing gaps for intervention areas that will achieve CC mitigation and low carbon development.

Table A 2 : Financing gap for intervention on climate change mitigation and low-carbon development

MTEF SECTORS	CLIMATE CHANGE INTERVENTION AREAS/ STRATEGIC OBJECTIVES	TOTAL IN $ MILLIONS
6. Forestry, wildlife and tourism	**Forestry, wildlife and tourism :** Increase forest cover to 10% of total land area; increase resilience of the wildlife and tourism sector	616
7. Trade and industrialization	**Manufacturing :** Improve energy and resource efficiency in manufacturing sector	47
8. Infrastructure - Energy	**Energy :** Encourage renewable energy development, increase uptake of clean cooking solutions	7.033
9. Infrastructure - Transport	**Transport :** Climate-proof transport infrastructure and develop sustainable transport systems	2.200
TOTAL ($ MILLIONS)		**9.934**

Figure 1 : Kenya's NDC finance gap and financing strategy, UNDP[8]

The landscape of climate finance in Kenya:[9] In 2018, KES 243.3 billion (USD 2.4 billion) of public and private capital was invested in climate-related activities. This is approximately half

of the financing that Kenya needs annually to meet the targets set in its NDC. Overall, public investment (from domestic and international providers) totaled KES 144.3 billion (59.4%) while investment from the private sector totaled KES 98.9 billion (40.7%). In order to meet the climate ambitions outlined in the NDC, both public and private climate finance needs to be scaled-up significantly by 2030. (See the figure above).

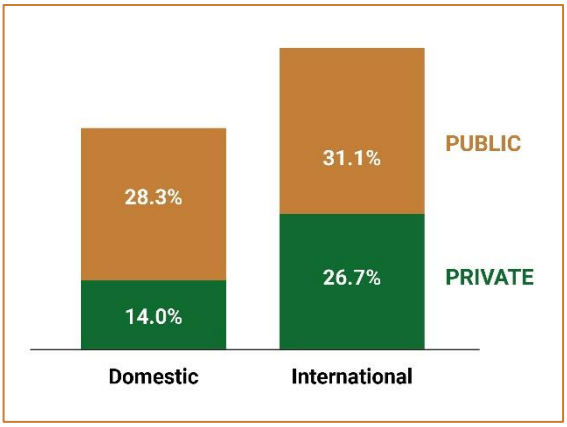


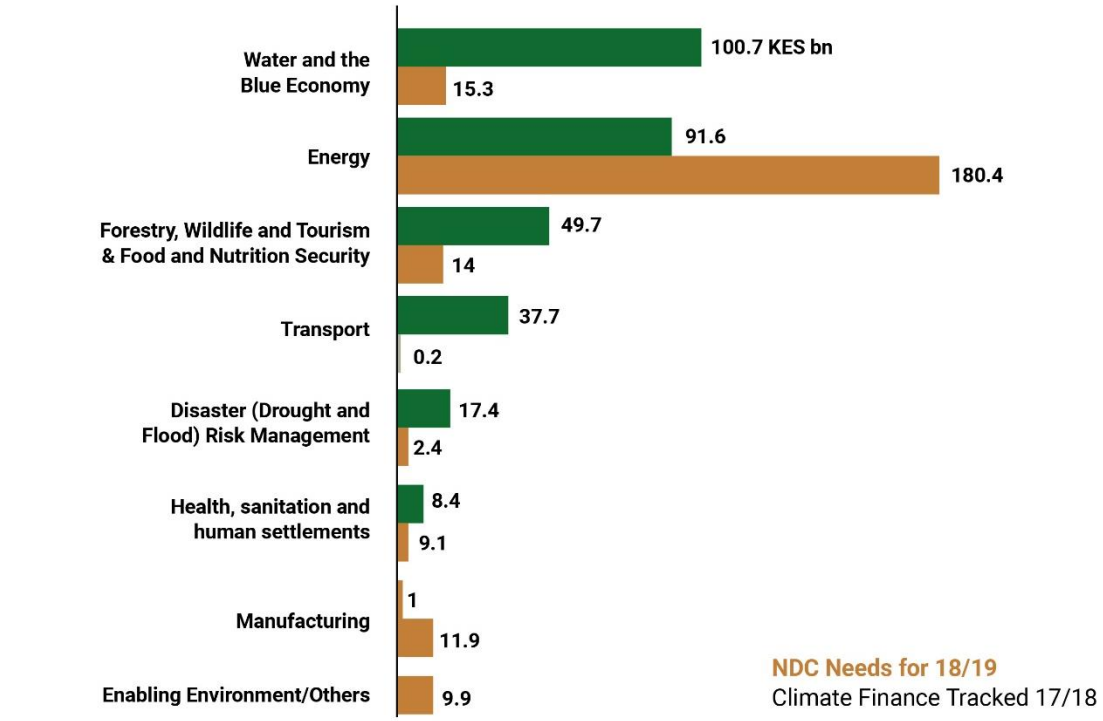
Figure 2 : Overview of climate finance in Kenya in 2018

- **Public finance :** The Kenyan government disbursed KES 76 billion (USD 752.4 million) in climate-related development expenditures in the fiscal year 2017/18. This amount included KES 42 billion (55%) of external resources from international partners channeled into the national budget, while KES 34 billion (45%) was from domestic public resources.
  Less than 60% of the tracked finance comes from international public and private sources. Implementing Kenya's NDC requires that international partners will sustain at least 87% of the costs by 2030. Today, international partners provide much less. Development partners in particular provided less than one third of all finance tracked.
  Seventy-nine percent of international public climate finance was delivered through debt and was mostly channeled towards mitigation activities (55%). There is an urgent need for international investors to scale-up their investments in adaptation sectors, which requires more innovative financing models. Grants are crucial for non-income generating activities that do have catalytic or enabling impacts, such as capacity building exercises.
- **Private Finance** : Investment from the private sector totaled KES 98.9 billion (USD 979 million), 34.4% originating domestically from Kenyan companies through their own resources. 65.6% originated from overseas private companies investing into projects located in the country. Private finance represents almost 41% of total climate finance tracked in Kenya, and most of this was directed to renewable energy generation. It is important to increase domestic private financing.

  Foreign private sector actors invested KES 64.9 billion (USD 643 million) in climate-related capital in Kenya, predominantly in renewable energy projects (99.7% of the total). Beyond renewable energy, philanthropic foundations are the only international private actors that have invested in other climate sectors, in particular supporting adaptation, health, and water projects in

  Kenya. For Kenya to reach the scale of finance needed to achieve its NDC, the private sector will need to play a larger role in the key sectors beyond renewable energy[10].

- Slightly more than 79% of climate finance in Kenya was directed to the implementation of climate mitigation measures which is in stark contrast to the need given that Kenya has an adaptation focused NDC[11].



Source : National Climate Change Action Plan NCCAP (2018-2022)

Figure 3 : Investment gaps in NDC priority actions

2.2. Analysis of climate risks, impacts, and vulnerability

Climate Projections : The World Bank Group's Climate Change Knowledge Portal (CCKP) shows Kenya's seasonal cycle for the latest climatology, 1991–2020. The annual mean temperature for Kenya is 24.3°C, with average monthly temperatures ranging between 22°C (July) and 25.6°C (March). Kenya exhibits an evident distinct warming trend, particularly since the 1960s, with inland areas registering larger increases in minimum and maximum temperatures. The annual mean increase has risen by approximately 1.0°C, at an estimated average rate of 0.21°C per decade, with the most significant rise in temperature observed for the start of the primary rainy and humid, spring season (March to May), in the arid and semi-arid regions of the country. Across all emissions scenarios, temperatures in Kenya will continue to rise. Temperatures in Kenya are projected to continue rising by 1.7°C by the 2050s and by

approximately 3.5°C at the end of the century. Additionally, the number of hot days and nights will increase, with 'hot days' projected to occur on 19%–45% of days by mid-century. Hot nights are expected to increase more quickly, projected to occur on 45%–75% of nights by mid-century and on 64%–93% of nights by end of the century. Increased heat and extreme heat conditions will result in significant implications for health, agriculture, and ecosystems. Below is the multi-model (CMIP5) ensemble of 32 Global Circulation Models (GCMs) showing the projected changes in annual precipitation and temperature for the periods 2040–2059 and 2080–2099.

CMIP5 Ensemble Projection	2020-2039	2040-2059	2020-2039	2040-2059
Annual Temperature Anomaly (°C)	**+0.5 to +1.4** (+1,0°C)	**+1.2 to +2.4** (+1.7°C)	**+2.0 to +3.7** (+2.5°C)	**+2.7 to +5.1** (+3.5°C)
Annual Precipitation Anomaly (mm)	**-13.7 to +21.6** (2.6 mm)	**-17.1 to +25.2** (3.5 mm)	**-17.0 to +34.0** (6.7 mm)	**-17.8 to +44.0** (10.5 mm)

Note : The table shows CMIP5 ensemble projection under RCP8.5. Bold value is the range (10th-90th Percentile) and values in parentheses show the median (or 50th percentile)

Figure 4 : CMIP 5 ensemble projection for 2020 – 2099

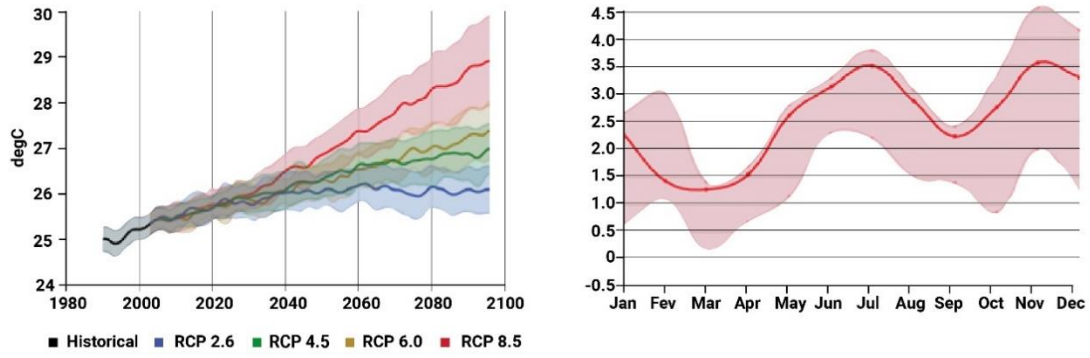


Figure 5 : Historical and average projected temperature for Kenya (1986 – 2099) and projected changes in summer days (Tmax>25C)

Climate Risks and Vulnerability : Overall, Kenya's NDC-GAIN Vulnerability Score is 0.53, making it the country ranked 143 out of 197 countries in terms of highest climate resilience.[12] Kenya's NDC-GAIN Readiness Score is 0.28, ranking it 158th out of 197 countries in terms the country's ability to leverage investments and convert them into adaptation action.[13]

Over 70% of natural disasters in Kenya are attributed to extreme climatic events. Natural hazards related to climate change that occur most frequently in Kenya are floods (48% of

natural hazard occurrence), drought (14%), landslides (4%) and storms (1%).[14] Droughts have affected more people and had the greatest economic impact (8% of GDP every five years). The main climate hazards include droughts and floods which cause economic losses estimated at 3% of the country's Gross Domestic Product (GDP).[15] Current and projected changes present implications for processing with the agro-processing subsector demonstrating one of the highest vulnerabilities. As climate change continues, intense rainfall and flooding is expected to increase the likelihood of landslides, especially in mountain areas, soil erosion and water logging of crops, thereby affecting agricultural yields. As temperature rises and droughts increase, water storage capacity will likely be reduced, which aggravates water shortages and increases the need to manage water supply well.[16] As the country is already one of the most water-scarce of Africa and irrigation is generally not available, agriculture and other sectors are highly vulnerable to projected increase in evaporation and altered rainfall patterns.[17]

The consequences are low quality and supply of commodities (inputs) which affects the overall output in the manufacturing given the significant composition of agro-based activities in the sector. This uncertainty also increases market access risk. Other adaptation related sectors likely to be affected include the water resources and the building sectors. Overall, impacts are expected to disproportionately affect the livelihoods of the rural poor.[18] The north and east are Kenya's most vulnerable areas. Here, both crop and livestock production will likely suffer increasingly from droughts. As a large segment of Kenya's population lives in poverty, adaptive capacity is low.[19]

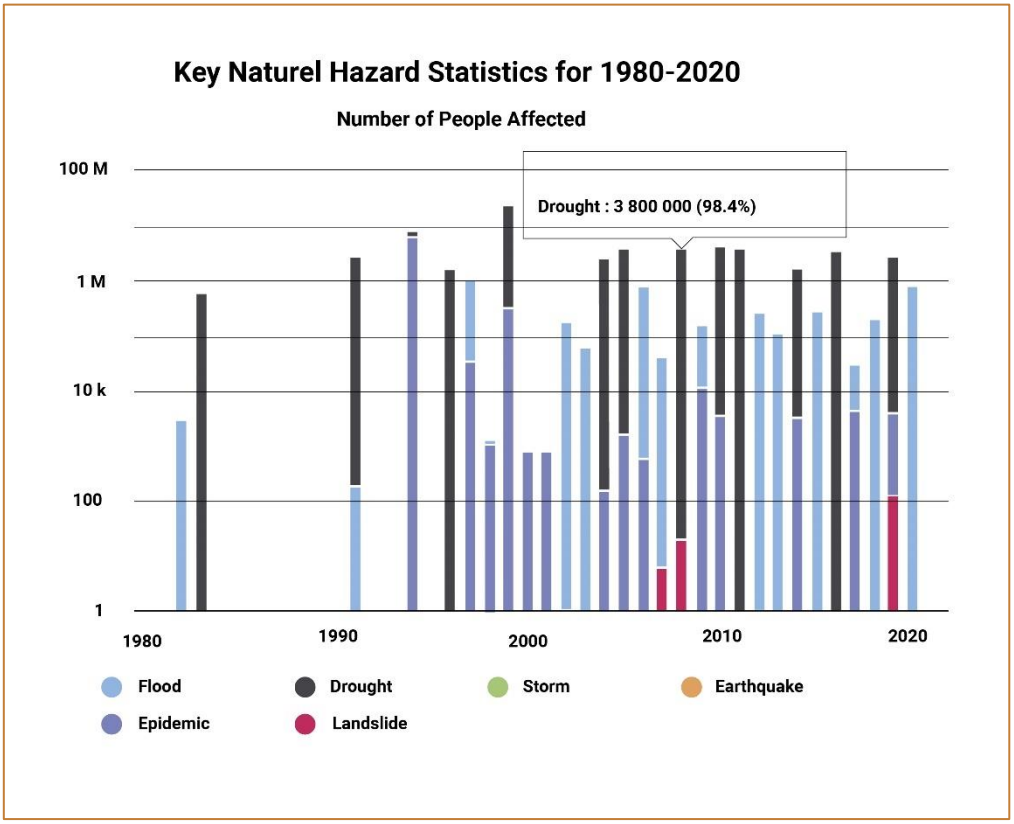


Figure 6 : overview of key natural hazards and affected people, 1980-2020 (World Bank Climate Change Knowledge Portal) [20]

GHG emissions profile : The analysis of low-carbon development opportunities for Kenya based on their mitigation potential, costs, and sustainable development benefits, enable the identification and the prioritization of urgent actions across various sectors where the role of MSMEs is critical and that can be targeted by this proposal, being waste, industrial processes, agriculture, forestry (See Figure 3). Among them, the manufacturing sector contributes to climate change mainly through greenhouse gas emissions resulting from fossil fuel consumption and industrial processing. Out of the approximately 73 MtCO2e produced in Kenya 2019, energy, industrial processes, and waste respectively contributed about 30%, 8% and 1,4% according to climate watch data.[21] Although among the least two contributors to GHG emissions share in the country emissions profile, the potential for industry and waste to reduce its GHG emissions remain significant, due to their emissions of greenhouse gases with higher warming potential and longer lifetime. For industry this is in addition to its use of fossil fuels as a major source of energy.

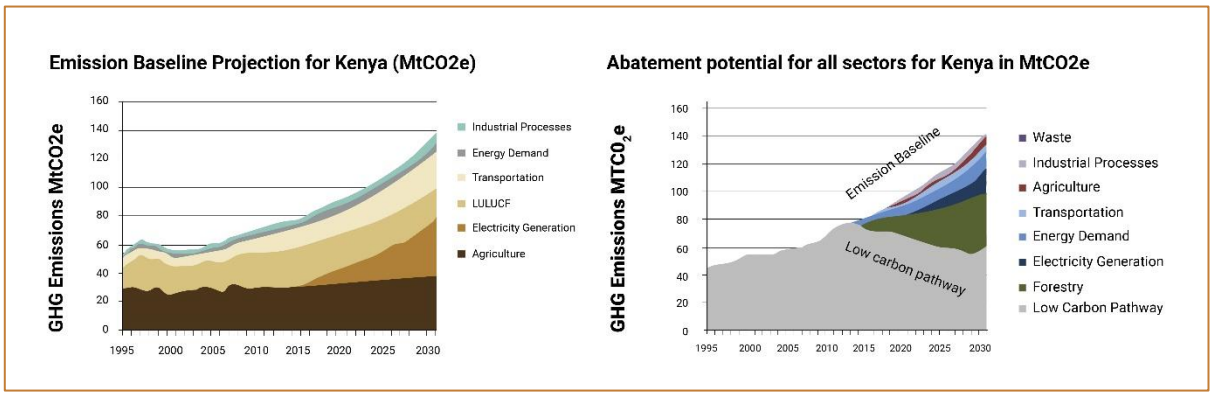


Figure 7 : Economy wide emissions baseline and abatement potential for all sectors in Kenya

2.3. Analysis of the policy landscape related to the project.

A. Kenya's in 2020 revised NDC[22]

a. With an increase in its ambition, the revised NDC include mitigation and adaptation measures proposed for the period between 2021 and 2030 estimated at $64.9 billion. The NDC targets include increasing the share of renewables in the electricity generation mix, increasing tree cover to at least 10% of land area, building a low carbon and efficient transportation system, and increasing the uptake of adaptation technology across all sectors.[23] Overall, Kenya seeks to abate her greenhouse gas (GHG) emissions by 32% by 2030 relative to the business-as-usual scenario (BAU) of 143

MtCO2 eq. It aims to mainstream climate change adaptation into the country's Medium-Term Plans and Country Integrated Development Plans.

b. Kenya's adaptation Programme includes the priority of mobilizing financial resources for adaptation from the capital markets and other financial instruments for green investments and the implementation of the Green Business Agenda.

B. The National Adaptation Plan (NAP) 2015-2030[24]

a. One of the main objectives of Kenya's NAP is to enhance the resilience to climate shocks of private investments in the national transformation, economic and social pillars of its Vision 2030.

b. The NAP identifies the need to develop a business case for private sector investment in adaptation. It also identifies the emerging business opportunities in helping communities to reduce their climate risks such as provision of financial resources for adaptation through investments, financial risk management, and the charitable provision of resources through foundations or corporate social responsibility.

c. One main priority is the creation of an enabling environment for the resilience of private sector investments. It acknowledges that the private sector is a critical player to help build climate change resilience through products and services. Key actions included in this priority are:

   i. Build the capacity build of the private sector (formal and informal) so as to enhance the resilience of their investments e.g., through identification of new products and services that are more resilient to climate change impacts.

   ii. Demonstrate an operational business case for private sector investment in adaptation.

   iii. Develop fiscal incentives to encourage businesses to undertake investment in adaptation and resilience building measures.

   iv. Implement long term private sector investment in adaptation and resilience building measures.

d. An example initiative of the NAP is to establish affordable and accessible credit lines for the urban and rural poor, youth, and vulnerable groups, to enhance access to enterprise funds and to create awareness for climate opportunities. In addition, it aims to support the private sector to adapt agricultural value chains, by investing in capacity building efforts. Moreover, the NAP aims to support the private sector in integrating climate change risks into their environmental and social safety guards.

e. A key adaptation indicator used in the NAP is the amount of private sector financing for adaptation, which the NAP aims to increase through the above stated priorities and actions.

C. The Green Economy Strategy and Implementation Plan 2016-2030[25]

a. The Strategy is geared towards enabling Kenya to adopt development pathways with higher green growth, cleaner environment, and higher productivity relative to the business-as-usual growth scenario. It covers five thematic areas: sustainable infrastructure, building resilience, sustainable natural resources management, resource efficiency, and social inclusion and sustainable livelihood.

b. The strategy has a strong focus on job creation and economic growth that is green and sustainable, aiming to tackle environmental and development issues at once. It focuses on both mitigation and adaptation, as well as on other environmental concerns. In addition, there is particular focus on youth and women.

c. Under thematic area 5, social inclusion and sustainable livelihoods, there is a strong focus on supporting MSMEs. Objectives include:

   i. Mainstreaming green economy into all forms of education and training

   ii. Accelerate creation of green jobs, including through the establishment of schemes to support green business and the implementation of measures to increase attractiveness of green jobs.

   iii. The promotion of green innovation and technology development, including through the supporting of green technology start-ups; promotion of green management practices in established enterprises; the facilitation of the establishment of green MSMEs financing mechanisms; and the promotion of green MSMEs procurement incentives

   iv. The reduction of environmental health risks

a. According to the strategy, the private sectors' key role is in the adoption of green economy technologies and practices in a self-sustaining way. Banks and financial institutions will be required to develop and provide innovative products and services that support the green economy and encourage green economy entrepreneurs and enterprises.

D. The Kenya Climate Smart Agriculture Strategy-2017-2026

a. The Strategy acknowledges a growing private sector interest in investing in climate smart agriculture (CSA). The Strategy has a strong focus on the establishment of public-private partnerships to introduce CSA throughout Kenya's agricultural value chains. This aims to increase private sector participation in and financing for CSA.

b. Concretely, it aims to strengthening financial institutions, providing loan facilities to support farmers' investments, savings, and risk management for CSA activities; ensuring availability of credit to farmers at concessionary interest rates and appropriate insurance schemes to protect farmers from impacts associated with climate change.
    i. It also aims to build the capacity of private actors to use, improve and distribute CSA technology and practices.

E. The Strategic Plan of the Micro and Small Enterprise Authority (MSEA) (2020-2024)[26]

a. This strategy aims to:
    i. Promotion: Create a conducive operating environment for MSEs; Increase MSE market access;
    ii. Development: Provide suitable facilities and adequate funding for MSEs; Foster entrepreneurship and technical skills in the MSE sector; Develop and promote gender participation and inclusion of youth and vulnerable groups;
    iii. Regulation: Initiate and implement formalization of the MSE sector; Coordinate sector players and facilitate integration of programmes and activities;
    iv. Institutional Capacity: Establish prudent management and mobilization of resources; Leverage on information communication technology; Attract, develop and retain competent staff; and institutionalize corporate governance.
b. The strategy links these overall aims to Kenya's SDG Agenda, showing how MSMEs have a critical role to play in reaching the SDGs, including those related to environmental concerns such as climate change mitigation and adaptation.

F. The Kenya National Energy Efficiency and Conservation Strategy[27]

a. The strategy establishes energy efficiency targets in the buildings, industry, agriculture, transport, and power sectors to meet the goal of reducing the national energy intensity by 2.8% a year.
b. The project contributes to this policy by supporting climate change adaptation and mitigation for MSMEs in all the sectors including the manufacturing sector. The priority areas of this strategy fully aligned with the proposed Programme include: the increased use of renewable energy options in industry;

enhancement of energy efficiency solutions and technologies; enhancement of other resource efficient solutions for production facilities; focus on improved waste management initiatives, development of financing options to support adoption of ESTs and public enabling activities to support the manufacturing sector's shift to a green economy.

2.4. Legal and regulatory framework supporting climate change and MSMEs in Kenya

- **Environmental Management and Coordination (Amendment) Act (EMCA) 2005** and 2015 - provides for environmental protection in Kenya. Article 49 promotes the use of renewable energy and the planting of trees. Article 57 grants the relevant ministry the possibility to allow fiscal incentives under the form of tax rebates for private entities "that invest in plants, equipment and machinery for pollution control, re-cycling of wastes, water harvesting and conservation, prevention of floods and for using other energy resources as substitutes for hydrocarbons". Article 50 sets the legal framework to ensure the conservation of biological diversity and charges the relevant agency to "measure the value of unexploited natural resources in terms of watershed protection, influences on climate, cultural and aesthetic value, as well as actual and potential genetic value thereof." The document also contains several dispositions to protect forests. The 2015 law amends section 56 and charges the cabinet secretary to prescribe measures on climate change.
- **Climate Change Act 2016** - provides a framework for promoting climate resilient low carbon economic development. It aims to (Art 3-2): "mainstream climate change responses into development planning, decision making and implementation; and resilience building".
- **Energy Act 2019** - provides a legislative framework for the exploitation of renewable energy sources to ensure consistent and reliable energy supply. The Act also provides for net metering to allow consumers to supply any excess capacity they have back to the grid thus reducing their energy costs.
- The Energy (Solar Water Heating) Regulations, 2012 require among other things that all premises within the jurisdiction of local authorities with hot water requirements of a capacity exceeding 100 liters per day shall install and use solar heating systems; within 5 years, all premises operating at this capacity will be required to install solar water heating.
- **The Energy (Energy Management) Regulations, 2012** require among other things that all designated energy consuming facilities shall carry out energy audits at least once every three years. In addition, the designated facilities will be required to implement at least 50% of the energy audit recommendations within 3 years.
- **The MSE Act (No. 55 of 2012):** This Act provides for a legal and institutional framework for the promotion, development, and regulation of micro and small enterprises by: (a) providing an enabling business environment; (b) facilitating access to business

development services by micro and small enterprises; (c) facilitating formalization and upgrading of informal micro and small enterprises; (d) promoting an entrepreneurial culture; and (e) promote representative associations. The Act also establishes the Micro and Micro and Small Enterprises Development Fund and the Small Enterprises Tribunal.[28]

- Sessional paper no. 5 of 2020 on Kenya Micro and Small Enterprises Policy for Promoting Micro and Small Enterprises (MSEs) for Wealth and Employment Creation: This is the latest policy targeting specifically the MSME sector. Its ultimate aim is to create g a conducive and enabling environment for small business enterprises to grow, create decent jobs and increase their contribution to the overall social-economic development of the country. The ten objectives that the policy seeks to achieve going forward in order to position the MSMEs as an integral part of the economic agenda in Kenya include:

    - Entrenchment of entrepreneurship culture among the citizens
    - Skills and capacity development for existing small business owners
    - Support MSMEs to access domestic and international markets.
    - Access to diversified and affordable range of financial products and services
    - Access top decent and affordable infrastructure
    - Facilitation of startups
    - Promotion of formalization
    - Enhanced coordination and implementation of support programmed targeting development of the MSME sector.
    - Creating a conducive regulatory environment at the national and county level
    - Mitigation of business external risks including those that emerging and cross cutting in nature[29]

2.5. Institutional framework facilitating MSMEs and climate change in Kenya.

Below, a list of key actors and regulatory frameworks regarding MSMEs, and climate change is provided, together with some important notes. [30]

- **The government of Kenya**

    - Has continued to offer financial incentives to encourage private investment in climate action, particularly in the areas of renewable energy, clean cooking, and transportation. To address the current unfair competition due to lower VAT on fossil fuels, the National Treasury and Planning is creating a National Policy Framework on Green Incentives, which will provide guidelines to enhance private funding for

climate action, stimulate the development of green innovation and technology, improve green fiscal consolidation, and explore more effective ways for government taxation and spending.[31]

- Wants to drive climate change adaptation and mitigation, as well as increasingly support MSMEs to develop and play their role in climate change adaptation and mitigation, through beforementioned policies, strategies and plans.
- Key relevant Ministries include the Ministry of Industrialization, Trade & Enterprise Development; the Ministry of Environment and Forestry, Ministry of Treasury and Economic Planning; the Ministry of Agriculture and Livestock Development; the Ministry of Labour and Social Protection; and the Ministry of Water and Sanitation, Ministry of Energy.

- **The Kenya National Chamber of Commerce & Industry** links MSMEs to markets and exhibitions in order to enhance trade.
- **Kenya Export Promotion and Branding Agency:** assists MSMEs to access external markets; facilitates standardization of products and services; facilitates programs for product design and development; brands MSE products for increased market access.
- **Export Processing Zones Authority / Kenya Invest / Kenya National Trading Corporation:** Incubate, graduate, and help MSEs access export markets.
- **Kenya Bureau of Standards:** Facilitates product sample testing and develops product quality standards; facilitates registration and acquisition of standard quality mark for market access.
- **Financial Institutions (Banks, Microfinance):** partner in funding programs for MSMEs and provide suitable financial products for MSMEs.
- **Kenya Institute of Public Policy, Research and Analysis** conducts research on MSMEs and climate change programs to inform developing, reviewing, and modifying existing policies.
- **Kenya industrial Research and Development Institute:** conducts research on MSMEs and climate change programs to inform developing, reviewing, and modifying existing policies.
- **Kenya National Bureau Statistics:** supports policy formulation and Programme implementation and evaluation through data collection.
- **Country governments:** provide the enabling environment, regulatory oversight, and insurance of compliance for MSMEs and climate action.
- **Development partners and collaborators:** provide development finance and support on climate change and for MSMEs.

2.6. Lessons learned from current and recently closed projects related to climate change and MSMEs (in Kenya)

- **Experience** on supporting MSME resilience to climate change shows the important role of governments in influencing the enabling environment to help private efforts to support MSMEs, by using various policy instruments. Far reaching impacts for MSMEs are enabled when governments integrate adaptation throughout their development planning, instead of confining policies to a certain sector. [32]
- In Ethiopia, financing from the Least Developed Countries Fund and technical assistance through the government's Promoting Autonomous Adaptation project enabled 17 MSMEs to receive technical training from government extension officers was critical for these MSMEs in taking up adaptation solutions.[33]
- Other experiences from Kenya on supporting MSMEs in the livestock sector to take up climate smart practices, shows that there is a general lack of available technologies, innovation, and management practices that MSMEs can easily access. Also, when MSMEs search for loans, they do not have enough knowledge about available technologies, service providers and financial institutions supporting these technologies. For financial institutions, proper understanding of technologies available and technological needs of MSMEs is crucial but often lacking when developing financial instruments. Technical assistance to both financial institutions and MSMEs is crucial to ensure that adequate products and services are developed to help MSMEs. In addition, innovative mechanisms for de-risking value chains and investments are crucial to enhance lending ability of financial institutions.[34]

- **Credit Guarantee Mechanisms for MSME** are a form of de-risking. More than half of all countries in the world have (public) credit guarantee schemes for SMEs, and the number is growing. In Africa, example credit guarantee schemes include: the Credit Guarantee for Handicraft (Senegal), French Speaking Countries Africa Solidarity Fund (West Africa), Agricultural Credit Guarantee Scheme Fund (Nigeria), Women's Guarantee Fund (Rwanda), USAID Facilities (Uganda, Eswatini, South Africa), AGRA FSDT Facility (Tanzania), Malagasy Guarantee Fund (Madagascar), Enablis Khula Loan Fund (South Africa).[35]

  In 2015, the World Bank Group and the FIRST (Financial Sector Reform and Strengthening) Initiative, in coordination with the SME Finance Forum, convened a global task force to learn from existing credit guarantee schemes aimed at improving access to finance for SMEs, in order to identify and draft principles for the design, implementation and evaluation of these schemes. The task force included delegates from the Arab Monetary Fund, the Asian Credit Supplementation Institution Confederation, the Association of African Development Finance Institutions, the European Association of Mutual Guarantee Societies, the Ibero-American Guarantee Network, and the Institute of International Finance. The 16 developed principles were

developed to fit public schemes, but most are also useful to take into account in the development of private schemes. They are shown below and cover four key areas critical for the success of these schemes:[36]

1. **Legal and regulatory framework:**
   a. Establish the CGS as an independent legal entity.
   b. Provide adequate funding and keep sources transparent.
   c. Promote mixed ownership and treat minority shareholders fairly.
   d. Supervise the CGS independently and effectively.

2. **Corporate governance and risk management:**
   a. Clearly define the CGS mandate.
   b. Set a sound corporate governance structure with an independent board of directors.
   c. Design a sound internal control framework to safeguard the operational integrity.
   d. Adopt an effective and comprehensive enterprise risk management framework.

3. **Operational framework:**
   a. Clearly define eligibility and qualification criteria for SMEs, lenders, and credit instruments.
   b. Ensure the guaranteed delivery approach balances outreach, additionality, and financial sustainability.
   c. Issue partial guarantees that comply with prudential regulation and provide capital relief to lenders.
   d. Set a transparent and consistent risk-based pricing policy.
   e. Design an efficient, clearly documented, and transparent claim management process.

4. **Monitoring and evaluation:**
   a. Set rigorous financial reporting requirements and externally audit financial statements.
   b. Publicly disclose non-financial information periodically.
   c. systematically evaluate the CGS' performance and publicly disclose the findings.

2.7. Review of the initial pipeline of investable options

In general, the project targets MSMEs operating in climate sensitive sectors in Kenya. The stakeholder engagement process undertaken by KIRDI, and partners allows to identify potential MSMEs that has expressed interest and demonstrate readiness to participate in a lending Programme. At the same time, it confirmed that there is a potential market and the appetite of potential investors and lenders in Kenya to support such initiative. The stakeholder engagement process identified that MSMEs have critical interest in technical assistance and financial support to overcome the key barriers identified during these stakeholder engagement processes, as stated in section 2.8 below.

Category	Sector	Annual Turnover	No. of Employees	Assets / Investment
		(Ksh)		(Ksh)
Micro	All	≤500,000	<10	
Small	All	500,000<x<5,000,000	10<x<49	
	Manufacturing	5,000,000<x<100,000,000	50 <x<250	125,000,000
	Service / Farming	5,000,000<x<100,000,000	50<x<250	250,000,000
	Other	5,000,000<x<100,000,000	50<x<250	As determined by Cabinet Secretary
Source : Micro and Small Enterprises Act (2012)				

However, currently, the Programme has not yet provided any information on an identified pipeline of MSMEs and identified interested service providers. In addition, there is no information on potential interested private investors, and their requirements / interests in terms of supporting the Programme.

Table 1 below provides the typology of SMEs in Kenya and table 2 an initial consideration for portfolio composition and current loans terms applicable.

Tableau 1 : Category of eligible MSMEs for the proposed facilities

	Percentage of enterprises per category	KCB loan segmentation (tentative)
Micro	80%	
Small	15%	

Medium	5%	

Narration	Details	Current Classification
Micro	0 to <= 500,0000	Micro (Yearly Sales)
Small	>=500,001 to <= 10 Million	
SME Medium A	>=10,000,001 to <= 50 Million	SME (Yearly Sales)
SME Medium B	>=50,000,001 to <= 300 Million	
SME Medium C	>=300,000,001	
Corporate	**Generic**	**Corporate**

The average loan term is 36 months and base rate 13% p.a.

FX basis: Approx. 1.00 Kenyan Shilling = 0.00 82001693 US Dollars 1 USD = 121.949 KES

2.8. Analysis of the targeting and understanding of the demand for the type of facility and technical assistance offering.

Overall, promoting the adoption of climate smart technologies by MSMEs is expected to significantly increase their resilience to climate risks and/or reduce their carbon footprint with larger negative impacts to the environment resulting from current manufacturing processes. The adoption of these technology will also ensure that the targeted MSMEs make significant savings on energy costs, address the issue of waste, and ultimately contribute to production efficiency. This is in the benefit of MSMEs as it delivers both economic and non-economic advantages.

Barriers influencing facility and technical assistance demands: Kenyan MSMEs face multiple barriers for which they demand support that the Programme aims to provide. The figure below shows some core elements of the enabling environment for MSMEs to make successful climate change adaptation and mitigation investments. In all these areas, Kenyan MSMEs face key barriers due to limited development of the enabling environment.[37]

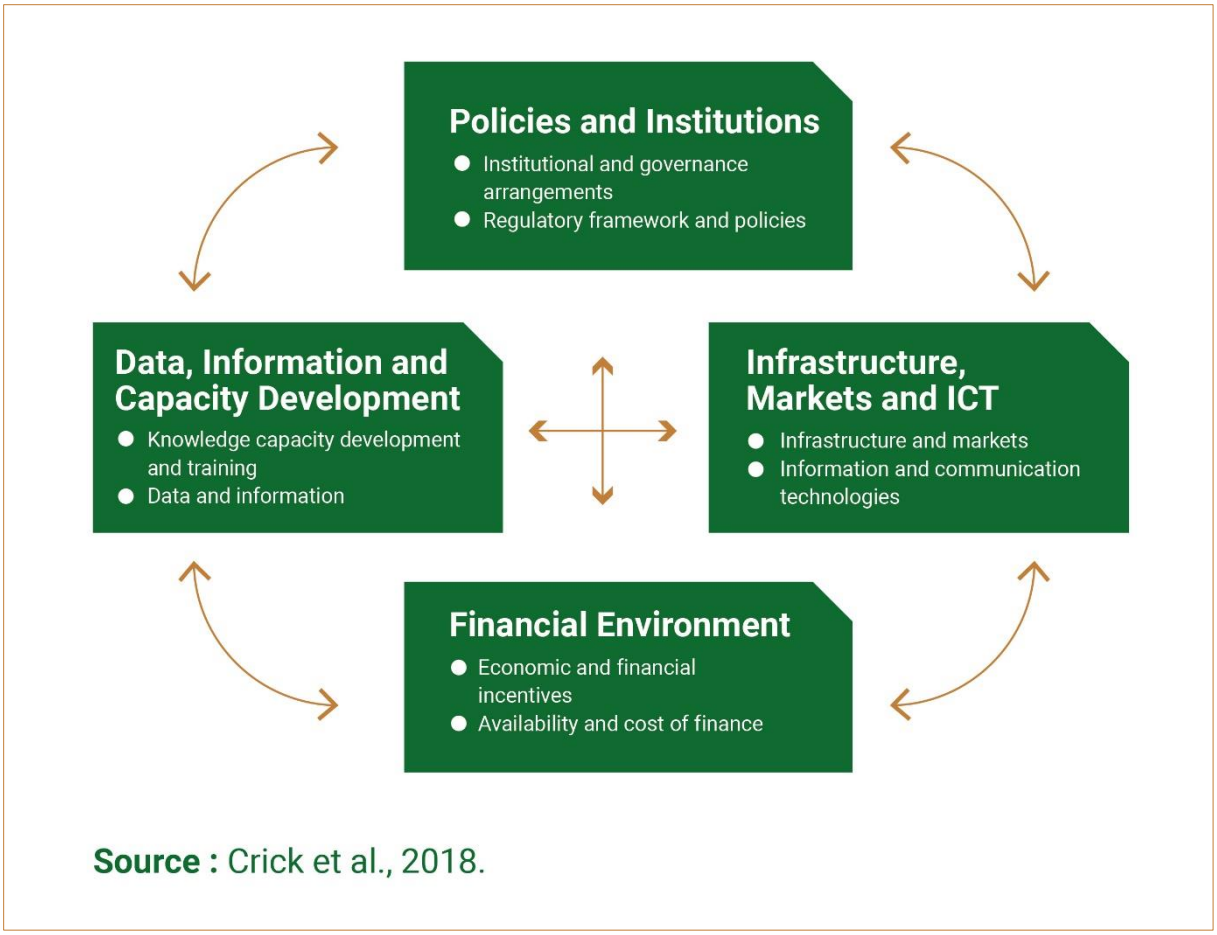


Figure 8 : core elements of an enabling environment for MSME adaptation and mitigation investments, and interlinkages across elements.[38]

Thanks to support of the CTCN, the NDE the Kenya Industrial Research and Development Institute (KIRDI) engaged with a wide range of national stakeholders in collaboration with the Ministry of industrialization, Trade and Enterprise development and the Kenya Climate Innovation Center (KCIC) to assess the need and appetite for climate technology amongst MSMEs in Kenya. The process allows to identify potential MSMEs that has expressed interest and demonstrate readiness to participate in a lending Programme while confirming a potential market and the appetite of potential investors and lenders in Kenya to support such initiative. The engagement process enables to also understand the success factors as well as the barriers that need to be addressed in order to implement such a Programme. These barriers include:

- **Financial barriers:** section 2.1 mentioned the key financing barriers for MSMEs and trends in financing.

- **Information and knowledge gaps:** MSMEs in Kenya face lack of information about and understanding of what constitutes environmentally sound and climate smart technologies and their benefits. They also lack information on related topics such as adaptation and climate resilience, greenhouse gas emissions or quantifying the resulting carbon footprint from a company's operations. The result is absence of an environmental management culture within organizations: environmental management is treated as an optional component of businesses operations as the MSMEs do not have information as to where to access the technologies and/or which financiers to engage with to support the relevant acquisitions.[39]

- **Limited technological skills capability and partnership opportunity:** MSMEs in Kenya lack skills and technological capacity to operate state of the art technology to ensure operational efficiency alongside climate and environmentally sound performance. Due to overall shortage of skilled workforce, the targeted SMEs do not have the skills or knowledge to implement optimal environmental practices and technologies. There is also an absence of green technology databases to support the development of circular economies as well as lack of linkages between SMEs and the relevant solution providers. Training and capacity development opportunities are limited This limits the capacity of MSMEs to make climate-sensitive and climate-resilient investments. [40]

- **Technical and operational limitations:** These include unreliable and high cost of energy, high costs of labor and logistics thereby increasing production costs; and delay or lack of availability of quality local raw materials. [41]

- **Policy and fiscal barriers:** Some subsidies still contribute to higher emissions. For instance, petroleum products are taxed at 8% VAT, while the standard VAT rate for other goods is 16%. This can make it challenging for environmentally friendly technologies to compete in the market. Other policy relevant limitations include high taxes; fragmented policy/policy coordination across different sub-sectors and tedious/lengthy processes in quality standards and certification.

- **Gender barriers:** Mainstreaming gender-sensitive approaches is crucial for the success of climate action[42][43][44]. Women in Kenya face a number of challenges when starting and growing their businesses, including access to finance, as they are often seen as high-risk borrowers due to their limited collateral and experience[45][46]. Additionally, many women entrepreneurs in Kenya lack the education and training necessary to run a successful business. Furthermore, social and cultural norms in some parts of Kenya may also pose challenges, as women may face resistance from their male-dominated communities. Furthermore, average profits of male-run household enterprises are roughly two times higher than profits of female-run enterprises due to individual factors exacerbated by the COVID19 pandemic[47]. These

same barriers and challenges inhibit female-led MSMEs to undertake climate-sensitive actions and investments, as they reduce their adaptive capacity.[48]

To address these challenges, this programs following initiatives by the World Bank SAFER[49], USAID for Gender Equality and Women's Empowerment in Kenya and UNITAR Entrepreneurship, Innovation, and Leadership Training for Women Entrepreneurs in Africa, will collaborate with Women Empowerment in Kenya Organization (WEIKE)[50] and other NGOs to scale-up gender equality in capacity building for climate innovations and financing of women owned MSMEs for climate-smart technologies application.

3. Project description

3.1. Climate rationale

The sectors (agriculture and food security, and water for adaptation) are among the most vulnerable to climate change in Kenya with high macro-economic and socio-economic implications. The targeted mitigation sectors (energy; industrial processes and products; and waste) are also relevant for the country's ability to meet its NDC targets and broader low greenhouse gases emissions and climate resilient development pathways. Financing the transition through the banking sector is one the most efficient ways to ensure deeper transformation of the economy following a demand-based approach. This proposal seeks further to address critical barriers that affect MSMEs in Kenya: lack of finance, technology obsolesce and support the country priorities related to building a green economy or a low carbon and climate resilient society.

The NDC finance implementation gap (see figure below) show clearly that the areas targeted by this proposal are where the needs are greatest.

This Programme will unlock the full potential of the banking sector and other participants of the financial system to provide tailored products for MSMEs uptake of climate sensitive technologies (CSTs). This will help close the NDC finance and implementation gap. Below is a selection of proposed mitigation and adaptation interventions to address the described climate issues:

Mitigation Interventions:

- Promotion of the use of distributed renewable energy sources such as solar systems for use in MSMEs processes. Doing so ensures availability of reliable and adequate supply of energy as well as promoting the reduction of carbon emissions arising from the use of fossil fuels.
- Integration of energy efficiency of buildings and related infrastructure including envelope retrofit strategies, cool and green roofs.
- Adoption of energy efficient technologies or processes in production to help reduce GHG emissions from energy production, as well as industrial process and product uses. Specific interventions in this regard include replacement of inefficient motors with more efficient options, upgrading or installation of efficient plant components, use of smart technologies for monitoring and control of energy consumption and scheduled plant maintenance, integration of circular economy.
- Support change of consumption patterns and improving waste management to reduce methane emissions from waste disposal.

- Promoting Resilient Agroecology, including optimizing natural resource management, such as land, water, ecosystems, and biodiversity, as well as utilizing efficient and renewable energy sources. This approach will minimize the emissions of N2O and CH4, decrease the emissions intensity of food production, prevent additional conversion of high-carbon landscapes, and enhance carbon sequestration in the soil and biomass, thus helping to offset emissions.
- Reconfiguration of food systems: decrease food waste and encouraging consumers to choose diets that are safer, healthier, and more environmentally friendly. It should also prioritize environmental sustainability, avoid contributing to deforestation, be inclusive of all producers, and provide employment opportunities in rural areas.

Adaptation Interventions:

Promotion of the adoption, use of and take up climate and broader environmental sound technology (ESTs) to increase MSMEs ability to promote resilient and sustainable manufacturing and operations systems.

- Promoting Resilient Agroecology by utilizing improved crop and livestock breeds that are resilient to climate change, as well as incorporating innovative adaptation practices and technologies.
- Reconfiguring food system involving changing the way food is supplied, procured, marketed, and sold. This includes adaptation measures to reduce, building it to withstand disruptions, such as through the use of resilient storage facilities.
- Water, and Wastewater Management. Some of the activities for example will consider promoting installation of water and wastewater utility systems with raw water storage facilities, storm – water collection systems, potable and wastewater plant equipment, rainwater harvesting. This will encourage water re-use and enhance efficiency in utilization to mitigate water shortages. It will also reduce pollution from wastewater which is a threat to sustainable use of surface and groundwater especially in industrial areas.

The project will promote a strong synergy between adaptation and mitigation by targeting a range of technologies that could be combined to addresses a cross-cutting issues (e.g., water-food-energy nexus) and both mitigation and adaptation measures will be sustained through capacity building and technical assistance such as:

- Enhance awareness and the capacity of MSMEs in targeted sectors. Some of the activities in this regard include training on climate smart technologies and their benefits as well as supporting the businesses to conduct energy efficiency audits as a basis for implementing the energy efficiency measures highlighted above.
- Support the development of a financial assessment tools for climate projects to enable KCB to integrate climate risks assessment and overall analytics into its loan's appraisal process.

- Promote partnerships between the technology providers, financiers and SMEs to attract financing and ensure that the right technologies are employed.

Targeted climate and environmental sound technologies (ESTs) solutions proposed for this Programme include broad grouping and specific technologies as provided below:

- **Climate smart agriculture:**
  - Promoting crop breeds and production technics resilient to climate change, as well as incorporating innovative adaptation practices and technologies;
  - Application of climate resilient livestock production technics;
  - Improved fisheries production technics resilient to climate change, as well as incorporating innovative adaptation practices and technologies;
  - Construction, acquisition of greenhouse and other climate-controlled farming environment infrastructure;
  - Promotion of post-harvest management technology including cold chains, dryers, and food processing equipment to reduce losses;
  - Support of climate responsible food supply chain, promoting reduction of food waste, emissions, and environmentally friendly diet choice.

- **Water Management:**
  - Water usage control systems and instruments
  - Installation of hot water re-circulation kits
  - Installation of water harvesting systems

- **Waste management**
  - Installation of biomass/ biogas systems for heat and / or power generation
  - Acquisition/ conversion of boilers that are designed to use biomass waste. Installation of wastewater treatment plants and bio-digesters for wastewater/ effluent treatment and recycling

- **Energy efficiency and clean energy in manufacturing**
  - Installation of solar systems for industrial processes other than agriculture and food
  - Energy efficiency interventions to offset high energy costs: installation of efficient motors, retrofitting/ installation of equipment components to improve energy efficiency, installation of smart energy efficiency monitors and supporting ICT systems.
  - Energy efficiency in buildings, related infrastructure, and construction (including envelope retrofit strategies, cool and green roofs)

- **Efficient and reliable renewable energy, clean cooking**
  - Clean cooking solutions

- Green mini-grids and solar home systems

3.2. Project objective, logic of action and components

The **main objective** of the Programme is to support the adoption of climate and environmentally sound technologies (ESTs) for MSMEs in Kenya. This will addressing the key challenge[51] they face with regard to uptake of climate smart technologies, decrease climate footprint, improve production efficiency, boost productivity, enhance climate resilience and promote sustainability of practices. The project focuses on the following five groups of solutions: climate smart agriculture; water management; waste management; energy efficiency and clean energy in manufacturing; and efficient and reliable renewable energy and clean cooking.

Overall, the Programme is expected to contribute to the resilience of 5.4 million people. It is expected to reduce greenhouse gas emissions with 11 million tCO2 eq, notably CO2 and CH4 from energy efficiency, renovated and upgraded industrial processes, agricultural practices.

Due to the distinctive challenges in financing and larger investment gaps in NDC priorities, the Programme portfolio will prioritize funding of adaptation projects (60% of Programme funding as opposed to 40% of funding to mitigation). In addition, the Programme will have a strong focus on gender equality by directing at least 50% of the funding to female led MSMEs to be achieved in collaboration with local CSOs and the MSME Authority in Kenya.[52]

To achieve its goal, the Programme will deliver on 3 outcomes:

1. **Outcome 1:** Innovative concessional financial instruments tailored to the adoption of climate and EST technologies are made available and adopted by MSMEs.
2. **Outcome 2:** Technical assistance and capacity building Programme for the adoption of climate and EST technologies are implemented and key stakeholders' (KCB, MSMEs and other actors) capacity are built.
3. **Outcome 3:** Key barriers to wider adoption of climate and ESTs are removed through enabling interventions.

3.3. Theory of change

The Programme: The Climate Sound Technologies for MSMEs' Production Efficiency and Business Value in Kenya (SMEs CST – Kenya) is designed to foster MSMEs contribution to Kenya's low emissions and climate resilient development pathways by facilitating, within an improved enabling environment, their access to concessional capital, de-risking instrument such as credit guarantees and capacity building to allow technological leapfrogging for a lower carbon footprint, climate resilient and more efficient operations. It is designed to help overcome

the barriers identified in section 2.8. The pathways to achieve such transformation is illustrated in the Theory of Change (Toc) diagram below.

To deliver upon the main objective by reaching the three identified outcomes, multiple activities will be undertaken focused on specific identified outputs:

1. Outcome 1: Innovative concessional financial instruments tailored to the adoption of climate and EST technologies are made available and adopted by MSMEs.

1.1.Output 1.1: Dedicated new financial products offerings to MSMES for climate and ESTs technologies (CSTs) adoption: development, introduction, roll out and deployment of two specific financial products for CSTs targeting SMEs.

1.1.1. Activity 1.1.1: Establishment of a dedicated credit line for MSMEs to adopt climate and EST technologies: KCB will set up an 80 million USD blended finance facility. This will be co-financed with GCF in years 1-5 and will mobilize additional private capital through green bonds issued by KCB in the following years 6-20. The blended finance facility will support the acquisition and large adoption of CSTs by Kenyan MSMEs.

1.1.2. Activity 1.1.2: Establishment of a dedicated credit guarantee facility: KCB will seek GCF partial credit guarantee for various loan portfolios based on the assessment integrated by Output 1.2 across the different sectors targeted in this proposal. The initial size of the guarantee facility is USD 10 million with GCF as the main guarantor representing 12.5% of the credit facility in years 1-5. This level of de-risking guarantee facility for MSMEs loans has been estimated based on the level of non-performing loans (NPLs) at 13.6 percent in August 2020 during the pandemic, which is high as compared to 10.5 percent in August 2019 before the pandemic. On best efforts, KCB will endeavor to expand the pool of guarantors (AGF, GuarantCo) and mobilize additional USD 7 million after the implementation phase tailored for MSMEs CST credits with priority given to adaptation activities. The level of the guarantee to the Programme portfolio will be reduced to the MSMEs NPLs level before the pandemic ~10% (USD 10 million from the GCF and USD 7 million from additional guarantors).

1.2. Output 1.2: Development of two set of tools for integrating climate proofing methods in KCB loans and guarantees appraisal process.

1.2.1. Activity 1.2.1: Development of a mitigation tracking tool to monitor energy and carbon savings across the loan and guarantee portfolio of approved projects.

1.2.2. Activity 1.2.1: Development of a climate risks screening tool to address climate risks across the loan and guarantee portfolio of approved projects.

1.2.3.Activity 1.2.3: Integration of the tool within KCB operations, onboarding of credit and loans appraisal officers and associated capacity building for KCB. These tools will enable KCB to track the mitigation and adaptation results associated to the deployment of the innovative concessional financial instruments and the adoption of climate and EST technologies by supported MSMEs.

1.3. Output 1.3: Matchmaking mechanism to support efficient sourcing and acquisition of tested and vetted climate and EST technologies to facilitate exchange between solutions providers and MSMEs seeking to adopt them.

1.3.1. Activity 1.3.1: Setting up a match making platform to link relevant MSMEs and climate and EST solution providers. This mechanism will facilitate the engagement of the relevant climate and ESTs providers with KCB and offer a potential to attract other financial partners to assist Kenya MSMEs in acquiring climate and EST technologies. Beneficiaries will be participating MSMEs and technology providers. As a pre-conditions to their full enrolment in the matchmaking mechanism, MSMEs should undergo a technology needs assessment process confirming the selection of the most optimal technology to climate proof and increase efficiency of their operations. The technology providers on the other side should undertake the necessary climate EST audits to confirm the performance of the proposed technology. The participating technology providers will be selected through an expression of interest, a due diligence, quality and conformity control and an implementation arrangement including terms and conditions. Targets: Ongoing activity for one-on-one engagements with solution providers as well as creation of matching sessions during dedicated finance and technology readiness sessions (See Activity 2.1.2 and Activity 3.1.1).

2. Outcome 2: Technical assistance and capacity building Programme for the adoption of climate and EST technologies are implemented and key stakeholders KCB, MSMEs and other actors' capacity are reinforced.

2.1. Output 2.1: Information sessions and capacity building Programme for the MSME actors.

2.1.1. Activity 2.1.1: Hold information forums/events for MSMEs, government representatives and solution. The events will include the targeted MSMEs, technology providers, prospective financiers other than KCB and any relevant stakeholders including government agencies and the NGO community to discuss

the development of adoption of ESTs, identify gaps/ barriers and how these may be addressed and discuss opportunities about the adoption of ESTs. Targets: at least one event per year totaling to 5 events over the 5 years.

2.1.2. Activity 2.1.2: Capacity building sessions for MSMEs on finance and technology readiness. The capacity building Programme is designed to provide business advisory training that will include finance and technology readiness training as well as general training. It specifically targets the key barriers identified through the stakeholder engagement and literature research as stated in section 2.8. Targets: training of at least 800 enterprises on the two modules by the end of the 5 years technical assistance Programme conducted over 20-24 sessions.

3. Outcome 3: Key barriers to wider adoption of effective and sufficient climate and ESTs are removed through enabling interventions.

3.1. Output 3.1: Technology needs assessments (TNA) and technology audits for recommendation on the adoption of ESTs in targeted sectors.

3.1.1. Activity 3.1.1: Undertake TNA for MSMEs participating in the Programme. TNA will enable MSMEs to invest in the right technology to achieve any or a combination of the following: (i) Improve profitability through optimization of energy and resource expenditure; (ii) Increase productivity from optimization of equipment and processes; (iii) Enhance performance as a result of rationalized energy use; (iv) Improve water usage and management practices and (v) Improve management of solid and/ or industrial effluent and wastewater.

3.1.2. Activity 3.1.2: Undertake technology and practices audits for the technology providers. The Programme will support participating technology providers to undertake audits for energy and water savings or raw material inputs to understand the quality of proposed techniques, their risks and potential mitigation strategies. Doing so will enable to select quality climate and ESTs while reducing traditional risks associated with technology acquisition: obsolescence, after services and spar part unavailability, guarantee of the products etc. The Programme will work in partnership with accredited technical experts to carry out the needs assessments and audits. Target: Conduct audits for at least 50% of the participating SMEs as it is foreseen that a few of the enterprises may be considered finance and technology ready as a result of previous audit exercise equivalent to the one proposed by this Programme.

3.2. Output 3.2: Data Hub to Support Promotion of a Circular Economy.

3.2.1. Activity 3.2.1: Creation of a Data Hub to Support Promotion of a Circular Economy. The Programme will create a data hub where industrial SMEs will be mapped depending on the types and quantities of waste they produce. It is expected that the data hub will be useful to other industrial SMEs who utilize waste products as inputs in their production processes and thus creating a circular economy. The promotion of circular economies has the potential to create new value chains and jobs and ensuring complete utilization of raw materials and their waste products including possible conversion and re-use of the disposed waste. Target: Creation of the data hub by the end of the first year of the Programme and ensure continuous updating.

By addressing interlinked challenges and vicious circles of chronic barriers (see the bullets below) that locked Kenyan MSME in high carbon intensive and high energy intensive technologies, this Programme will unlock the full potential of the banking sector and other participants of the financial system to provide tailored products for MSMEs uptake of climate and environmentally sound technology. Relevant stakeholders (MSMEs; technology providers, finance providers; governmental agencies) will be incentivized alongside capacity building. Enabling activities will promote the market creation and development for the deployment of climate and environmentally sound technology in Kenya.

- **Access to finance:** The GCF concessional USD 30 million senior loan will enable KCB to offer a dedicated concessional credit lines that can be coupled with the USD 10 million guarantee facility to de-risk investments in these climate and environmentally sound technology. Reduced interest rate and guarantee to lower collateral requirements will address affordability issues for market creation,
- **Information and knowledge gaps**: The information sessions and the demonstration of success stories showcasing the economic benefits resulting from a better performing operation of these technology in addition to their climate and environmental benefits will incentivize greater adoption,
- **Limited technological skills capability and partnership opportunity:** the capacity building sessions around financial and technological readiness will provide opportunity to acquire basic. skills and information on where to get in-depth support. The capacity building initiatives will support the creation of an ecosystem of stakeholders, especially among the youth to engage in skills development in this field,
- **Technical and operational limitations:** The match making mechanism will demystify the newness and complexity of these technology (addressing issues related to quick

obsolescence, products quality, and guarantee, after sales service availability and spare parts for replacement and O&M consideration),

- **Limited fiscal incentives:** engaging the wider financial system and promoting TNA and technology audits and certification will support awareness raising among decision and policy makers including regulators for increasing incentives for the full development of a nascent and high potential climate and EST market.

The success of the Programme is dependent on the integrated effect of the activities proposed across the three interdependent outcomes: Provision of financing and de-risking instruments, capacity and awareness building, and enabling activities for greater incentives as well as the collaboration with a wider network of international and international actors: the MSMEs; the participation of technology providers and commercial lenders that serve the MSME segment. The participation of the operating entities of both the Financial (GCF) and the technology mechanism (CTCN) of the UNFCCC provide high visibility for the scheme and will secure participating of leaders of innovative technology within a framework that will enable collaboration with local participants.

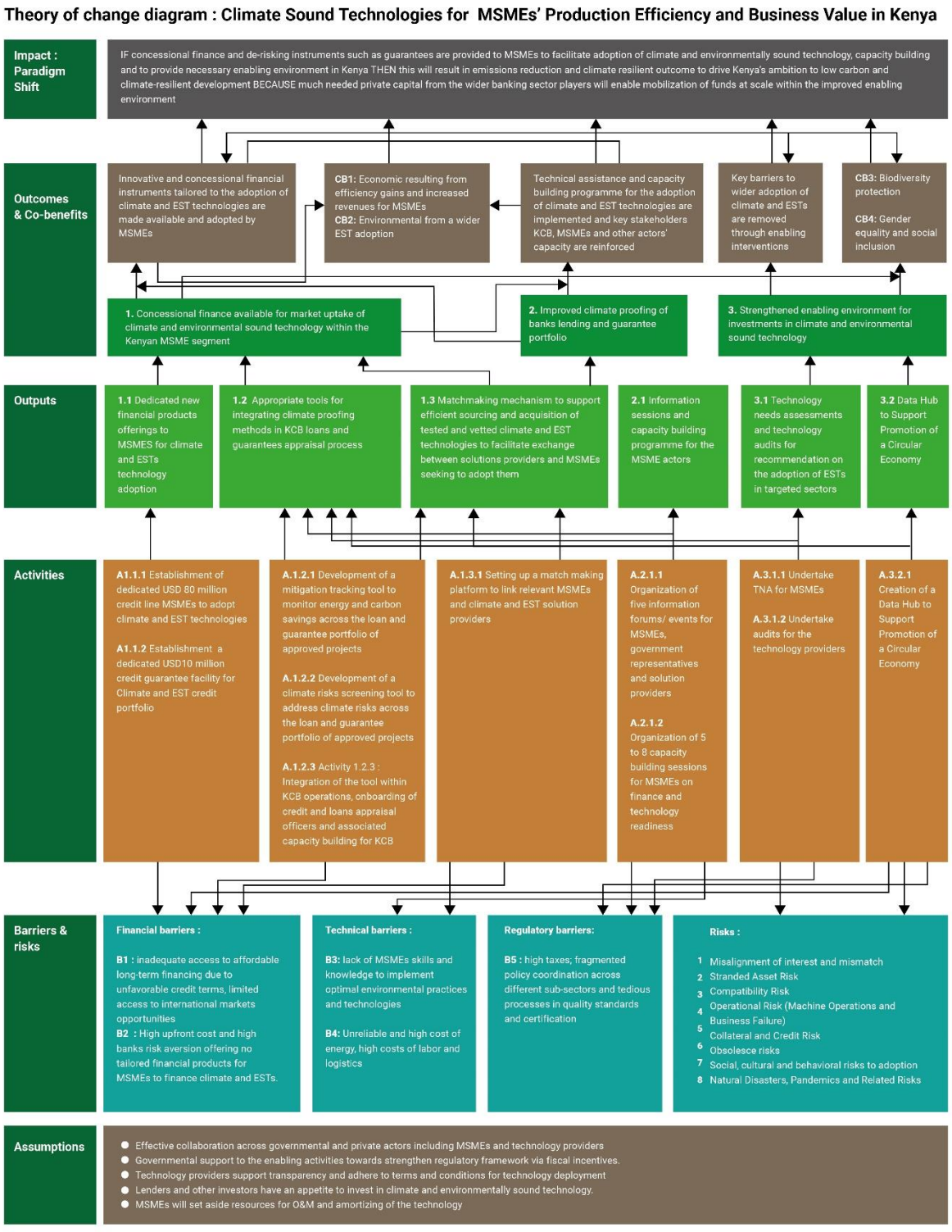


Figure 9 : Theory of change diagram Climate Sound Technologies for MSMEs' Production Efficiency and Business Value in Kenya

3.4. Alignment with National Priorities and National Ownership

This Programme supports the government of Kenya as it embarked on several climate related initiatives namely the Nationally Determined Contribution (NDC), the Green Economy Strategy

and Implementation Plan, the National Adaptation Plan (NAP), the Kenya Climate Smart Agriculture Strategy-2017-2026, the strategic plan of the micro and small enterprise authority (MSEA) among others. By supporting climate change adaptation and mitigation for MSMEs in all the sectors including the manufacturing sector, it also provides a direct contribution to the Kenya National Energy Efficiency and Conservation Strategy, establishing energy efficiency targets in the buildings, industry, agriculture, transport, and power sectors to meet the goal of reducing the national energy intensity by 2.8% a year. The priority areas of this strategy fully aligned with the proposed Programme include: the increased use of renewable energy options in industry; enhancement of energy efficiency solutions and technologies; enhancement of other resource efficient solutions for production facilities; focus on improved waste management initiatives, Development of financing options to support adoption of ESTs and public enabling activities to support the manufacturing sector's shift to a green economy.

3.5. Timeline of the implementation

The project consists of two main phases:

1. A 5-year grace period (2024-2029). This stage will be devoted to capacity building and deploying the MSMEs CSV credit facility. First MSMEs will be supported, which will create a demonstration effect that will encourage private finance participation in the Programme.
2. A 15-year repayment period (2030-2044) where the implementation of the Programme will continue and will mobilize blended finance through green bonds issued by KCB, that will allow to repay the financial support from GCF and scale up the Programme to support more MSMEs. This stage of the Programme will ensure an overall GCF mobilization ratio of 1:3 will be reached.

There is no clear timeline provided yet on the implementation of activities. Especially preparatory activities key for making other aspects of the Programme fully operational (e.g., capacity building of KCB staff, the development of mitigation tracking and climate risk screening tools; development of financial instruments) would be good to include for a better assessment of how realistic programmer's aims and objectives are. This will also help understand and assess the needed length of the grace period of the Programme.

4. Pre-feasibility assessment

4.1. Technical assessment of major practices/technologies

As a starting point for eventual adoption of climate and environmentally sound technologies and subsequent enhancement of production efficiency, the MSMEs will require hand-holding in the following areas: (i) To understand what climate change is, how the sector as a whole and their manufacturing operations impact climate change, what environmentally sound technologies are and the associated benefits; (ii) Capacity building in other areas of the business such as finance readiness modules where necessary to ensure that the SMEs are more attractive for commercial financing; (iii) Creation of a platform that will ensure access to markets to address the enhanced production, and (iv) the businesses will also require support to carry out audits, e.g. on energy efficiency as a basis to determine the technologies to be acquired. The above activities are seen to best be addressed through a technical assistance component which the Programme proposes would take the form of the GCF grant.

Below, an overview is provided of the technicalities of the major aspects of the Programme and the established financing facility:

1. **Outcome 1:** innovative concessional financial instruments tailored to the adoption of climate and ESTs technologies adoption.

- **Credit guarantee mechanism:** credit guarantee mechanisms are a common form of intervention, also often used by government agencies, aimed at unlocking finance for MSMEs. A credit guarantee mechanism provides third-party credit risk mitigation to lenders by absorbing a portion of lenders' losses on the loans they made to MSMEs in case these MSMEs default.[53] Private sector mechanisms typically do this in return for a fee, though development-oriented actions do not have to include this. The principles for credit guarantee schemes as detailed in section 2.6 can further be used as a resource to strengthen the design of this credit guarantee mechanism.
- **Integration of climate proofing** methods in KCB loans and guarantee appraisal process
  - **Mitigation tracking tool** to monitor energy and carbon saving: multiple tools for mitigation tracking exist. In general, these tools calculate the business-as-usual carbon emission scenario of traditional/previous activities and used technology/equipment (the "emission baseline"), and then compares it to the carbon emission scenario to adjusted activities, technology and equipment that needs less energy, is more energy efficient or uses renewable energy sources. Different financial institutions generally use different methods. In general, it is important to calculate CO2-eq taking into account all types of GHGs, and not only focus on CO2 as regularly happens.[54]

- **Climate risk screening tool** to address climate risks: here also, multiple methods exist. In general, climate impact scenarios based on different climate change pathways are identified as a first step. The time horizon(s) used for this should align with investment timelines. Two emission scenarios will be used: a most pessimistic scenario and a scenario linked to the implementation of the NDCs. Secondly, the vulnerability of MSMEs' assets and business operations to the specific risks should be identified. There exist many free and commercial tools for these types of scenario and climate risk analysis.[55] Unavailability of data, amongst others due to high contextuality of climate risks, inhabits climate risk screening or leads to moderate to high uncertainties.[56] In these screenings, it is important therefore to be explicit about uncertainties.

- **Matchmaking mechanism** to support efficient sourcing and acquisition of tested and vetted climate and EST technologies to facilitate exchange between solutions providers and MSMEs seeking to adopt them. This includes the development of a database or platform with information on: MSMEs and their general details, business operations and climate solution demands; and on service providers and their services and solutions, general information, and geographical reach. Bank staff can use this database/platform to link MSMEs with service providers. Also, the bank can provide access to part of this information to MSMEs and service providers, who can then themselves identify potential customers/service providers, to be connected to them through the bank's network.

2. **Outcome 2:** Technical assistance and capacity building Programme for the adoption of climate and EST technologies are implemented and key stakeholders KCB, MSMEs and other actors' capacity are reinforced.

- **Information forums/events** for MSMEs, government representatives and solutions providers: The events will include the targeted MSMEs, technology providers, prospective financiers other than KCB and any relevant stakeholders including government agencies and the NGO community to discuss the development of adoption of ESTs, identify gaps/ barriers and how these may be addressed and discuss opportunities about the adoption of ESTs. The sessions are designed to enhance awareness and build up interest in the adoption of ESTs by the SMEs, create interest for financiers to focus their portfolios on green finance for the SME segment, ensure continued government support and that the proposed initiatives are aligned with the relevant government policies and initiatives. Targets: at least one event per year totaling to 5 events over the 5 years.
- **Capacity building sessions** the capacity building Programme is designed to provide business advisory training that will include finance and technology readiness training as well as general training. A training package and associated delivery plan covering both Finance and Technology modules to make industrial MSMEs ready will be prepared. The Finance readiness training – will address climate business advisory

including approaches to drive low carbon and remove climate change risks across businesses supply chains, enabling MSMEs to engage in new ways to collaborate and act on climate change issues. The Technology readiness training – will increase understanding on how to incorporate climate, environmental management culture as part of overall company strategy; quantification of the resulting benefits; technology options, technology protection measures and the process and importance of IP protection.

- These capacity building sessions will provide a clear demonstration of the benefits that a business can realize by adopting ESTs and education of the various preconditions by financial and technology providers, many MSMEs will be more willing to adopt the climate and ESTs. In addition, commercial solution providers especially will only be keen to participate in the Programme and engage further with MSMEs where they are sure they can gain value. The session facilitators will be drawn from accredited business and technical advisory firms/ individuals as well as representatives of the finance and technology institutions.
- However, it is unclear what percentages of envisioned supported MSMEs is the targeted 800 MSMEs supported through the program with capacity building and readiness, and what percentage of supports MSMEs thus remains without this support. As the target is to train 800 MSMEs in 20-24 sessions, this means that each MSMEs will have 1 session together with 33-40 other MSMEs. Such a group session is assessed as insufficient to help MSMEs to really overcome their key barriers as there is very limited ability for personal support. To make sessions on technological readiness sufficiently useful for MSMEs, these sessions should target the specific technologies relevant for these MSMEs. While some MSMEs can be grouped in 1 session, based on their relevant information needs, it seems unfeasible to group 33-40 MSMEs with similar needs, and with needs at a similar point in time (i.e., the start of their process for getting the loan).
- Overall, it is advised to ensure that capacity building efforts will be developed participatory as to ensure it fits the needs of MSMEs. Feedback mechanisms are also crucial for this.

3. **Outcome 3:** Enabling interventions to remove key barriers to wider adoption of climate and ESTs.

- **Technological needs assessment** for MSMEs: this assessment will be undertaken in a collaborative effort between supported MSMEs and implementing parties of the Programme. It will identify MSMEs technological needs and available climate-sensitive and climate resilient solutions that can meet these needs, taking into account MSMEs' interests, capabilities, and financial resources. However, nothing is said about if and how the Programme will require MSMEs to get this in-dept-support, as to mitigate investment risks for the bank and private investors, and to ensure efficacy and effectiveness.

- **Technology and practices audits** for technology providers: this is a formal inspection conducted by independent parties where various tests are performed – depending on the technology in question – to understand energy, water, and raw material usage of technologies and subsequently their savings in relation to less climate-sensitive technologies. It will look at key traditional risks associated with the acquisition of technologies by MSMEs, including e.g., obsolescence, after services and spar part unavailability, and guarantee of the products. By identifying these risks, it will enable MSMEs to choose the best technologies and practices and service and technologies providers to enhance their products based on received feedback. It is unclear what the consequences are for their participation in the Programme if service providers are not audited, expect for the fact that they cannot be included in the matchmaking platform.
- **Data Hub** to support promotion of a circular economy. This will be an online data platform accessible for MSMEs, service providers, governments and other interested parties and will show key examples of actions taken by MSMEs to contribute to climate change mitigation and adaptation. A key priority in the establishment of this data hub is ensuring its accessibility and making it easily understandable for stakeholders, e.g., enabling MSMEs to be informed about and take up showcased solutions.

    1. However, the effectiveness of the proposed modality is assessed as doubtful. The development of a data hub can be costly, while accessibility and usability of the hub is not easily reached. Also, it also requires significant outreach work to make sure it is being used.

4.2. Environmental, economic, and social benefits assessments of the major solutions supported.

State of play: Kenya's Micro, Small and Medium Enterprises (MSMEs) contribute approximately 40% of the country' Gross Domestic Product (GDP). They cut across all sectors of the economy and are recognized as a critical driver of the economic growth with substantial contribution towards poverty reduction, employment, and income generation. Kenya's MSMEs are therefore critical to support the country' efforts to meeting the ambition associated to its low emissions and climate resilient development strategy, centered around the implementation of its 2020 revised nationally determined contributions (NDC).

A review of current interventions in Kenya shows that uptake of climate and environmentally sound technologies is more pronounced within the larger firms' segment (corporate). Thus, there is need to be expanded this to medium and smaller firms whose activities also have a significant impact on the environment. This proposal is thereby prioritizing Medium to Micro enterprises.

Impact potential: By fostering Kenyan MSMEs capacity to effectively contribute to low emissions and climate resilient, this Programme can deliver on effective mitigation and adaptation results. The Programme will target funding allocation with priority given to adaptation impact, accounting for 60%, and mitigation impacts at the 40% level. This allocation is driven by the investment gaps according to Kenya's financing strategy for NDCs[57] , see the calculation in the Table below.

It is good that the Programme targets to spend 60% of resources on adaptation and 40% of resources on mitigation, thereby acknowledging the priority of bridging the adaptation finance gap in Kenya. However, 60% of resources to adaptation still does not do justice to the big difference between adaptation and mitigation needs; being 43,927 million up to 2030 and 17,725 million up to 2030 respectively, as well as current financing flows (79% of climate finance in Kenya in 2018 was directed to mitigation).

N°	Strategic objectives of sector climate change intervention areas according to Kenya's financing strategy for NDCs	MSMEs CST programme planned interventions	Adaptation / Mitigation	Investment gap in million USD	% of MIME CST funding allocation adjusted for adaptation prioritized*	MSMEs CST funding allocation in Yrs 1-5 in million USD
1	**Management :** Reduce risks resulting from climate-related droughts, floods etc	**NA**		$918	NA	NA
2	**Agriculture, livestock and fisheries/Food and nutrition security :** increase food and nutrition security through enhanced agricultural systems	Climate smart agriculture - adaptation	Adaptation	$2,738	52.0%	$41.61
		Climate smart agriculture - Mitigation	Mitigation		3.5%	$2.77
3	**Water, sanitation and irrigation/Water and the blue economy :** Enhance resilience of the water sector for economic uses	Water Management - Adaptation	Adaptation	$4,261	8.1%	$6.48
		Water Management - Mitigation	Mitigation		2.7%	$2.16
4	Health, environment and sanitation/Health, sanitation and human settlements Reduce incidence of vector diseases and strengthen solid waste management and climate-resilient settlement	Waste Management - Adaptation	Adaptation	$500	9.5%	$7.60
		Waste Management - Mitigation	Mitigation		0.6%	$0.51
5	**Environment and devolution : Solid waste management :** Put in place a solid waste management infrastructure in urban and rural areas	Solid Waste Management - Adaptation	Adaptation	$274	5.2%	$4.16
		Solid Waste Management - Mitigation	Mitigation		0.3%	$0.28
6	Forest, tourism and wildlife forestry/Wildlife and tourism increase forest NA cover to 10% of total land area; increase resilience of the wildlife and tourism sector	**NA**		$616	NA	NA
7	Trade and industrialization/Manufacturing improve energy and resource efficiency in manufacturing sector	Energy efficiency and clean energy in manufacturing and buildings	Mitigation	$47	0.2%	$0.19
8	**Infrastructure/Energy :** Encourage renewable energy development, increase uptake of clean cooking solutions	Efficient and reliable renewable energy, clean cooking	Mitigation	$7,033		$14.25
9	Infrastructure/Transport Climate-proof transport infrastructure and develop sustainable transport systems	NA		$2,200	NA	NA
10	Other	NA		$38	NA	
	TOTAL			**$18,625**	**100,0%**	**$80,00**

Figure 10 : Programme funding allocation per sub-sector based on investment gap in Kenya's financing strategy for NDCs.

Paradigm shift: This Programme presents a high potential for changing the paradigm across the MSMEs in Kenya and foster their contribution to the country's effort towards low emissions and climate resilient development pathways. The Programme is doing so by supporting technology leapfrogging and wide adoption of modern, efficient technology. The component 2

will contribute to capacity building and generate knowledge for climate investment and climate technology readiness. Initial success stories will generate enough traction for replication and scaling up to be facilitated by the matching making mechanism. Ultimately the Programme is expected to have a positive impact and create a shift on the Kenyan and regional financial sectors to SMEs lending.

However, the impact of this has a restricted geographical and sectoral focus, for two reasons. First, for Programme implementation and effectiveness is that MSMEs are unaware of available financial assistance, and how to acquire this. Of course, this is even more the case for MSMEs operating further away from KCB locations, such as in rural areas. Meanwhile, rural areas are disproportionately affected by climate change impacts and thus need a similarly large assistance. The Programme is unclear about what communication efforts will be made to ensure MSMEs in all target sectors are aware of the Programme. Information sessions and demonstration of proofs of concept will likely reach only a certain subset of MSMEs, potentially those already involved in or closer connected to the Programme. Because of that, the Programme risks both not getting sufficient MSMEs and not attracting MSMEs further away but potentially most in need of support. Second, there is a threat that the Programme will mainly focus on MSMEs already relatively capable of and knowledgeable about receiving financing for climate mitigation and adaptation measures. That lowers the ability of the Programme to achieve a true paradigm shift. However, it may not be a problem if the Programme wishes to focus on such MSMEs.

Sustainable development: The Programme will support sustainable development via its ability to deliver tangible economic, environmental, and social co-benefits. Overall, the Programme is expected to contribute to the resilience of 5.4 million people directly benefitting from the credit lines, the guaranteed scheme, the capacity building activities proposed under this Programme. The technology to be acquired will support the resilience of agriculture and food systems, water resources. It is expected to reduce greenhouse gas emissions notably CO2 and CH4 from energy efficiency, renovated and upgraded industrial processes, agricultural practices. Over its lifetime the Programme is expected to deliver 11 million tCO2 eq. However, it is not clear how this figure is developed and what this means in terms of supporting certain MSMEs in certain areas (e.g., adaptation vs mitigation). For example, high numbers of people benefitted may imply that mainly medium-size companies are supported, and that micro-enterprises are more left out in order to reach aimed targets. In addition, climate change disproportionately affects the rural economy. It would be good to see to what extent this Programme aims to prioritize this area in their investments, or whether the Programme prefers to work fully demand-driven without sectoral targets.

- **Socio-economic co-benefits:** In Kenya, the MSMEs sector is particularly important for providing job and income opportunities for economically excluded segments of the population including youth, women, persons with disabilities and low-skilled persons, who experience disproportionately high unemployment. Yet the sector face challenges that hinder the deployment of its full potential. By addressing some of these persistent challenges and emerging issues (access to affordable finance, obsolete technology, lack of policy incentives and institutional coordination), the Programme will provide substantial economic and social contributions. In addition to the job creation including high-skilled jobs, the expected operational efficiency will deliver quick gains to enable the return on investment and longer terms savings through lower maintenance costs, lower energy bills, reduced losses, time savings due to reduced unnecessary manual processes etc. The project will be implemented in a gender responsive manner promoting women empowerment by providing capacity-building facilitation and access to financing to at least 50% of MSMEs owned or led by women.
  However, it is also clear how many MSMEs are targeted to be supported through the Programme, which do is an important indicator to develop budgets for the capacity building and technical assistance activities. There is one target of 800 MSMEs supported by the Programme with capacity building and readiness, but it is unclear what percentage of participating MSMEs this is.
- **Environmental co-benefits:** The direct implications of wide adoption of climate and EST is environmental benefits resulting from reduced pollution resulting from carbonization associated to old machinery using obsolete technology. The full design of the Programme will comply with environmental and social policy requirements of Kenya; KCB and GCF and will propose a management plan that will consider management of waste hazards including through consideration of efficient after sales services including repairing, trade-in, and recycling solutions, etc. The importance of waste management for adaptation in relation to how waste can hamper water management can be elaborated on to increase the understanding of why this area is a priority sector for the Programme.
- **Improved health and safety:** Technology upgrade presents a high potential to induce health benefits from cleaner and more efficient processes due to improvement in air quality, reduced pollution from solid particles and harmful solvents general associated to sub-optimal product uses in sub-optimal high greenhouse gases and energy intensive processes.

Gender equality: The PPF will provide greater opportunity to estimate accurately the socio-economic indicators associated to the implementation of this Programme and to ensure fully gender responsive design and implementation. The goal is to ensure that the design and implementation of the Programme is fully gender-responsive, targeting at least 50% of the program's financing and capacity building to result in women's economic empowerment for climate action through women-owned or led MSMEs. Nevertheless, literature and past projects show that women face difficulty accessing

finance because they are often seen as high-risk borrowers due to their limited collateral and experience.[5859] This can be a threat to the programmer's ability to provide 50% of financing to female led MSMEs. Currently, no information is provided on how such threats can be minimized.

- **Enabling environments:** the Programme has potential to support creating a better enabling policy and fiscal environment than is currently included in the Programme documents. both lessons learned from previous projects and identified barriers by this programmer's development team highlight the need to overcome key policy and fiscal barriers for MSMEs to invest in climate change adaptation and mitigation. The Programme itself tries to address these barriers slightly by inviting government representatives to events. In addition, the Programme states that "engaging the wider financial system and promoting TNA and technology audits and certification will support awareness raising among decision and policy makers including regulators for increasing incentives for the full development of a nascent and high potential climate and EST market." However, it does not state how this will be achieved. While this participation will have some effect, the Programme has significant other opportunities to support public actors to improve the policy and fiscal environment, especially as the Programme generates so much knowledge and insights from MSMEs challenges and needs during the capacity building activities and other interactions with MSMEs. The Programme could include the development of communication material about specific difficulties participating MSMEs face and specific needs they have regarding the policy and fiscal environment, to be shared with policymakers and government representatives.

Specific benefits and technicalities of technologies used by MSMEs: below, an overview of the technicalities of the major practices and technologies to be supported by the Programme is provided. Generally, identified technologies include the most relevant for the sectors addressed and seem apt for reaching the programmer's climate mitigation and adaptation aims.

4. **Climate smart agriculture**

a. **Promoting crop breeds and production technics resilient to climate change, as** well as incorporating innovative adaptation practices and technologies; this includes solutions and actions in the areas of: water management, soil management, conservation techniques and genetic resources (e.g. improved seed varieties), overall crop, livestock, forestry and aquaculture production systems, managing landscapes and developing sustainable food value chains, disaster risk reduction and safety nets, and capacity development.[60]

b. **Application of climate resilient livestock production technics:** these include for example digital services to manage climate risks and inform decision-making, e.g., by

showing what locations are best suitable for grazing; the more efficient use of national resources, also taking into account the emissions generated by unit of input; disease management; and the diversification of animal sources as risk mitigation strategy.[61]

c. **Improved fisheries production technics resilient to climate change,** as well as incorporating innovative adaptation practices and technologies: this includes adjusting catch levels as climate conditions change; shifting management across space as species move; diversifying or changing the portfolio of fish production to better suite climate conditions; changing maximum fish catch quantities to ensure stock survival despite climate change impacts.[62]

d. **Construction, acquisition of greenhouse** and other climate-controlled farming environment infrastructure: these solutions increase the capacity of Kenya to produce key agricultural products that need climatic conditions different than those available in Kenya to grow. This allows adapting to changing climate conditions as well as the decreasing of import needs.

e. **Promotion of post-harvest management technology** including cold chains, dryers, and food processing equipment to reduce losses; lack of sufficient post-harvest handling techniques is a key source for post-harvest losses. Especially with increasing temperatures, post-harvest management techniques such as cold chains, dryers and food processing equipment is crucial to maintain the quality of agricultural produce.[63]

f. **Support of climate responsible food supply chain,** promoting reduction of food waste, emissions, and environmentally friendly diet choice: around 1/3rd of all food produced for human consumption is wasted. For Kenya, it is estimated to be 20% of all cereals produced, while Sub-Saharan Africa's averages indicate that 50% of fruits and vegetables are lost before arriving at the market, as well as 40% of all roots and tubers produced.[64] These large inefficiencies also are related to climate change impacts in food supply chains that are not climate resilient, e.g., due to climate-vulnerable transportation and storage facilities. This includes vulnerability to pests, fungi and diseases that flourish under the new climate conditions, and vulnerability to heat waves, extreme rainfall, and storms.

5. **Water management:**

a. **Water usage control systems and instruments:** instruments enabling the measurement of water flows, quality, and consumption are the first step to improving water management and services. Right metering helps to analyses consumption patterns, identify leakages, calculate efficiency of pumps, depict non-revenue water and asses the performance of the overall water management system. This helps

improve water quality and accessibility and the efficiency of water supply. It is also important to ensure that and verify if health standards are met.[65]

b. **Installation of hot water re-circulation kits:** hot water re-circulation kits and systems are designed to provide hot water to each tap in a building instantly. This not only improves convenience and comfort, but also minimizes water waste because consumers do not have to wait sometimes minutes for hot water to arrive. Hot water recirculation systems work through installing a recirculation pump in the plumbing lines which creates a loop that slowly and constantly circulates the water in the hot pipes back into the heater for reheating. Consequently, as soon as you open a faucet or tap, warm water is already present in those pipes. This means you do not have to waste water down the draining waiting for the water to heat up.[66] Especially in countries facing water stress (which is exacerbated by climate change), such as Kenya, such solutions are impactful.

c. **Installation of water harvesting systems:** water harvesting systems can be used both for agricultural and non-agricultural purposes. Coupled with small storage technologies, they are key water management interventions that can contribute to rapid improvements in yield of rainfed crops (that dominate in Kenya's agricultural sector), and increase water availability for domestic use, industrial use, livestock, fodder and tree production. Water harvesting systems collect rainfall runoff, e.g., from roofs, groundwater surfaces and intermittent or ephemeral watercourses. Various classifications of WH techniques exist. Broadly, the term "rainwater harvesting" is applied to techniques that harvest runoff from roofs or ground surfaces (overland flow), and "floodwater harvesting" is applied to techniques that collect discharges from watercourses (channel flow).[67]

6. **Waste management**

a. **Installation of biomass/ biogas systems** for heat and / or power generation: this allows using waste as a resource for energy generation. Biomass-fired combined heat and power plants offer an alternative to environmentally damaging fossil fuels or intermittent renewables, thereby reducing emissions.[68]

b. **Acquisition/ conversion of boilers** that are designed to use biomass waste.

c. **Installation of wastewater treatment plants and bio-digesters** for wastewater/ effluent treatment and recycling: this allows the cleaning and subsequent recycling of water, in order to enhance access to clean and safe water.

7. **Energy efficiency and clean energy in manufacturing**

a. **Installation of solar systems** for industrial processes other than agriculture and food: these systems can provide high-quality, clean and uninterrupted electricity that is less reliant upon existing electricity infrastructure, allowing to easily close energy gaps in a sustainable manner in areas not well integrated in energy infrastructure networks. Also, it is a critical solution to transfer from fossil fuel-derived energy towards sustainable and clean energy sources.
b. **Energy efficiency interventions to offset high energy costs:** this includes the installation of efficient motors, retrofitting/ installation of equipment components to improve energy efficiency, installation of smart energy efficiency monitors and supporting ICT systems to optimize energy usage.
c. **Energy efficiency in buildings, related infrastructure, and construction:** this includes envelope retrofit strategies to understand how to improve energy efficiency of current buildings and related infrastructure; cool and green roofs that decrease the need for air-condition and improves livability; and isolation that also decreases the need for air-conditioning and improves livability.

8. **Efficient and reliable renewable energy, clean cooking**

a. **Clean cooking solutions:** today many Kenyans kook using biomass fuels such as firewood and charcoal which emits GHGs and is damaging for health, causing many to prematurely die due to household air pollution. Affordable, reliable, safe, and sustainable cooking solutions are therefore essential to address both energy poverty and food security.[69] Clean cooking solutions include using cleaner fuels and energy-efficient modern stoves instead of the usage of open fires, three-stone fires, and inefficient stoves.[70] Clean cooking stoves include according to WHO guidelines, e.g., LPG stoves; electric stoves using hot plates or induction; electric rice cookers; ethanol stoves; biogas and specialized biomass stoves.[71] Currently, only 15% of Kenya's population has access to clean cooking.[72]
b. **Green mini-grids and solar home systems:** these are forms of clean energy sources that are suitable for remote households disconnected from electricity infrastructure. They can provide high-quality uninterrupted electricity which can support the livelihoods of people, empowering them to break out of poverty by closing energy gaps.[73] Currently, 25% of Kenya's population is without access to energy.[74]

4.3. Financing options, reasoning for the concessionally requested (description of the reasons for grant, guarantee, concessional loans request).

Tableau 2 : Programme Budget

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1 Credit line	163 million	30 million	Senior Loan	133 million	Senior Loans	KCB 50MUSD in Years 1-5; co-financiers add 83M USD through KCB issued green bonds in Years 6-20
Component 1 Guarantee facility	17 million	10 million	Guarantee	7 million	Guarantee	GCF in Years 1-5; Other guarantors join in Years 6-20 (guarantee level to be reduced from 12.5% to 10%)
Component 2 technical assistant	2 million	2 million	Grant			
Component 3 Enabling activities	1 million	1 million	Grant			
M&E	2 million	2 million				
Indicative total cost (USD)	**185 million**	**45 million**		**140 million**		

As indicated previously, access to finance is one the main constraints to operationalize this MSMEs' Programme in Kenya without the GCF. Banks are highly risk adverse regarding any innovative proposition and they have no products for MSMEs to upgrade their operations in a climate and environmentally sound manner. Even if there were the current terms and conditions are not appealing and hence the need for more concessional funding.

GCF concessional terms will enable KCB to establish the blended finance facility needed to de-risk this type of project. In addition, the proposed guaranteed component is expected to encourage the participation of commercial financiers by de-risking the SMEs and ensuring that the finances are secured. These two funding instruments are not available from commercial lenders.

Alternative funding options have been assessed considering the banking sector and government. The barriers on access to finance from each group is described below.

- **Banks:** They are highly risk averse and observe stringent credit review processes for MSME loan approvals. Green financing is also a new area for many banks where the loan officers face capacity issues in structuring requisite products. SMEs on the other hand face credit constraints such as inconsistent cash flows to support loan repayments and the lack of collateral. Other capacity issues that make SMEs unattractive for bank lending include poor management and governance structures and absence of credible financial information.
- **Government:** Direct government financing is usually limited to specific public programmed based on prevailing government priorities and largely focus on the micro sector thus closing out growth-oriented businesses and businesses falling outside the programming criteria. In addition, the amounts advanced are usually much smaller than the cost indicators proposed for this Programme. Typical amounts advanced through government funds range on average between $ 2,500 to $ 5,000 and the financing structures are also limited to start-up expenses, working capital, expansion loans and contract financing.

Rationale for the Concessionally of the GCF Financial Instrument: This proposal mixes three GCF financial instruments to deliver successfully against its objectives, results, and targets:

- **A concessional Senior loan to** offer the dedicated credit lines to customers,
- **A credit guarantees to de-risk the credit portfolio and** is planned to be kept at the 12.5% level based on the level of non-performing loans after COVID-19 market disruption at the 13.6 percent in August 2020.The proposed guaranteed component is expected to de-risk the participation of commercial financiers in the programs in years 6-20 after the demonstration effect and capacity have been created. This is an important addition to address the challenge of access to finance as several the businesses would not qualify for commercial financing given their funding requirements fall below the threshold of commercial financiers and/ or they do not have the collateral to support the facilities. The guarantee would also encourage the financiers to consider favorable lending rates given the reduced exposure.
- **A grant resources to support the technical assistance and enabling activities** (business advisory training for participating SMEs; support EST audits, and the creation of a data hub that will establish a platform for wastes and by-products exchange among MSMEs manufacturers. The TA budget will be rationalized and prepared using benchmark costs and will be delivered through competitive process. The proposal is that the capacity building interventions highlighted above will be done through a technical assistance component which would ideally take the form of a grant. In addition, the technical assistance component will cover capacity building of commercial lenders to grow their green financing portfolio and increase their participation within the SME segment.

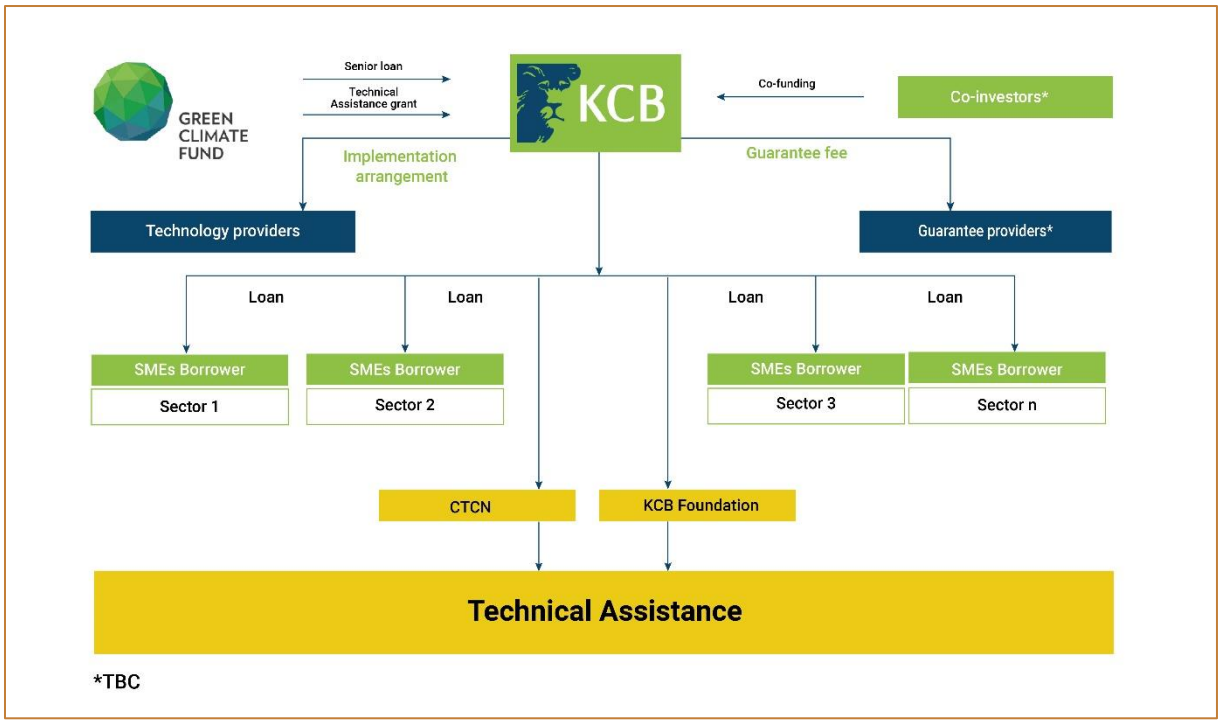


Figure 11 : overview of financing structure. KCB will use the GCF concessional loans to blend its own commercial resources and will be primarily responsible for deploying the loans for the new dedicated products. KCB will collaborate with national actors and GCF for the guarantee and with KCBF and CTCN for the implementation of the TA. A partnership agreement will be signed with selected and vetted technology providers and ensure that proven and reliable technology are provided to the Banks clients. After capacity building and the successful deployment of the MSMEs CST credit facility (50 million from KCB and 30 million from the GCF) backed by the 12.5% guarantee equivalent to 10 million USD from the GCF, a demonstration effect will be created to catalyze blended finance through the issuance of KCB green bonds. This will target an additional 83 million USD from co-financiers and 17 million USD in guarantee for the program's scaling up. The level of the guarantee will be reduced to 10%, rate of NPLc before the pandemic.

4.4. Economic and/or financial viability of the Programme.

The main concerns regarding economic and/or financial viability of the Programme relate to its ability to mobilize external private investments. This depends upon its ability to show clear results of MSMEs benefitted from the financial and technical support provided by the Programme, and the impact that has on the growth potential and profitability of the MSMEs. This, in turn, depends on the programmers' ability to provide support that is sufficient for MSMEs to effectively implement mitigation and adaptation practices; and the ability of the Programme to implement effective screening processes that will result in supporting the appropriate MSMEs.

The capital invested will be repaid through the mobilization of blended finance after first positive effects are demonstrated. This concept envisages the establishment of an USD 80 million credit line by KCB with a USD 30 million co-financing by the GCF. KCB will blend the GCF

resources with its own resources (USD 50 million) in years 1-5 that will serve to distribute the loans to MSMEs clients seeking to adopt climate and EST. After a demonstration effect will be achieved in years 1-5, KCB will mobilize up to USD 83 million blended finance through green bonds and USD 7 million in guarantee to scale up the MSMEs CST Programme. KCB will be responsible to recover the loans and to repay the GCF according to the repayment schedules to be agreed with GCF over the Programme lifetime of 20 years. To ensure financial viability of the project, KCB will seek for a 5-year grace period before the reimbursement of the GCF capital to enable the implementation of the capacity building activities, the uptake of the climate and uptake technology. From year 1 to 5, KCB will be paying GCF the interest rate, services and commitment fees as per the term sheet and FAA. From year 6 to 20, KCB will be repaying GCF the capital plus interest rate, commitment fees and services fees. For the Guarantee facility, KCB will pay guarantee fees to GCF as per the term sheets and FAA to be negotiated between GCF and KCB.

Efficiency and effectiveness: As a private sector entity and a Bank, KCB as the AE adhere to this critical investment criteria that is necessary for project bankability and sustainability. It is essential to ensure that affordability will facilitate access to MSMEs. In addition to affordability the Programme will ensure all technology that will be acquire will be tested and vetted before the technology providers is admitted into the matching making facility. Similarly, the MSMEs shall demonstrate the climate, environmental and financial benefits of the technology as an eligibility criterion to assess the proposed financial products (concessional loans and/ or guarantee). As climate change project all sub projects to be finance shall demonstrate clear and cost-effective climate benefit. At the Programme level mitigation is delivered for 16 dollars per tCO2 equivalent and adaptation sets at 5 dollars per individual made resilient to climate change.

However, the Programme says nothing yet about how it will monitor how MSMEs implement the loans, and to what extent reality lives up to expected adaptation and mitigation benefits; or whether there are more support needs for MSMEs during the implementation. Absence of information on this makes it more difficult to assess the risks of investment for KCB, and other public and private investors. Lack of monitoring may make it more difficult to secure external investors.

This Programme aims to mobilize blended finance through green bonds issued by KCB allowing to scale up the MSMEs CSV Programme after five years of implementation. The first stage will be funded by 50 million USD from the GCF and 50 million USD from KCB and will be devoted to capacity building and deploying the MSMEs CSV credit facility. This will create

a demonstration effect that will encourage private financiers to participate in the Programme with up to 100 million USD in additional capital, resulting in a GCF mobilization ratio of 1:3.

4.5. Proposed strategy to ensure the sustainability of the project.

The Programme will foster long term sustainability beyond the funding in line with GCF's key result areas; to support reduced emissions from energy access and power generation; increased resilience of the ecosystem and ecosystem services through:

a. The commercial banks, institutional and venture capitalists who will have tested the green financing markets and will be more incentivized to develop more permanent and innovative financial products for industrial SMEs.

b. Industrial SMEs will be made aware of the existing efficient climate smart technologies and their contribution to their footprint and as well as reduced environmental impact and hence creating more demand for the technologies.

c. The Programme will act as a catalyst towards the development of a circular economy for industrial SMEs where waste from one industrial SME will be a resource to a different Industrial SME's production process either through recycling or re-use. In addition, following the planned development of a datahub information will be readily available on types and quantities of waste by different industrial SMEs.

The Programme assumes that with increased demand for efficient climate smart technologies, technology providers will be incentivized to make the technologies more affordable and accessible to meet different industrial SME needs. However, it is not made explicit if any actions taken in the project will push service providers to lower the prices, e.g., by making deals with them. This could be further thought through.

The longer credit terms will be tailored to meet the needs of MSMEs in order to encourage the adoption of CSTs with better access, more affordable costs, and a more flexible tenor. The PPF period will provide an opportunity to demonstrate the grant equivalent for each targeted credit activity.

The GCF concessionally is suitable for market creation, development and maturity, necessary to achieve the desired transformation. At the end of this Programme several conditions will be met to ensure full sustainability:

1. Reduction of the technology cost as a result of a wider market adoption (economy of scale) and easier access to customers for technology providers through the Programme;

2. The blended facility will reach a size that will enable to continue to support lending even after full repayment to GCF;
3. Other lenders and investors would have been attracted to finance climate and EST acquisition thanks to market development.

5. Implementation arrangements

5.1. Stakeholders

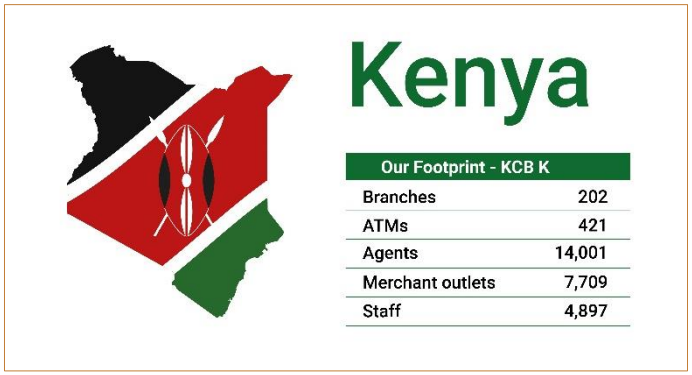
Stakeholders involved in the project include:

1. Implementing partners:
   a. KCB Bank Kenya Limited
   b. KCB Foundation
   c. CTCN
   d. Local implementing partners that can provide training and services (see 5.3)
2. Beneficiaries: MSMEs operating in climate sensitive sectors in Kenya.
3. Finances: GCF and private investors
4. Government agencies supporting, facilitating, and regulating these types of programmed.

See 5.2 and 5.3 for more information on the core implementing partners. The Programme has not yet specified potential private investors and government agencies to be included in some of the programmer's activities.

5.2. Capacity assessment and due diligence on the executing entities

The two executing entities are the Kenya Commercial Bank (KCB) and the UNFCCC Climate Technology Center and Network (CTCN).



KCB Bank Kenya Limited is a financial services provider headquartered in Nairobi, Kenya. It is licensed as a commercial bank, by the Central Bank of Kenya, the national banking regulator. The Bank has been a champion in the larger East Africa in developing and supporting sustainable solution among its clients. As a vision, the Bank has realized the crucial role it plays in the decarbonization objective of the economy by directing financial flow to the right low carbon technologies. It has gone a step further to set an ambition target to achieving Net Zero emission by 2050 which calls for decarbonization of its lending book by 50%. With this ambition the Bank is looking forward to reducing its related sectoral emission including from the MSMEs. The Bank boost of a high customers from MSMEs who face the ever challenges of developing and

adopting climate projects in a manner that is implementable and verifiable. This project will seek to bridge this gap of knowledge and technology among the MSMEs and transform how climate finance is viewed among the financial sector in Kenya.

KCB is also a member of Kenya Association of Manufacturers (KAM) the largest representative Business Members Organization that brings together over 1000 MSMEs. The BMO brings together MSMEs, undertakes evaluation of needs and links them to relevant needs areas including access to accessible and affordable climate finance that will drive the adoption of EST. KCB is in the process of signing an MOU with KAM that will enable make it much better that will impact both climate intervention and drive competitiveness among the SMEs. KCB is also engaging the Kenya Private Sector Alliance (KEPSA) that brings together in addition to the manufactures, other SMEs from other relevant sectors including horticulture and hospitality.

KCB foundation (KCBF) has been over the years instrumental partner KCB Bank Ltd to provide technical assistance for business development. KCBF provides a suite of training to the Bank's customers and develop mentorship network with other business owners and coaching Programme to ensure learnings are implemented.

UNFCCC Climate Technology Center and Network's (CTCN) mandate is to promote the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development to developing countries. The CTC provides technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries by harnessing the expertise of a global network of technology companies and institutions. Doing so, they have extensive experience to help create an enabling environment for: (i) reduced greenhouse gas emissions and climate vulnerability; (ii) improved local innovation capacities; and (iii) increased investments in climate technology projects. CTCN is hosted by UNEP, together with a consortium of partners the that are engaged in about 1,500 activities related to climate technologies in over 150 countries. CTCN consists of two parts: a center—a coordinating entity located in UN City Copenhagen—and a worldwide network of organizations that delivers CTCN services—both virtually and actually. In short, the center operates the network, and together they constitute the CTCN. In Kenya, CTCN has 19 different partners.

5.3. Implementation arrangements and governance of the project

This proposal has originated following a country driven approach and result from the collaboration between several actors: the Ministry of industrialization, trade and Enterprise development, the Kenya Industrial Research and Development Institute (KIRDI), the Kenya Climate Innovation Center (KCIC), MSMEs and representatives of interested financial actors.
The proposed Accredited Entity for the Programme is the Kenya Commercial Bank (KCB). KCB and the UNFCCC Climate Technology Center and Network (CTCN) will collaborate as Executing Entities for this Programme, with KCB leading on the capacity building of participating MSMEs and the supporting of investors' readiness, as well as the overall lending. CTCN will work on supporting the creation of the data hub to promote a waste and by-products exchange among the manufacturers thereby creating a circular economy platform. As a co-executing entity for this Programme, CTCN will work closely with KCB, the GCF National Designated Authority (The National Treasury) and the National Designated Entity (NDE) in Kenya, namely: The Kenya Industrial Research and Development Institute (KIRDI) to ensure full alignment with national priorities throughout the term of the Programme.
KCB and CTCN will collaboratively implement activities related to preparing efficiency audits on energy, water, and raw material inputs. To succeed in its goal to make beneficiaries eligible for its loan and ultimately drive market creation for CST, KCBF will collaborate with KCB and CTCN to structure training with stage-gate process tied to CST loans' requirements, ensure commitment of beneficiaries, provide tools combined with the training to capacitate beneficiaries to implement learnings.

Local partners – KCB and CTCN will collaborate with a wide range of local partners for the implementation of activities under components 2 and 3:

- International and local technology providers – these will provide the requisite climate smart technologies.
- Financiers – these are commercial lenders comprising SME focused banks and venture funds that are expected to provide the non-grant financing via debt instruments.
- Kenya Climate Innovation Centre (KCIC) – KCIC has a strong presence in the fields of climate change and energy through the provision of holistic, country-driven support to accelerate the development, deployment and transfer of locally relevant climate and clean energy technologies.
- Ministry of Industrialization Trade and Enterprise Development
- National Environment Management Authority (NEMA) – the principal instrument of government in the implementation of all policies relating to the environment.
- Kenya Industrial Property Institute (KIPI) – promote and protect industrial property rights to foster innovation for sustainable development in Kenya.

- Kenya Association of Manufacturers (KAM) – Among its mandates includes supporting its members towards green manufacturing including a focus industrial Resources efficiency and carrying out energy audits for its members.

5.4. Institutional and Programme/project level grievance redress mechanism(s)

This is not yet elaborated upon in the Programme documents. It may be good if KCB as executing entity will function as the first point of contact for stakeholders to raise concerns with the proposed Programme. A focal point will be identified, and his/her contact information will be publicly available to facilitate the filing of complains. The focal point will then be responsible for receiving concerns and facilitating addressing them, when necessary, by engaging with other stakeholders involved in the project. The focal point will keep those raising concerns informed about the status of the redress.

6. Risk assessment

Tableau 3 : risk assessment developed by the Programme.

	Risk type	Risk Ranking	Risk Details and Proposed Mitigation Measures
1	**Misalignment of interest and mismatch**	Low	Sustainable Enterprise programs are sometimes exposed to prioritizing of objectives between the economic and social objectives. This is mitigated by ensuring that parties involved agree on the prioritization of the objectives. This must be done during the design phase to ensure there are shared understandings.
2	**Stranded Asset Risk**	Low	Due to relatively lower asset capitalization, exposure to stranded asset risk is minimized. In addition, the relatively small market size allows the SMEs to be quickly able to adapt to changes in market conditions, thus increasing their chances of success.
3	**Compatibility Risk**	Medium	Potential new technologies may be incompatible with existing technologies within the business. This will be mitigated by ensuring every business undertakes a climate and EST TNA to determine the appropriate technologies needed and additional measures that may need to be implemented to ensure compatibility. Capacity building at this level will also support the entrepreneurs to better understand how to manage transition risks associated with adoption of the new technologies.
4	**Operational Risk (Machine Operations and Business Failure)**	Medium	The equipment will have exposure to physical risks like damage and theft which can be mitigated through insurance. The business may also be exposed to other operational risks which would call for technical assistance e.g., marketing, governance, human resources. These would be unique for each business and the Programme should allow for a business advisory component to promote business growth and reduce the risk of failure and consequently credit risk.
5	**Collateral and Credit Risk**	High	SMEs are unable to access financing due to lack of collateral to secure the loans. The environmentally sound equipment to be used as collateral will be acquired from credible suppliers to ensure quality and capacity to service/offer support. The guarantee fund will serve as additional collateral and mitigate against a possible lack of a ready market for the collateral thus reducing the credit risk to the financier.
6	**Natural Disasters, Pandemics and Related Risks**	High	Enhance capacities of SMEs through the business advisory component (training workshops and peer support forums) to help MSMEs respond quickly to potential or

			existing occurrences and reduce if any, adverse effects on business activities and performance. In addition, and in case of defaults or delayed payments on facilities arising from loss of business or declining performance, the guarantee fund would reduce the credit risk to financiers as above.
7	**Obsolescence, cultural and behavioral risks**	Medium	These are risks inherent to technology deployment risks. They will be managed through this Programme through the matching making for tested and vetted technology with associated arrangements guaranteeing products quality and guarantee, after sale provisions etc.

7. Conclusion and recommendations

MSMEs constitute large share of Kenya's economy that generally misses out on finance for climate change adaptation and mitigation, due to multiple key barriers. The MSMEs' Climate Sound Technologies for Production Efficiency and Business Value Programme in Kenya (MSMEs CST – Kenya) is assessed to be an adequate response to the identified key barriers for MSMEs to invest in climate change adaptation and mitigation. Below, the feasibility assessment is summarized by making use of a Strengths, Weaknesses, Opportunities & Threats (SWOT) analysis that also include recommendations on how to best respond to these items. The items in the SWOT analysis as well as the recommendations have all been mentioned in the appropriate sections earlier in the document. Overall, if the Programme takes into account the developed recommendations, it is assessed to be as an apt and potentially impactful Programme.

7.1. Strengths

1. **Alignment with national policies, plans and actions:** the Programme strongly aligns with Kenya's identified type of adaptation and mitigation needs as well as with the Government's policies, strategies, and actions.
2. **Targeting of crucial but less supported actors in society:** the programmer's focus on supporting MSMEs to play a key role in climate change adaptation and mitigation is a strong response to the identified importance of MSMEs for Kenya's economy and society, as well as the identified barriers and lack of support MSMEs receive in relation to climate change adaptation and mitigation.
3. **Suitability of technological solutions:** the proposed technologies and practices in the programmer's components related to access to finance, financial capacity seems apt to ensure successful implementation of the project.
4. **Financial innovation:** the guaranteed mechanism is crucial to develop the facility into a financially independent and viable tool as it allows private investors to come in.
5. Addressing of key barriers for MSMEs: many of the key barriers that MSMEs face in relation to climate change adaptation and mitigation are addressed by the Programme. This increases the programmer's success and impact potential.
6. **Holistic approach:** the combination of innovative concessional finance; enhanced awareness and capacity building to all involved key stakeholders; and actions to address key barriers for adoption, is seen as holistic approach including most of the key elements needed to support specific MSMEs and in general to provide a paradigm

shift towards a system that fosters MSMEs' contribution to the country's effort towards low emissions and climate resilient development pathways.

7. **Implementing partners:** Programme implementing partners – the Kenya Commercial Bank and the UNFCCC Climate Technology Center and Network (CTCN) are assessed to have the relevant experience and expertise. Already identified local implementation partners of the Programme are expected to ensure that there is sufficient technical expertise and capacity to implement the different parts of the Programme.
8. **Risk assessment:** undertaken risk assessment by the Programme development team is detailed and captures many of the key risks associated with Programme implementation (except for the threats mentioned below). Mitigation measures seem apt to minimize risks.

7.2. Weaknesses

1. **Quantified targets of the Programme:** there are a number of weaknesses related to the quantified targets of the Programme. Largely, this is because of insufficient information currently provided in the concept note. The concept note includes a target of reaching 5.4 million people directly and of avoiding 11 CO2-eq with implemented actions. It is not clear how this figure is developed and what this means in terms of supporting certain MSMEs in certain areas (e.g., adaptation vs mitigation). For example, high numbers of people benefitted may imply that mainly medium-size companies are supported, and that micro-enterprises are more left out in order to reach aimed targets. In addition, climate change disproportionately affects the rural economy. It would be good to see to what extent this Programme aims to prioritize this area in their investments, or whether the Programme prefers to work fully demand-driven without sectoral targets. It is also not clear how many MSMEs are targeted to be supported through the Programme, which do is an important indicator to develop budgets for the capacity building and technical assistance activities. There is one target of 800 MSMEs supported by the Programme with capacity building and readiness, but it is unclear what percentage of participating MSMEs this is.

    - **Recommendation 1**: it would be good to get more information on how developed targets for beneficiaries and climate mitigation impact are calculated and important underlying factors and assumptions. Specifically, this includes understanding which companies and sectors are prioritized.
    - **Recommendation 2:** linked to recommendation 1, the Programme team should develop a table including indicative targets for micro, small and medium enterprises supported, and for the sector of their climate actions.

2. **Adaptation-mitigation balance:** it is good that the Programme targets to spend 60% of resources on adaptation and 40% of resources on mitigation, thereby acknowledging the priority of bridging the adaptation finance gap in Kenya. However, 60% of resources to adaptation still does not do justice to the big difference between adaptation and mitigation needs; being 43,927 million up to 2030 and 17,725 million up to 2030 respectively, as well as current financing flows (79% of climate finance in Kenya in 2018 was directed to mitigation).[75]

    - **Recommendation 3:** the Programme development team should explore whether it is feasible to increase to level of adaptation financing, e.g., to 70-80%, in order to do more justice to identified needs and priorities in Kenya in relation to climate change. Of course, identifying potential synergies between adaptation and mitigation in specific projects is advised.

3. **Insufficient information on the identified participants and stakeholders:** currently, the Programme has not yet provided any information on an identified pipeline of MSMEs and identified interested service providers. In addition, there is no information on potential interested private investors, and their requirements / interests in terms of supporting the Programme. Having this information would better enable developing a Programme that fits their investments needs.

    - **Recommendation 4:** provide information on a pipeline of MSMEs interested in participating in the project; of interested service providers and of potentially interested private investors; together with their specificities relevant for Programme development supports assessing the feasibility of the Programme and can enable to Programme team to from the start better meet the interests of these groups.

4. **Timeline of activities:** there is no clear timeline provided yet on the implementation of activities. Especially preparatory activities key for making other aspects of the Programme fully operational (e.g., capacity building of KCB staff, the development of mitigation tracking and climate risk screening tools; development of financial instruments) would be good to include for a better assessment of how realistic programmer's aims and objectives are. This will also help understand and assess the needed length of the grace period of the Programme.

    - **Recommendation 5:** further develop a detailed timeline of the Programme, including detailing expected time required for key enabling activities.

5. **Importance of waste management:** the programmer's focus on waste management is very important when it comes to both climate change adaptation and mitigation.

However, the importance of waste management for adaptation in relation to how waste can hamper water management can be elaborated on to increase the understanding of why this area is a priority sector for the Programme.

- **Recommendation 6:** expand the explanation on the importance of waste management in terms of climate adaptation, and the need to have proper waste management to allow for effective water management.

6. **Grievance mechanism:** currently no grievance mechanism is developed in the Programme documents.

    - **Recommendation 7:** develop a grievance mechanism. As implementing partner, KCB could be responsible for receiving concerns and facilitating addressing them.

7.3. Opportunities

1. **More information sharing for enabling policy and fiscal environment:** both lessons learned from previous projects and identified barriers by this programmer's development team highlight the need to overcome key policy and fiscal barriers for MSMEs to invest in climate change adaptation and mitigation. The Programme itself tries to address these barriers slightly by inviting government representatives to events. In addition, the Programme states that "engaging the wider financial system and promoting TNA and technology audits and certification will support awareness raising among decision and policy makers including regulators for increasing incentives for the full development of a nascent and high potential climate and EST market." However, it does not state how this will be achieved, meaning there is a missing link in the Theory of Change. The assumption of effective collaboration and governmental support remains unexplained and ungrounded. While this participation will have some effect, the Programme has significant other opportunities to support public actors to improve the policy and fiscal environment, especially as the Programme generates so much knowledge and insights from MSMEs challenges and needs during the capacity building activities and other interactions with MSMEs.

    - **Recommendation 8:** the Programme could include the development of communication material about specific difficulties participating MSMEs face and specific needs they have regarding the policy and fiscal environment, to be shared with policymakers and government representatives.

2. **The principles for credit guarantee schemes:** the developed principles for credit guarantee schemes as detailed in section 2.6 provide a good opportunity for the

Programme development team to check whether principles or elements of these principles can be better integrated in the Programme development and implementation.

- **Recommendation 9:** during further Programme development, assess the specificizes of the Programme by looking at the 16 developed principles for credit guarantee systems.

7.4. Threats

1. **Doubtful sufficiency of technical assistance and capacity building for MSMEs and service providers:** TA and capacity building are identified as crucial blockages for MSME investments in climate change adaptation and mitigation and are included as key aspects of the Programme. In addition, a strong focus on capacity development of all involved stakeholders, screening of participating MSMEs and technology audits is important to ensure the success and effectiveness of the individual projects supported through the Programme. It decreases project implementation risks related to insufficient awareness, skills and technical know-how of stakeholders to successfully participate in the project. This is necessary to build investor confidence in the Programme as a whole. It ensures sustainability of the Programme also after the exit of GCF and helps ensure that the Programme is able to fully and timely repayment to GCF. However, the specific targets are assessed as doubtful to achieve the intended result of taking away blockages related to knowledge and capacity.

   First, it is unclear what percentages of envisioned supported MSMEs is the targeted 800 MSMEs supported through the program with capacity building and readiness, and what percentage of supports MSMEs thus remains without this support.

   Second, it is doubtful if the amount of capacity building and training is sufficient to take away capacity and knowledge constraints of MSMEs. As the target is to train 800 MSMEs in 20-24 sessions, this means that each MSMEs will have 1 session together with 33-40 other MSMEs. Such a group session is assessed as insufficient to help MSMEs to really overcome their key barriers as there is very limited ability for personal support. To make sessions on technological readiness sufficiently useful for MSMEs, these sessions should target the specific technologies relevant for these MSMEs. While some MSMEs can be grouped in 1 session, based on their relevant information needs, it seems unfeasible to group 33-40 MSMEs with similar needs, and with needs at a similar point in time (i.e., the start of their process for getting the loan).

   Third, the Programme document mentions that capacity building sessions around financial and technological readiness will provide opportunity to acquire basic skills and

information on where to get in-depth support. This seems logical given the amount of MSMEs participating in 1 session. The Programme also states it will connect MSMEs then with service providers. However, nothing is said about if and how the Programme will require MSMEs to get this in-dept-support, as to mitigate investment risks for the bank and private investors, and to ensure efficacy and effectiveness.

Forth, the program aims to audit 50% of service providers. It states that being audited also is a requirement for service providers in order to be included in the matchmaking platform. In addition, it justifies the 50% by stating that a few enterprises may be considered financial and technologically ready as a result of previous audit exercises equivalent to the one proposed by the Programme. However, it is unclear what percentage of service providers this would entail, and thus what the consequences are for service providers that are not screened, in terms of participation in the Programme.

Fifth, the Programme has not yet included any details on how it will ensure that capacity building fits the needs of MSMEs. A key barrier described in assessments of earlier projects includes that bank staff is often not aware what specific information MSMEs need, which undermines the effectiveness of capacity building activities. Feedback mechanisms and participatory design of training and capacity building activities can help overcome such barriers.

- **Recommendation 10:** it would be good to clarify what percentage of envisioned participating MSMEs is supported with capacity building and readiness.
- **Recommendation 11**: the Programme team should revisit the developed capacity building activities, taking into account comments, to ensure it delivers sufficient results.
- **Recommendation 12:** include in the project an assessment of capacity building and information needs of specific MSMEs and make it a requirement for receiving the financial support that MSMEs follow up on getting this support after the general capacity building training. To aid this, the loan provided to MSMEs could include a specific percentage/ amount to be spent on capacity building.
- **Recommendation 13:** the Programme team should rethink the target of auditing 50% of participating service providers, the requirements for service providers to participate in the Programme (i.e., being audited), and what this entails for the risks associated with Programme implementation. Ideally, all participating service providers not yet audited should have some sort of audit as part of the programmer's due diligence processes.
- **Recommendation 14:** include sufficient feedback mechanisms during project implementation to ensure that knowledge enhancement and capacity development activities are effective, appropriate, and sufficient for participating stakeholders.

3. **Inability to reach MSMEs in key adaptation and mitigation priority sectors:** lessons learned from pervious projects to support MSMEs in Kenya show that a key blockage for Programme implementation and effectiveness is that MSMEs are unaware of available financial assistance, and how to acquire this. Of course, this is even more the case for MSMEs operating further away from KCB locations, such as in rural areas. Meanwhile, rural areas are disproportionately affected by climate change impacts and thus need a similarly large assistance. The Programme is unclear about what communication efforts will be made to ensure MSMEs in all target sectors are aware of the Programme. Information sessions and demonstration of proofs of concept will likely reach only a certain subset of MSMEs, potentially those already involved in or closer connected to the Programme. Because of that, the Programme risks both not getting sufficient MSMEs and not attracting MSMEs further away but potentially most in need of support.

    - **Recommendation 15:** the Programme team should think about information sharing and communication strategies to raise awareness of the programmer's support opportunities for MSMEs.

4. **Reaching low-hanging fruit:** there is a threat that the Programme will mainly focus on MSMEs already relatively capable of and knowledgeable about receiving financing for climate mitigation and adaptation measures, because of the weaknesses described in section 7.2.1 (about indicators) and the threats described in section 7.4.2. That lowers the ability of the Programme to achieve a true paradigm shift. However, it may not be a problem if the Programme wishes to focus on such MSMEs.

    - **Recommendation 16:** the Programme team should think further about what MSMEs (in terms of location, size, sector, and level of technical and financial readiness) it aims to support and/or prioritize, in order to further develop the Programme to meet the specific needs of these MSMEs.

5. **Monitoring usage of financial support:** the Programme says nothing yet about how it will monitor how MSMEs implement the loans, and to what extent reality lives up to expected adaptation and mitigation benefits; or whether there are more support needs for MSMEs during the implementation. Absence of information on this makes it more difficult to assess the risks of investment for KCB, and other public and private investors.

    - **Recommendation 17:** elaborate on monitoring mechanisms used when implementing the Programme.

6. **Gender focus and need for capacity building:** literature and past projects show that women face difficulty accessing finance because they are often seen as high-risk borrowers due to their limited collateral and experience.[7677] This can be a threat to the programmer's ability to provide 50% of financing to female led MSMEs. Currently, no information is provided on how such threats can be minimized.

    - **Recommendation 18:** carefully consider how funding requirements and capacity building activities of the Programme should and can be shaped to better support female-led MSMEs in order to reach the 50% funding to female-led MSMEs target without significantly compromising on minimizing investment risks.

7. **Doubtful effectiveness of the data hub:** while the idea behind the data hub to connect waste producers with waste management companies is a good and necessary way to increase effective waste management, the effectiveness of the proposed modality is assessed as doubtful. The development of a data hub can be costly, while accessibility and usability of the hub is not easily reached. Also, it also requires significant outreach work to make sure it is being used.

    - **Recommendation 19:** the Programme development team should assess the added value of the data hub (externally oriented tool) in relation to a general matchmaking platform as also proposed in the project. This matchmaking platform could be an internal database used by KCB staff, that requires much less resources to build and maintain.
    - **Recommendation 20:** if the Programme decides to develop the data hub, participatory development processes are suggested to ensure it is accessible, easy to understand and usable for relevant stakeholders.

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