SCALING CLIMATE ACTION 2021

THROUGH CLIMATE TECHNOLOGY AND INNOVATION BY SMES UNDER PRIVATE SECTOR INVESTMENT INITIATIVE FOR NATIONALLY DETERMINED CONTRIBUTIONS (NDCS) IN AFRICA

AFRICAN DEVELOPMENT BANK
CLIMATE CHANGE & GREEN GROWTH DEPARTMENT (PECG)

REPORT

SCALING CLIMATE ACTION

THROUGH CLIMATE TECHNOLOGY AND INNOVATION BY SMES UNDER PRIVATE SECTOR INVESTMENT INITIATIVE FOR NATIONALLY DETERMINED CONTRIBUTIONS (NDCS) IN AFRICA

2021

AFRICAN DEVELOPMENT BANK
CLIMATE CHANGE & GREEN
GROWTH DEPARTMENT (PECG)

SCALING CLIMATE ACTION

THROUGH CLIMATE TECHNOLOGY AND INNOVATION BY SMES UNDER PRIVATE SECTOR INVESTMENT INITIATIVE FOR NATIONALLY DETERMINED CONTRIBUTIONS (NDCS) IN AFRICA

First Published 2021

FOREWORD

Small and Medium-size Enterprises (SMEs) in Africa provide over 50% of Africa's Gross Domestic Product (GDP). It is therefore not surprising that they are considered the backbone of economic growth in Africa. Economic growth in this decade of action must be equitable, inclusive, and progressive to ensure that no one is left behind. The SMEs, being the engine of economic growth in Africa, will therefore have to undertake economic activities that will generate greater prosperity and create jobs while protecting the environment. Protecting the environment will mean adopting regenerative approaches to production, avoiding and reducing environmental pollution, avoiding or reducing greenhouse gas (GHG) emissions and adopting cleaner technologies.

However, the majority of SMEs in sub-Saharan Africa still have a low level of appreciation of the impact of climate change, the inherent opportunities and risks, and existing mechanisms that have been designed to regulate greenhouse gas emissions. The Nationally Determined Contributions (NDCs), which are at the heart of the Paris Agreement, were designed to embody efforts by each country to reduce national Greenhouse gas emissions and adapt to the impacts of climate change. The NDCs are supposed to outline the framework for a low-carbon emissions development leveraging opportunities in climate finance and clean technology.

Unfortunately, many of Africa's SMEs are not fully aware of the NDCs, let alone the climate finance opportunities that the NDCs provide. In general, African SMEs are not conversant with the management tools that can help them unlock the opportunities for climate action in ways which support the optimization of the operational efficiency of their businesses and enable them to attract much-needed investments. At the same time, Local Financial Institutions (LFI) are not set up to offer attractive financial instruments to SMEs either because they do not understand how to make use of the opportunities in green finance or, how to blend green finance into traditional lending instruments.

A framework that helps SMEs in Africa to understand the opportunities and risks in climate change and embrace the NDCs as a lever for operational efficiency is, therefore, timely. The Scaling Climate Action through Technology and Innovation project aims to guide SMEs and Banks to understand best practices in unlocking finance and technology opportunities inherent in NDCs. The project puts together a comprehensive set of toolkits that will help SMEs understand climate change, NDCs and implement activities to assess and mitigate their activities. It also provides LFIs with tools that help them streamline their credit processes to include green finance opportunities to increase lending to SMEs in Africa.

As Africa emerges from the impact of the global COVID-19 pandemic, it is important that SMEs are fully equipped with the knowledge and tools that will contribute to building back better, while creating opportunities for equitable and inclusive growth that puts the NDCs at the foundation for climate-informed decision making.

PREFACE

The Climate Change and Green Growth Department (PECG) at the African Development Bank (AfDB), responsible for the implementation of the Bank's Climate Change Action Plan (2016-2020), has the mandate to support the implementation of NDCs and scaling-up climate finance in African countries from public and private sources.

The Department, through a grant facility from the Bank's Fund for African Private Sector Assistance (FAPA), has designed, through this assignment, the implementation of the Private Sector Investment Initiative for NDCs in the whole of Africa using the following six countries as pilot: Angola, Egypt, Morocco, Mozambique, Nigeria, and South Africa.

The intended key impact of the assignment, as carried out by Natural Eco Capital, was to provide avenues for the improvement of the African private sector, especially SMEs capacity to assess climate risks and opportunities for NDCs and green investment. This builds on the work of the African Financial Alliance on Climate Change *(*AFAC) in support of Africa's private sectors, which aims at putting the financial sector at the centre of Climate Action in Africa.

This report explains newly developed toolkits for SMEs to mainstream climate change in key sectors. In addition, it will serve as a useful resource for the development of practical working materials to assist SMEs in analyzing climate change risks/opportunities while generating strong adaptation strategies, raising awareness, and strengthening the capacity of SMEs to identify incremental cost due to climate change. Also, it will serve as a tool for the identification of climate finance and climate innovation opportunities, as well as supporting the Bank to mainstream climate change through their lines of credit and the development of toolkits for their Bank staff and Investment Officers.

The practical and informative approach included in this report will ensure achievement of the following:

- Climate risks and opportunity Screening Toolkit as well as Business Carbon Footprint Toolkit for private sector/SMEs;
- Guidance for climate change mainstreaming in the Bank's private sector and guiding documents on greening lines of credit;
- Training materials/resources for private sector/SMEs;
- Training materials/resources for Bank Staff;
- Training of identified SMEs on the application of the Climate Screening Tools and GHG Emissions Reduction Tool alongside developing bankable investment proposals across the pilot countries;
- Training of identified Bank staff on the guidelines for climate change mainstreaming in the Bank's private sector and lines of credit; and
- Development of Sustainability Initiative for Bank Staff as digital capacity building programme for climate change mainstreaming

The key elements of this assignment as presented in this report are hghlighted below:

- Development of Climate Assessment Tools for SMEs;
- Capacity Building and Training for SMEs (enhancing SMEs Capacity for Project Development and Access to Climate Funds); and
- Mainstreaming Bank Private Sector Operations with NDCs and Climate Finance Commitment with the following elements: Mainstreaming climate change measures in the project preparation cycle, assistance for structuring financial sector transactions to attract Green Finance and Facilitate Access to Climate Funds.

Furthermore, the Climate Risk Screening and Opportunity Toolkit has been developed to deepen SMEs understanding of climate change and climate action from risk, opportunity and implementation perspectives. The toolkit will enable businesses to also integrate climate action into business ideas, risk management and growth. Some of the benefits of the toolkit are seen in the areas of supporting SMEs to include enabling climate action in a larger section of national economies; substantially scaling up National Climate Action across Africa; increasing SMEs access to climate finance, and enabling a 'new' market for AfDB products and climate investments services.

Also, it provides an insight into the tools and guidelines needed by SMEs to enable businesses to identify and develop sustainable business ideas and initiatives that align with national climate change strategies and objectives, climate financing criteria and the country's sustainable development objectives, and increase their probability of receiving climate financing. SMEs can also climate-proof their businesses as appropriate in terms of climate risks for long-term sustainability and growth. Furthermore, integrating climate response strategies into daily business operations as well as accounting for climate-enhancing goals made each year of the business lifecycle, will enhance the preparation of bankable businesses in the green space and increase access to climate finance.

In addition, for ease of usage, the Toolkit Training Manual provides a set of guidelines and information intended to equip Toolkit consumers with the knowledge and skills to use the developed tools, while also providing a step-by-step guide in using each of the tools.

This report includes the following sections:

Section 1: Introduction

Section 2: Theory of Change

Section 3: Methodology

Section 4: SMEs and Climate Actions in Africa

Section 5: Toolkits and Guidelines

Section 6: Capacity Building and Sustainability Initiative

Section 7: Post-Assignment Completion

Section 8: Conclusion and Recommendations

This work is intended as a resource for millions of SMEs in Africa that aspire to scale their climate action or "green credentials" through the development of climate technology and innovation under the Private Sector Investment Initiative for NDCs.

ACKNOWLEDGEMENTS

We would like to thank the African Development Bank (AfDB), most especially the Climate Change and Green Growth Department (PECG) and the Bank's Fund for African Private Sector Assistance (FAPA) for the support we got while putting together this report. Special thanks also go to Al-Hamdou Dorsouma, AfDB Manager, Climate Change and Green Growth Division; Gareth Phillips, AfDB Manager, Climate and Environment Finance Division; Gerald Esambe Njume, AfDB Senior Climate Change and Green Growth Officer; and Fadekunayo Adeniyi, Climate and Green Growth Division for all they did during the period the project lasted.

Similarly, the Natural Eco Capital Limited team of experts, deserve a lot of plauds for their effort and various roles played in the study, development of toolkits and training materials as well as generating of this report. Of note, are the following key experts:

1. Dr. Eugene Itua
2. Dr. Orakwe Linus
3. Ms Belynda Petrie
4. Dr. Jubril Adeojo
5. Prof. Chukwumerije Okereke
6. Ms Sarah Wewege
7. Mr Oloruntoba Bankole
8. Mr Stanislaus Deh
9. Mr Marc Daubrey
10. James Ogunleye
11. Stanley Ijeoma
12. Mr Herminio Mulungo
13. Dr Amr Osama
14. VenanSondo
15. Dr. Elias T. Ayuk
16. Louis Perroy ,
17. Prof. Richard Pagett
18. Engr. James Chidi
19. Kennedy ChigozieAhanotu
20. Moses Braimah
21. Claudia Gastrow
22. El Mostafa Jamea

We also like to thank the various SMEs and Financial Institutions (FIs) across the continent that accepted our invitation to participate in the testing of the various assessment tools that have been developed. Their cooperation and those of the other participants in our series of workshops who gave their suggestions on the toolkits development deserve lots of commendation.

Moses Braimah
Communication Expert
Natural Eco Capital

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF BOXES

LIST OF ANNEXES

ABBREVIATIONS

ADAPT Assessment and Design for Adaptation to Climate Change-a Prototype Tool
ADOA Additionality and Development Outcomes Assessment
AFAC African Financial Alliance on Climate Change AFD French Development Agency
AfDB African Development Bank AFOLU Agriculture Forestry and Other Land Use
BAU Business as Usual BOI Bank Of Industry
CB Commercial Bank
CC Climate Change
CCAIRR Climate Change Adaptation through Integrated Risk Assessment
CCAP Climate Change Action Plan
CDM Clean Development Mechanism
CEDRA Climate Change and Environmental Degradation Risk and Adaptation Assessment CGE Computable General Equilibrium
CO2 Carbon Dioxide
COVID Corona Virus Disease
CRISP Climate Risk Impacts on Sectors and Program
CRiSTAL Community-based Risk Screening Tool - Adaptation and Livelihood
CRMA Climate Risk Management and Adaptation
CSS Climate Safeguards System
CVCA Climate Vulnerability and Capacity Analysis
DANIDA Danish International Development Agency
DFID Department for International Development
DFI Development Finance Institution
DRR Disaster Risk Reduction
EBRD European Bank for Reconstruction and Development
EEP Energizing Education Program
EIB European Investment Bank
EITI Extractive Industries Transparency Initiative
ENAC The National Strategy for Climate Change Action
ENAMMC National Climate Change Adaptation and Mitigation Strategy
ESG Environmental, Social and Corporate Governance
EUR Euro
FAPA Fund for African Private Sector Assistance
FEC Federal Executive Council
FGD Focus Group Discussions
FI Financial Institution
GCF Green Climate Fund
GDP Gross Domestic Product
GEFF Green Economy Financing Facility
GGF Green Growth Framework
GHG Green House Gas
HEAT Hands-on Energy Adaptation Toolkit
ICT Information, Communication and Technology
IDS Institute of Development Study
IFC International Finance Cooperation
ILO International Labour Organization
IPCC Intergovernmental Panel on Climate Change
IPPU Industrial Processes and Product Use
ITCZ Intertropical Convergence Zone
JfYA Jobs for Youth in Africa
LoC Lines of Credit
LTS Long Term Strategy
LUCF Land Use Change and Forestry
LULUCF Land Use, Land Use Change and Forestry
MDA Ministry, Department and Agency
MSME Micro, Small and Medium Enterprise
MT Million Tonnes
NASPA-CCN National Adaptation Strategy and Plan of Action for Climate Change Nigeria
NBE National Bank of Egypt
NCCPRS National Climate Change Policy Response and Strategy
NCCRWP National Climate Change Response White Paper
NDC Nationally Determined Contribution
ND-GainNotre Dame Global Adaptation Initiative
NPCCRS National Policy on Climate Change and Response Strategy
NGO Non-Governmental Organization
NSO Non-Sovereign Operation
ORCHID Opportunities and Risks from Climate Change and Disaster
PECG The Climate Change and Green Growth Department
PSO Private Sector Operation
R&D Research and Development
REMU Renewable Energy Micro Utility
RMC Regional Member Country
SDG Sustainable Development Goal
SME Small and Medium-sized Enterprises
TA Technical Assistance
ToR Terms of Reference
UN United Nations
UNFCCC United Nations Framework Convention on Climate Change
UNDP United Nations Development Program
UNECA United Nations Economic Commission for Africa
UNIDO United Nations Industrial Development Organization
USD United States Dollar
WB World Bank

EXECUTIVE SUMMARY

This report presents the outcome of the assignment "*Scaling climate action through climate technology and innovation by SMEs*". The assignment is the second component of the project *Private Sector Investment Initiative for Nationally Determined Contributions (NDCs) in Africa*, with an overall goal to *"enable Africa's private sector participation into climate-related investments that support the implementation of the Nationally Determined Contributions (NDCs) in Africa under the Paris Agreement"*. It entailed the development of a set of climate change and green growth tools to help assess climate risk and mitigate impact on the Bank's private sector and African Small- and Medium-size Enterprises (SMEs) operations. The developed tools also built on the works of The African Financial Alliance on Climate Change - AFAC to put the financial sector at the centre of climate action in Africa.

The methodology used in executing this assignment comprised: (1) desk research which covers review and analysis of documents including, NDCs of the pilot countries, compiled database for the private sector and not-for-profit advocacy institutions, national economic growth and climate-related plan and strategies, mandates and activities of relevant Government Ministries, Departments and Agencies such as transportation, agriculture, waste, water resources, environment and energy; (2) political-economy analysis (key barriers/challenges for private sector and SMEs, enabling/disabling policy environment); (3) focus group discussions with the relevant organisations; and (4) organizing workshops for financial institutions and SMEs on promoting the application of climate technologies to achieve a green economy for Africa.

Output

The main outputs of this assignment include (1) the development of two suites of toolkits to aid in the assessment and mainstreaming of climate risk or mitigate impact into the Bank's private sector, Africa SMEs, and operations of Financial Intermediaries; (2) the development of a Guidance Note to facilitate mainstreaming of climate change protocols and criteria in AfDB's lines of credit; (3) the development of a suite of training materials; (4) development of a position paper to guide decision making in the review of the Bank's existing job tracking tool; and (5) organization of a series of capacity building workshops. These outputs were tailored towards guiding stakeholders on how to use the newly developed toolkits as well as building their capacities in areas of business management and mainstreaming climate change in their activities.

Climate Screening and Opportunity Tool:

This is a web-based application that focuses on helping SMEs screen their businesses for climate risks and (helps them to) establish strategies to protect and make these businesses climate resilient. It provides them with prospects of identifying new business opportunities as well as guiding them towards aligning their businesses to these opportunities, including responses to NDCs Strategies and other sources of climate finance with a view to attracting climate investment. This toolkit comprises sub-tools targeted at businesses, AfDB and other funders. These sub-tools are *Sub-tool 1 (Opportunity assessment tool*); *Sub-tool 2 (Climate risk and vulnerability screening tool); Sub-tool 3 (Cost benefit analysis tool); and Sub-tool 4 (Finance analysis tool).*

Greenhouse Gas (GHG) Accounting Toolkit:

This is also a web-based application designed to guide SMEs towards measuring GHG emissions resulting from their projects and operations. The toolkit conducts SMEs to screen and operationalise GHG emissions reduction strategies identified/adopted. It also assists SMEs to monitor and record progress in realizing the potential of their emission reduction strategy implementation and to establish appropriate technical accounting and reporting business systems.

Guidance Note on Mainstreaming Climate Change into Lines of Credit:

This tool was developed to enable the integration of climate change protocols and criteria in AfDB's line of credit (LoC). The toolkit builds on the work of AFAC to also enable Financial Intermediaries to climate-screen and assess green investments. The design enables the tool to identify various types of financial instruments and green bonds, bottlenecks/barriers in green financing, and establish/develop guidelines for assisting in structuring financial sector transactions to attract green finance. It further provides guidance that facilitate access to climate funds guidelines/schedule of international and regional climate funds available for Africa.

Position Paper for development of Africa Green Jobs Tracking Tool:

This policy paper was presented to the Bank as a way to guide decision making in the review of its existing job tracking tool and ensuring that the Bank has adequate capacity to track green jobs created from its activities and others across Africa. It provides a typology of green jobs and highlights the need to classify and track green jobs; monitor progress in increasing green jobs; and improving green skills throughout the AfDB's operations and funded initiatives. It proposed methodologies and made suggestions on action points that will meet the primary objective of green job tracking.

Training Materials and Capacity Building Programmes:

Twenty-five training materials were developed in support of the Bank's Sustainability Initiative, an online capacity development platform on the Bank's website. These materials addressed capacity gaps and deficiencies across the target stakeholders. They were categorized into three: Materials for incubation and acceleration programme for Startups and SME; Materials for Mainstreaming Climate Change in SME Businesses; and Materials on Climate Finance and mainstreaming, for AfDB's staff (The Climate and Green Growth Division-PECG and Private Sector). Another fifteen training materials were also developed and specifically used during capacity building workshops which were executed as follows:

Stream 1 (Two-day) Workshop for SMEs and FIs:

The workshop was held on October 6-7, 2020, with 95 participants in attendance. It focused on a general introduction to climate change and provided guidance to participants on how to apply the new toolkit for climate opportunities and risk screening, as well as business carbon footprint toolkit.

Stream 2 (One-day) Workshop for FIs:

This Stream 2 workshop was held on October 8, 2020, and focused on how to mainstream climate actions into lines of credit and investment processes.

Steam 3: (Three-day) Workshop for Africa Development Financial Institutions - DFIs:

This workshop was held from June 1 – 3, 2021. Out of the 513 registrants, 251, 228 and 181 participants were recorded on the first, second and third day, respectively. The training

comprised lectures on 12 modules delivered under three thematic sessions: **Session One (**Understanding Climate Change and Environmental Challenges in the Financial Sector); **Session Two (**Understanding Climate Risk, Climate Mainstreaming and Climate Finance) and **Session Three (**Climate and Green Finance at the AfDB).

CONCLUSION AND RECOMMENDATION

By the end of the assignment a number of relevant climate change mainstreaming toolkits and training materials had been developed. Capacity building programmes were executed with over 500 representatives of different institutions who benefited across countries in Africa. The toolkits have been tested across the six pilot countries and have been updated to incorporate concerns from target stakeholders.

Recommendations were made to the Bank, including on the need to advocate for the integration of climate finance taxonomy within the financial sector actors' risk management, specifically on the AFAC platform; on building the capacities of SMEs in the area of reporting climate actions and proposal writing to attract international finance mechanisms/procedures that promote mainstreaming of climate actions; on the need to deploy and test the new toolkits beyond the six pilot countries; on ensuring customization of loan products and value-added services in line with the peculiarities and nature of the different SMEs along the various climate-resilient sectors/projects; and on the need to modify LC criteria to accommodate grants to support aspects of knowledge transfer and equipping credit beneficiaries with capacity to mainstream climate actions in operations and projects, amongst others.

SECTION 1: INTRODUCTION

SECTION 1: INTRODUCTION

1.1 BACKGROUND

The Climate Change and Green Growth Department (PECG) of the African Development Bank (AfDB), which is responsible for the implementation of the Bank's Climate Change Action Plan (2016 -2020), aims at supporting the implementation of NDCs and scaling up of climate finance in African countries from public and private sources. The Department, through a grant facility from the Bank's Fund for African Private Sector Assistance (FAPA), is implementing the Private Sector Investment Initiative for NDCs in Africa using the following six countries as pilot: Angola, Egypt, Morocco, Mozambique, Nigeria, and South Africa.

Under this initiative, Natural Eco Capital was assigned to implement a project on 'Scaling Climate Action through Climate Technology and Innovation by Small and Medium Size Enterprises (SMEs).'

The main anticipated impact of the assignment is to improve the capacities of Africa's private sector, especially SMEs, to assess climate risks and opportunities for NDCs and green investment. This builds on the work of the African Financial Alliance on Climate Change *(*AFAC) in support of Africa's private sectors, which aims at putting the financial sector at the centre of climate action in Africa (Box 1.1).

AFAC, through knowledge sharing, climate risk-mitigating financial instruments, climate risk disclosure, and climate finance flows, addresses climate change both as a risk and an opportunity.

Box 1.1: Efforts of African Financial Alliance on Climate Change

1.2 RATIONALE

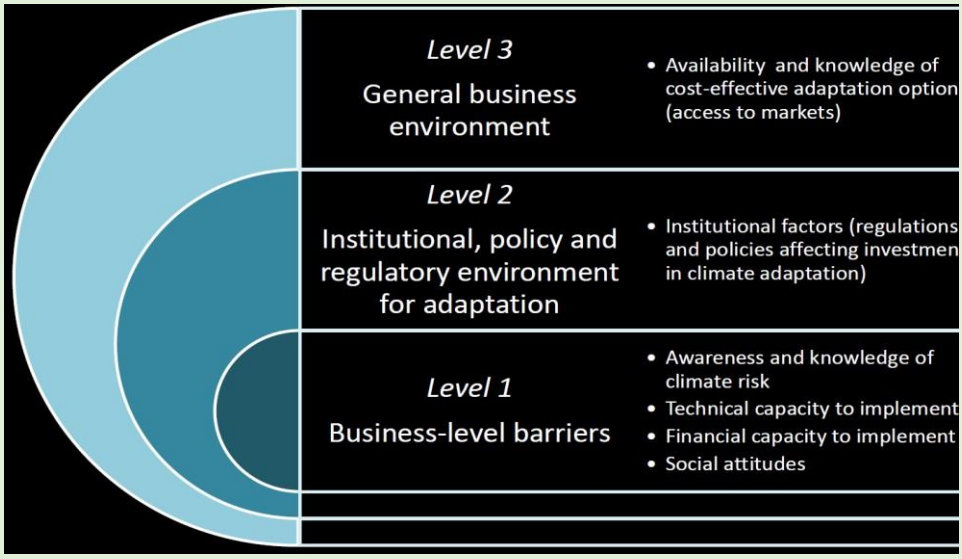
It is generally known that Africa is the continent that is most vulnerable to climate change. This reality puts the people and their livelihoods at grave risks of the disruptive and destructive impacts of climate change. To mitigate these climate risks and threats to lives and livelihood, there is an urgent need to set African economies on a low-carbon and climate-resilient development trajectory. The starting point will be making deliberate smart choices on how capital is deployed in the increasingly climate challenged and resource-constrained post-Paris Agreement era. To this end, various African countries have set their climate objectives and targets via the NDCs and SDGs. About 96% of the African countries have submitted their NDCs in keeping with the Paris Agreement.

Of the estimated 4 trillion US dollars needed for financing NDCs commitments in Africa by 2030, about 75% of this investment is expected to come from the private sector that is made up of 95% SMEs.

This implies that engaging the private sector, especially SMEs, by the various African countries is crucial for the successful implementation of NDCs on the continent.

However, the current situation is that the private sector, especially the SMEs, are not in a position to support governments to achieve their commitments, share best practice, prompt positive

competition, and improve their confidence that the ambitious targets are credible and achievable. This is because, at present, understanding of climate issues among Africa's SMEs is rather low. Typically, SMEs do not have the appetite to assess climate risks as there are no risk strategies and/or risk-opportunity-reward metrics towards low-carbon and climate-resilient investments readily understood or easily deployed by SMEs in Africa. These are amongst other challenges faced by SMEs which include, a lack of climate-related governance in many African countries, and a lack of capacity for risk capital and concessional finance to handle the incremental costs of climate measures in project design required to bring them to bankability (Box 1.2).



Source: Doughtery-Choux et al. 2015

Box 1.2: Current Situation of Private Sector with Regard to NDCs

To change the situation, it has become necessary to develop tools and guidelines that stand to define the pathways to channel activities, projects and financial flows towards Africa's NDCs and SDGs and other climate objectives and targets for countries in the continent, especially through the SMEs' support.

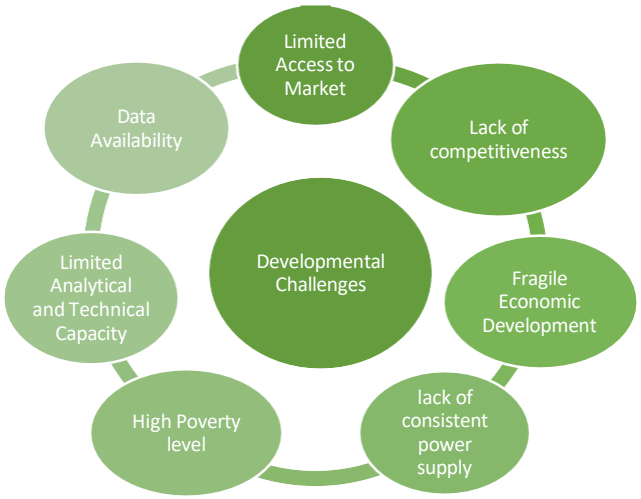
The specific needs for the new tools and guidelines for the SMEs and the Bank are further highlighted below based on the findings from a review of literature.

1.2.1 The Need for New Climate Tools for SMEs

In the marketplace, there are numerous climate screening tools, frameworks and guidelines which target a range of actors from policymakers and development project managers to local government and NGOs.

A review of these tools revealed that although they have the potential to be adapted for the SME audience, they do not address the needs and circumstances of most African SMEs who are

characterized by some peculiar and yet common circumstances in the 54 countries as shown in Box 1.3.



Box 1.3: Situation in Many African Countries Exacerbated by Limited Ability to Scale Climate Action

In summary, the review of the literature revealed the following about the existing tools and why there is a need for newer tools to address the African SMEs:

- Quite a number of the tools appear complex, while resource constraints exclude the SMEs from using the complex tools typically designed for donor or public finance driven climate change initiatives;
- Some of the tools are designed for donor programming, rather than for the business purposes of African SMEs, and so there are difficulties in terms of mainstreaming into business design and/or operationalization; and
- Others focus primarily on climate risk screening, effectively excluding potential climate-related business opportunities for such enterprises like the African SMEs.

1.2.2 The Need for new Guidelines and Tools for the Bank

Climate Risk Management and Adaptation (CRMA) and Climate Change Action Plan (CCAP) are two vital instruments that AfDB *aims to use in mainstreaming climate screening and adaptation measures into Bank projects.*

- AfDB, in 2009, developed a strategy for CRMA with the goal of reducing vulnerability in Regional Member Countries (RMCs) by promoting climate resilience in Bank-financed development investments, as well as to build knowledge and capacity within RMCs to tackle climate change challenges and promote sustainability through regulatory and policy reforms.
- The Bank's CCAP falls under the strategy and aims to promote low-carbon development and a climate adaptation strategy that builds adaptive capacity in RMCs and promotes climate-proofed investments.

To achieve the objectives of the Bank's strategy as contained in CRMA and CCAP, the following were developed:

- Climate Safeguards System (CSS), a set of decision-making tools, to help the Bank to screen projects in vulnerable sectors, identify climate change risks and develop adaptation measures that will reduce vulnerability.
- Additionality and Development Outcomes Assessment (ADOA) Framework, which provides an in-depth and robust framework for assessing the development impacts of Private Sector Operations (PSOs) (including SMEs).

Though the CSS and ADOA provide useful tools and guidance for developing sustainable projects where climate risks are managed, and climate adaptation opportunities are maximized; both tools are used by Bank staff, and not available for private sector guidance. Also, while the CSS focuses on the public sector operations of the Bank, the ADOA focused on the private sector and only assesses development, not climate change. The new toolkits are therefore designed to cover these identified gaps, with a focus on mainstreaming climate action into activities of private sector (SMEs) who are key players on climate impacts. These toolkits will be available for all private sector organizations in Africa. A Guidance Note was also disigned based on the gaps identified and summarised in **Error! Reference source not found.**, to address difficulties posed by the Bank's existing Bank guidelines or instruments on mainstream climate change into lines of credit.

Additionality and Development Outcomes Assessment Framework **(ADOA)**	Green Growth Framework **(GGF)**	African Financial Alliance on Climate Change Principles **(AFAC)** Climate Change Action Plan **(CCAP)**
•Financial additionality drivers are centered on vanilla LOC creation •No alignment with climate actions and goals for Africa •No strategy on post-LOC scalability •Climate outputs are not included in the result based reporting framework (i.e. volume of GHG emission reductions)	•No strategic demonstration of climate finance and climate action integrated into the LoC •The green growth initiatives/programmes of the Bank and in conjunction with FIs are not strongly aligned with specific and measureable climate goals (NDC targets) •Very macro overview of importance of climate finance & blended financing mechanism.	•Very high-level overview of the climate change risk and climate actions on Africa •Demonstration of AfDB's commitment to climate risks, actions and finance in investment and strategic decisions •Limited granularity in the application and mainstreaming guidelines into the investment and strategic decisions

Figure 1: Gap Analysis of Existing AfDB Tools

1.3 THE NEED FOR NEW GREEN JOBS MONITORING TOOL FOR BANK CLIMATE ACTION

In 2016, AfDB also developed the Green Growth Framework (GGF) to guide Bank staff on facilitating the transition to green growth in African countries. In the framework, trackers for the identification of green jobs as an integral part of co-creating bankable climate action and providing security for private sector/SMEs support is missing. At present,PSOs/Non-Sovereign Operations (NSOs) are

assessed by ADOA as contributing to green growth, defined broadly as a less carbon emission-intensive and environmentally sustainable growth, if they *lower carbon emission intensity. The* PSOs are benchmarked against the host country's emission portfolio of the target sector or a Business-As-Usual (BAU) scenario.

Also, the AfDB Jobs for Youth in Africa (JfYA) Strategy (2016-2025) was developed with the aim to support African countries to scale up responses to the youth unemployment and underemployment crisis on the continent. This is anticipated to be achieved through practical, high-impact solutions aimed at creating opportunities via education and training, transformative jobs and a business environment conducive to entrepreneurial activities (i.e., youth entrepreneurship).

For the Bank staff, the JfYA supports mainstreaming the job perspective in AfDB operations and country dialogues without necessarily determining whether they are green or not. The tool has no strong alignment with climate change, SDGs, or green economy indicators.

Thus, the use of the existing tool reveals gaps that make them not readily useable for identifying and/or tracking the volume of green jobs created directly from financing green and climate-resilient projects by the Bank (Figure 2).

Additionality and Development Outcomes Assessment Framework (ADOA)	Green Growth Framework (GGF)	Jobs for Youth in Africa Tracking Tool
• Green Jobs creation output is not included in the development outcome reporting template on LOC-financed projects	• No clear definition of green jobs, and no strong linkage with the defined green economy indicators • Very macro overview and framework of green growth and climate action indicators in African economies	• No strong alignment with SDGs and green economy indicators • Specific to youths, which is limited in scope

-

Figure 2: Gap Analysis of Existing AfDB Related Green Job Tools

The new Green Jobs Monitoring tool for Bank Climate Action Projects serve as:

- A tracker for identification of green jobs as an integral part of co-creating bankable climate actions and providing security for private sector/SMEs support.
- A proactive and an interactive instrument that harmonizes different green opportunities for youth and women; and
- An opportunity to identify green entrepreneurs and the direct and indirect jobs created because of the supported climate-resilient enterprises and projects.

1.4 AIM AND OBJECTIVES

The overarching goal of the assignment is to support Africa's private sector and SMEs to assess climate risks and opportunities for NDCs and green investment. The specific objectives include the following:

- Develop a climate change screening tool and toolkits for SMEs to mainstream climate change in key sectors.
- Develop practical working material to support SMEs analyse climate change risks/ opportunities and generate strong adaptation strategies.
- Raise awareness and strengthen the capacity of SMEs to identify incremental costs due to climate change.
- Identify associated climate finance and climate innovation opportunities; and
- Support the African Development Bank to mainstream climate change through lines of credit and develop toolkits for Bank staff and Investment Officers.

1.5 SCOPE OF THE ASSIGNMENT

The assignment has two main foci namely: Enhancing SMEs Capacity for Project Development and Access to Climate Funds and Mainstreaming Bank Private Sector Operations with NDCs and Climate Finance Commitments (Figure 3). The elements in these are briefly described below:

- ### Enhancing SMEs Capacity for Project Development and Access to Climate Funds

  These include two main elements: development of climate assessment tools for SMEs and capacity building and training for them as outlined below:

  - Development of Climate Assessment Tools for SMEs: This includes the review of the available Climate Screening Assessment Tools with a view to adopting the benefits from the tools; and based on the identified gaps develop a tool that best fits the SMEs to scale climate action. The scope of the tools is not to determine correct or incorrect responses. Instead, the tools are expected to support climate change consideration in activities and operations/projects by SMEs and whether these will aid in climate adaptation efforts.
  - Capacity Building and Training for SMEs: This focuses on developing training materials based on the suite of developed tools which include but not limited to the use of screening tools to generate GHG emissions reduction strategies, project vulnerability assessment and eligible incremental costs and core indicators. The training materials and training enhance the skills of SMEs to integrate climate change measures in the design, financial structuring, analysis and preparation of compelling project proposals that facilitate low-carbon and climate-resilient development.

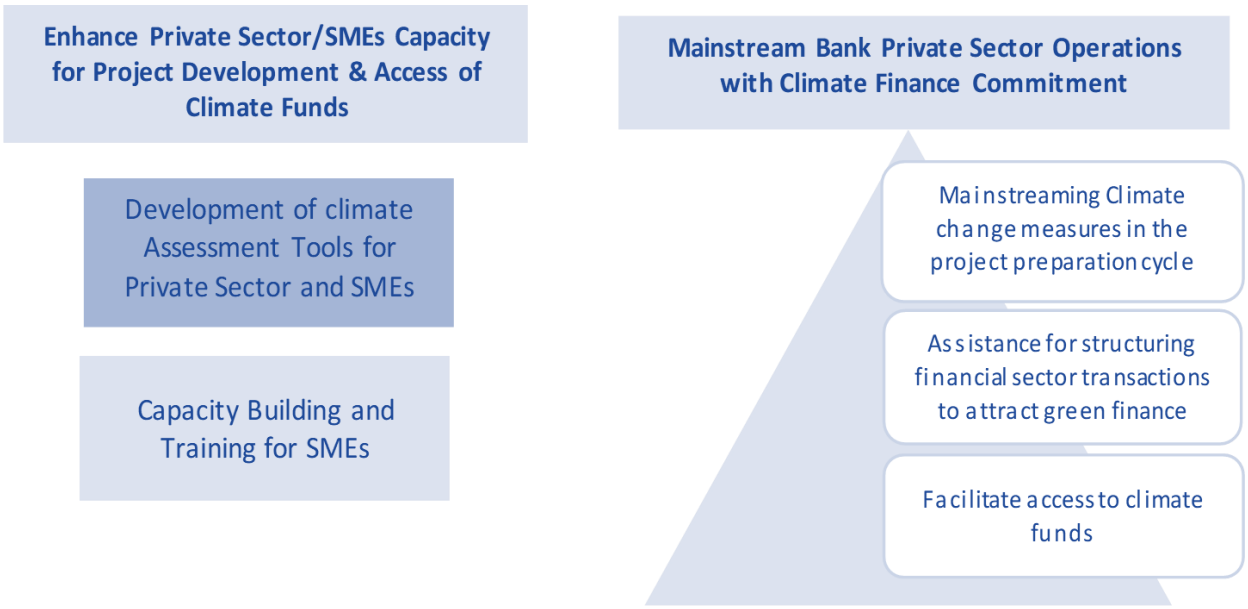


Figure 3: Scope of Scaling Climate Action by Private Sectors and SMEs

- Mainstreaming Bank Private Sector Operations with NDCs and Climate Finance Commitment

The three elements under this workstream include:

- Mainstreaming climate change in the project preparation cycle: The primary focus here is to ensure, in the future, that PSOs of the Bank, especially for the SMEs, go through the Bank's Readiness Review process and fully meet the Bank's requirement for integrating climate action protocols and methodologies into the project design.
- Assistance for structuring financial sector transactions to attract green finance: Under this, the Bank support is provided fo the Bank investment officers in identifying and adopting innovative/best practice on green financing measures in the financial sector through capacity enhancement.
- Facilitate access to climate funds: To enable investment officers to identify incremental costs of climate measures that are eligible for climate finance at scale, this element focuses on guiding them to proactively consider climate finance in the financial structuring of projects through access to materials that enhanced their capacity.

1.6 PHASES OF THE ASSIGNMENT

To achieve the overall goal and objectives, the assignment was designed for implementation in five different phases (**Table 1**).

Table 1: Phases of the Project

PHASES	FOCUS
Phase I	Outline design of climate screening alongside adaptation and GHG emissions reduction (mitigation) strategies/tools for the private sector and SMEs operations
Phase II	Development of tools, finalization of the tools; presentation of results; preparation of quality assurance features, bench testing, and implementation of tools
Phase III	Capacity building and training for the Africa Private Sector in the six pilot countries (participants were identified by the consultant) for tools implementation in selected countries
Phase IV	Development of guidelines/toolkits for mainstreaming climate change in private sector operations of the bank and training of PECG staff and Bank Investment Officers.
Phase V	Develop the PECG Sustainability Initiative
	• Develop training modules and training kits for PECG sustainability Academy • Develop online training platform to disseminate Sustainability Academy Programmes • Develop tools to track and monitor green jobs from Bank portfolio • Post completion: Technical backstopping for three months

1.7 OUTLINE OF THIS REPORT

In the course of implementing this assignment, reports of activities carried out towards achieving the project objectives were developed monthly. Apart from these monthly reports, three major reports, namely: The Inception Report, First Interim Report, and Second Interim Report were also prepared. The foregoing reports were in addition to the concept notes and other briefs as contained in the scope of work.

The Inception Report outlined the specifics on how this assignment was to be delivered, specifically outlining methodology, team composition and clarifying expectations as well as the work plan.

The First Interim Report documented the key climate change policies and frameworks for the six pilot countries. It also provided an overview of existing climate change screening tools to establish a baseline and allow identification of gaps as they relate to AfDB Climate Safeguard Systems (CSS), ADOA, and other available screening tools in the marketplace. The objective was to establish a strong foundation for developing the climate screening tools for SMEs in Africa and support the Bank in further mainstreaming climate change into operations. The report also identified that a significant number of the private sector operators are SMEs in Africa and thus provided an operational definition for the assignment for the group of enterprises. It captured the following:

- Toolkit design parameter and set up.
- Outline of toolkits and guideline to be developed.
- Information on target users.
- Guidance for users of the toolkit as well as outline for training materials and capacity building programme.

The Second Interim Report built on the first one by providing an update on the five phases of the assignment. Also, it covered other steps taken towards project completion based on the focus of the assignment.

This final Report documents project activities, problems and difficulties encountered and results achieved during the preparation and implementation of the assignment. It also highlights plans towards closure and monitoring of components of the assignment and reflects the final positions and recommendations on issues of concern, updating those presented in previous Reports, based on additional activities carried out and further comments on previous Reports.

This Report is the culmination of the assignment on 'Scaling Climate Action through Technology and Innovation by SMEs'. It highlights activities leading to the preparation of toolkits and guidelines as well as related training materials for SMEs and Bank Officers. The Report is organized by topics into Sections 1 – 7. Section 1 is the Introduction; Section 2 is on Methodology, Section 3 is on the SMEs and Climate Actions in Africa; Section 4 is on Toolkits and Guideline; Section 5 is on Capacity Building and Sustainability Initiative; Section 6 is on Post-Assignment Completion and Section 7 on Conclusions and Recommendations.

SECTION 2: THEORY OF CHANGE

SECTION 2 THEORY OF CHANGE

2.1 THEORY OF CHANGE FOR THE PROJECT

The project theory of change underpins the need to develop tools that address the needs and circumstances of African SMEs that are characterized by some peculiar and yet uncommon circumstances. The project identified key strategies and developed relevant instruments to improve assessment, communication, generate evidence and build capacities to drive change in policy and practice.

The tools were developed to support climate risk screening and management in strategy, project and activity design. These tools are meant to improve the effectiveness and sustainability of development interventions and business decisions, as well as helping the user to assess and address climate risk.

2.1.1 THEORY OF CHANGE OF CLIMATE RISK SCREENING AND OPPORTUNITY TOOLKIT

Climate risk screening is an integral part of efforts to ascertain current and future vulnerabilities and risks related to climate change. It is a prerequisite for identifying and designing adaptation measures, and an important element in the process of integrating, or mainstreaming, climate change adaptation into any organizational development project, planning and policy processes.

There is an increasing demand and attention among national stakeholders in developing countries to take into account potential implications of climate variability and change for planning and prioritizing of development strategies and activities. Subsequently, there is a need for user-friendly guidance on climate risk screening tools and their potentials for application that targets developing country stakeholders and SMEs. This need is amplified by the sheer volume of climate change mainstreaming guidance documents and risk screening and assessment tools available and currently under development.

Climate Risk Screening and Assessment Tools provide techniques to assess particularly; policy, programmes and project risks through climate lenses. The tool may also be used more generically as structuring tools to raise awareness on key linkages between climate change, vulnerability and development. Used in that capacity, they may be applied at all levels of analysis.

Improved understanding and better addressing the present risks related to climate, is intrinsically linked to managing the risks in a future climate. In addition to assessing vulnerabilities and measuring risks, the tool included guidance on assessing the costs and benefits of different climate risk management options. Such analyses contribute to advancing and advocating the economic rationale of decision-making under conditions of climate uncertainty.

2.1.2 THEORY OF CHANGE OF GHG ACCOUNTING TOOLS

Bakker (2012) from the World Business Forum for Sustainable Development notes that "accountants are going to save the world". Accountants minimize information asymmetry and assess investment risks, they create integrated reporting and integrated audit, provide and test standards of sustainability accounting, reporting and auditing within the new business model. With specific professional skills and involvement in governance, risk management, business analysis, decision support, due diligence, anti-corruption activities and ensure corporate transparency, professional accountants today are reassessing their roles in corporate sustainability.

These indicators form a continual basis for companies to create, enhance, inform and Report on their strategies, objectives and activities. This will improve communication with key stakeholders, increase their loyalty and transparency of the business environment and quality management as a framework for corporate sustainability in terms of growth of legal, reputational risk, the volatility of financial markets and access to finance. The importance of high-quality corporate reporting in ensuring financial stability and sustainable development, in general, was officially recognized during 32nd session of UNCTAD's Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting . Accountants are highly involved in this process. They measure, evaluate and disclose the progress in achieving companies set green objectives. Accountants act as guides and translators of the Triple Bottom Line ideas using the language of corporate sustainability.

2.1.3 THEORY OF CHANGE FOR LOC MAINSTREAMING GUIDELINES

Mainstreaming climate actions in the project preparation cycle will ensure, that private sector operations of the Bank, especially for the SMEs, go through the Bank's Readiness Review process and fully meet the Bank's requirement for integrating climate action protocols and methodologies into project design. This will provide assistance for, structuring financial sector transactions to attract green finance; capacity enhancement of investment officers, supported in identifying and adopting innovative /best practices on green financing measures in the financial sector; and facilitating access to climate funds by enabling investment officers to identify incremental costs of climate measures that are eligible for climate finance at scale. This element focuses on encouraging the bank to proactively consider climate finance in the financial structuring of projects through access to materials that enhanced their capacity.

2.1.4 THEORY OF CHANGE FOR GREEN JOBS TRACKING TOOL

Over the last few decades, there has been a significant move towards a greener future because of environmental pollution. Countries are creating greener economies by increasing the number of green jobs to reduce the environmental impact of enterprises, to improve the efficiency of raw materials, to de-carbonize the economy and to reduce waste. Green jobs contribute to the restoration and preservation of the natural environment. Green jobs may be in traditional sectors like manufacturing, construction etc. and emerging sectors like renewable energy and energy efficiency.

A well-planned green jobs strategy helps to focus institutional efforts on creating industries and employment that will provide wage while also contributing to the wider green economy. Green jobs are a way of future-proofing an economy for more ambitious green policies that may be adopted further down the road. They can also offer essential new employment and reskilling opportunities for people working in sectors that are likely to face decline due to new policies or technologies, such as coal mining. Good green job policies should be integrated into national green economy plans and have detailed, well-funded proposals to incentivize the creation of new green jobs or even whole new industries. Addressing social inclusion, decent wages and a just transition are important; green jobs plans should prioritize marginalized communities and those reliant on fossil fuel industries. Identifying green jobs can be difficult and so many countries will only have nascent programmes, without detailed planning or funding. Other countries may not prioritize green jobs at all and may only mention the employment and inequality challenges of a green transition in passing. The theory of change highlighting the need for a Position Paper on the need to develop a green job tracking toolkit will provide an overview of green job tracking and highlight opportunities within sectors across Africa.

2.1.5 THEORY OF CHANGE OF CAPACITY BUILDING WORKSHOP

Studies show that lack of managerial skills and capacity among SMEs employees and leadership constitutes a significant constraint to firm growth and the ability of SMEs (Including FIs) to withstand economic shocks and that management skills are a major determinant of productivity. Therefore, one common theory among development practitioners is *that building the capacity of SMEs owners and employees will improve the performance of their enterprises*, if they acquire new skills, thus leading to an increased demand for labor, along with additional sales revenue and employment generation. Training has become one of the most common forms of support provided by donor interventions to SMEs owners and employees to improve business practices, core management and administrative functions, and/or technical skills. The World Bank alone invests almost USD 1 billion per year on skills training programs. However, the literature reviewed shows that more tailored guidance, services, and coaching may have more significant impacts on SME growth and adoption of screening tool.

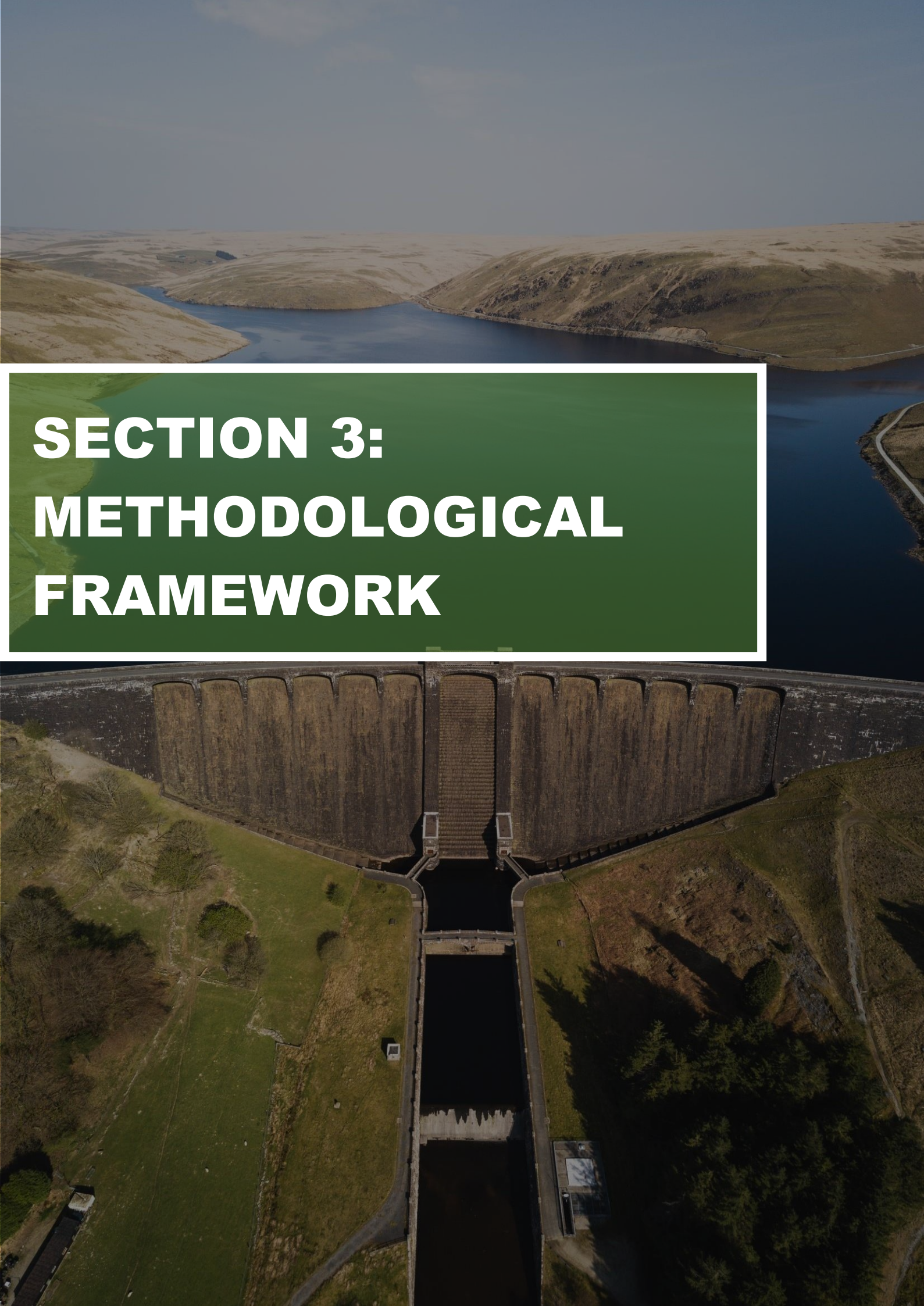
Increasingly, new training and consulting services interventions are including specified selection processes designed to identify SMEs with potential for high growth, and high-risk exposure to climate change impacts. *Building capacity of SMEs to assess the climate risks of their business and make informed decisions of high economic importance will further drive the relevance of the climate risk screening toolkit for business*.

SME Owner Receives Training	→	***They Change Business Practices***	→	***They Increase Cost Of Efficiency***	→	***Sales Increase In Profit And Employment.***

Figure 4: TOC Pathway

2.1.6 THEORY OF CHANGE OF SUSTAINABILITY INITIATIVE

Sustainability is the ability of an organization, initiative or project to achieve its mission, vision or objectives far into the future. The Bank's effort to build an online learning platform that is equiped with relevaant resources as may guide users towards mainstreaming climate actions into operations has given rise to the need to develope a suite of climate change related topics as text, audiovisuals and videos to be uploaded online. This will have a multilayer effect on SMEs (Including FIs) investment strategies, and adoption of new technologies. Better business decisions will increase organizational profit, growth, and number of jobs created. Mentoring approach adopted will help users navigate challenges encountered while using these online resources. The package will increase the confidence of key stakeholders who have all been consulted and their inputs and feedbacks mainstreamed into the project to ensure sustainability.



SECTION 3: METHODOLOGICAL FRAMEWORK

SECTION 3: METHODOLOGICAL FRAMEWORK

3.1 INTRODUCTION

A blend of methods and approaches tailored to suit the five phases of the project and the associated deliverables were adopted in the execution of this assignment. This includes desk review, design, development and piloting of toolkits and guidelines; curriculum design and development of course contents for the capacity-building programme. For each of these, information were drawn from the literature and existing models, expert opinion, as well as input from consultations with relevant stakeholders in the selected case study countries (Annex 1). When necessary, structured questionnaires were developed and administered to concerned stakeholders. Where global models were used, these were refined to reflect the specific context of the pilot countries, and sectors to underpin practicality within the African context.

Pivotal project approaches were adopted in various phases of the assignment to ensure that the outcomes produced are sustainable, useful and relevant while creating and transferring ownership to both the AfDB, private sector and SMEs (**Table 2**). The approach provided an overview of the "what", "why" and "how" that underpinned project delivery.

Table 2: Pivotal project approaches for project delivery

	What?	Why?	How?
Political Economy-based Development	Examine social + political + economic drivers	Solutions must address all drivers. * Holistic & Sustainable	Tools & trainings that answer questions of who/what enables and blocks
Co-creation & Adaptive Management	Iterative & collaborative 'learners' co-design their capacity development	Ownership * High levels of usefulness * Sustainability	Focus group discussions, interviews & consultations, knowledge surveys
Facilitated Peer-to-Peer Learning	Learning platforms between SMEs, countries and MDBs	Relevance * Evidence for preference to learn from peers. * Sustainability	Online and face to face platforms Case studies

3.2 DESKTOP RESEARCH

Desktop research was critical in establishing a strong baseline which the climate screening tools/GHG emission reduction strategies, training manuals and toolkits for SMEs and PECG staff, were developed. This initial research and scoping studies included:

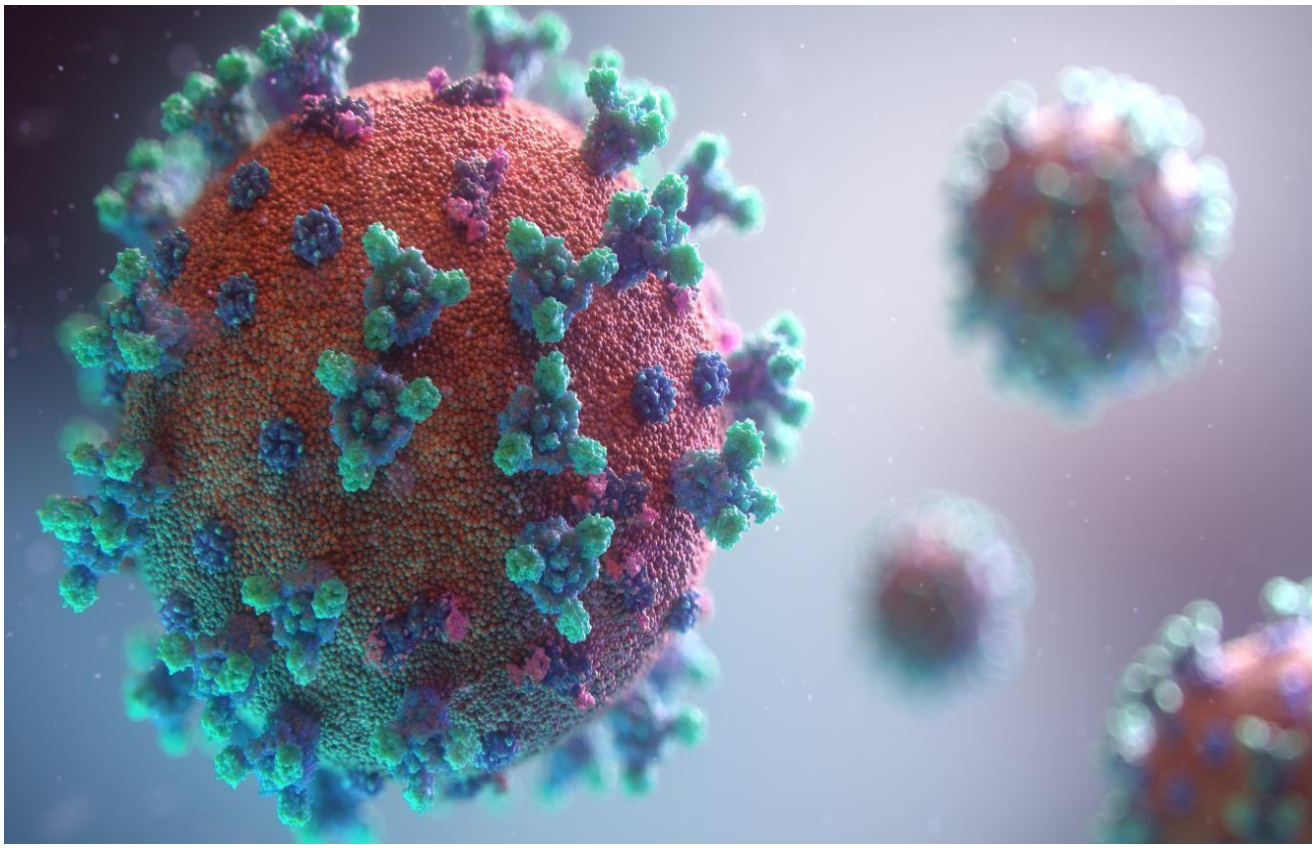
- Political-economy analysis (key barriers/challenges for SMEs, enabling/disabling policy environment). This helped inform the business/private-sector environment in each country in preparation for more targeted focus group discussions (FGDs), interviews and workshops;
- Review and analysis of NDCs of the six pilot countries (Angola, Egypt, Morocco, Mozambique, Nigeria and South Africa) with a particular focus on how these instruments do, or could, open

up opportunities for SME engagement in NDCs delivery;

- Preparation of a database of the private sector and not-for-profit advocacy institutions and think-tanks on relevant socio-economic matters for consultation;
- Review of national economic growth and climate-related plan and strategies to identify entry points and opportunities for SMEs;
- Review of the mandate and activities of relevant Government Ministries, Departments and Agencies (MDAs) such as transportation, agriculture, waste, water resources, environment, and energy; and
- Review of ongoing initiatives in the various countries on climate resilience across the private and public sectors.

3.3 STAKEHOLDER ENGAGEMENT

Some consultation exercises were carried out by engaging identified strategic stakeholders. Among others, this step was used to establish and design parameters for the toolkits and guidelines developed, baselines of existing knowledge, as well as understanding capacities and training needs of SMEs and relevant AfDB staff. In this regard, the project was originally designed to include, but not limited to, an initial validation mission, focus group discussions, meetings, and consultation with the Bank offices. However, some of these activities were delayed and/or impeded by the COVID-19 pandemic.



Therefore, another way to achieve the aforementioned project objectives in the face of the COVID-19 challenges was initiated following the restriction of movement by different countries and ban on physical gatherings in many of them. Natural Eco Capital in collaboration with PECG of the Bank (AfDB) decided to explore hosting series of web-conferencing activities across the pilot countries and beyond. These web-conferences served as a major medium and complemented possible physical meetings and other steps leading to:

- FGDs held with private organizations and MDAs during which the specific needs and challenges of the selected sectors were discussed with the target groups.
- Face-to-face interviews were further conducted for top officials and executives of the identified institutions and MDAs to understand government priorities and existing efforts.
- Workshops were held for concerned stakeholders to further understand climate risk challenges, data, financing opportunities, as well as the ongoing efforts including tools, technology and sustainable systems applied to mitigate and adapt to climate change in the private sector.
- Virtual Meetings with AfDB country offices and other aligned meetings with concerned departments of the Bank

These stakeholder engagements (comprising interviews, FGDs and workshops) were used to deepen insights into the prevailing challenges faced by the AfDB and SMEs, in addition to gaining a better understanding of how the capacity for project development and access to climate funds can be improved. An adaptive management and learning by doing approach that involves interaction with stakeholders was used. This allowed previous interviews and stakeholder engagements to inform subsequent interviews and tailor interview questions accordingly as insights emerged.

In identifying SMEs to engage, it was considered that SMEs range from very small micro-firms run by an individual or a few individuals, to larger firms employing as many as 250 individuals or more. Globally, countries define SMEs differently and consequently, it became necessary to define what is meant by the private sector and SMEs for the scope of the assignment. While the agreed definition allowed for greater clarity for the scope of work undertaken and ensured that relevant stakeholders were identified and targeted, the range in size of SMEs is large with concomitant implications for their human and financial resources, and other capacities, to engage 'equally' in the application of the toolkits.

For the purpose of the assignment, an SME was defined as a business with five (5) to 200 employees, on the premise that it covers interests commonly held by many African countries. This definition was adapted from review of various definitions used by nations across the region. It guided the identification of SMEs and private sector stakeholders in each of the pilot countries. An in-depth analysis of factors considered in the definition of SMEs is captured in Section 3 of this Report. SMEs were included according to their position on the business fitness continuum highlighted below in Fig 5.

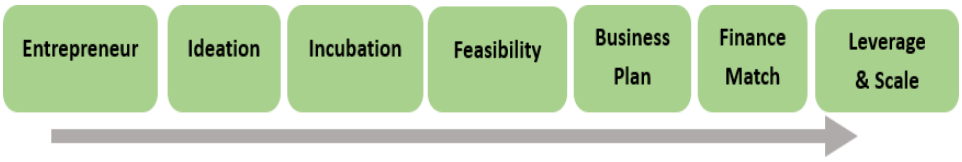


Figure 5: Fitness Continuum of SMEs and Private Sector Stakeholders

Identifying SMEs at different stages of development and including these groups in the capacity-building workshops, helped to facilitate peer-to-peer learning and provide tangible case studies and learnings from experiences of other SMEs at different stages of this continuum.

Well, structured questionnaires designed to retrieve primary data from key stakeholders were administered when and where necessary.

Feedback from foregoing channels were fed into the design of the climate screening and opportunity toolkit and GHG Accounting Toolkit and used to inform capacity building, training and mainstreaming climate actions for SMEs, and the Bank. Some of the key questions and structured questionnaires administered to stakeholders are highlighted in Annex 2.

Box 4: Key Stakeholder Questions:

3.4 DESIGN AND DETAILED DEVELOPMENT OF TOOLKITS AND GUIDELINES

3.4.1 DESIGN OF TOOLKITS AND GUIDELINES

Based on the outcomes of the need and gap analysis and other preliminary studies, we commenced work on the design of the outlines for toolkits and guidelines. Some of the key steps taken are highlighted below:

- Collation of available climate data from target countries;
- Analyses of the implications of climate change on Africa SMEs comprising the vulnerability and risk assessments coupled with GHG emissions reduction strategies;
- Analysis of the needs of SMEs – e.g., access to climate finance - (noting the broad definition thereof as discussed above) in relation to the toolkits;
- Identification of design parameters for accelerated climate screening toolkits and checklists, structuring checklists and so on;
- Development of procedures for assessing the costs and benefits of different climate risk management options.

3.4.2 Development of Toolkits and Guidelines

Upon conclusion and validation of outlines for the toolkits, guidelines and training materials, the detailed development of contents commenced. This included the preparation of quality assurance features within the toolkit, bench testing, and presentation of results (Table 3).

Table 3: Tasks and approach to accomplishing toolkits and guidelines.

Activities	Our Approach Outcomes
• Review global climate risk assessment tools and adapt components based on local context, as well as exploring datasets on climate risk and sector-specific actions to adapt and mitigate climate impact.	The recurrent theme for SMEs is to gain access to finance for the investments in adaptation and mitigation measures. Thus, the outcome is to provide bankable products for SMEs ready for financial sector actors to support. In ensuring this, Tools and Capacities were developed on a. How to understand climate and weather changes and integrate climate risk into existing risk-management systems to make SMEs less exposed to climate impacts. b. The opportunity to gain a competitive advantage by the SMEs to make them more climate-resilient and reduce GHG emissions, p c. Products and services that provide climate change adaptation and mitigation solutions for ready investment or that are investible.
• Develop robust, inclusive, and project-led products and services providing climate change adaptation and mitigation solutions	
• Analyse the implications of climate change on Africa SMEs and conduct awareness-raising activities, vulnerability assessments, GHG emissions reduction strategies, cost-benefit analysis and capacity building approaches to mitigate and improve resilience towards the adverse effects of climate change	
• Develop recommendations for financial sector actors in order to provide bankable products for SMEs	

Development of the Climate Risk Screening and Opportunity Assessment Toolkit

A review of existing global climate screening and management tools enabled us to adapt relevant components to develop a robust climate screening and opportunity toolkits that captured African SMEs peculiarities. This was done using several methods to ensure the effectiveness and sustainability of potential projects and business ideas. These methods are highlighted in Figure 6.

Political economy analysis-	Risk & Vulnerability assessment of industries-	Cost-benefit analysis-
•Barriers/enablers to identified opportunities and alignment with NDCs	•To overcome/mitigate against the highest risks and to assess business potential	•Final feasibility check

Figure 6: Layering Methods for Effective Tools and Training

Development of Business Carbon Footprint Toolkit

The Business Carbon Footprint Toolkit was developed after the completion of the Climate Risk Screening and Opportunity Assessment Toolkit. The same methods were applied in the development of this toolkit. However, through testing of the Climate Risk Screening and Opportunity Assessment

Toolkit, the project team was able to identify the needs and level of effort that would be required to develop this toolkit. Given that many SMEs do not have the knowledge or in-depth understanding of climate change issues and GHG emissions, it was important that this tool was simple to use and easy to understand, building of the Climate Risk Screening and Opportunity Assessment Toolkit, while still maintaining its usefulness and integrity.

Mainstreaming Climate Change in the Bank's Private Sector Operations

The mainstreaming of the Bank private sectors operations with NDCs and Climate Finance Commitment was designed to take into consideration the following:

- Mainstreaming climate change in the project preparation cycle;
- Assistance for structuring financial sector transactions to attract green finance;
- Facilitate access to climate funds; and
- Application of blended financing mechanisms and securitization mechanism.

Online meetings and questionnaires administration to gather primary data from concerned AfDB departments were done. Feedback from these channels was fed into the structuring and development of the guideline.

The above approach covered the project's phases IV and V:

- Development of toolkits for mainstreaming climate change in private-sector operation and training of PECG staff and Bank Investment Officers; and
- Development of the PECG Sustainability Initiative.

Table 4 outlines the approach to mainstreaming Bank Private Sector Operations (PSOs) with NDCs and climate finance commitment.

Table 4: Mainstreaming Bank PSOs with NDCs and Climate Finance Commitment

S/N	Task	Activities	Approach and Methodology
1	Mainstreaming climate change measures in the project preparation cycle.	• Mainstream private sectors operations that meet with the Bank's requirement for integrating climate change measures into the project design. • Address the shortfall from the ADOArating used for private sector operations focuses on environmental effects. • Include activities to be reviewed with the CSS of the Bank.	A Checklist that supports Mainstreaming Climate Change measures in the project preparation cycle that will provide project managers with a tool for effective mainstreaming in programmes and projects climate change-related were developed to: • facilitate the identification, for instance, of gender and climate issues; • provide entry points for mainstreaming related issues in climate change projects; and • guide project managers to take climate change into consideration when planning, designing, implementing, monitoring, and evaluating projects. A review with the CSS of the Bank shall be a useful starting point. Engage in gender-inclusive discussions around project ideas and analyse their roles and responsibilities such that they can benefit from the project as actors, beneficiaries and managers. Set the project concept with a log frame that has objectives, results and activities, performance/impact indicators and operational costs, and considers gender needs and interests tied to climate change (Annex 3).
2	Assistance for structuring financial sector transactions to attract green finance:	• Support Bank investment officers to identify and adopt innovative /best practice on green financing measures in the financial sector.	Through a survey • Map the financing challenges on-the-ground and solutions for policymakers and investors. Articulate methods that: • Deepen the understanding of the nascent market and unlock new deal opportunities available for funding by banks. • Promote green financial sector regulation. • Develop specific products and instruments to smoothen the way for green growth and suitable climate change adaptation. • Build capacities of the players in financial institutions so that they can introduce innovative financing concepts to increase the flow of funds into green investments, and the development of weather and agricultural insurance solutions. • Concessional climate finance is critical to supporting them to assist in building resilience to devastating climate impacts and to catalysing private sector climate investment. • De-risk investments, including foreign exchange and investors' default. • Bundle small projects into portfolios, providing scale and making them attractive to institutional investors.

			• Support capacity building amongst different groups and local institutions. • Help develop public-private partnerships for infrastructure resilience projects. • support innovation, for example by overcoming scale problems and fragmentation within the supply chain. • Make them active in the clean energy, climate resilience and sustainability communities.
3	Facilitate access to climate funds.	• Identify incremental costs of climate measures that eligible for climate finance at scale. • Encourage investment officers to proactively consider climate finance in the financial structuring of projects.	Support in understanding the need to • Embrace innovative solutions in the areas of climate change mitigation and adaptation, which also serves as an opportunity for them to develop new solutions/climate actions and serve new markets and sectors. • Apply innovative financial de-risking activities to attract private sector investment in mitigation actions. • Create new financial instruments that include more aggressive credit guarantees and risk mitigation products — that will attract private capital into low-carbon solutions and large-scale infrastructure.

Development of a position Paper on Green Job Monitoring Tool

Existing globally accepted methodology for Green Job tracking was reviewed (Table 5). This analysis also considered the drivers for creating green jobs, a veritable indicator and guide for tracking jobs created by the Bank's project funding (Figure 7**Error! Reference source not found.**). In addition, a concept note developed by the bank on green job tracking was also reviewed.

Table 5: Tracking Methodology

Indicator	Description
Direct Employment Status	Direct environment-related jobs, especially if the green activity cuts across several sectors.
Input-Output	Able to estimate economy-wide results including indirect and induced impacts and their interaction with the environment.
Multipliers - Direct, indirect and induced impacts	The induced multiplier effect is a multiple of 5.7 of the direct green jobs/employment status to generate and track the indirect green jobs created along the input and output supply chain of the financed/implemented climate action within a particular sector.

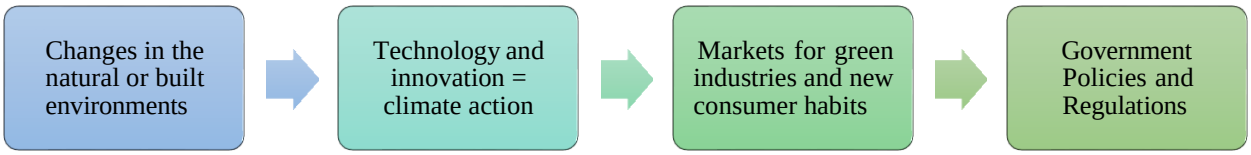


Figure 7: Drivers for creating Green Jobs.

Based on the outcome of the review, an a Position Paper was finalized. Apart from explaining the rationale and objectives of the toolkit, the Paper also proposed a definition for a green job as well as highlighted methodology and other activities leading to the development of the green job tracking toolkit, including those leading to understanding of the existing framework, developing design parameters and tracking procedures.

3.5 CAPACITY BUILDING MATERIALS AND PROGRAMME

Apart from the design and development of toolkits and guideline, capacity building programme is a crucial component of this assignment. The capacity building targeted at SMEs, Financial Institutions (FIs) and Bank Staff is focused on how to apply the developed tools and guidelines and enhance their skills in other areas to ensure the integration of climate actions in their operations.

The scope of the training programme is guided by aspects of the overall objectives of the assignment, specifically to:

- Raise awareness and strengthen the capacity of SMEs and FIs to identify incremental costs due to climate change and identify climate finance and climate innovation opportunities.
- Support the AfDB to mainstream climate change through lines of credit and develop toolkits for Bank staff and Investment Officers.

The capacity building agenda focuses on engaging both the private sector, especially SMEs and FIs, as well as Bank Staff in a carefully prepared curriculum. It involves the development of training materials and the actual execution of the capacity building programme. The methodology was instructional right from the design and development of content, inclusion of experiences, and other solutions to support the acquisition of new knowledge or skills.

In line with the foregoing arrangement, this part of the Report captures the methodology and approach used in the capacity building arrangement. These steps are reported under four different headlines as shown below:

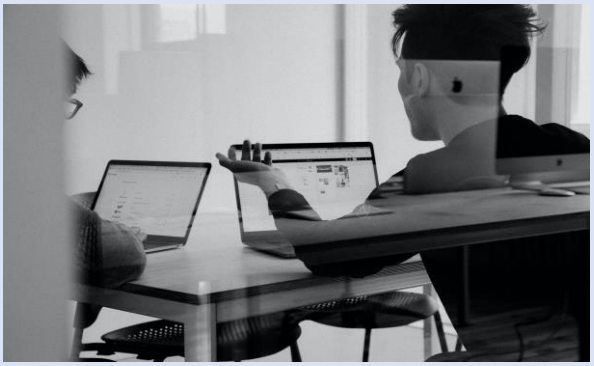
- Understanding training needs;
- Development of training materials;
- Modalities and delivery of capacity building exercise; and
- Post-training activities.

3.5.1 UNDERSTANDING THE TRAINING NEEDS

Private Sector/SMEs (including Financial Institutions)

Some of the steps taken towards establishing training needs for this category of stakeholders include:

- Review of relevant literature and existing models on SMEs activities in Africa, especially in the six pilot countries. It includes but not limited to:
  - Analyses of Africa SMEs climate change awareness, GHG emissions reduction strategies, cost-benefit analysis, and capacity building approaches to mitigation and improved resilience; and
  - Assessment and development of adaptation, and mitigation measures for SMEs.
- Consultation and engagement with relevant SME incubation hubs such as the Climate Innovation Centre in Nigeria, including concerned institutions.
- Consultation and engagement with Bank staff and Units responsible for SMEs, private and NSOs and management.
- Application of expert opinion, for instance, where a global model was used, experts refined such models to reflect the specific contexts of the countries and sectors to increase either usability within the African context.
- Stakeholder engagements which comprised one-on-one interviews, meetings and workshops.



In the analysis of Africa SMEs climate change awareness, GHGs emissions reduction strategies, cost-benefit and capacity building approaches to mitigation and improved resilience, the following steps were also taken:

- Collaboration with existing advocacy centres focused on disruptive SMEs activities (e.g., Small-Scale Embedded Generation in South Africa, Women in Business- Nigeria, etc.).
- Consultations of relevant government authorities engaged in small business development, industrial development, and climate change department.

Some Tech Hubs were consulted to create or channel existing disruptive technology to track the progress so that the SMEs can really benefit from the incentives to integrate climate risk into their operations with the resultant deployment of mitigation and/or adaption measures.

Most of the foregoing exercises were accomplished with the support of the country experts and guidance was provided by the Bank's country offices in the six pilot countries. Overall, these exercises revealed the current level of knowledge of climate science and actions that SMEs trainees are familiar with. For instance,

- Awareness about the Paris Agreement, climate change, and NDCs are low, which is a significant barrier to moving forward with tangible action;
- The participants are of both sexes with varying levels of knowledge on climate action, language skills, cultural and logistical preferences, as well as expectations and motivations with time difference;
- Some African countries are more advanced in adopting climate actions at the strategic level while some are yet to ratify the Paris agreement with no climate action plans; and
- Different countries exhibited different knowledge gaps and needs. For instance, Angola specifically requested for capacity building in the areas of environmental and social impact assessments.

The above findings guided the kind of capacity programme that can assist the private sector, especially SMEs to support the transformation of NDCs-related projects into investment-ready projects as well as develop appropriate financial proposals or requests for funding assistance from different sources and the specific sectors identified in the NDC.

PECG STAFF AND BANK INVESTMENT OFFICERS

A similar gap analysis was conducted towards developing an adequate curriculum for the PECG staff and Bank Investment officers. Apart from the review of existing bank resources and consultative meetings with country offices, the preliminary study and gap analysis were further achieved by engaging dedicated Departments/Units of the Bank. The training contents are developed around these needs.

3.5.2 DEVELOPMENT OF TRAINING MATERIALS

Training Materials for SMEs and FIs

The development of the training manuals for SMEs and FIs followed four consecutive steps (Figure 8). It includes case studies of SME and FI good practice projects and tools, and templates that can be used for planning and budgeting. This process ensured that the training programme for this category of stakeholders is closely aligned with the tools, guidelines and capacity development workshops for the AfDB and investment officers. This helps to facilitate a symbiotic relationship between the Bank and beneficiary FIs as well as SMEs.

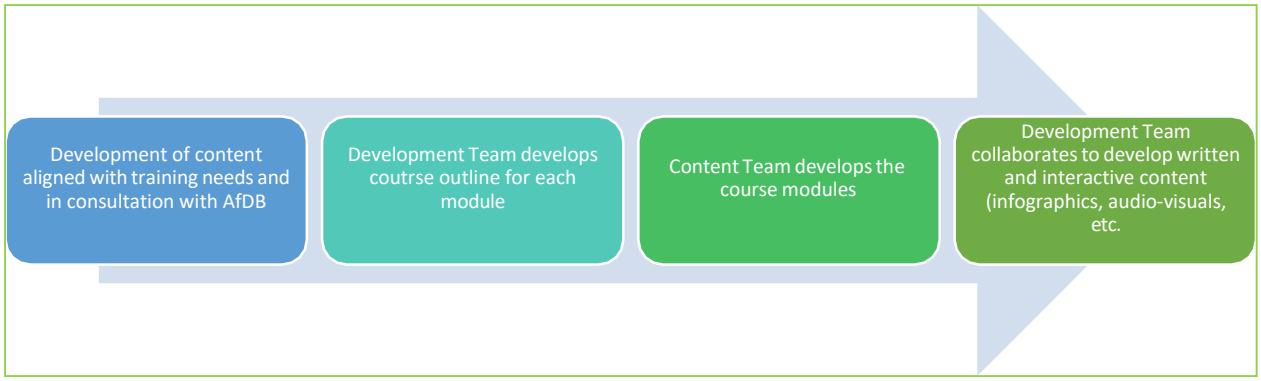


Figure 8: Training Manuals Development Process for SMEs

SMEs are expected to develop soft skills and gain new insights to enhance the success of their businesses and entrepreneurial programs, as well as learn about industry trends and development, and new business models that sustain product life cycle management (Figure 9).

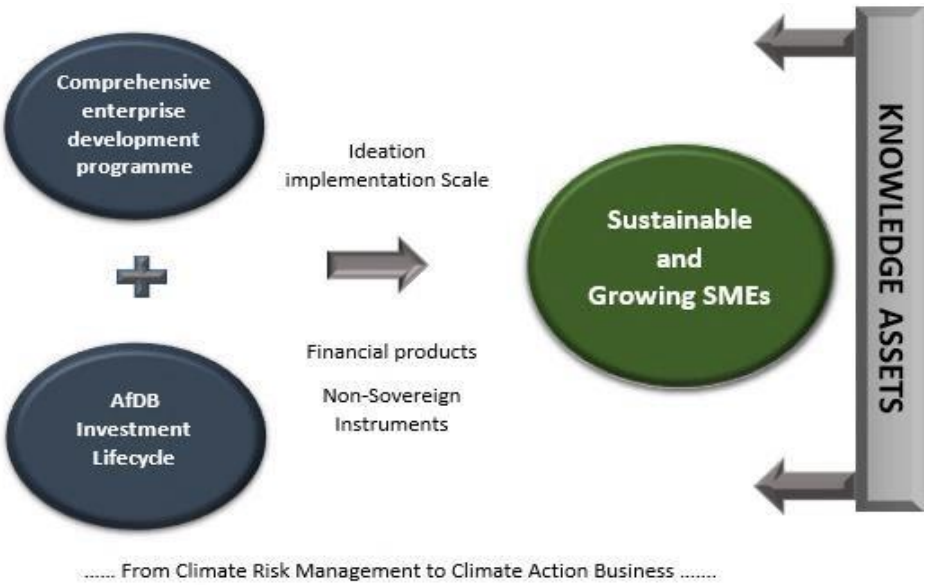


Figure 9: Sustainable Business model

Training materials for SMEs include modules that explain the use of the developed toolkits. These materials also cover areas related to climate risks for business and the opportunities that emerge from these risks (Figure 10). Furthermore, businesses are introduced to the concept of GHGs emissions and the various methods which can be employed to calculate and reduce emissions. The last section on accessing climate finance highlights the opportunities and pitfalls for small business and helps businesses identify relevant funding sources. The key objective of these training materials is for businesses to be able to understand and screen climate change risks in their business in order to mainstream climate change into business ideas and identify relevant opportunities in the market.

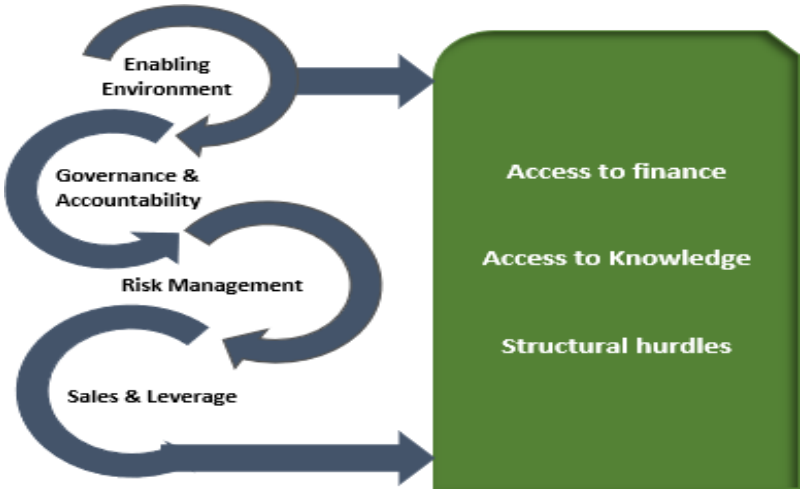


Figure 10: Identifying Relevant Business Opportunities

Considering that the FI serves as the intermediary Bank and interfaces with both development banks (including AfDB) and SMEs, the training package for FIs was prepared as a blend of modules pulled from curricula used for SMEs and AfDB staff.

Details of these materials are covered in section 5.

DEVELOPMENT OF TRAINING MATERIALS FOR THE BANK STAFF

The key focus here was to develop training materials for the Bank staff that support the mainstreaming of climate change in private sector operations. The primary objective of this training is to support Bank investment officers to identify and adopt innovative /best practices on green financing measures, identify incremental costs of climate measures that are eligible for climate finance at scale and proactively considering climate finance in the financial structuring of projects. The training package was designed with plans to make them suitable for delivery on the Bank's existing learning platform. In this way, developed course materials complemented those that already exist in the Bank's Operations Academy. The scope includes conception and storyboard development (based on the narration texts provided by the Bank and enhanced with interactions), production, voice-over and course design. Details of these materials for Bank staff are also covered in Section 5.

3.5.3 MODALITIES AND DELIVERY OF CAPACITY BUILDING EXERCISE

There was an initial plan to conduct a two-day workshop for a physical demonstration of the developed toolkits and guidelines. This was to ensure an adaptive learning that involved interaction with stakeholders. The prevailing situation in many countries due to the COVID-19 pandemic with the associated restriction of movement and ban on physical gatherings in many countries became a limitation, as most physical events, workshops, and meetings were moved online. *This called for a review and modification of modalities for the capacity programme as contained in the previousReport.*

An online training method was adopted to support the achievement of the training objectives. The key target for the training included SMEs at the beginning of the business development phase and those further along the business continuum. The Country Experts identified at least 25 SMEs in each of the six pilot countries to benefit from the training. This also assisted in facilitating the provision of learning aids and tangible case studies that ensured learnings from the experience of other SMEs at different stages of this continuum. Special groups such as Women in Business and FIs were prioritized.

With the new strategy to integrate all training arrangement in the online sustainability initiative, including preparation of audio-visual training materials and other online manuals, detailed outcome of this strategy is documented in Section 5 of this Report.

3.5.4 DEVELOPMENT OF THE PECG SUSTAINABILITY INITIATIVE

Materials towards building an online capacity building training program for the private sector, SMEs and Bank staff for climate change and green growth mainstreaming were developed to support the sustainability initiative. This was to ensure that knowledge and learnings are effectively communicated and shared. This made it possible for:

- **Better outcomes** as the content are delivered in modules before and during face-to-face training; training was used for engaging and applying knowledge.
- **Easy access** to content at any time and in their preferred languages.
- **Data gathering** and deepening of insights on training needs.
- **Certification** based on multiple choice questions and quizzes
- **Interactive platform** for shared experience (peer-to-peer) and training materials.

Specifically, online courses that meet the above requirements were developed, fully integrated and developed in non-proprietary web technology (such as HTML5, CSS, PHP, JavaScript,.) so that content can be added, and edits/revisions can be made over time. The Online platform was able to track users and their activities when applying the toolkits.

3.6 SUMMARY OF IMPLEMENTATION STRATEGY/METHODOLOGY

The implementation strategy of this assignment comprised five phases as summarised in Table 6.

Table 6: Detailed Activities and approach for execution of this Assignment

S/N	Activity	Approach /methodology
1.0	**PRE-MOBILISATION**	
1.1	Inception Meeting with AfDB Team	Met with PECG to discuss and agree on the following: • Contact points throughout the project duration ; • Work plan and the timeline for each step; • Roles and responsibilities of each team member; • Available documents in AfDB Domain; • List and contacts of stakeholders consulted during the project; • Mechanisms followed for conducting the consultation meetings, workshops (venue, dates, arrangements).
2.0	**Phases I: Outline design of Climate Screening Tool/ GHG emissions reduction strategies for SMEs and presentation during the inception meeting.**	
2.1	Identification of Stakeholders	With the help of country focal persons, identified the: • Relevant MDAs • Academia • Business community • NGOs • Press/Media • Research community • Multiplier institutions for accelerating SME engagement
2.2	Notifications of Countries by Client	In collaboration with the AfDB a detailed and official notification was sent to the: • Country Focal person
2.3	Collation of relevant information from AfDB and Source other relevant literature	Establish the baseline of existing knowledge, capacity and training needs of SMEs and AfDB • Focus group discussions. • Meetings and consultation • Policies, articles, publications from various countries, • Opinion surveys and interviews etc. • Information from government portals • Information from national and local press/radio
2.4	Review of AfDB Climate Safeguard Systems (CSS), ADOA and other available Screening tools in the marketplace.	Reviewed of existing tools and training materials and similar initiatives • A step-by-step assessment of available AfDB screening tools and others available to ascertain the gaps, • Assessment to ascertain if screening toolkits goals are captured. • Assessment to ascertain if screening toolkits meet stakeholder's expectations. • Cost-Benefit Analysis of the various toolkits • Identified areas requiring further development. • benchmarking, • Lessons learned and way forward

S/N	Activity	Approach /methodology
2.5	Identification of design parameters for accelerated Climate Screening Toolkits and checklists, Structuring checklists, etc.	• Baseline study of parameters addressing Mitigation and Adaptation Issues in the six concerned countries. • Identification and definition of parameters • Test running of parameters. • identification of criterion to be optimized. • Identification of constrains
2.6	Outline design of Climate Screening Tools (Collation of available climate data from countries, Identification of design parameter towards accelerated Climate Screening Toolkits and checklists, Structuring checklists, etc.)	Layering methods were used to develop effective tools and training. This include: • Risk and Vulnerability Assessment of SMEs to overcome/mitigate against the highest risks and to assess the business potential. • Political economy analysis to understand a country's economic and local circumstances, enablers/barriers and alignment with NDCs, sectoral priorities, policies etc. • Regional trends in key climatic parameters of policies and potential/firmSME entry points • stocktaking of likely constraints to implementing climate action in concerned countries, including through applying a political economy lens. • Assessment of policy/technological options and the potential/barriers for uptake (Annex 4) • Assessment of Institutional Capacity Needs Multi-criteria analysis. • Analysis of key elements includes a clear timeline, and realistic resource estimates (financial, human and technical). • Integration of an M&E policy and interventions
2.7	Inception Report preparation and submission to and review by AfDB	• Writing of Inception Report • Peer review of the Inception Report • Validation of Inception Report
3.0	**Phase II: Detailed development of tools/GHG emissions reduction strategies, finalization of the tools; presentation of results; preparation of quality assurance features and bench testing.**	
3.1	Collation of available climate data from target countries	Synthesis and comparative analysis amongst other countries- some know more about certain aspects than others (basis for peer-to-peer learning) Understand special needs of women-led SMEs Through country climate change focal persons information were collected through: • Focused group-in country discussions; • Meetings and consultation with relevant climate change stakeholders; • Policies, articles, publications from various countries; • Opinion surveys and interviews;. • Information from Government portals; • Information from National and local press/radio; and • Climate projections from downscale models produced for example by the University of Cape Town's Climate Systems Analysis Group.
3.2	Analyses of the implications of climate change on Africa SMEs and vulnerability and Risk assessments with GHG emissions reduction strategies	• Identified the Press/Media, identify the research community. • Stocktake of mitigation and adaptation strategies of countries. • Understood the National Renewable Resource Assessments (wind, solar, hydro, geothermal) of various countries • Understood the economic situation and SME policies of the countries • Collated information on climate change risks and vulnerability and analyse the related risks and opportunities for SME engagement: ○ Hazard – e.g., extreme rainfall, landslides, drought etc.

S/N	Activity	Approach /methodology
		○ Exposure ○ Sensitivity (impacts of climate change - etc.) ○ Adaptive Capacity (assets and coping mechanisms to combat with climate change, financial capacity, infrastructure, etc.) • Data acquisition from available authentic literature sourced from the Climate Change Departments and other related agencies from each country, NDC Hubs, etc. • Used participatory methods, including the application of an opportunity assessment 'brainstorm' matrix in FGDs/interviews with relevant stakeholders/one to one consultation
3.3	Develop guidance on assessing the costs and benefits of different climate risk management options	• Set an Appropriate Objective • Identified the intermediate results. • Clarified the causal linkages between results. • Identify critical assumptions. • Complete the results framework. • Next steps
3.4	Detailed development of tools/GHG	• Collection of literature of validated tool • Prioritizing the collected literature of validated tools • Analysis of the selected tools • Crafting of the detailed tools/GHG
3.5	Testing of tool using pre-designed modelling experiments	• Tools were tested using a pre-designed model with a feedback mechanism. • All feedback was addressed
3.6	Modification and Finalization of tools	• Feedback received from testing was incorporated to modify and finalize the tools
3.7	Presentation of results	• Results were shared with the focal persons in various countries concerned. • Feedback from various countries over results • Incorporate feedback and make all other necessary adjustments to the results if need be.
3.8	Preparation of quality assurance features and bench testing	Third-party opinion through: Peer-reviewed, • Test runned the tools. • Benchmarked against globally accepted validated tools
4.0	**Phase III: Capacity building and training for SMEs (to be identified by the consultant) in selected countries: Angola, Egypt, Nigeria, Morocco, South Africa and Mozambique to deploy and pilot the tool.**	
4.1	Analyses of Africa SMEs Climate Change awareness, GHG emissions reduction strategies, cost-benefit analysis and capacity building approaches to mitigation and improved resilience	• Collaborated with existing advocacy centres focused on disruptive SMEs/ SME activities (e.g., Small-Scale Embedded Generation in South Africa) • Worked with Ministries of Environment, small business development, industrial development and climate change department on incentives for SME's who are more energy-efficient, recycle, use less water etc. • Worked with Tech Hubs to create or channel existing disruptive technology to track the progress so SMEs can really benefit from the incentive to reduce GHG. • Harnessed existing advocacy centres: SMEs were trained on the benefits of mitigating climate change specific to their business and how it can also reduce their business costs**.**

S/N	Activity	Approach /methodology
4.2	Assessment and Development of adaptation and mitigation measures for SMEs	
4.3	Development of Training Manual for Capacity building and Incubator/Accelerator Programmes for start-up SMEs	Some of the modules in the manual include: Module 1: Climate risk screening- what are the risks for business? Module 2: Climate action- what are the opportunities for businesses and entrepreneurs? Module 3: Climate change mitigation- how are greenhouse gas emissions relevant to business? Module 4: Greenhouse gas accounting- what methods are available for businesses to apply? Module 5: Accessing climate finance- opportunities and pitfalls for small businesses? Module 6: Climate Change tools application- why, when and how to use the tools?
4.3	AfDB Review of Manual for Capacity building and Incubator/Accelerator Programmes for start-up SMEs	• Manual submission to the Bank before deadline, for a proper review. • Receipt of feedback from the Bank and update of manual
4.4	Capacity building and Incubator/Accelerator Programmes for start-up SMEs in Target Countries	• partnered with the incubation/acceleration association. • training in clusters and small groups
5.0	**Phase IV: Development of toolkits for mainstreaming climate change in private-sector operation and training of PECG staff and Bank Investment Officers.**	
5.1	Development of toolkits for mainstreaming climate change in private-sector operation and Training of PECG staff and Bank Investment Officers;	• Collaboration with private sector associations/bodies in different sectors • The training focus included- FOR BANK STAFF: ○ What to look out for in businesses while conducting detailed development ○ Assessing SME's and start up's through the perspective of an innovator and climate impact investor and fund provider. ○ innovation and solution, not just the risk FOR SMEs: ○ Addressed key issues regarding the financial forecast ○ Greened the business, to solve critical climate challenges. ○ Business Model- developed their capacities to make them understand the right business model for their businesses -making them viable and bankable. ○ Making your business sustainable- This helped their businesses to be centred on the 3 P's (People, Planet and Profit**).**
5.2	Development of Guideline and Toolkits for Climate Change mainstreaming in Private Sector and Guiding Documents on greening Bank's lines of credit	• Interacted with central banks to ensure banks comply with green transactions by giving a percentage of their transactions to green transactions. • Interacting with central banks to give incentives to banks to encourage climate impact investments. • Probing salient things (Green/Climate conscious solutions) that banks need to look out for when assessing credit and investment

S/N	Activity	Approach /methodology
		application. This was further broken down into various steps, relating to different sectors e.g., transportation, agriculture, energy, buildings, etc.
5.3	Development of Training Manual for bank staff	• Worked with Banks HR and training departments. • Pushed for the manual to be a permanent training for all new and existing bank staff. • Train banks on how to have more favourable conditions to green transactions such as reduction of interest on transactions that reduce GHG emissions. • Advising and communicating to the bodies/associations of the private sector on the availability of low-interest rate by banks on green transactions • promote innovation and solutions as a requisite for the fund and not the risks it seems to have
5.4	Training of PECG staff and Bank Investment Officers	This training included new innovative financial solutions developed to properly help SMEs in this region scale, based on our interactions
5.5	Mainstreaming climate change measures in the Project Preparation Cycle	
6	**Phase V: develop the PECG Sustainability Initiative – an online capacity building training program for the private sector, SMEs and Bank Staff for Climate Change and Green Growth mainstreaming.**	
6.1	Development of online Capacity Building Programme for Private Sector, SMEs and Bank Staff	• All training was uploaded on a platform as PECG Sustainability initiative • The training was taken module by module for SMEs, private sector and Bank staff. • They have easy access to the platform. • At the end of the training, short test (assessment) were answered. • Printable digital certificate with their name and organization for them. • The training modules were uploaded on an online platform. • worked with the tech hubs that were trained. • The online platform/app was very user-friendly. • It included the option to Google translate from English into two other languages (French and purtuguees) for local portugueze. • Tentatively, it can be managed by some of the trained tech hubs. • The platform was created to be very engaging
7	**Reports**	
7.1	Monthly Reports	The Project Director/Interlocutor was in close contact with the AfDB staff responsible for the project and Report on a monthly basis on the advancement of the project. Also, where necessary, he scheduled conference calls to discuss the updates of the project and scientific issues
7.2	Draft Report for the project	Prepare and submit a draft for review
7.3	Review of draft Report	By AfDB team
7.4	Reviewed Draft Final Report	Incorporation of AfDB comments into Draft Final Report and the submission of Final Report.
7.5	Final Report	Submit to AfDB
8	**Post completion**	**Technical backstopping for three months.**

SECTION 4: SMEs AND CLIMATE ACTION IN AFRICA

SECTION 4: SMEs AND CLIMATE ACTION IN AFRICA

4.0 INTRODUCTION

Integrating climate risks into the existing risk-management framework will make SMEs less exposed to the disruptive and destructive impacts of climate change. This, in itself, presents a unique opportunity for SMEs in Africa to gain a competitive advantage via climate-resilience and GHG emissions abatement initiatives, in addition to the development of products and services providing climate change mitigation solutions and adaptation services. With a focus on Africa at large and particularly six pilot countries of differing economic, socio-political and climate configurations, based on vulnerability to climate change, sub-regional representation and economy this assignment analysed the implications of climate change on SMEs in Africa while conducting awareness-raising activities, vulnerability assessments, GHG emissions reduction strategies, cost-benefit analysis and capacity building services.

These were designed to help climate-proof African-based SMEs to the adverse effects of climate change. The big picture was for these SMEs to preserve their investments in an increasingly uncertain business environment at the very least while learning new ways of leveraging access to international climate and carbon finance opportunities for increased profitability and enhanced sustainability of their businesses.

4.1 PRIVATE SECTOR AND SMES

The private sector is a part of the economy owned by individuals or companies for profit-making, while private enterprises are businesses in which individuals or private sector entities hold either:

- more than 50% of the voting stock (or voting rights), or
- a percentage of the voting stock (or voting rights) enabling said persons to direct the policies and management of the enterprise (a 'controlling interest').

Based on sizes, the private sector is recognized to comprise Micro Small and Medium Enterprises (MSMEs) and large firms (World Bank, 2015). According to Gibson and Vaart (2008), SME is a discrete segment of the private sector occupying the space between microenterprises and large firms. Other criteria used for private sector categorization include turnover, number of employees, profit, capital employed, available finance, market share and relative size within the industry (Etuk *et al*, 2014).

Gibson and Vaart (2008) discouraged the using of single definition of SMEs for multiple countries in diverse stages of economic development, since this may lead to additional distortions and open doors to misdirection of donor resources. However, for effective implementation of this project, it has become crucial to clearly define who the beneficiaries are and what is meant by private sector and SMEs in this Report. Though these entities are variously defined across the globe to represent the interests of different governments and their local economic situations, specific characteristics need to be established for each category. This helped fashion out a more likely definition or characterization that can adequately fit into local economies of individual African nations where AfDB operations are focused. Therefore, an effort is made in this section of the Report to come up with a best fit definition, informed by past AfDB activities that are focused on private sector and SMEs (Genesis Analytics, 2019).

4.1.1 AFDB PERSPECTIVE OF PRIVATE SECTORS AND SMES

A review of one of the Bank's documents titled "Scaling up SMEs support in Africa" revealed that across the Bank's SMEs support programs there is no standard definition of what constitutes an SME, with some programs adopting a definition of 5-100 employees, and others using the IFC's definition of more than 10 and fewer than 300 employees. The document also recognized a categorization where firms across Africa with greater than 100 workers were recorded as large private firms and account for approximately 50 per cent of the formal labor force, whereas medium-sized enterprises (20-99 workers) contribute 27 percent and small enterprises (those with less than 20 workers) account for a further 23 percent.

In its eligibility clause for private firms, the Bank through the PSO unit requires that any enterprise seeking Bank's assistance should be privately owned and managed, and it must be located and incorporated in a regional member country of the Bank, although it may be locally or foreign-owned.

Given the above, the need for a more precise definition is imperative, since there is no proper categorization. Companies considered as large enterprises by local banks or government standards of one African country would qualify as SMEs if the IFC definition or another country's standard was used. For instance, the Bank needs to consider that bigger economies in Africa will have different classification criteria for business entities compared with those with weaker economies. In this case, some business entities that qualified as SMEs in Nigeria were categorized as large private firms in other African countries with smaller economies (Table 7).

Table 7: Classification of Private Enterprise in Nigeria and Ghana

Size	(Nigeria)	(Ghana)	Mozambique	Angola
Micro	1-10	1-6	1-4	1-10
Small	10-50	7-29	5-49	10-100
Medium	51-200	20- 100	50-100	100-250
Large	201 and above	101 and above	>100	251 and above

Source: (Genesis Analytics, 2019; NBoI, 2020; Gibson and Vaart, 2008)

Aside from the foregoing classification, it is also important to note that a significant number of MSMEs in Africa operate informally, especially micro and very small enterprises. This is necessary in arriving at a definition that also protects AfDB's business interests, because informal categories are difficult to deal with by any financial institution and may require system restructuring and serious modification in the Bank's strategies and lines of credit. Generally, the informal private organizations are associated with a poor track-record; absence of accounting system and no guarantees; thereby making it difficult for them to access finance from banks and many other organized funding organizations. According to Genesis Analytics (2019), most banks would not allow this category to open a business account but enter them as retail accounts and excluding them from SMEs support programs by such financial institutions.

4.1.2 DEFINITION OF PRIVATE SECTOR AND SMES FOR THE PURPOSE OF THIS PROJECT

Considering the poor economic situation in Africa, and to strike a balance between countries with large nominal GDP and those with lower GDP, it suffices to adopt modest criteria for the classification of private enterprises. This will ensure that the purpose of this project is achieved. For objectivity screening and a balanced opinion, definitions published on the six selected pilot countries were studied, in addition to other definitions obtained from renowned institutions (Table 8).

Table 8: Private Enterprise Definition Using Staff Strength and Annual Turnover

Country	Micro		Small		Medium		Large	
	Head Count	Annual Turn-over	Head Count	Annual Turn-over	Head Count	Annual Turn-over	Head Count	Annual Turn-over
Angola	1-10	$250,000	10-100	$250-3 mil. USD	100-250	$3 ≤10 mil.	≥250	≥ $10 mil. USD
Egypt	<10				10 to 50			
Morocco (@1 Moroccan DH = 0.108 USD)	<10	< $2.7mil		$2.7mil - <$20.4 mil	<250	< $20.4 mil	250+	> $20.4 mil
Mozambique 1 Moz Meticais 0.015)	1-4	$17850.50	5-49	218,668.65	50 – 100	445,816.29	>100	445,816.29
Nigeria (@1Naira = 0.0026 USD)	≤ 10	≤ $51,546	>11 ≤ 50	$51,546 - ≤ $257,731	> 51 ≤ 200	$257,731 - ≤ $1.3 mil	200+	>$1.3 mil
South Africa (@1R =$0.055)	1-5	<$83,094	6- 99	<$553,962	100 – 200	< $1.1 mil	200+	>$1.1 mil
IFC	< 10	<$100,000	10-49	$100,000 - < $3 mil	50-300	$3 mil -$15 mil	300+	>$15 mil
UNIDO (for developing Nation	< 5		5-19		20-99		100+	
European Union	< 10		10-50		< 250		250+	

(Source: Mohamed et al., 2013; Rodrigo, 2012; Borain Consulting, 2016; Gibson and Vaart, 2008; Genesis Analytics, 2019; 2019; NBoI, 2020; IFC, 2020).

rom this review, it is was observed that majority of the pilot countries have a lower boundary of 5-6 head count for small businesses and an upper boundary of between 200 – 250 headcounts for Medium Enterprises. These boundaries were also considered *vis-a-vis* the UNIDO's classification for developing nation, to gain a balanced and practicable definition for SMEs based on the number of employees in any firm.

However, any definition to be reached needs to consider that the Bank's relationship with any firm will be based on the firm's financial records and reliability for loan management and repayments. Therefore, components of each definition also considered annual turnover of firms based on average mark-ups reasoned from Table 8. This is to avoid going by the assumption that the larger an enterprise is, the higher the number of employees it will have; which is not always the case (Gibson and Vaart, 2008). This option better categorizes some enterprises like online (e-commerce, etc.) businesses with fewer staff but stronger capital base and turn over. From the review, a lower boundary of USD 50,000 – USD 2.7 million and an upper boundary of about 0.5 –
20.4 million USD were recorded for Small Businesses and Medium Businesses, respectively.

In view of the above analyses, the following definitions are proposed to apply for this project:

PRIVATE SECTOR

- The private sector is a part of the economy that is owned by individuals, cooperatives, NGOs, associations, or companies for profit (and sometimes not for profit) making through the provision of goods, services or commercial activities. These include financial institutions and intermediaries, micro-enterprises, small and medium-sized enterprises (SMEs) and large (Macro) firms.
- A private enterprise/firm is any privately-owned for-profit organization with at least one worker/employee, and it must be formal, located and incorporated in a regional member country of the Bank, although it may be locally or foreign-owned.

LARGE FIRM:

- Large private firm is a sub-set of private sectors. It has an organization with over two hundred headcounts (staff strength) or
- It has an annual turnover of > $8 Million.
- However, this also captures the very large firms as being considered in the Lot 1 with > $10 million range.

MEDIUM FIRM:

- Medium firm is a sub-set of private sectors. It has an organization with 51 -200 headcounts or staff strength or
- It has an annual turnover of $500,000 - $8 million.

SMALL FIRM:

- Small firm is a sub-set of private sectors. It has an organization with 10 - 50 headcounts or staff strength or
- It has an annual turnover of $50,000 - $500,000.

MICRO FIRM:

- Micro firm is a sub-set of private sectors. It has an organization with <10 headcounts or staff strength or
- It has an annual turnover of ≤ $50,000.
- A good number of this category of firms are informal.

4.1.3 MSME/SME/Private-Sector Enterprise

Based on the foregoing definitions, the following delineations and parameters are applied for the purpose of this Report:

- Micro Small and Medium Enterprises (MSMEs) are sub-set of the global definition of private sectors. It is an organization with 1 - 200 headcounts or an annual turnover of ≤ $5 million.
- Small Medium Enterprises (SMEs) is a sub-set of MSMEs. It is an organization with 10 - 200 headcounts or an annual turnover of $50,000 - $8 million.
- An enterprise is qualified as SME if it meets one or both two criteria of definition (employees and or annual turnover), OR if the loan to it falls within the relevant SME loan size proxy.
- Private sector is subjectively used in this Report to represent large firms bigger than the SMEs, noting that the project focus has been on MSMEs and SMEs.

4.1.4 WOMEN AND YOUTH ENTREPRENEURS

The Bank places emphasis on providing all necessary support to women and youth entrepreneurs, towards the goal of their economic empowerment. In line with the provisions under the Bank Group's Gender Policy and Strategy, through partnerships with the private, social and voluntary sectors, the Bank advocates for (i) innovative and affordable financial products (loans, mezzanine, savings, guarantee schemes, insurance, innovation grants targeting businesses that promote social entrepreneurship), (ii) social capital (networks, convening of professional business groups and business mentorship); and (iii) will support the development of frameworks and business environment that are conducive to gender equality. Furthermore, the Bank will more strongly link public, social and private sector operations, particularly regarding developing women entrepreneurship.

4.2 AFRICAN COUNTRIES AND CLIMATE CHANGE

Africa is the second largest, and the second most-populous, continent (after Asia), covering about one-fifth of the earth. The continent is made up of 54 countries and encompassing numerous climate areas, stretching from the Northern temperate zone to Southern temperate zone.

African climates exhibit a broadly zonal pattern governed by the general atmospheric circulation on either side of the equator. The northern and southern extremities of the continent project into the belt of mid-latitude westerlies. As the northernmost belt, the southwestern tip of the continent experiences a Mediterranean summer-dry climate and extra-tropical winter precipitation from Westerly cyclonic disturbances embedded in the Subtropical Westerly Jet which migrates towards the equator during the winter. The subtropical deserts and semi-deserts correspond to the descending branches of the Hadley cells in winter. The seasonal migrations of the Intertropical Convergence Zone (ITCZ) and the monsoonal circulation systems result in two belts of tropical climates with summer rains and winter droughts, bracketing a humid equatorial zone with two seasonal rainfall maxima corresponding to the double passage of the ITCZ (*Gasse et. al., 2008*)

Due to the broad zonal patterns and diverse climate areas, countries in African are affected by various environmental challenges, including desertification, deforestation, water scarcity, and other issues. These entrenched environmental concerns are expected to worsen as climate change impacts Africa. It is a fact that many of the most vulnerable nations to the climate change effects are in Africa, if not all the African nations, particularly the economically disadvantaged and poor rural communities.

In Africa, the rural and poor communities survive on livelihoods from seasonal agricultural practice i.e. crop farming and livestock husbandry. They are also deprived of the basic economic amenities that can help them adapt to climate change and protect their livelihoods. The arable lands in Africa are increasingly being taken over by floods from sporadic and unpredictable rainfall, and rapid desert encroachment from drought. Therefore, the standard of living of surviving rural and economically disadvantaged populace is falling rapidly due to low level of livelihoods and exposing women and children to infectious diseases and increased malnutrition. This has led to societal tensions and conflicts resulting from climate-induced migration of affected people to nearby communities and countries not yet affected, to seek refuge and create a subsistence living for their households.

The urgency for the public sector and private sector to adopt and employ climate finance methodology has never been more imperative, to combat climate change. This is seen from the current financial struggle experienced by most governments in the region toward ensuring adequate policies and programmes, as well as implementing a number of projects towards climate mitigation and adaptation.

Table 9: Climate Data From Target Countries

Climate & Other Data	Africa	Angola	Egypt	Morocco	Mozambique	Nigeria	South Africa
Climate	Equatorial, tropical wet and dry climates, tropical monsoon climate, the semi-desert climate (semi-arid), the desert climate (hyper-arid and arid), and the subtropical highland climate depending on region.	Extremely varied climate in different parts of the country. The southern part is semi-arid, the north is mostly tropical, and the central plateau is sub-tropical. The country has a cool dry period from April/May through to August/September	Climate extremely dry all over the country except on the northern Mediterranean with rainfall in winter.	The climate is mild and cold during winter in the northwestern part / hot and dry in summer, arid and hot in the southeastern parts. The mountainous areas in the centre and north of Morocco has more continental climate.	Tropical and warm with a dry, cooler season from May until October and a wet, hot season from November until April.	Tropical climate with variable rainy and dry seasons, depending on location.	Temperate climate with plenty of sunny, dry days.
Precipitation	An average of 1000mm across the continent. Large and unpredictable variations are common.	Mean annual precipitation is 984.26mm (1901-2016)	Mean annual precipitation is 33.26mm (1901-2016)	Mean annual precipitation is 318.81mm (1901-2016)	Mean annual precipitation is 991.83mm (1901-2016)	Mean annual precipitation is 1165.03mm (1901-2016)	Mean annual precipitation is 469.86mm (1901-2016)
Temperature	Average annual temperature is 25.7°C. Record for the highest temperature ever recorded was set in Libya in 1922; 58 °C - (136 °F)	Mean annual temperature is 21.62°C (1901-2016)	Mean annual temperature is 22.46°C (1901-2016)	Mean annual temperature is 17.5°C (1901-2016)	Mean annual temperature is 23.76°C (1901-2016)	Mean annual temperature is 26.95°C (1901-2016)	Mean annual temperature is 17.54°C (1901-2016)
Surface Area	30.3 million km^2	481,354 km^2	1,001,450 km^2	446,550 km^2	786,380 km^2	923105km^2	1, 219, 602 km^2
Economy							
Population	1.2 billion People. Estimated population 2016	32.87 million people (2020)	About 102 million people	Over 36 million people in 2020	Over 31 million people in 2020	approximately 184 million people	53 million people
GDP	6.36 trillion US dollars (PPP; 2017)	100 billion US dollars in 2019	280 billion US dollars in 2019	120 billion US dollars in 2019	15.20 billion US dollars in 2019	410 billion US dollars in 2019	350 billion US dollars in 2019

4.5 PILOT COUNTRIES' NATIONALLY DETERMINED CONTRIBUTIONS

4.5.1 ANGOLA

Angola submitted its INDC in November 2015. This document highlights the country's extreme vulnerability to climate change impacts and its commitment to emissions reductions. Angola's INDC recognises that the country is already experiencing the impacts of climate change in the form of prolonged drought, damaging flash floods, forest fires, reduced crop production, reduced water resources, impacted fishing resources, amongst others. While many economic sectors have been impacted by climate change, the most vulnerable sectors are identified as agriculture, coastal areas, land-use, forests, ecosystems and biodiversity, water resources and health. The impact of climate change on these sectors will pose not only serious livelihood and direct health risks but can also affect the economic potential and national food security. The country estimates that the implementation of the unconditional and conditional adaptation responses will be USD 1 billion.

Mitigation Strategy

Angola's NDCs commit to reduce GHG emissions by up to 50% below BAU emissions levels by 2030 through both conditional (15%) and unconditional (35%) actions. Strategies for achieving these targets include the promotion of renewable energy and increased reforestation. This reduction in emissions will be driven primarily by implementing mitigation action plans in four key sectors:

- Promotion of renewable energy (power),
- Stabilisation of emissions in agricultural production (agriculture),
- Reduction of emissions from industrial processes (industry) and,
- Increasing carbon sequestration in the forestry sector to 5 million tons of CO2e annually by 2030 (land use and forestry) (INDC, 2015).

Adaptation Strategy

In terms of adaptation measures, within the context of Angola's NDC, adaptation measures are prioritised in the following key sectors:

- Agriculture
- Coastal Zone
- Land-Use, Forests, Ecosystems and Biodiversity
- Water resources
- Health

The INDCs document states that international support in the form of finance, investment, technology development and transfer, and capacity-building will be required to fully accomplish the intended contributions (INDC, 2015).

Table 10: Adaptation Policies and Actions

Sector	Adaptation Measures	Targets
Agriculture	• The Land Rehabilitation and Rangelands Management in Small Holders Agropastoral Production Systems in Southwestern Angola (Project RETESA) which aims to enhance the capacity of the smallholder agro-pastoral sector in Angola and to rehabilitate degraded lands. • Disaster risk reduction/ management to support agropastoral communities affected by recurrent droughts and other natural disasters in southern Angola and northern Namibia (Project PIRAN): The objective is to strengthen food security and DRR/M and increase the resilience of agro-pastoral livelihoods by increasing capacity to manage risks related to natural disasters at the level of communities and local institutions. The expected results are improved agricultural and livestock production, health and animal nutrition, soil and water management and management of early warning systems. • Integrate climate resilience into agropastoral and agricultural production systems through soil fertility management in key areas using the farmers' field school approach	
Coastal Zones	• Enhance and build climate change resilience in the Benguela current fisheries systems to reduce the vulnerability of the Benguela Current marine fisheries system to climate change through increased resilience. • Address urgent coastal adaptation needs as well as capacity gaps in Angola: Enhancement of coastal adaptive capacities at the institutional, systemic and community levels; response to urgent needs posed by climate change.	
Energy	• Solar village action: Produce 100 megawatts for rural areas by 2025. • Construction of hydroelectric and thermal power plants (2013 – 2017) • Extension of the electricity grid to rural areas. • Study impact of climate change on hydroelectricity. • Promotion of sustainable charcoal.	• Produce 100 megawatts for rural areas through solar village initiative by 2025. • Generate 5000 megawatts power between 2015 and 2017
Land Use, forests, ecosystems and biodiversity/ LULUCF	• Promote renewable energies to prevent deforestation. • Map areas of erosion risk. • Control soil erosion through organic methods. • Integrate climate change into the environment and sustainable land management practice by increasing knowledge of sustainable land management and adaptation practice in land ecology and agroforestry in 350 communities. • Promote climate-resilient development and to enhance the adaptive capacity of Angola's Cuvelai River Basin to withstand climate change disaster risks and, to improve the evidence-base for decision-making for adaptation and early warning responses as well as planning	
Water Resources	Energy and Water Sector Action Plan 2013-017	Diminuir o risco e o impacte das cheias

Table 11 shows achieved Mitigation Policies and Actions (2005 - 2015) and Planned Mitigation Policies Beyond 2015

It should be noted that a recent report by African Climate Reality Project describes Angola as lacking any adoption of policy, as having a severe lack of data on GHG and so estimations of emissions and reductions are highly unreliable and having made extremely little progress to any kind of substantive implementation of its adaption measures. Indeed, the absence of any explicitly stated mitigation actions in the NDCs plan suggests that while the country has ambitious aims for reducing GHG, it is unclear how it really intends to achieve its emissions targets.

Table 11: Current and Planned Mitigation Policies

Sector	Mitigation Actions	Targets
Energy	Unconditional actions • Repowering of the Cambambe 1 Hydroelectric Power Plant (**completed)** • Construct Cambambe Second Hydroelectric Power Plant (**completed)** • Tombwa Wind Farm **(expansion underway)** Conditional actions • Identify and develop new opportunities for renewable energy **(partially achieved, for example, a new wind farm is under construction in the province of Malange)** • Improved regulation of the electricity sector. • Lower carbon emission transport • Lower carbon emission public lighting • Reduction of emission in the exploration of petroleum and gas.	• Promote renewable energy. • Promote the use of biofuel. • Reduce demand for firewood. • Have 70% of renewable energy installed by 2025.
Agriculture	In the INAD, no specific mitigation actions were stated other than the promotion of biofuels as an industry.	Stabilization of emissions in agricultural production.
Industry	Introduce the use of natural gas as an energy source for industry to the detriment of fossil fuels.	Lower industrial emissions.
LULUCF	No specific mitigation actions stated in INAD, please see ENAC for greater detail.	Promote reforestation and avoid deforestation. Increase carbon sink to 5 MtCO2e per year by 2030

4.5.2 EGYPT

The key sectors in the NDC of Egypt are targeted at agriculture, waste, industrial processes and oil & gas. The estimated cost of implementing measures to mitigate the negative impacts of climate change and reduce GHG emissions from 2020 to 2030 is USD 73billion. Hence, Egypt intends to establish national and regional markets for carbon trading, therefore attracting foreign direct investment in national carbon credit transactions, especially in the Arab and African region. This planned effort is strongly aligned with Egypt's "Sustainable Development Strategy; Egypt's Vision 2030". This serves as a roadmap for the country to achieve its SDG and promotes the optimum use of available resources. Also, it enhances Egypt's competitiveness, especially for SMEs that constitute 95 - 98% of the total industrial enterprises and hold 75% of the total workforce.

Some of the overarching goals of the NDCs are:

- Building institutional capacities of comprehensive collection and analysis of monitoring and observations and geographic data.
- Identifying indicators, conducting full assessment, and applying protection measures of vulnerable sectors and stakeholders.
- Enforcing environmental regulations.
- Proactive planning and integrated coastal zone management.
- Increasing awareness of stakeholders for energy and water utilization.
- Increasing the use of renewable energy.

Egypt's First Biennial Update Report , 2018 outlines the main adaptation policies and actions intended until 2030 in water, energy, agriculture, coastal and marine, and tourism sectors (shown in Table 12). The total estimated budget for the planned adaptation measures during the period 2020-2030 in the water, agriculture, coastal, is estimated at 7.97, 1.96, and 9.32 billion US dollars, respectively. The total amount of funding received for the adaptation programs planned during the period (2008-2018) is approximately USD 20 billion.

Table 12: Adaptation Policies and Actions

Sector	Adaptation Measures	Targets
Energy	Conducting comprehensive studies to assess the impact of Climate Change on the energy sector and determine the safe locations for the construction of power generation projects, building institutional and technical capacities, and supporting research and technological development in the energy sector in climate change issues.	Enable the electricity sector to deal properly with climate change.
Water Resources	Maintaining water level in Lake Nasser, increasing water storage capacity, improving irrigation and draining systems, changing cropping patterns and farm irrigation systems, reducing surface water evaporation by redesigning canal cross sections, developing new water resources through upper Nile projects, harvesting	Adapt to decreasing water resources or increasing Nile flows.

Sector	Adaptation Measures	Targets
	rain water, desalinate, recycling treated wastewater, increasing the use of deep groundwater reservoirs, raising public awareness on the need for rationalizing water use, enhancing precipitation measurement networks in upstream countries of the Nile Basin, encouraging data exchange between Nile Basin countries, and developing Circulation Models to predict the impact of climate change on local and regional water resources.	
Agriculture	Changing sowing dates and good management practice, changing cultivars to those that are more tolerant to heat, salinity and pests, changing crop pattern, using different multi-level combinations of improved surface irrigation systems, applying deficit irrigation, activating genetic diversity of plant species with maximum productivity, achieving biological diversity of all livestock, fishery, and poultry elements to protect them and ensure food security, developing agro-economic systems and new structures to manage crops, fisheries and animal production, which are resilient to climate changes, improving the current low productivity of cattle, improving feeding programs, reviewing new and existing land use policies and agricultural expansion programs to take into account possibilities of land degradation in Delta and other affected areas resulting from Mediterranean Sea level rise, and developing systems, programs and policies to protect rural community and support its adaptive capacity to the expected trend in land use change, plant and animal production.	Accomplish agricultural security.
Coastal and Marine Environment	Changing land use, integrated coastal zone management, proactive planning for protecting coastal zones, and providing job opportunities in areas that are not impacted by climate change.	Preserve coastal zones.
Tourism	Engaging users in supporting the proposed strategy, supporting periodical monitoring and observations systems and follow-up bodies, raising environmental awareness, cooperating with international bodies, incorporating disaster risks within the plans to promote sustainable tourism in Egypt, and capacity building of local communities in touristic areas.	Reduce Climate Change risks in touristic areas.

Egypt's First BUR outlines the main achieved mitigation policies and actions intended during the period (2005-2015), as shown in Table 13, as well as the planned mitigation policies and actions beyond 2015 in energy, transport, industry, waste, and agriculture sectors (shown in

Table **14**). The estimated budget for the planned mitigation measures during the period 2015-2030 in the transport sector is estimated at USD 18.26 billion. The total amount of funding received for the mitigation programs planned during the period (2005-2015) is estimated at USD 584 million, USD 431 million of which has been received for Renewable Energy programs (agreements signed between 2005-2015). In addition, a total funding of USD 5 million has been received for both the Climate Change Risk Management Programme and the Low Emission Capacity Building Project from 2005 onwards.

Table 13: Achieved Mitigation Policies and Actions (2005 - 2015)

Sector	Mitigation Actions	Targets
Energy	• Undertook the Electricity Sector Subsidy Reform Program. • Installed a net metering scheme allowed small-scale renewable energy projects in the residential and industrial/commercial sector to feed electricity into the low voltage grid. • Conducted two consecutive GEF-funded flagship programs that included a variety of EE measures and projects: 'Energy Efficiency Improvement and Greenhouse Gas Reduction Project' (1998-2010) and 'Improving the Energy Efficiency of Lighting and Building Appliances' (2010-2017). EE measures taken on the demand side include running awareness campaigns and national programs for home appliance energy efficiency labelling, as well as allowing market accessibility to energy-efficient lighting, and prepaid residential metering. As for the supply side, EE measures include extensive power station maintenance and upgrade programs. • Undertook the Industrial Energy Efficiency Project (IEE).	• Remove electricity subsidies by FY 2018/2019. • Increase the contribution of renewable energy to the electricity generated to 20% by 2022 and 37% by 2035. • Improve fuel consumption efficiency per unit electricity produced and reduce grid peak loads. • Address some of the key barriers to industrial energy efficiency through an integrated approach that combines capacity building and Technical Assistance (TA) interventions at the policy, institutional and enterprise level.
Infrastructure and Transport	• Expanded the greater Cairo underground metro network. • Undertook the Egypt Sustainable Transport Program (STP).	• Reduce energy consumption and the related greenhouse gas emissions of the transport sector in Egypt. • Create an enabling policy and institutional environment and to leverage financial resources for the sustainable transport sector development, including public-private partnerships.
Industry	• Undertook the Egyptian Pollution Abatement Project (EPAP II). • Undertook the Private Public-Sector Industry Project (PPSI).	• Improve the compliance of several Egyptian industries (such as cement, brickworks, petroleum, chemical, and steel industry) with environmental standards and regulations. • Reduce industrial pollution and improve the workplace and surrounding environment by reaching compliance in at least one environmental media (air emissions, wastewater, solid and hazardous waste, and workplace environment).

Sector	Mitigation Actions	Targets
Waste	• Undertook the Egyptian National Solid Waste Management Programme (NSWMP).	• Build the capacity of government and non-governmental actors to set up and sustainably operate an effective and cost-covering waste management system at national, governorate and local level.
Agriculture	• Adopted biomass utilization in agriculture. Examples are: anaerobic biomass digesters for dung, household sewage, and related high-moisture feedstocks; anaerobic biomass digesters for leafy feedstocks including agricultural residues, biomass densification (briquetting, pelletization) for rural enterprise and household applications; efficient biomass stoves, furnaces and dryers for rural enterprise, and household applications; and biomass gasification for production of fuel gas for process heat, shaft power, pumping and electricity.	• Advance the use of renewable biomass as an energy resource, for the purpose of promoting sustainable rural development in Egypt and reducing greenhouse gas (GHG) emissions resulting from the use of conventional energy sources.

Table 14: Planned Mitigation Policies and Actions Beyond 2015

Sector	Mitigation Actions	Targets
Energy	• Continue the subsidy phase-out and reforms for the electricity sector led by MoERE, as well as oil products and natural gas pricing reforms (including the introduction of a smart card fuel rationing system for the transportation sector) to be led by MoP. • Install additional renewable energy generation. • Install solar water heaters in residential buildings. • Electricity sector would implement measures under NEAP 2, examples are: ▪ Prepaid meters project (5 million meters) ▪ Smart meters pilot project aims to install 250,000 smart meters. Oil and gas sector would implement measures to reach energy efficiency target under Energy Strategy 2035, examples are: ▪ Energy conservation for heaters and steam boilers (6 oil refineries); ▪ Improving combustion efficiency (boilers) in power	• Remove electricity subsidies and partial subsidy from the various fossil fuel types. • Increase the contribution of renewable energy to the electricity generated to 20% by 2022 and 37% by 2035. • Promote renewable energy use in the housing sector. • Increase energy efficiency by 2035. • Utilize MSW, agricultural residues, manure, and biogas in the production of energy.

Sector	Mitigation Actions	Targets
	plants; and ▪ Waste heat recovery of 200 turbines. Aviation sector led by MoCA: fuel efficiency program (2016 - 2021). • Establish the nuclear station in Dabaa'. • Undertake feed-in tariff for electricity generation from waste and recycle agricultural waste and manure.	
Infrastructure and Transport	• Undertake sustainable transport programs and national rail system expansion.	• Reduce energy consumption and the related greenhouse gas emissions of the transport sector in Egypt
Industry	• Undertake a low-carbon roadmap for the Egyptian cement industry including alternative fuel utilization.	• Reduced GHGs emissions.
Waste	• Continue to undertake the Egyptian National Solid Waste Management Programme (NSWMP).	• Integrate waste management technologies for all waste types (municipal solid waste, agricultural wastes, sewage sludge, industrial waste, animal manure, medical waste and hazardous waste), as well as improve sanitary landfilling, incineration with Energy Recovery (IER), gasification, anaerobic digestion, composting and co-firing in cement kilns technologies.
Agriculture	• Design policy and economic incentives for rice farmers. • Change feeding patterns (strategic supplementation), increase milk production, and improve breeding (mainly for dairy cattle and buffalo).	• Reduce the cultivated area of the rice crop. • Reduce GHGs emissions from livestock.
Cross-cutting	• Undertake the Green Growth Fund (GGF) which provides dedicated financing to businesses and households via partnering with financial institutions and direct financing.	• Enhance energy efficiency and fostering renewable energies to reduce CO_2 emissions.

4.5.3 MOROCCO

Morocco submitted its NDCs to the Secretariat of the UNFCCC, along with the ratification of the Paris Agreement, on September 21, 2016. Morocco's NDCs targets five sectors including energy, agriculture, transportation, water, waste, forestry, industry, housing and infrastructure, with a national commitment to reduce GHG emissions by 17% unconditionally and 42% with international support by 2030 from BAU. This commitment leads to a total reduction of 527 million tonnes of carbon dioxide equivalent (Mt CO2e) between 2020 and 2030. Meeting the overall target of 42% will require an investment estimate of USD 50 billion between 2010 and 2030, while the conditional component of the target will cost USD 24 billion; thus, new sources of finance will be needed (NDCs, 2015).

Morocco's GHG emissions reduction targets will be achieved through economy-wide actions. Morocco NDCs document of 2016 outlines mitigation and adaptation measures. Three priority sectors for mitigation measures were identified: energy, AFOLU and waste; and ten priority sectors for adaptation measures: water, agriculture, fishing, forestry and fight against desertification, biodiversity, health, tourism, housing, town planning and territories.

Adaptation Measures

Adaptation strategies have been developed for agriculture, water, forestry and fisheries. The investments required to implement these strategies between 2020 and 2030 are calculated to be at least USD 35 billion. Morocco's NDCs adaptation targets include enhancing efficiency in the irrigation systems by changing sprinkle and flooding irrigation systems to localized irrigation systems in 550,000 ha, introducing more drought resilient varieties for 1 million ha with cereals and vegetables. irrigating new areas of 260, 000 ha and modernizing irrigation systems for 290,000 ha, substituting the use of ground water by newly mobilized surface water, construction of new sea water desalinization stations to mobilize up to 500 million m^3 and reforestation of 200,000 ha and protecting 1.5 million hectres against erosion. Table 15 below from Morocco's NDC, outlines the key strategies in these respective sectors for adaptation action.

Table 15: Main Adaptation Objectives (NDC, Morocco)

Action area	Main objectives
Agriculture	**For 2020:** • Switching from current irrigation systems to localized irrigation systems over an area of 550,000 hectares, for USD 3.7 billion. • Developing the public-private partnerships to delegate irrigation services, including irrigating 15,000 hectares by desalinating water from the Chtouka Ait Baha plain for USD 300 million; Irrigating the coastal Azemmour-Bir Jdid area, over 3,200 hectares for USD 37 million • Hydro-agricultural infrastructure around dams over 160,000 hectares, for a global cost of USD 2.1 billion. • Coverage of risk against climatic variations through multi-risk insurance for cereals and legumes covering 1 million hectares. **For 2030:** • Extension of irrigation to new agricultural areas, over 260,000 hectares for an overall investment of USD 3 billion. • Equipping and modernizing irrigation systems over 290,000 hectares for an overall forecasted USD 2 billion.
Water	**For 2020:** • Substitution of water samples from overexploited groundwater tables (85 million m^3 annually) with aboveground water sources. • Artificial replenishment of groundwater tables by up to 180 million m^3/year. • Connection to the water treatment network in urban areas at a rate of 75% by 2016, and 80% by 2020. • Wastewater treatment at a rate of 50% by 2016 and 60% by 2020. • Restructuring the full-service distribution sector at the regional level to reach a rate of 60% for individual connection by 2020. **For 2030:**

Action area	Main objectives
	• The construction of three dams per year on average in order to reach 25 billion m^3 in stocking capacity, which will require overall investments forecasted at USD 2.7 billion. • Desalinization of seawater in order to reach a capacity of 500 million m^3 per year for a forecasted cost of USD 15 billion. • Recycling of wastewater in order to reach a capacity of 325 billion m^3 per year for a forecasted cost of USD 3 billion. • Transferring 800 million m^3 of water per year from north to south for an overall investment of USD 3 billion. • Improving the efficiency of the drinking water network with a national average target of 80%. • Connection to the water treatment network in urban areas at a rate of 100%. • Various programs and actions aimed at preserving water resources and natural habitats, and at improving the management of extreme climate events, for an overall investment of USD 5.7 billion.
Forests	**For 2020:** • The replenishment of 200,000 hectares of forests. **For 2030:** • Protecting 1,500,000 hectares against erosion, which will include the prioritization of 22 basins, for USD 260 million. • Afforesting 600,000 hectares for USD 46 million.
Fisheries and aquaculture	**For 2020:** • Reach a 95% rate of traded species managed sustainably. • Reduction of discharges by 90% compared to current levels. • Establishment of a coastal observation network, equipped with four oceanographic and meteorological buoys, and expansion of the environmental and sanitary surveillance and warning system along the coastline to 40 observation zones. • Reduction by 50% of the quantity of fish meal created from fresh fish. **For 2030:** • Establishment of marine protected areas representing 10% of the Exclusive Economic Zone. • Development of two hatcheries dedicated to restocking five endangered coastal species; • Renewal and modernization of 30% of the fleets, including with greener vessels equipped with observation systems. • Restoring 50% of damaged marine habitats. • Increasing by 50% the volume of sea products utilized and marketed.

Mitigation Measures

Morocco's NDCs target five sectors including energy, agriculture, transportation, water, waste, forestry, industry, housing and infrastructure, with a national commitment to reduce Greenhouse Gas emissions by 17% unconditionally and 42% with international support by 2030 from a Business as Usual (BAU) scenario. This commitment leads to a total reduction of 527 million tonnes of Carbon Dioxide equivalent (Mt CO_2e) between 2020 and 2030.

Mitigation actions rely primarily on the energy transition with the country aiming at generating 52% of its installed power mix from renewables by 2030. Furthermore, Morocco aims at reducing energy consumption by 15% by 2030 compared to BAU scenarios. Table 16 below is taken from Morocco's NDCs and highlights the key mitigation actions to be taken across key sectors:

Table 16: Key mitigation activities per sector in Morocco's NDC Mitigation Contribution

Sector focus	Strategies and action plans	Targets
Energy	National Energy Strategy	• Provide 52% of the installed electrical power from renewable sources, of which 20% is from solar energy, 20% is from wind energy and 12% is from hydraulic energy by 2030. • Achieve 15% energy savings by 2030, compared to current trends. • Reduce energy consumption in buildings, industry and transport by 12% by 2020 and 15% by 2030. The breakdown of expected energy savings per sector is 48% for industry, 23% for transport, 19% for residential and 10% for services. • Install by 2030 an additional capacity of 3,900 MW of combined-cycle technology running on imported natural gas. • Supply major industries with imported and degasified natural gas by pipelines.
Transport	National Logistics Strategy	• Reduce logistical costs from 20% to 15% by 2019 to benefit consumers and promote operator competition through optimized management leading to higher security and the maximization of merchandise flows. • Accelerate GDP growth rate by increasing value added through reducing logistic costs. • Contribute to sustainable development by reducing disruptions (e.g., reduction of the number of tonnes per kilometre by 30% and reducing traffic density on freeways and within cities).
Waste, Households	National Household and Similar Waste Program	• Mainstream household waste management master plans and standardize them for all regions and provinces of the kingdom. • Improve the collection of household waste to achieve an urban collection rate of 90% by 2020 and of 100% by 2030. • Establish landfill and recycling centres for household waste for the benefit of all urban areas by 2020. • Rehabilitate or close all illegal landfills by 2020. • Make the management of the sector more professional. • Develop chains for "sorting-recycling-recovering" with sorting pilot projects to achieve a 20% rate for recycled materials by 2020. • Train and raise awareness of stakeholders on waste issues.
	National Liquid Sanitation and Wastewater Treatment Program	• Reach an overall urban sewerage connection rate of 75% by 2016, 80% by 2020, and 100% by 2030. • Reach a 50% volume of treated wastewater by 2016 of 60% by 2020 and of 100% by 2030. • Expand wastewater management to services and reuse 50% of wastewater in in-land cities by 2020.

Sector focus	Strategies and action plans	Targets
Agriculture and Industry	Morocco Green Plan	• Modernise the agricultural sector to make it more competitive and integrated in the global market to create wealth over the entire value chain. • Consider the agricultural sector in all its sociological and territorial components by incorporating human development objectives as a key requirement. • Improve the promotion of natural resources and their sustainable management. • Define the necessary policies to support sustainable growth.
Forestry and Water	Preservation and Sustainable Forest Management Strategy	• Develop forestry and surrounding areas. • Finalize land demarcation and registry of forested areas. • Complete the suckering, renewal or afforestation of approximately 50,000 hectares per year, with a primary focus on natural species and support for high-quality forest research when rehabilitating territory. • Protect water basins against erosion and siltation of dams. • Rehabilitate ecosystems and protect and promote natural areas as well as endangered species as resources.
Transport	Urban Public Transit Improvement Program	• Implement large-scale public transit in major urban centres powered by renewable energy. • Create a USD 200 million support fund for urban road transportation. • Create a Taxi Fleet Renewal Program

4.5.4 MOZAMBIQUE

Mozambique NDC include identifying and implementing initiatives of GHG emissions reductions, contributing to the sustainable use of natural resources, exploring opportunities for accessing technological and financial resources. This is to implement the National Strategy for Adaptation and Mitigation of Climate Change for the period 2013-2025, building institutional capacity, as well as contributing to reduce environmental pollution and degradation by promoting low-carbon development. The NDCs plan for the mitigation and low-carbon and development component include the sectors (i) energy (and transport), (ii) industrial processes, (iii) agriculture and forest and (iv) waste and also communication, education, training and awareness.

The priorities and actions under the NDCs Roadmap 2020-2025 in Mozambique includes:

- Development of pipelines of bankable climate change-related projects.
- Resource mobilization and project financing.
- Strengthening institutional coordination.
- Strengthening regulatory and institutional environments.
- Capacity enhancement for mitigation and adaptation actions across sectors.
- MRV systems and data management.
- Budget coding and Tracking systems.
- Private sector engagement.

Mozambique's NDCs operational plan includes adaptation and mitigation actions to be undertaken by different sectors as well as an estimated cost of action. These actions are aligned with the National Strategy, sustainable development goals, and sectoral development strategies and policies. They also include actions that the sectors intend to develop in the government's next five-year plan (2020-2025) as shown in Table 17.

Table 17: Mozambique's NDCs operational plan 2020-2025

Operationalization Plan for NDC implementation for Mozambique	
Action	**Measure**
Water Resources Management sector.	
Increased capacity to manage water resources	• Increased access and capacity for water collection, storage, treatment and distribution
Increased access and capacity for water collection, storage, treatment and distribution	• Increased storage capacity at all levels • Increased storage capacity per capita at all levels (domestic, community, urban, national) to guarantee water supply to the population and economic sectors • Conservation of rainwater in excavated and underground reservoirs mainly in the southern part of Mozambique
	• Construction of agro-hydraulic infrastructures in the main surface water courses, develop small dams, easy to maintain for irrigation and animal drinking purposes
Increased access and capacity for water collection, storage, treatment and distribution	• Promotion of low water consumption systems and reduce water waste in the urban water distribution network
Agriculture, Fisheries and Forestry Sector	
Increased resilience of agriculture and livestock	• Availability of technologies and agricultural supplies that are resilient to climate change
	• Expansion of the electricity network and improvement of the quality of energy to make agricultural enterprises viable and encourage investment in the six agricultural development corridors
	• Transition to a resilient Blue Economy in the western Indian Ocean region
	• Diffusion of: (i) improved agricultural production technologies, (ii) agroforestry systems, (iii) natural resource management, (iv) conservation agriculture, (v) irrigation, (vi) vaccinations, (vii) artificial insemination, (viii) reduction of post-harvest losses and processing of products of plant and animal origin, and (ix) food and nutrition education
	• Promote seed production and conservation
Increased fishing resilience	• Regeneration of mangroves and implementation of protective measures for algae, seagrass, corals and other areas for breeding and feeding fish.

Operationalization Plan for NDC implementation for Mozambique	
Action	**Measure**
	• Development of tools for integrating adaptation into the fisheries planning and budgeting process
Development of low-carbon agricultural practice	• Promote conservation / climate-resilient agriculture for fodder and food production
	• Promote the use of integrated agroforestry systems to recover areas degraded by shifting (itinerant) agriculture
	• Promote the use of methane from rice cultivation systems for energy production / improved low-emission rice production systems
	• Promote the use of renewable energy for irrigation/water pumping systems
	• Prevention of uncontrolled fires associated with shifting agriculture
Reduction of the deforestation rate and uncontrolled fires	• Establishment and increase the adoption of integrated agroforestry systems (agro-silvo-pastoral); use of the multiple-use forest species
	• Rehabilitation of degraded ecosystems and pastures through landscape rehabilitation
Energy Sector	
Improving access to renewable energy	• Promote the use of renewable energy sources: solar, wind and hydro
Expansion of the urban energy network, establishment of new electricity connections	• Expansion of the urban network, making new connections (reducing emissions by replacing the use of non-renewable biomass with electricity)
Increased energy efficiency	Promotion of energy efficient appliances (promotion of energy efficiency practice and the use of equipment to harness renewable energy sources
Planning and management of biodiversity and coastal ecosystems	• Promotion of efficient use of biomass energy (alternative to charcoal and firewood)
Transversal	• Promotion of sustainable charcoal production and use
Transport sector	
Promotion of low-carbon urbanization	• Promotion of initiatives to replace high-carbon and non-renewable fuels with low-carbon or renewable fuels in the transport sectors
Increased energy efficiency in transport (Travel)	• Adoption of Collective and Environmentally Sustainable Transport Systems
Early Warning System Sector	
Strengthening of the Early Warning System	• Strengthening the capacity of the National Institute of Meteorology (INAM) to provide dedicated and appropriate meteorological information to each user

Operationalization Plan for NDC implementation for Mozambique	
Action	**Measure**
	• Scale up of the early warning system, reaching the district
	• Reinforcement of storage system, data processing and dissemination of meteorological and hydrological information in time.
	• Strengthening the role of INAM in coordinating the collection and monitoring of climate data
	• Establishment of standards for the development and coordination of early warning systems for multiple events
	• Reinforcement of the climatic and meteorological information system that makes it possible to predict drought.
Strengthening capacity to prepare for and respond to climate risks	• Improving climate disaster preparedness
	• Strengthening the role of the National Institute for Disaster Management (INGC) to better: (i) coordinate response and recovery operations to climate disasters, (ii) reducing vulnerability to drought in arid and semi-arid areas and (iii) Strengthening the role of Multiple Use Resource Centers (CERUM) in supporting local communities.
	• Increase and reinforcement of Local Disaster Risk Management Committee
	• (CLERCs) capacity, equipping them with kits,
	• Strengthening the role of CLGRC in reducing climate risk at the local level
	• Strengthening the early warning system for the agricultural sector
Environment (Waste) Sector	
Manage and recover waste	• Promotion of sustainable waste management in Mozambique
Social Protection Sector	
Increasing the adaptive capacity of vulnerable people	• Development and application of approaches to community-based adaptation through Local Adaptation Plans
	• Reinforcement of basic social protection measures with regard to climate change so that it contributes to the resilience of vulnerable populations
	• Strengthening the capacity of the Productive Social Action Program to increase the resilience of vulnerable groups
	• Strengthening the links between the social protection system and the natural disaster response system, including the link with the early warning systems
Health Sector	
Reducing people's vulnerability to diseases associated with climate change	• Strengthening of the capacity to prevent and control the spread of diseases through the correct mapping of their distribution and spatial mobility
	• Conducting a baseline study on diseases that are related to climate change

4.5.5 NIGERIA

Nigeria submitted its NDC R in 2015. The estimated total cost of the financial contributions required for implementing the NDCs during the period 2015-2030 is estimated at USD 142 billion. Some of the overarching goals of the NDC are listed below:

- Work towards ending gas flaring by 2030.
- Work towards Off-grid solar PV of 13GW (13,000MW).
- Encourage use of efficient gas generators.
- 2% per year energy efficiency (30% by 2030).
- Transport shift from car to bus.
- Improve electricity grid.

Nigeria's NDCs targets five sectors including Energy, Oil & Gas, Agriculture and Land use, Power and Transport, with a national commitment to reduce GHG emission by 20% unconditionally and 45% conditionally with international support by 2030 from BAU conditions projected to reach ~3.4 Mt CO_2e in that year.

Nigeria's NDCs adaptation measures are shown in Table 18 while the mitigation measures were drawn from its first BUR and the NDCs accordingly as outlined in Table 19 and Table 20 below:

Nigeria's response to climate change has focused on increasing resilience and managing the unavoidable impacts. The National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN) describe the adaptation priorities, bringing together existing initiatives and priorities for future action. The 2011 NASPA-CCN Vision depicts a Nigeria in which climate change adaptation is an integrated component of sustainable development, reducing the vulnerability and enhancing the resilience and adaptive capacity of all economic sectors, and of all people; particularly women, children, and resource-poor men to the adverse impacts of climate change, while also capturing the opportunities that arise as a result of climate change.

Table 18: Adaptation Policies and Actions

Sector	Adaptation Measures	Targets
Energy	• Include increased protective margins in construction and placement of energy infrastructure (i.e. higher standards and specifications). • Undertake risk assessment & risk reduction measures to increase resilience of the energy sector. • Strengthen existing energy infrastructure, in part through early efforts to identify and implement all possible 'no regrets' actions. • Develop and diversify secure energy backup systems to ensure both civil society and security forces have access to emergency energy supply.	To develop adaptive capacity for the electricity sector to enable it deal properly with climate change.
	• Expand sustainable energy sources and decentralize transmission in order to reduce vulnerability of energy infrastructure to climate impacts.	

Freshwater resources, coastal water resources and fisheries	• Initiate a national programme for integrated water resource management at the watershed level • Intensify programmes to survey water quality and quantity for both ground and surface water • Implement programmes to sustainably extend and improve water supply and water management infrastructure • Explore water efficiency and management of water demand, particularly in Sahel and Sudan savanna areas • Enhance artisanal fisheries and encourage sustainable aquaculture as adaptation options for fishing communities	To build Adaptive capacity to the finite and decreasing water resources or overflowing river banks and marine life.
Agriculture	• Adopt improved agricultural systems for both crops and livestock (for example, diversify livestock and improve range management; increase access to drought-resistant crops and livestock feeds; adopt better soil management practice, and provide early warning/meteorological forecasts and related information). • Implement strategies for improved resource management (for example, increase use of irrigation systems that use low amounts of water; increase rainwater & sustainable ground water harvesting for use in agriculture; increase planting of native vegetation cover & promotion of re-greening efforts, and intensify crop and livestock production in place of slash and burn). • Focus on agricultural impacts in the savanna zones, particularly the Sahel, the areas that are likely to be most affected by the impacts of climate change.	To build food security and
Forests	• Strengthen the implementation of the national Community-Based Forest Resources Management Programme. • Support review and implementation of the National Forest Policy. • Develop and maintain a frequent forest inventory system to facilitate monitoring of forest status; and initiate a research programme on a range of climate change-related topics, including long term impacts of climatic shifts on closed forests. • Provide extension services to CSOs, communities and the private sector to help establish and restore community and private natural forests, plantations and nurseries. • Improve management of forest reserves and enforce low impact logging practice.	To conserve our forest reserve and cover
Industry and Commerce	• Increase knowledge and awareness of climate change risks and opportunities • Undertake and implement risk assessments and risk reduction measures • Incorporate climate change into ongoing business planning • Review and enforce land-use plans in industrial areas in light of climate change • Encourage relocation of high risk industries, facilities and markets • Promote and market emerging opportunities from climate change • Encourage informal savings and insurance schemes, and arrange for the availability of medium-term credit (especially for industries in crisis).	To build resilience for the industrial sector
Transportation and Communicatio	• Include increased protective margins in construction and placement of transportation and communications infrastructure (i.e. higher standards and specifications). • Undertake risk assessment and risk reduction measures to increase the resilience of	To establish a transport and communication

ns	the transportation and communication sectors. • Strengthen existing transportation and communications infrastructure, in part through early efforts to identify and implement all possible 'no regrets' actions. • Develop and diversify secure communication backup systems to ensure both civil society and security forces have access to emergency communication methods.	system with the resilience to the changing climate

Nigeria has implemented various mitigation actions using its own resources and through the Clean Development Mechanism (CDM). The mitigation actions implemented by Nigeria have significant sustainable development benefits, in addition to their obvious climate change mitigation effect. Major GHG emitting sectors of the economy falling under all four IPCC sectors: Energy, IPPU, AFOLU and Waste.

The information on mitigation actions and their effects have been reported, to the extent possible, based on the guidelines in Nigeria's first BUR. The information is provided in three categories for Nigerian supported activities namely; Estimated Emission by Activity Area, CDM projects and Programme of Activities supported by Nigerian stakeholders and/or other partners with some of the latter addressing regional mitigation.

Table 19: Achieved Mitigation Policies and Actions

Sector	Mitigation Actions	Targets
Energy	• The capture and utilization of majority of associated gas previously sent to flaring at the Kwali Plant (Kwali OGPP). • To eliminate gas flaring at the Ovade - Ogharefe and the Obi - Anyima oil fields operated by Pan Ocean oil corporation in a joint venture partnership with NNPC • To disseminate up to 12,500 efficient fuel wood stoves (SAVE80) and heat retaining polypropylene boxes in different states located in the Guinea Savannah Zone of Nigeria. • Recovered gas that is currently and in the future would be flared at the Asuokpu/Umutu Marginal Field in Block OML 38 in Nigeria to deliver it to the domestic market for productive use as an energy product. • To produce a 650MW grid-connected combined - cycle gas turbine CCGT fuelled by natural gas. • To implement the infrastructure to allow for the utilization of the associated gas that is currently flared from two oil fields in OML56 In Delta State Nigeria thereby reducing the flaring of associated gas and thus emission of CO2 into the atmosphere. • Rehabilitation of Kainji Unit 5, 6 & 12 to provide additional power supplies to the grid and also to ensure that the incremental power is generated from renewable sources. • The construction of a combined cycle, gas-powered independent power plant (IPP) in the Niger Delta region in Nigeria to provide sustainable electricity to the Nigerian	• Recovered gas leading to emission Reduction. • GHG emissions avoided. • GHG emissions avoided. • Emissions reduction, better air quality, forest preservation. • Emission Reduction and improved power generation • Improved air quality, emissions reduction, Health benefits • Emission reduction, energy efficiency.

Sector	Mitigation Actions	Targets
	national grid on an ongoing, reliable basis. • The promotion and distribution/installation of fuel-efficient cookstoves in different countries in Africa. • To replace incandescent bulbs with quality long-life compact fluorescent lamps used in most grid-connected residential households in Nigeria. • The dissemination of improved cooking stoves in the Federal Republic of Nigeria. • Replace non-renewable fuel with renewable fuel for household cooking that voluntarily want to take part in the CPA project through the lease or buying of an ethanol or biogas stove, household water purifying kit or buying water from community-based water purification systems • To promote, distribute and sell fuel-efficient improved cooking stoves in Nigeria. • To enhance the penetration of efficient cooking stoves by offering cost-effective efficient stoves.	
Infrastructure and Transport	• To reduce carbon emissions relative to road transport in heavily trafficked urban areas in Nigeria by the introduction of innovative cable propelled mass transit that reduces CO2 emissions per passenger	• Emission reduction improved air quality. • Improved air quality, emissions reduction, health benefits.
Industry	• To partially replace fossil fuel used in pyro processing with lower-carbon alternative fuels, primarily biomass residue, thus resulting in measurable reductions of GHG emissions in Nigeria.	• GHG emissions avoided.
Waste	• Provision of environmentally friendly waste disposal option and produce high-quality compost for use in Nigeria Farms. • To build, operate and maintain a landfill gas collection and flaring system on three landfills in Lagos, Nigeria at Abule Egba, Solous & Olushosun.	• GHG emissions avoided. • Emissions reduction, better environment.
Agriculture	•	•

Table 20: Planned Mitigation Policies and Actions beyond 2015

Sector	Mitigation Actions	Targets
Energy	• Renewable energy, particularly decentralized • Multi-cycle power stations • Scalable power stations of 20-50MW • Enforced energy efficiency • Use of natural gas rather than liquid fuels • Improved enforcement of gas flaring restrictions • Development of Gas-to-Power Plants at Gas Flare Sites (microgrid) • Blending 10% by volume of Fuel-Ethanol with Gasoline (E10) and 20% by volume of Biodiesel with Petroleum Diesel (B20) for Transportation Fuels.	• GHG emissions avoided. • Emissions reduction, better environment and improved power generation. • Work towards ending gas flaring by 2030. • Work towards off-grid solar PV of 13GW (13,000MW). • Efficient gas generators . • 2% per year energy efficiency (30% by 2030)..
Infrastructure and Transport	• Modal shift from air to high-speed rail • Moving freight to rail • Upgrading roads • Urban transit • Toll roads/ road pricing • Increasing use of CNG • Reform petrol/ diesel subsidies	• Emission reduction improved air quality • Improved air quality, emissions reduction, health benefits.
Industry	• Benchmarking against international best practice for industrial energy usage • Adoption of green technology in industry	• Improved air quality, emissions reduction, health benefits. • Emission reduction, energy efficiency.
Waste		
Agriculture	• Climate-Smart Agriculture • Stop using charcoal	• Climate-smart/sustainable agriculture and reforestation.
Cross-cutting		

4.5.6 SOUTH AFRICA

South Africa's NDCs document pledges a "peak, plateau and decline" approach, whereby emissions would peak between 2020 and 2025, plateau for roughly a decade, and then start to fall. Emissions during 2020-2025 would be between 398-614MtCO_2e, including land use and all sectors of the economy. This "plateau" translates to a 14-75% rise above 1990 levels.

NDCs Adaptation Strategies

The adaptation component of South Africa's NDCs aim to address adaptation through six goals:

- Develop a National Adaptation Plan and begin operationalization as part of implementing the National Climate Change Response Paper (NCCRP) for the period 2020-2025 and 2025-2030.
- Align sub-national and sector policy frameworks for the period 2020-2030.
- Build institutional capacity for effective climate change response planning and implementation for the period 2020-2030.
- Develop early warning vulnerability and adaptation monitoring systems for key climate-vulnerable sectors and geographic areas for the period 2020-2030.
- Develop a vulnerability assessment and needs framework by 2020.
- Communicate past adaptation investments for education and to create awareness.

Since 2010, South Africa has increased its expenditure in adaptation spending from USD 0.28 million in 2010 to USD 1.2 million in 2015 per year. Total annual investment in implementation increased in the following sectors:

- Agriculture and Forestry sectors- increased from USD 0.18 to USD 0.59 bn per year
- Energy sector- increased from USD 0.23bn to USD 0.36 bn
- Human Settlements sector- increased from USD 0.01 bn to $US 0.02 bn
- Biodiversity sector- increased from USD 0.03 bn to USD 0.05 bn
- Water sector- increased from USD 0.17 bn to USD 0.59 bn in the Water sector;
- Disaster Risk Reduction and Emergency Response sector- increased from USD 0.02 bn to USD 0.7 bn

Table 21: Key programmes for adaptation that will be scaled include:

Programmes	Measures	Targets
Working for Water (WfW) and Working on Fire	Scale-up	Estimated at USD1.2 bn per year.
Working on Wetlands	Scale-up	Estimated at USD0.12 bn per year.
Water Conservation and Demand Management	Scale-up	Estimated at USD5.3 bn per year.
Land restoration	Scale-up	Estimated at USD0.07 bn per year.

These adaptation goals are underpinned by adaptation planning, costing of the proposed adaptation investments, equity and a roadmap for implementation. However, a key challenge facing the implementation of South Africa's mitigation and adaptation commitments is financing and investment required to action these proposals. Furthermore, access to technology and the capacity required to

govern, regulate, install and operate these technologies is largely missing. These challenges, in addition to the political-economy barriers that exist, make implementation difficult and the achievement of South Africa's NDC challenging.

GHG EMISSIONS REDUCTION STRATEGIES IN THE NDC

South Africa is a significant GHG emitter in absolute terms (14th biggest emitter worldwide in 2018) (Carbon Brief, 2018). The vast majority of the country`s emissions are attributable to energy supply and use, largely as the result of South Africa's energy-intensive economy, based on the extraction of vast coal resources. Therefore, transforming these energy-intensive sectors will take time. As a result, South Africa's mitigation commitment takes on a peak, plateau and decline (PPD) trajectory where emissions will peak between 2020-2025, plateau for approximately a decade and thereafter, decline in absolute terms. Energy and industry are the key sectors that are targeted to reduce GHG emissions with strategies for implementing actions outlined in the NDP, NCCRP and other sectoral policies and plans such as the Integrated Resource Plan (IRP) and the recently promulgated Renewable Energy Independent Power Producer Procurement Programme (REI4P).

Table 22 below highlights the key measures and targets South Africa aims to implement in the energy and transport sector to help achieve its mitigation targets.

Table 22: Key Measures and Targets in South Africa's Energy and Transpor tSsector

Sector	Measures	Targets
Energy	Expansion of the REI4P Programme in the next ten years	Estimated incremental cost of USD3 billion per year.
Energy	Carbon capture and storage (CSS) – 23 Mt CO_2 from coal-to-liquid-plant	Estimated cost of USD0.45 billion.
Transport	Electric vehicles	USD513 billion from 2020 until 2050.
Transport	Hybrid electric vehicles	20% by 2030 at an estimated cost of USD 488 billion.

South Africa has stated that its NDCs aim for an equitable contribution to global mitigation efforts, given its emissions to date and its national circumstances. The overriding priorities are to eliminate poverty and eradicate inequality in the context of acute energy challenges that hamper economic development.

4.6 IMPACTS OF CLIMATE CHANGE ON SMES IN AFRICA

Understanding climate and weather changes and integrating climate risks into existing risk-management will make SMEs less exposed to climate impacts. This also presents an opportunity to seize a competitive advantage by making SMEs more climate-resilient and reduce Greenhouse Gas

(GHG) emissions, and to develop products and services providing climate change adaptation and mitigation solutions. With a focus on six countries of differing economic, socio-political configurations, this assignment analysed the implications of climate change on Africa's SMEs and provide awareness-raising activities, vulnerability assessments, GHG emissions reduction strategies, cost-benefit analysis and capacity building services on mitigating and improving the resilience of SMEs to the adverse effects of climate change.

From an African perspective, the revelation from the ND-GAIN latest rankings of climate vulnerability and readiness of 181 countries that the bottom 5 countries most at risk of and least prepared to cope with the impacts of climate change are all in Africa; is an indication of the exposure of African SMEs to the disruptive and destructive impacts of climate change. "Mauritius is the best African country on the Index while the six pilot countries occupy areas between 64 (Morocco) and 160 (Nigeria). Angola and Mozambique occupied [154], while South Africa and Egypt occupied [92] and [107] respectively. This state of affairs shows that Africa has a long way to go. The dispositions of many countries in the region to climate best practice, therefore, seem to pose grave risk and threat to SMEs in the continent.

Despite the numerous challenges and risks climate change poses for Africa (including natural disasters, resource constraints and forced migration that impact country economies) SMEs are well placed to develop innovative and adaptive solutions to these threats. Not only do SMEs provide an important avenue for labour absorption in the context of Africa's rapidly growing working age population, but their size and agility also allows for flexibility, while preventing path dependency. Therefore, it is imperative that challenges (access to finance and information, ease of doing business and the policy environment) are overcome to enable SMEs to flourish and develop innovative and sustainable solutions in the context of rapidly changing businesses, development and climate change environment.

The Scaling Climate Action through Climate Technology and Innovation by SMEs project fits into the agenda for realizing the co-benefits of climate action, creating employment and enhancing a sector of thriving SMEs that drive towards green growth in line with the ideals of the targeted countries and others in Africa' development agenda and the SDGs.

4.7 OPPORTUNITIES FOR SME PARTICIPATION IN NDCS IMPLEMENTATION IN AFRICA

Some global projections indicate that about 75% of the costs associated with implementing NDCs will come from the private sector. However, climate change resilience remains under-invested in Africa, especially with regards to private sector involvement, entrepreneurial activity and innovation. Investments in climate-smart technologies have the potential to yield significant co-benefits in terms of enterprise and job creation. In addition, as we know that this way more innovative technologies need to be created and deployed at massive scale in order to achieve the NDCs targets globally, this way urgency and dogma need to be employed in accessing and deploying the capital or funds required to implement the innovative technologies at massive scale. This assignment is strategically concentrated on guiding start-ups and SMEs in the technology space in the six African countries to think innovatively and disruptively about the smart technologies that can be developed with the

capability to scale the implementation and deployment of critical climate action either mitigation or adaptation actions ,such that access and flow of funds and capital towards climate actions or solutions become fluid and well calculated. What is also crucial to the approach on this assignment is that the innovative and disruptive will not just have the capability to accelerate access to funds, but it will also provide the platform where non-tech savvy youths and women can integrate to venture into various sustainable and bankable climate actions enabled by the disruptive innovations or technologies, and also fosters participation of the users and stakeholders within the ecosystem of every scalable climate action.

The SMEs will focus on creating innovations that will contribute to reduce emissions and combat the following climate risks and challenges, but not limited to them:

- Drought and desert encroachment threatening food security and livelihoods of vulnerable and rural communities.
- GHG emissions reductions via easy and quick uptake and adoption of renewable and clean energy technologies by all i.e., vulnerable communities, households, SMEs, corporate, and government organizations for power generation, cooking, and transportation.
- Reducing the rising heat generated by high carbon buildings due to the use of building materials and the power source via smart energy efficiency technologies.
- Rising sea levels causing soil erosion and threatening food and livelihood security for vulnerable communities.
- Heavy energy consumption by households, SMEs, and industries.
- GHG emissions (methane) from livestock agriculture accounting for 24 percent of global emissions.
- Reduction of GHG emissions from road transportation via technologies that will encourage mass transit systems such as buses, ferries, and trains.

In the six pilot countries and in Africa at large, SMEs contribute the bulk of economic activity; however, they remain highly vulnerable to climate risks. Furthermore, there are key common barriers that face SMEs in these countries. These include access to finance, knowledge and structural hurdles which include a lack of physical infrastructure and a disabling policy environment. To overcome these challenges and promote the scaling-up of SMEs, it is critical that an enabling environment is created along with strong governance, accountability and risk management mechanisms.

SIX PILOT COUNTRIES

ANGOLA **EGYPT** **MOROCCO** **MOZAMBIQUE** **NIGERIA** **South Africa**

4.8 BARRIERS TO SMESPARTICIPATION IN NDCS IMPLEMENTATION IN AFRICA

Since signing of the Paris Agreement by 54 African nations, a considerable number (over 80%) of African countries have submitted theirNDCs as commitment to that global agreement. Consequent to this, there have been some national, regional and continental actions towards achieving the objectives of the NDCs. Nevertheless, there are so many barriers which may have significantly affected the expected results especially in developing countries within the African Continent.

In Africa, there seems to be a delayed progress and disconnect between the government and private sector (the SMEs) in the NDCs implementation arising from poor information sharing between the government and the private sector whose financial investment and entrepreneurial creativity shall be highly significant considering the huge financial and innovation requirement of the NDCs implementation. Implementing the NDCs requires a number of functions such as private sector (SMEs) collaboration across different levels of governance, adequate financing and incentivising the involvement of key stakeholders.

SMEs play a crucial role in addressing the impediments of poverty, inequality and job creation in rural areas. They are an important source of employment, particularly for women, low skill workers and the youth. As earlier stated, SMEs in Africa provide over 50% of Africa GDP. It is therefore not surprising that they are considered the backbone of Africa's economic growth. Despite the role it plays, SMEs in Africa do not have adequate information on the inherent risks and opportunities of climate change and greenhouse gas emission reduction. African SMEs don't have the required skills to leverage climate finance and clean technology adoption. Unfortunately, most of the SMEs are not fully aware of the NDCs, nor the climate finance opportunities available. They are not conversant with the requisite tools that can help them unlock these opportunities towards optimizing their operational efficiency and making their businesses bankable.

Financial institutions, on the other hand, are not set up to offer attractive financial instruments to SMEs either because they do not understand how to leverage green finance opportunities or how to blend green finance into conventional lending instruments.

In summary, some of the barriers to SMEs participation include:

- Inadequate/lack of access to credit: This is among the great barriers to SMEs participation in Africa NDCs implementation.
- Poor climate change information dissemination.
- Deficient SMEs personnel skills and capacity.
- Weak climate policy initiatives and legal framework by the government.
- Africa's poor adoption of innovation due to traditional practice.
- Poor access to highly competitive market.
- Lack of GHG assessment and climate finance toolkits.

SECTION 5: TOOLKITS AND GUIDANCE NOTE

SECTION 5: TOOLKITS AND GUIDANCE NOTE

5.0 INTRODUCTION

This section provides an overview of the business case for SMEs to adopt climate screening and assessment tools as a means of understanding and responding to climate risks and opportunities in their operations. The section also provides an overview of existing climate change tools in the 'marketplace' in order to establish a baseline and allow for gaps to be identified for strengthening of existing tools. It also covers highlights of the guiding principles and design parameters for the new toolkits and guidelines being developed.

5.1 OVERVIEW OF EXISTING CLIMATE RISK SCREENING AND ASSESSMENT TOOLS

In addition to the review of the AfDBs ADOA Framework and CSS, several other Climate Screening Tools that were assessed as part of a scoping and gap analysis exercise are shown in Annex 5, which provides a systematic review and gap analysis of the currently available tools.

These tools target a range of actors from policymakers and development project managers to local government and NGOs. Tools such as ADAPT, Adaptation Wizard and the Danish International Development Agency (DANIDA) Screening Matrix focus on reducing the risks of existing and potential climate change impacts while the UNDP's climate screening tool, for example, focuses on integrating adaptation measures at the start of the project to anticipate and address future climate risks and vulnerability (Olhoff and Schaer, 2010). The level of climate change and climate adaptation knowledge required to apply these tools varies depending on the target audience. For example, tools such as ADAPT and CRiSTAL require users to have context-specific climate knowledge in order to apply the screening tool while other tools, such as the Adaptation Wizard, provide more background knowledge and information in order to increase awareness of these issues. Furthermore, computer-based tools (e.g., CRiSTAL, ADAPT and Adaptation Wizard) require tangible inputs and provide analyses on these inputs and potential solutions while others (such as the UNDP toolkit) provide a broader framework and guide to identify challenges and develop potential solutions. Also, the UKCIPs BACLIAT vulnerability assessment provides the opportunity for supporting the development of a more robust climate risk and vulnerability tool in Africa, focusing on the private sector and SMEs to climate-proof their business concepts/established businesses.

It is important to note that most of these screening tools are designed from the donor perspective and are targeted at the project or programme level for specific sectors. As a result, they have less relevance to the private sector, and specifically not to SMEs in a way that enables the identification of business opportunities and/or risks. Furthermore, many of these tools require technical input from those who are not direct users of these tools (Olhoff and Schaer, 2010).

While some of these tools have the potential to be adapted for the SMEs audience targeted under this project, most do not address the needs and circumstances of SMEs. There are a few reasons for this:

- SMEs need simplified screening tools compared to the complexity of many of the tools available, largely because their resource constraints exclude them from using the complex tools typically designed for donor or public finance driven climate change initiatives.

- Many of the available tools are designed for donor programming, rather than business design or operationalization, purposes.
- The available tools focus primarily on climate risk screening and emissions reductions; however, SMEs also need to screen for climate business opportunities.

Therefore, despite the numerous Climate Screening Tools, frameworks and guidelines available, there is a need for SMEs-specific tools that will enable SMEs to make quick decisions concerning their business risks, and/or the potential of a climate-driven business idea or project prior to developing a detailed business design and strategy.

5.2 OVERVIEW OF AFDB EXISTING CLIMATE-RELATED TOOLS AND GUIDELINES

It is noteworthy that the AfDB CSS tool and GHG Accounting and Reporting Tool focus on the public sector (CSS) and while the ADOA, though private sector focused, assesses development, not climate change. Thus, existing tools in the Bank are not available to guide the private sector/SMEs in the area of climate risks screening and opportunity assessment. Therefore, this assignment is designed to close this gap.

The AfDB developed a strategy for CRMA in 2009. The goal of this strategy is to reduce vulnerability in RMCs by promoting climate resilience in Bank-financed development investments, as well as to build knowledge and capacity within RMCs to tackle climate change challenges and promote sustainability through regulatory and policy reforms (Devissher, *et al.*, 2011). The Bank's CCA (2016 - 2020) falls under the strategy and aims to promote low-carbon development and a climate adaptation strategy that strengthens adaptive capacity in RMCs and promotes climate-proofed investments. These two strategies aim to mainstream climate screening and adaptation measures into Bank projects.

To achieve this objective, the CSS, a set of decision-making tools, was developed. These tools help the Bank to screen projects in vulnerable sectors, identify climate change risks and develop adaptation measures that will reduce vulnerability (*Devissher et al., 2011*). The CSS comprises four components: Climate Screening, Adaptation Review and Evaluation, Country Adaptation Factsheets and a CSS Information Base.

The Climate Screening component assesses the vulnerability of a potential project to climate change and assigns these projects into three categories according to vulnerability where a rating of "1" is most vulnerable, and a rating of "3" is least vulnerable (*Devissher et al., 2011*). Once the screening process is complete, projects undergo the Adaptation Review and Evaluation where users identify possible adaptation measures for projects and are guided by a set of procedures for doing so, depending on the project vulnerability categorization.

The Country Adaptation Factsheets and CSS Information Base are separate to this process but provide useful climate information on countries and access to a database of climate projections and information on adaptation activities. This helps to enable the Climate Screening and Adaptation Review and Evaluation processes. The focus of the CSS is on public sector operations and is used at the early phase (project concept note) of the project lifecycle to ensure that risks and adaptation options are identified early to prevent project retrofitting and consequently, unnecessary costs. This decision-making tool provides a robust entry point for screening Bank projects and mainstreaming climate change at the project concept note stage.

The Bank's GHG Accounting and Reporting Tool will be an additional feature to the web-based CSS Information Base and will allow the Bank to account for and report on GHG emissions stemming from Bank investments (AfDB PECG, 2016). This Accounting and Reporting Tool will be especially important in reporting on the emission intensity of the Bank's "Light up and Power Africa," a key priority sector that aims at promoting low-carbon investment (AfDB PECG, 2016). This tool aims at improving the Bank's GHG accounting and reporting practice by providing detailed steps in calculating potential gross emissions generated from project implementation. The GHG emissions generated as a result of project implementation can be compared to a baseline to establish the effectiveness of Bank financing in terms of reducing GHG emissions and the overall cost of the project. This in turn, helps the Bank to better understand the climate impact of specific projects. This tool is specifically targeted for Bank use and requires a level of skill and prior knowledge to use. Therefore, while it is an important tool in tracking climate finance and investment impacts in terms of GHG emissions reduction, for SMEs and private sector businesses, the tool is too complex and requires a degree of expertise to use.

The ADOA Framework provides an in-depth and robust framework for assessing the development impacts of PSOs (including SMEs). PSOs are assessed on expected development outcomes which include household benefits and job creation, infrastructure development, governance and fiscal effects, regional integration and economic resilience, environmental effects and contribution to green growth, gender and social effects, and private sector development and demonstration effects (ADOA, 2017). In addition to development outcomes, the Framework also assesses the additionality of Development Finance Institutions (DFIs') participation in each PSO, which includes DFIs contribution towards financial additionality, political risk mitigation and improved development outcomes (ADOA, 2017). The ADOA helps to improve project design by highlighting the strengths and weaknesses of projects and serves as a key decision-making tool and guidance document for the Bank in the selection of PSOs.

The AfDB CSS and ADOA Framework provide useful tools and guidance for developing sustainable projects where climate risks are managed, and climate adaptation opportunities are maximized. In addition, the ADOA Framework, along with various criteria and decision-making documents from funds such as the GCF and GEF, provide a useful basis from which to develop Climate Screening Tools under this project since many of the criteria listed for project funding are similar to that of DFIs, impact investors and other green financiers. This provides a strong foundation to develop tools that help direct businesses to align with these criteria to maximize their potential for accessing climate finance. While the ADOA tool is not targeted specifically at SMEs, but rather at Bank decision-making staff, understanding these criteria is important in order for the private sector and SMEs to assess and develop projects and business ideas that are well poised to receive climate funding. Furthermore, the

CSS tools developed by the AfDB for the public sector provide a strong framework and methodology from which to develop Climate Screening Tools targeted specifically at the private sector and SMEs. However, it is important to note that the CSS tools were not created for the private sector and the ADOA tool, while focused on the private sector, does not specifically assess climate change but rather, development objectives. These tools were designed to be used by the Bank staff and not by SMEs and private sector actors. Private sector interests will naturally differ compared to public sector interests and therefore, there is a need for tools that consider not only climate risks and adaptation options, but also assess the costs and profit associated with these choices. Thus, the tool under development will aim at bridging the existing gap between the CSS and ADOA by developing elements that relate to the private sector and SMEs throughout the business process (and not only at the concept stage), in order to develop businesses or business ideas that are climate resilient and attractive to climate investors.

5.3 GUIDING PRINCIPLES AND DESIGN PARAMETERS FOR THE NEW TOOLKITS

THE GUIDING PRINCIPLES

The guiding principles for this new tools and guidelines include the following:

- Support the evolving global climate finance architecture by creating risk-opportunity-reward metrics towards low-carbon and climate-resilient investments for the African SMEs to raise the share of climate finance in investments significantly,
- Enable SMEs to make quick decisions concerning their business risks, and/or the potential of a climate driven business idea or project prior to developing a detailed business design and strategy,
- Ensure simplicity compared to the available complex tools, designed for donor or public finance driven climate change initiatives, which largely exclude SMEs because of resource constraints,
- Address the needs and bridge the existing gap between AfDB CSS and ADOA with elements that relate to the private sector/SMEs throughout the business process (and not only at the concept stage), to develop businesses or business ideas that are climate resilient and attractive to climate investors throughout the project life cycle,
- Enable the scaling up of SME engagement in climate action, thus increasing the private sector contribution to, and participation in Africa's climate change objectives and also in support of various countries' NDCs/SDGs targets,
- Enable SMEs to identify and develop sustainable business ideas and projects that align with the Bank, AFAC, country climate change and sustainable development objectives,
- Help SMEs to climate-proof their businesses through considering climate risks and adopting appropriate adaptation and mitigation response actions,
- Assist SMEs to develop business ideas that contribute and align with country adaptation and mitigation strategies,
- Help SMEs to access climate finance, and
- Guide the continent in tracking green jobs.

DESIGN PARAMETERS AND SET UP FOR THE NEW TOOLKITS

Based on the outcome of the need analyses and other preliminary studies, the design of outlines for toolkits and guideline commenced. In doing this, one of the key steps included identification of design parameters for accelerated Climate Screening Toolkits and checklists, structuring checklists. Importantly, the following activities were covered at this stage:

- Baseline study of parameters addressing mitigation and adaptation issues in the six pilot countries.
- Identification and definition of parameters.
- Test running of parameters.
- Identification of criterion to be optimized.
- Identification of constraints.

The outline and design parameters of these tools are also informed by past experience in designing screening tools, as well as established knowledge of the needs of SMEs from previous stakeholder engagement and consultation. The design and development of these tools were improved upon and refined through stakeholder engagement as the project progressed. Stakeholder identification and mapping was based on adopted definitions. Country experts from each of the six pilot countries identified stakeholders from SMEs and the private sector that were representative of small, medium and larger private sector companies. This ensured strong representation across the SMEs and private sector landscape and help to strengthen the relevance of the tools. The project teams worked through SMEs support frameworks and agencies established in each of the six pilot countries. This in turn assisted with the identification of SMEs. While it was initially envisioned that the first country missions include in-person stakeholder consultations, given the current global climate due to the COVID-19 pandemic, stakeholder engagements were conducted through online platforms. These online platforms (such as Microsoft Teams and Zoom) were used successfully by the project team in response to the global health crisis, as well as allowed for interactive engagement and integration through features such as screen sharing as well as plug-ins. This altered stakeholder engagement and

validation process ensured that the screening tools are useful, relevant and robust. The tool incorporates stop/go decision points that determine whether the user proceeds to the next step.

While many of these tools contain aspects that are “fit for purpose’, it is unlikely that a startup, or even an established SME will have the capacities and resources needed to adapt these aspects to their purposes. Moreover, few entrepreneurs in Africa are thinking about business ideas from the risks and opportunities presented by climate change, other than perhaps farmers and agri-businesses that are being impacted by climate change, for example, through increasing frequency and/or intensity of droughts. Even fewer entrepreneurs and businesses, other than multinational firms under pressure to do so, will be thinking about the carbon dioxide emissions that their business activities will increase or decrease, outside of the financial implications of such activities, such as an energy-intensive, or transport-intensive business.

With this in mind, tools that ensure usefulness, increase knowledge and awareness about climate action, and enable an easy navigation for critical decision-making processes, are clearly needed, bearing in mind that for an SME to embark on/expand/de-risk his/her business is likely to be a

significant decision with financial, livelihoods and employment ramifications. The goal of these tools will be not only to identify climate risks and potentially profitable business avenues through a cost-benefit analysis but also, to place emphasis on identifying opportunities for the private sector and SMEs in accelerating the realization of the country's NDCs and scaling up this action through SMEs activities within the private sector. Thus, these tools will place a greater focus on identifying and realizing potential green business opportunities as opposed to placing stronger emphasis on climate risks as other existing tools currently do.

The scope of these tools, as outlined in the section above, will account for potential economic entry points in the respective countries, country-specific climate risks to consider, alignment with bank objectives, national policies and NDCs and lastly, a final cost-benefit analysis of the idea/project to determine the incremental cost and benefit/opportunities from mainstreaming climate change actions into the idea/project. These tools are specifically designed to be simple and to quickly evaluate a business idea or to re-evaluate an existing business idea within the context of sustainability and climate change benefits.

However, while simple tools are needed in order to be useful to non-experts in climate change and climate finance, lack of information may prevent informed decision making on adaptive business ideas which may lead to maladaptation if there is a lack of understanding and knowledge on the links between climate change, vulnerability and development. Therefore, it is important that these screening tools are accompanied by a training manual targeted at private sector and SMEs that will provide fundamental knowledge on climate change issues, climate finance and the development of sustainable business ideas. These tools, coupled with the training manual, will help to capacitate SMEs by building a strong knowledge base from which to undertake climate screening of potential or existing business ideas/plans.

CLIMATE CHANGE STRATEGY ASSESSMENT OF AFRICAN COUNTRIES

As it stands, key national climate strategy documents exist in most countries across Africa while 44 of the 54 countries have submitted ambitious NDCs, under the Paris Agreement (AfDB, 2018).

These strategies and NDCs, on the whole, aim to increase countries' efforts on climate adaptation and mitigation in order to achieve sustainable development. The extensiveness of these national public policies and regulatory frameworks differ across countries with some project countries, such as South Africa, possessing a far more comprehensive framework compared to that of Angola, for example, noting that South Africa stands out in Africa, and globally, as a high GHG emitter. Common across African countries, is the promotion of climate resilience and economic growth, under overarching sustainable development objectives. Moreover, as already noted, there is wide consensus that climate change poses serious risks to investment and enterprise while also presenting numerous opportunities for economic growth and employment creation. The key premise for this assignment is that the extent and nature of these risks and opportunities for the private sector that have yet to be systematically captured and operationalized.

It is commonly accepted that the drivers of long-term sustainability and economic growth for emerging markets lie in the effective development of the SME sector. In Africa, the private sector accounts for 90% of employment, with SMEs comprising 95% of private enterprises (ACET, 2018).

Therefore, the private sector and SMEs provide a powerful engine for addressing the challenges of climate change and reducing climate change impacts. However, access to financing remains a key barrier across the continent. This, coupled with a lack of knowledge on how to develop climate-resilient adaptive businesses that are profitable, hinders the potential of SMEs to develop climate solutions. There is a need to bridge the gap between the private sector and climate financing institutions by equipping the private sector and SMEs with the necessary tools to develop feasible green business ideas and thus increase the flow of climate finance and investment. Moreover, the private sector and SMEs need to fully comprehend the negative impacts climate change will have on their businesses in order to redirect growth towards sustainability to remain competitive. Therefore, it is necessary to assess the current Climate Screening Tools available in order to find gaps that exist and improve these tools for private sector use.

NEW TOOLKIT DESIGN PARAMETERS AND SET-UP

There is a clear need for Climate Screening Tools that are simple, broadly applicable and specifically targeted at private sector and SMEs. An evaluation of the likely tools currently available reveals that there are no tools available in the public domain that specifically target the SMEs sector.

5.3.1 CLIMATE SCREENING AND OPPORTUNITY TOOLKIT

Climate Risk Screening and Opportunity Assessment Schematic Toolkit

The following tools will help guide SMEs to screen their businesses for climate risk and identify risk mitigation strategies, as well as to identify new business opportunities that arise from climate change response strategies and that have the potential for sustainable economic growth and business viability.

The objective is to align SMEs activity with, and stimulate risk responses and business opportunities through, national climate response strategies, and as aligned with their sustainable development objectives. A further objective is to ensure that SMEs climate action aligns with and supports the AfDBAFAC.

Specifically, the purpose of these tools is to:

- Enable businesses to identify and develop sustainable business ideas and initiatives that align with national climate change strategies and objectives, climate financing criteria and country sustainable development objectives, to increase their probability of receiving climate financing.
- Climate proof their businesses as appropriate in terms of climate risks for long-term sustainability and growth; and
- Integrate climate response strategies into business operations and to account for achievements made each year of the business lifecycle, thus enhancing the preparation of bankable businesses in the green space and increasing access to climate finance.

This toolkit will start with an introduction that will explain the purpose of these tools and the steps to take as outlined in figure 11.

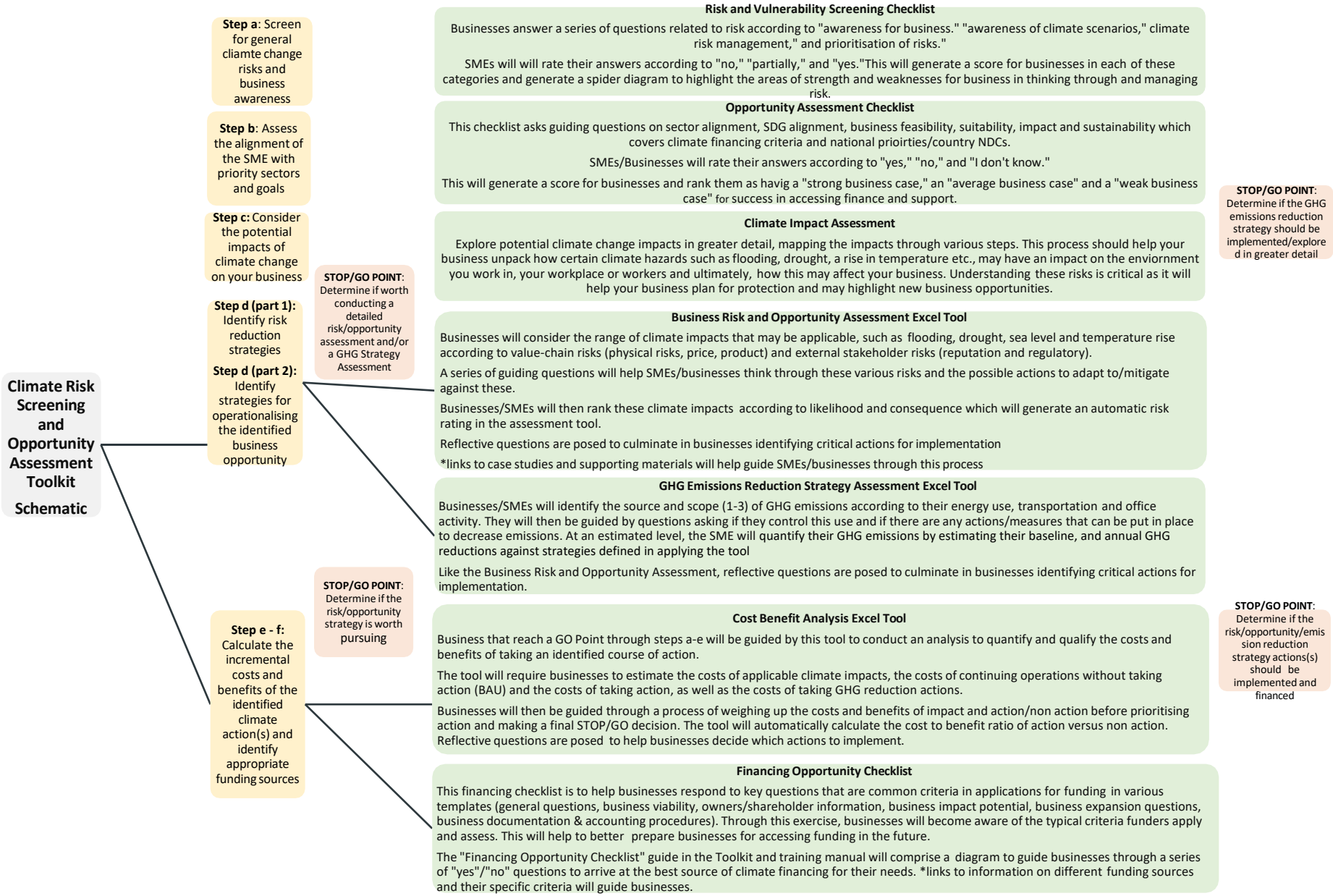


Figure 11: Steps to follow for Climate Screening and Opportunity Toolkit

The outline and design parameters of these tools are informed by past experience in designing screening tools, as well as established knowledge of the needs of SMEs from previous stakeholder engagement and consultations, where the project team has engaged extensively with SMEs, in addition to conducting interviews with with other stakeholder.

The design and development of these tools were refined through stakeholder engagement. Stakeholders identification and mapping is based on the definition provided in Section 2 of this Final Report and chart in Annex 6. Country experts from each of the six-pilot countries identified stakeholders from SMEs and the private sector that are representative of small, medium and larger private sector companies. This ensured strong representation across the SME and private sector landscape and help to strengthen the relevance of the tools. The project teams are working through SMEs support frameworks and agencies established in each of the six pilot countries assisting with the identification of SMEs.

Table 23 presents the purpose, design parameters and target audience for each tool in this Toolkit. The tool incorporates stop/go decision points that determine whether the user proceeds to the next step.

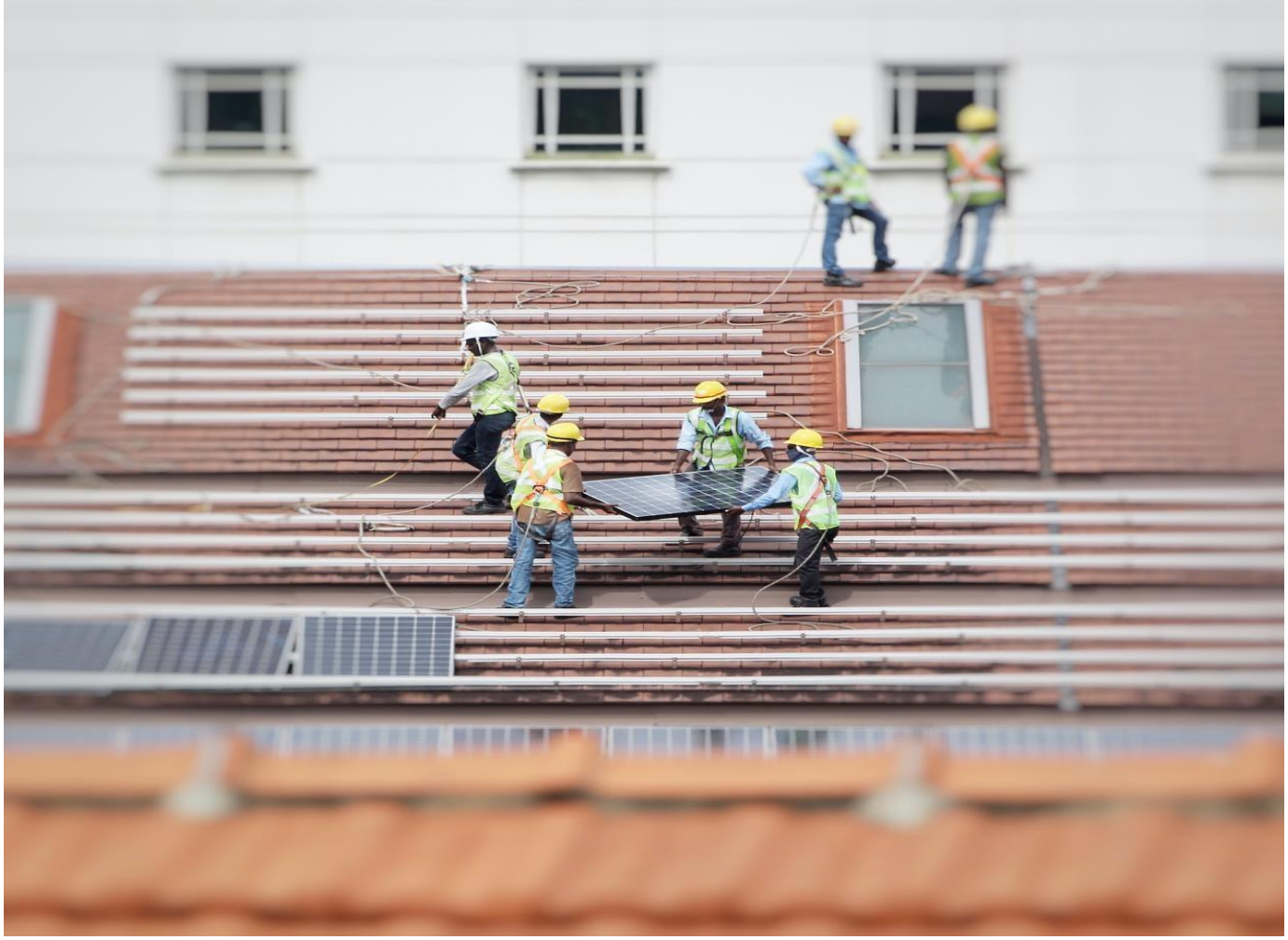


Table 23: Climate Risk Screening and Climate Opportunity Assessment Toolkit Parameters

Tool	Purpose	Applicability & Audience
Sub-tool 1: Risk & Vulnerability Screening Checklist	Highlights the primary (but not all) the impacts that climate change may have on businesses. Takes businesses through a series of questions that will help in identifying the areas most exposed to climate risk. Intends to assist in directing SMEs to areas of their business that require greater attention in terms of risk management and climate proofing.	Generic tool targeted at businesses
Sub-tool 2: Opportunity Assessment Checklist	Aligns private sectors, SMEs and business opportunities with key industries/sectors targeted by African countries, the AfDB and the AFAC for adaptation and/or for carbon emission reduction strategies. Enables a stop/go decision point for businesses to decide if they wish to continue on to a more detailed assessment of the risks and opportunities that climate change presents.	Generic tool based on the priorities of African countries, and international climate finance criteria. Targeted at businesses, the AfDB and other funders
Sub-tool 3: Climate Impact Assessment	Explores potential climate change impacts in greater detail, guiding businesses to map the impacts through various steps. This process intends to help businesses understand how certain climate hazards such as flooding, drought, temperature rise, etc., could or does have an impact on the environment they work in, their workplace or workers and ultimately, how this may affect their business in terms of income, expenditure and licence to operate, among others. Understanding these risks is critical as it will help businesses plan for the protection and may highlight new business opportunities.	Generic tool targeted at businesses
Sub-tool 4: Business Risk & Opportunity Assessment Tool	Assists SMEs to identify the climate risks and assess the potential of business ideas/products to overcome/mitigate against the highest risks. Enables a stop/go decision point as to whether to invest in risk mitigation strategies.	Generic tool that highlights climate risks and business opportunities to adapt to these risks. Targeted at businesses, the AfDB and other funders.
Sub-tool 5: GHG Accounting Tool	Assists businesses to identify key opportunities for reducing greenhouse gas emissions in their operations. Enables a stop/go decision point as to whether to invest in related GHG emissions reduction strategies.	Generic tool that highlights climate risks and business opportunities to adapt to these risks. Targeted at businesses, the AfDB and other funders.
Sub-tool 6: Cost-benefit analysis tool	Designed to enable private sector and SMEs to carry out a high-level costs/benefits analysis to determine incremental costs and benefits/opportunities from climate change, and to enable the next stop/go decision point as to whether to develop a full business plan and seek funding.	Generic tool to determine incremental costs of adaptation options. Targeted at businesses, the AfDB and other funders.
Sub-tool 7: Finance Opportunity Checklist	Helps businesses respond to identify and understand the common criteria for various forms of funding applications and the extent to which these apply to their businesses/identified risks and opportunities. Through this exercise, businesses are made more aware of the types of questions and criteria funders across the board ask/assess. This in turn helps to better prepare businesses for accessing climate funding in the future.	Generic tool to match the business idea or risk management approach to the criteria of appropriate funders. Targeted at businesses.

• SUB-TOOL 1: RISK AND VULNERABILITY SCREENING CHECKLIST

Through completing this checklist, businesses will be made aware of some key impacts that climate change may have on them, that they may not have considered before. By answering some simple questions, businesses will be able to identify the areas of their business that are most exposed to risk. This will help to highlight the areas of their business that need greater attention in terms of risk management and climate proofing. The spider diagram **Figure 12** provides a visual representation of key areas that businesses should focus on.

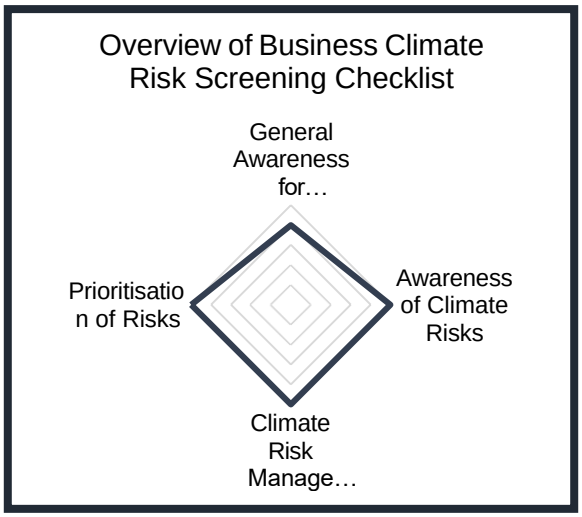


Figure 12: Climate risk screening spider-diagram depiction

• SUB-TOOL 2: OPPORTUNITY ALIGNMENT CHECKLIST

This tool enables SMEs to assess whether or not there are opportunities within their business to align with key AfDB and AFAC climate financing objectives and other criteria that are important to funders and green banks financing climate-related businesses and projects. Applying the tool also helps SMEs to consider if their current and emergent business ideas align with national climate priorities for climate change adaptation, and/or for emission reductions as contained in country-specific NDCs and long term support and to minimize potential barriers. The tool further helps business to align with the Bank's core objectives, climate financing criteria and national policies and agendas to ensure maximum support for the SME, and along the business fitness continuum (from idea to implementation to scale). Training modules were developed to complement this tool in providing private sector and SMEs with a sound understanding of climate financing criteria and strategic entry points for their business. Written prompts for each question assist private sector and SMEs to think through their answers and guide them towards the best outcome (i.e. strong alignment). Should SMEs answer "no" to the majority of the screening questions posed, the likelihood of business success (in terms of accessing climate financing and support) is limited and the tool will convey this message. Thus, the ultimate aim of this tool is to highlight the gaps and ask questions such as, "does the business have equitable, positive benefits for males and females?", to help SMEs rethink their business strategy and come up with ideas to address these gaps in order to strengthen their business case for climate financing and investment.

• SUB-TOOL 3: CLIMATE IMPACT ASSESSMENT

The purpose of the Climate Impacts Assessment is to explore potential climate change impacts in greater detail, mapping the impacts through various steps. This process aims at helping businesses unpack how certain climate hazards such as flooding, drought, a rise in temperature etc., may have an impact on the environment businesses work in, their workplace or workers and ultimately, how this may affect their business. Understanding these risks is critical as it will help businesses plan for protection and may highlight new business opportunities. This assessment uses the 1st to 4th Order Impact Assessment Framework, Figure 13, (Petrie *et al.,* 2016) to guide businesses through the process of thinking through climate change impacts in terms of a system or business. For example, decreased rainfall may lead to drought which leads to a loss of crops/growth of plants. This in turn could lead to less harvest which results in less income for a farmer, perhaps a loss of jobs too as the farmer can no longer afford to keep all his/her workers.

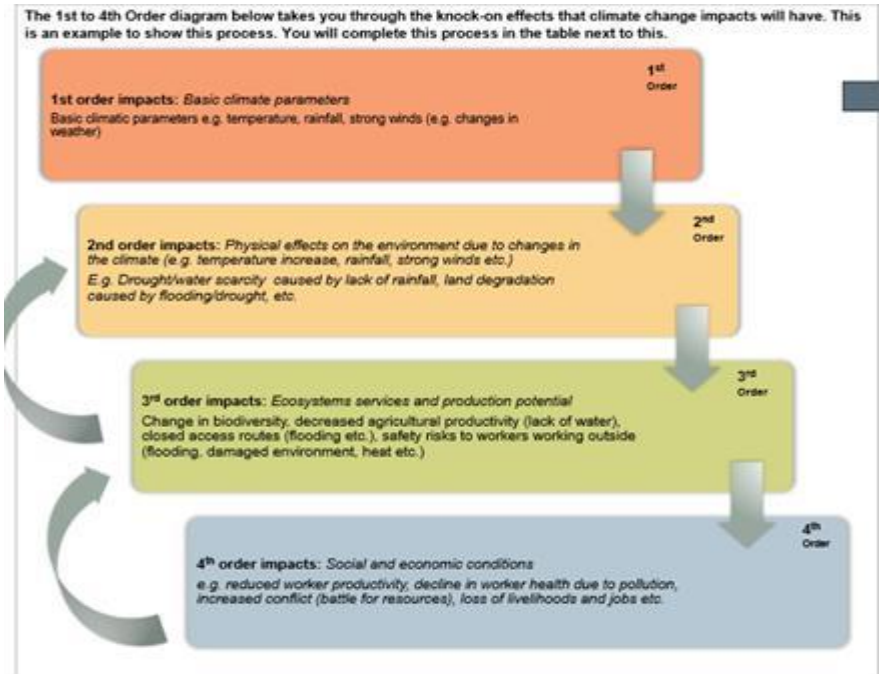


Figure 13: 1st to 4th Order Impact Assessment

• SUB-TOOL 4 (PART 1): BUSINESS RISK AND OPPORTUNITY ASSESSMENT TOOL

This tool has been developed using best-available knowledge of climate risks and vulnerabilities in Africa. Its main purpose is to enable the private sector and SMEs to climate-proof their business concepts/established businesses. For example, a maize farmer may decide to diversify her/his crops in response to the high risk of climate change for maize production in Africa, thus adapting to climate change, while also deciding to invest in solar-powered irrigation systems, thus contributing to the national climate mitigation agenda through ensuring that the crop diversification strategy does not lead to an increase in carbon emissions.

For business ideas to be implemented and remain sustainable, a strong understanding of how climate risks and vulnerabilities will affect businesses and profitability, as well as how businesses can

mitigate/adapt to these risks and vulnerabilities, is fundamental to inform decision making, noting that there is a business case to be made for building climate resilience. This tool allows the private sector and SMEs to assess their businesses against the key climate risks and vulnerabilities in the systems they operate in, in order to properly assess how they could mitigate these risks and operationalize these strategies. It helps businesses to think through possible adaptation options and opportunities to manage these risks and in turn, reduce unexpected costs.

- ## SUB-TOOL 5 (PART 2) BUSINESS CARBON FOOTPRINT TOOLKIT

The purpose of this tool is to help businesses align their business and/or business ideas with their country's NDCs and in turn, help to increase access to climate finance and business attractiveness for investors. Since ESG investment is becoming increasingly important for investors, and since reducing business GHG emissions is one way of decreasing a carbon footprint, a focus on GHG emissions reductions helps to position businesses as attractive investment options for potential financiers. Module 3 in the training manual highlights the importance of considering and implementing GHG emission reduction strategies in businesses.

Figure 14 informs businesses how to identify sources of GHG emissions in their business through energy use or generation, transportation methods, and office activities/operations. Once businesses have identified the source of emissions for these activities, they will then categorise them according to the scope they fall under (scope 1, 2, or 3). The purpose of this activity is for businesses to think through and identify the different sources of GHG emissions in their business.

Once they have identified these sources of GHG emissions within business operations, they will then complete Figure 15 which helps businesses to identify opportunities within their control to decrease their carbon footprint. By thinking through the aspects of their business that they can control, businesses can come up with ways to reduce their GHG emissions through implementing key actions.

Sources of Greenhouse Gas Emissions from Organisational Operations				Strategies and actions to mitigate against GHG emissions		
Description	Source	Classification/Scope*	Descrition	Does your business have control/influence over this activity?	Are there actions that can be taken to decrease emissions from this	What actions can be taken/measures put in place to reduce your business's emissions froms from this activity?
Energy use in your business	e.g electricity use	Scope 2	Business uses electricity to heat, cool, light, and run appliances at oits facilities	Yes	Yes	Replace old light bulbs with energy efficient ones, install solar grids for renewable energy generation sufficiency
	e.g natural gas combustion	Scope 1	Business burns natural gas for space heating and collig and to heat water in its facilities			
Transportation in your business	e.g vehicle fleet	Scope 1	Business leases and operates a small fleet of light duty vehicles	Yes	Yes	Motors can be replaced with energy efficient motors
	e.g employee commuting	Scope 3	Employees commute from their homes to various business facilities	Yes	Yes	The company can implement a car pooling or "bike to work" policy and reward employees accordingly
	e.g business related air travel	Scope 3	Employees travel by air to conduct business activities			
	e.g busiess related vehicle travel	Scope 3	Employees travel by private vehicle to conduct business activities			
	e.g car allowance travel	Scope 3	Car allowances are used to compensate those employees who travel frequently			
Office activity	e.g paper use	Scope 3	Business consumes paper as a result of its business operations	Yes	Yes	Paperwork can be done online. Printing can be limited and only used if absolutely necessary

Figure 14: GHG emissions reduction strategy tool

- ## SUB-TOOL 6: COSTS-BENEFITS ANALYSIS TOOL

This tool aims to help private sector and SMEs determine the incremental costs/benefits that stem from adopting climate change business opportunities, and/or operationalizing climate risks. Once a stop/go decision has been made as to whether the business will pursue the adaptation business idea, and/or to explore the mitigation of identified climate risks, this tool will be used to enable the business to examine the costs and benefits associated with adopting an identified business opportunity (such as an adaptation strategy) and/or the possible impacts of climate change on a business and the costs and benefits of the associated risk adaptation options. It requires SMEs to conduct an analysis of the potential costs of climate impacts on their businesses and the consequent costs and benefits of alternate response pathways. The tool is designed to be simple to use and require basic estimations to help SMEs decide on which de-risking options to adopt for climate mainstreaming. The user follows the steps below:

Step 1: Determine the baseline in order to understand the potential costs associated with climate impacts and opportunities as identified in applying the first two sub tools. The costs of potential interventions will be measured against these projected costs to assess their level of effectiveness (both in practical and monetary terms).

Once businesses have established these costs, they will define the response options to the potential climate impact, drawing on what emerged from the requirements and verification and the opportunity assessment.

Step 2: Define the risk mitigation options that will help to reduce the severity and probability of risk through increasing the businesses adaptive capacity.

Once businesses have calculated the costs and benefits of the different response options, they will move on to the final step of the Costs-Benefits Analysis Tool.

Step 3: Compare chosen interventions to help the user make business decisions on what adaptation actions they should adopt, thus mainstreaming climate change into their businesses.

The tool will account for both the financial implications and the non-financial benefits, such as improved worker's health, productivity and improved safety of the intervention. The training provided to the private sector and SMEs, and the supporting manuals will train businesses on how to balance financial and non-financial costs and benefits when making a decision. The detailed design of this tool will also include basic definitions, easy to follow instructions and various prompts to guide users throughout this process.

- ## SUB-TOOL 7: FINANCE OPPORTUNITY CHECKLIST

This tool will take businesses through a checklist of generic and common criteria that apply when accessing financing. The objective of this checklist is to make businesses more aware of the types of questions and criteria funders may ask/assess. This will help to better prepare businesses for accessing funding in the future. The "Financing Opportunity Checklist" guide in the Toolkit Training Manual provides more information on the type of funding available to help SMEs identify possible financing sources suited to their business needs.

5.3.2 BUSINESS CARBON FOOTPRINT TOOLKIT

The tool is designed to assist businesses in operationalizing the GHG reduction strategies that they adopt as an outcome of the risk and opportunity screening tool, and accounting for emission reductions this achieves over time. It further aids the business in reporting effectively on such reductions to its funders or principals.

The Business Carbon Footprint Toolkit guides SMEs to conduct/strengthen an emissions baseline assessment, to increase the accuracy of their GHG emissions reduction estimates and forecasts, and to account for their actual emissions reductions year on year, against the baseline and estimates.

The objective is to ensure that SMEs can develop and present a business case for climate finance that supports GHG emissions reduction strategies and to Report to their climate funders into the future.

Specifically, this tool allows the SME to:

- Help businesses to estimate their businesses carbon footprint.
- Help business to reflect on ways to reduce carbon footprint, thus contributing to climate change objectives and helping to save costs for the business.
- Measure and Report on their GHG emissions reductions annually.

The tool thus takes the business through the following questions, before developing an appropriate GHG accounting system:

- What are the baseline emissions of the business activity (i.e., the business's current carbon footprint)?
- What are the energy/fuel sources that contribute the most carbon emissions?
- What are the energy/fuel sources that cost the business the most?
- What are the alternatives to decreasing these emissions and/or decreasing these costs?

The scope of this toolkit is limited to ensure that the tool remains simple and easy to use for SMEs. Given the complexity of GHG accounting and the various methods which can be employed depending on emission source, as well as country-specific processes and varying emission factors, the toolkit only includes emission sources derived from energy/fuel sources. This is to ensure that the toolkit provides a robust carbon footprint calculation that is as accurate as possible. Moving beyond this scope would mean that accuracy would be lost and users would struggle to navigate the tool because of the complexity of it. Thus, the purpose of this toolkit is to introduce businesses to the idea of GHG accounting, taking them through the basic steps and increasing awareness of business emissions and associated costs. The training manual guide provides further detail on GHG accounting and directs SMEs to sources where they can further the scope of GHG calculations.

The process that businesses is taken through is shown in Figure 15 below:

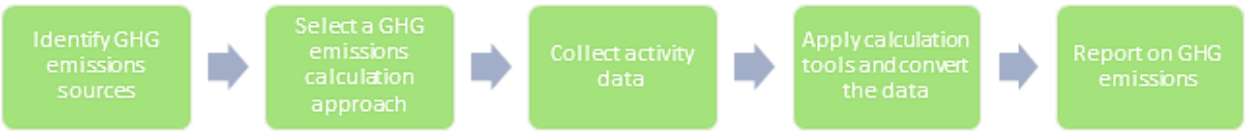


Figure 15: Business Carbon Footprint calculation process

This toolkit starts with anintroduction that explains the purpose of these tools and the steps to take as outlined in Figure 16.

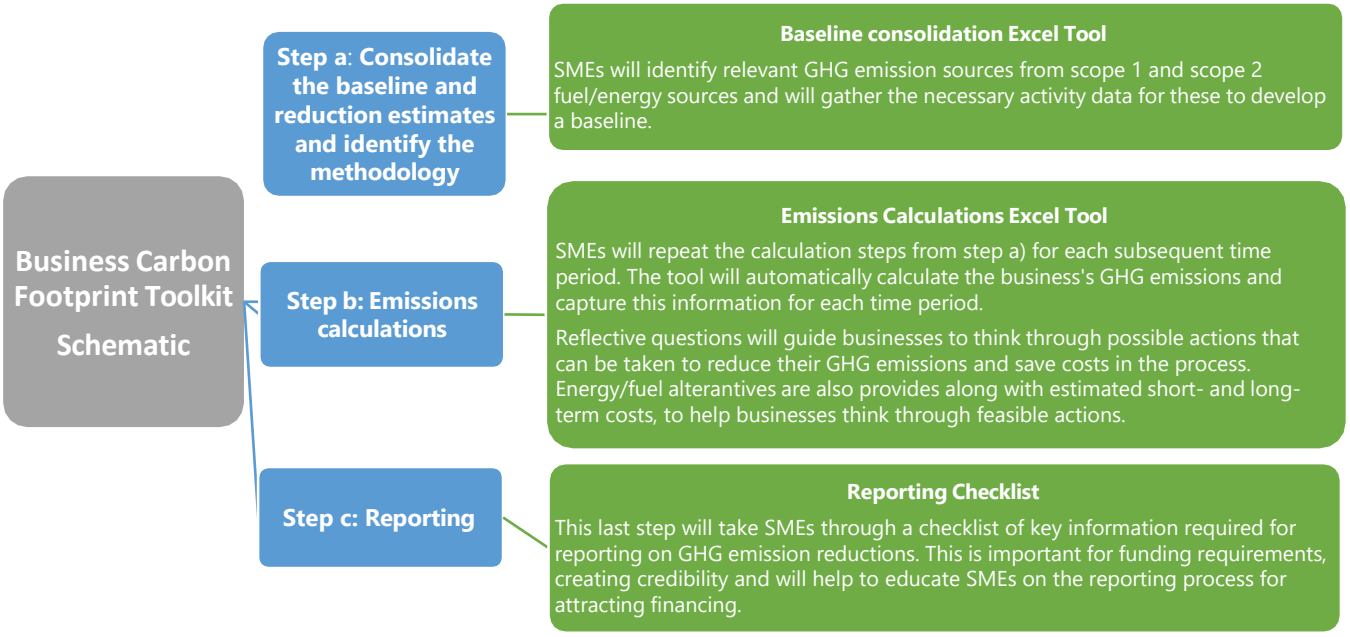


Figure 16: GHG Schematic Toolkit

Table 24**Table 24** provides a snapshot overview of the sixpilot countries GHG emissions reduction commitments, as a sample of mitigation priorities across the continent. It highlights the top two sector emitters of GHG, the country's commitment to reduce GHG emissions, and how this will be achieved. While GHG emissions reduction strategies will be generic and designed for use across the continent, this table provides an entry point by highlighting the key sectors targeted for emissions reductions, for which some baseline data is available to enable accounting for reductions by businesses, over time, and the contributions these make to national targets/objectives. Renewable energy and energy efficient technologies are common strategies across the six pilot countries for reducing GHG emissions. It is therefore likely that the accounting mechanism will be built around these interventions, which in turn, are likely to yield reduced operational costs for the business.

Table 24: Snapshot of GHG Emissions by Country

Country	Top two highest sector emitters *(in 2014 based on WRI CAIT data)*	GHG Emissions reduction commitments	How?	Key Sectors
Angola	• Energy (49.4%) • LUCF (37.4%)	Reduce GHG emissions by 50% (35% unconditional, 15% conditional) between 2020-2030	• Reduce emissions from industrial processes. • Reforestation • Renewable energy • Stabilise emissions from agricultural production.	• Agriculture • Industry • Land use and forestry • Energy
Egypt	• Energy (74%) • Agriculture (10%)	No target set	• Energy-efficient technologies • Low-carbon energy systems • Renewable energy	• Agriculture • Energy • Industrial processes • Oil and natural gas • Waste
Morocco	• Energy (76%) • Agriculture (17%)	Reduce GHG emissions by 17% unconditionally or by 42% with international support between 2020-2030	• Energy efficiency • Renewable energy	• Agriculture • Energy • Forestry • Housing and infrastructure • Industry • Transport • Waste • Water
Mozambique	• LUCF (58.8%) • Agriculture (26.8%)	Reduce GHG emissions by 76,5 $MtCO_2eq$ between 2020 and 2030	• Energy efficiency • low-carbon urbanisation • Renewable energy • Sustainable charcoal production and use • Waste management and recovery	• Agriculture • Coastal zone sectors • Energy • Waste
Nigeria	• LULUCF (38.2%) • Energy (32.6%)	Reduce GHG emissions by Reduce GHGs by 20% (unconditional) or by 45% (conditional) between 2020-2030	• Adoption of green technology in the industry • Climate-smart agriculture and reforestation • Efficient gas generators • End gas flaring • Improve the electricity grid. • Shift to mass transit. • Solar power	• Agriculture and land use • Energy • Industry • Oil and gas • Transport
South Africa	• Energy (84%) • Agriculture (7%)	Peak, plateau and decline emissions trajectory. Decline between 398 and 614 MtCO2e (2025-2030)	• Diversification of the energy and electricity generation mix. • Renewable energy	• Agriculture • Energy • Forestry and other land use (AFOLU) • Industrial processes and product use (IPPU)

The Business Carbon Footprint Tool is aimed at assisting these SMEs to:

- Understand and quantify the GHG emissions level of their existing and or proposed businesses, as a baseline;
- Increase access to climate finance through effective monitoring of and accounting for GHG emission reductions; and
- Assist SMEs to align their projects or activities with the county's NDCs by demonstrating how emissions reductions they make help achieve national climate change policies and goals.

The Business Carbon Footprint tool quantifies the total greenhouse gases produced directly and indirectly from a business or organization's activities. A top-down approach is usually deployed when accounting for GHGs and is referred to as the GHG source. Alternatively, mitigation against the baseline emissions usually adopts a bottom-up approach. This latter approach provides businesses with a basis for understanding and better managing climate change impacts. A stronger understanding of the GHG emissions level in businesses/SMEs through the implementation of CO_2 emissions reduction accounting processes, will help position businesses to climate-proof their operations, whilst increasing access to climate finance.

5.3.3 User Guidelines

To enhance wide usage among African SMEs the GHG Accounting Toolkit is accompanied by a user guide. The user guide enables the intended users to understand the steps, methodologies and standards they need to adopt in measuring and their emission baseline and then monitoring their progress in reducing carbon emissions in their business operations. The user guide has been developed in line with the following steps among others (Figure 17):

- Definition of organization's operational parameters.
- Methodological outline and implementation guidelines.
- Quantifying the baseline emissions.
- Definition of standards for measuring CO_2 or CO_2 equivalent.

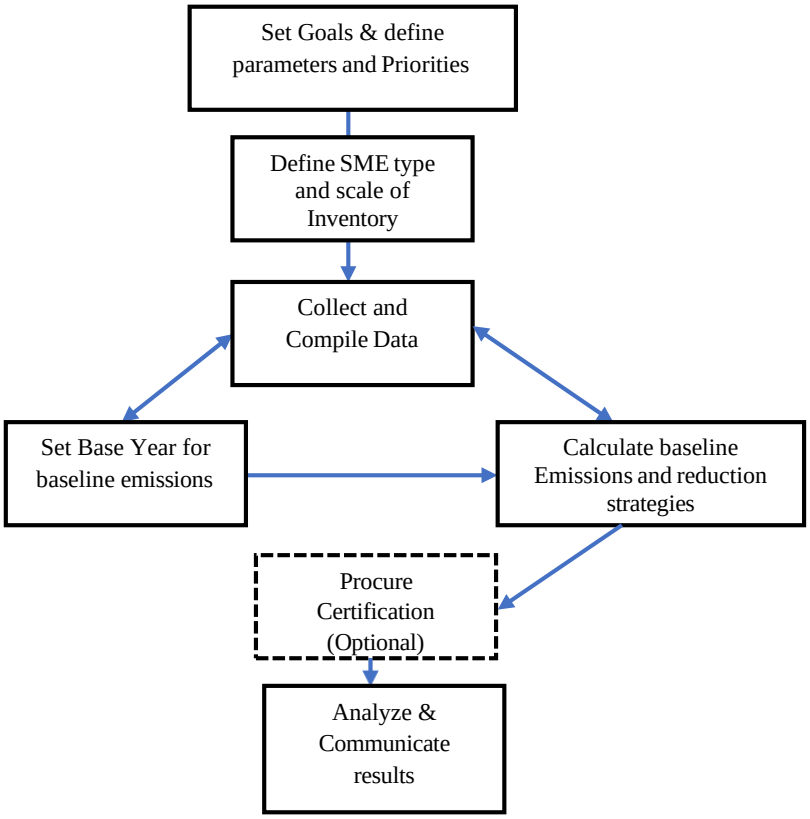


Figure 17: GHG Accounting Tool step

5.3.4 GUIDANCE NOTE ON MAINSTREAMING CLIMATE CHANGE INTO LINES OF CREDIT

Financial additionality addresses the need to reduce commercial bank operators' exposure to credit, liquidity, or market risk, in ways that cannot be achieved using private sources and commercial players alone. Financial additionality depends on the overall reduction in commercial risk relative to the counterfactual scenario of no DFI participation.

Financial additionality in line with the Bank ADOA policy framework is typically associated with the following key drivers:

- Long-term financing;
- Improved currency/maturity matching;
- Capital mobilization and catalytic role; and
- Capital relief and credit enhancement.

Indeed, the above-mentioned four key drivers for financial additionality are crucial for a conventional LoC implementation. In case of green financing or engaging and implementing green LoC, strategic emphasis and focus will be on scalability of bankable projects as well as the deployment of capital at a rapid scale by the various participating FIs across Africa in the fight against climate change.

5.3.5 Pillars for Mainstreaming Climate Change in LoCs

In addition to the existing financial additionality drivers in the ADOA framework, the following pillars are also critical to establishing and implementing green LoC (Figure 18):

- Guidelines for the LoC Climate Action Taxonomy: Defining the target climate or green finance taxonomy or category that will guide the areas of the FIs that will be investing the LoC need to be integral in the on-boarding process of establishing LoC for any FI. The green finance taxonomy will explicitly define the sectors and projects that are eligible and qualified as green or low carbon in the critical sectors severely contributing to climate change as well as vulnerable to the climate change effects. Target sectors and activities are sustainable energy, low-carbon transportation, low-carbon housing, climate-smart agriculture, and sustainable waste and water management. Comprehensive climate finance taxonomy for Africa was developed for the bank and added to the Bank's ADOA framework on private sector operations. This will guide the origination process for bankable low-carbon projects and enterprises.
- Climate Risk Management Procedures for Green SME Financing: Due to the sophistication and specialization of the climate finance taxonomy and methodology, which is still unfamiliar to most FIs in Africa, the bank also needs to handhold the participating FIs in enhancing the FIs' risk management framework for green financing to spur successful implementation of an established green LoC. This is critical, because the underlying projects for green financing are more sophisticated in its execution than conventional projects although the projects are within the same target sectors.
- TA for Capacity Development - Financial Scalability and Sustainability: Another and final driver or factor in establishing and implementing green LoC is for the bank to provide adequate TA geared towards developing the capacities of the FIs in the areas of the applications and interrelationship of the above mentioned drivers of financial additionality, as well as the understanding the application of the methodology for tracking, monitoring, evaluating, and reporting on the development outcome indicators, which includes both financial –commercial – blended financing and leveraging other climate finance sources, and nonfinancial - environmental, social, and governance.

In the ADOA framework, there is no methodology for keeping close engagement with the FIs after establishing LoC. For the essence of effective and successful green financing practices by the FIs, the Bank shall need to chart periodic knowledge sharing sessions with the FIs to improve on any obsolete green financing practices. It is imperative to state that green financing practices and measures continue to evolve on a steady basis in the global bid to deploy capital at rapid and massive scale in order to achieve NDC targets of all countries under the Paris Agreement. The periodic knowledge sessions will serve as a LoC laboratory to fine-tune and improve green financing measures and ease origination of bankable green SMEs and projects as well as learning about leveraging advanced technologies.

To further underpin the AfDB's line of credit structure, the following approaches are recommended for adoption to spur steadfast co-creation of innovative and best practice on green financing:

- Market and industry led co-creation of innovative green financing tools and instrments to make the investment opportunities positioned in the strategic sectors where climate resilience is paramount and bankable.

- Periodic (Quarterly) capacity development and knowledge sharing sessions conducted largely on real cases of implemented innovative green financing instruments to successfully execute climate resilient projects/enterprises from green bonds, to structured and specialized funds, grants, and concessional loans, cross guarantees/credit enhancement instruments.

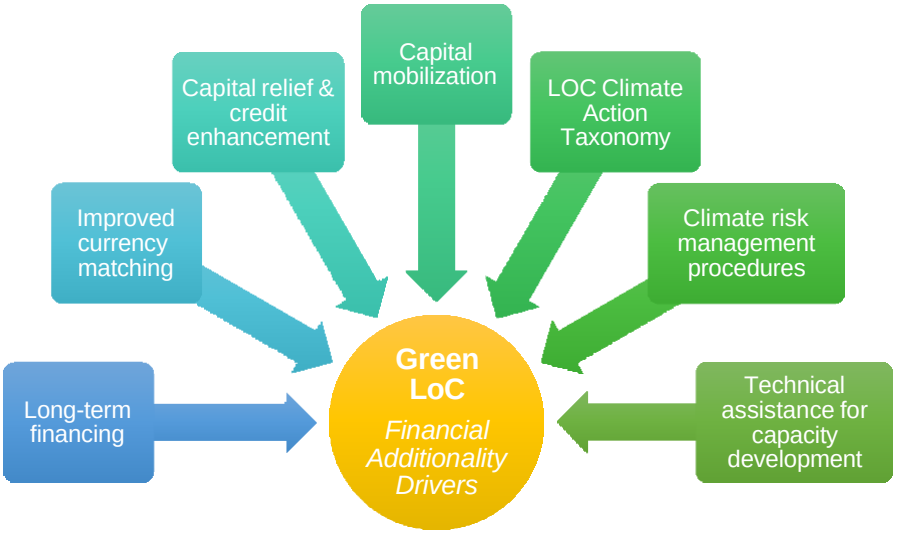


Figure 18: Financial Additionality Drivers for Establishing Green LOC

Table 25: Theory of Change of the Guidelines on mainstreaming climate change into LoC

High 5 Priorities: Feed, Industrialize, Integrate, Light Up & Power, and Improving the lives of people in, Africa					
National Development Plan Framework					
SME Sectors	Industries	Sustainable Power/Energy	Agriculture Value Chain	Transportation	Information, Communication & Technology (ICT)
Nationally Determined Contribution (NDC) = Greenhouse Gas Emission Reduction Targets; Mitigation and Adaptation Actions across various sectors					
Economy Decarbonization Pathway					
SUSTAINABLE DEVELOPMENT GOALS					
GREEN LINE OF CREDIT					

Objectives of the mainstreaming Guidance Note:

- To leverage green LoC to mobilize private sector funds globally is in response to the dire impacts of the ecosystems from the effects of climate change adaptation as well as mitigating it.
- To strengthen the Bank's green bond programme so that the green bond proceeds can be applied to establish/float green LoCs approved for different eligible FIs across Africa.
- To prepare and support African countries via private sector engagement towards the implementation of the NDCs leveraging financial and non-financial resources/instruments.
- To align closely and strategically with specific NDC targets (climate actions) across various economic sectors of African countries where the participating FIs operate in and intends to utilize the LoC proceeds.
- To build the capacities of financial institutions and SMEs to accelerate the adoption of climate action and finance across Africa.

Strategic Alignment with Existing Tools of the Bank

The guidelines for mainstreaming climate change into the Bank's LoCs are not to be adopted and applied in isolation without alignment with the application of some relevant existing tools and policies of the Bank related to inclusive and green growth financing. These relevant tools and policies are:

- Additionality and Development Outcomes Assessment (ADOA)
- Green Growth Framework (GGF)
- African Financial Alliance on Climate Change (AFAC) Guiding Principles
- The Bank's Second Climate Change Action Plan (2016 – 2020)
- Climate Safeguards System (CSS)

NDCs are at the heart of the Paris Agreement and the achievement of these long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement requires each member country to prepare, communicate and maintain successive NDCs that it intends to achieve by 2030 effective post-2020. Member countries shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.

It is imperative to express that the argument behind the primary objective of the Paris Agreement and the NDCs was to avoid presenting the quest to combat climate change as a charitable and humanitarian affair, rather as commercially viable investment opportunities (that will crowd in private investments) to transform the world economically. While also combating climate change to protect our planet, livelihoods, and people via mitigating the causes of climate change by cutting down and replacing the use of coal and fossil fuels, as well as leveraging technologies and partnerships to adapt to the fatal effects of climate change. As a way to strategically activate and awaken the climate action consciousness of the private sector and public sector, the Paris Agreement further unveiled that over $21trillion is required by 2030 in climate resilient investments globally in order to win the fight against climate change, and sustain the victory.

The driving motive for climate finance is to mobilize private sector funds globally in response to the dire impacts of the ecosystems from the perilous effects of climate change.

Together, the climate actions determine whether the world achieves the long-term goals of the Paris Agreement and to reach global peaking of GHG emissions as soon as possible. Also, to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of GHGs in the second half of this century. It is understood that the peaking of emissions will take longer for developing member countries and that emission reductions are undertaken on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty, which are critical development priorities for many developing countries. The NDC targets set by all member countries were based on key economic sectors that contribute the most to GHG emissions (mitigation climate actions) as well as sectors that are most vulnerable to the devastating climate impacts (adaptation climate actions).

The timing of this mainstreaming exercise has come at a crucial period for the various African countries to prepare strategically towards the implementation of the NDCs leveraging private sector financial and non-financial resources. Therefore, it is imperative for all LoCs from 2021 onwards to align closely and strategically with specific NDCs of the country or countries where the participating financial institutions operate in and intend to utilize the LoC funds.

Africa is now labeled as the most vulnerable continent to the dire effects of climate change, as low efforts had been invested in climate change adaptation to sustain healthy and peaceful living economies. In 2012, President Ali Bongo Ondimba of Gabon asserted that climate change in Africa would cause armed conflicts in 23 countries and political unrest in another 13 countries in the coming years. In addition, the United Nations claim that there are currently 350,000 climate-related deaths per year worldwide, rising to 1 million per year by 2030 if no action is taken by the private sector and government institutions in the areas of infrastructure investments and formulation of climate-resilient governing laws.

In Africa, food scarcity and insecurity have led to increased food prices from low production yield resulting from extensive and frequent drought in most parts of Nigeria. The continent is also faced with poor waste management practices. Lack of proper waste recycling has aggravated the spread of different infectious diseases in the cities and rural areas from air and water pollution.

Using northern Africa as an example, a structural change could decrease countries' economic vulnerability to precipitation and temperature as compared to current conditions. Similarly, countries' sensitivity to extreme dry events could significantly subside as the share of agriculture decreases in GDP. However, while structural transformation is highly recommended to foster economic development, the analysis also shows that the services and industry sectors have higher sensitivity to extreme wet events than the agricultural sector (due, for example, to business disruption in the aftermath of floods). As a result, with structural transformation, macroeconomic sensitivity to extreme wet events could slightly increase.

Africa's cumulative capacity of off-grid energy generated (off-grid) by the end-users continues to exceed the entire national grid generation i.e. national energy demand/consumption. Most of the energy produced by the end-users (households, industries, corporate and small businesses) is from fossil fuels-powered generator sets and even charcoal and wood for cooking, which is contributing significantly to the causes of climate change i.e., carbon emissions.

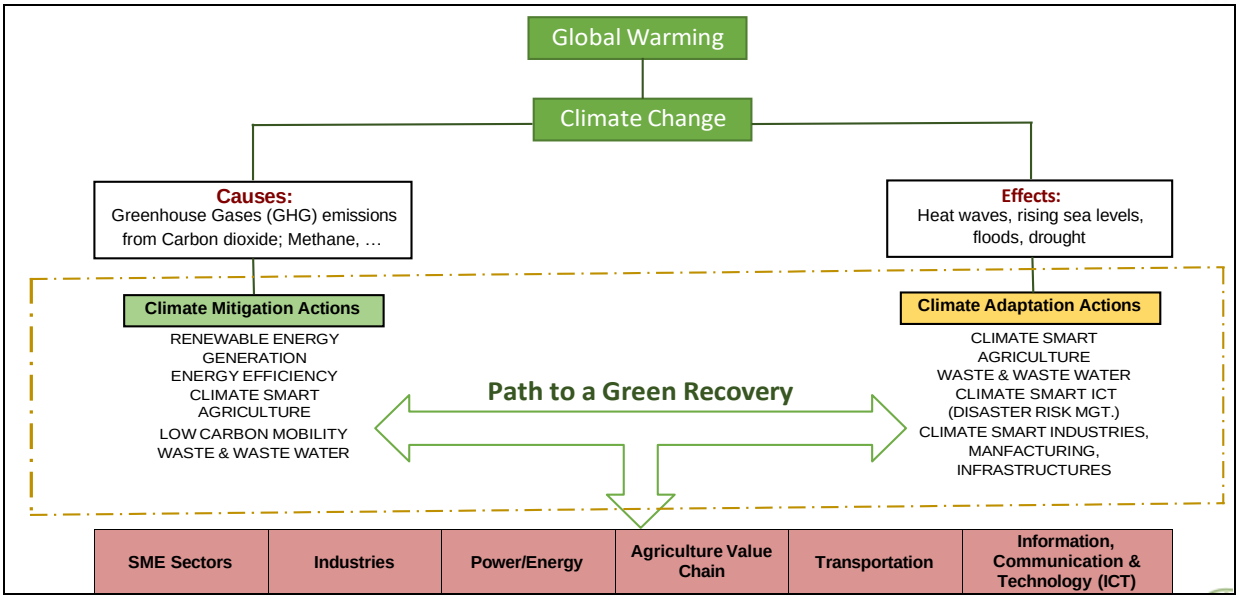


Figure 19: Snapshot of the Line of Credit Climate Action Taxonomy

Source: Natural Eco Capital

5.3.6 Green Jobs Monitoring tool for Bank Climate Action

"Greening" economic development effort is imperative for Africa particularly due to its heightened vulnerability to adverse effects of climate change. In order to support African countries in gradually transitioning to green growth, the AfDB, in 2014, developed the GGF. The GGF was developed to guide Bank staff on facilitating the transition to green growth, helping familiarize them with the concept and how to apply it in their work.

The GGF recommends the following to help the Bank to further strengthen its ability to deliver on green growth:

- Incentivizing cross-sector development planning and project implementation.
- Linking knowledge with operations.
- Linking economics with environmental and social performance.
- Supporting regulatory and policy frameworks.
- Supporting knowledge transfer and innovation.
- Predictable access to adequate financing for green growth.
- Upscale engagement of private sector in building a green economy.
- Engaging financial intermediaries.

This green transformation is expected to provide millions of green and decent jobs, particularly to enhance the role of youth and women in the labor market and provide opportunities for the next generation. Support from the Bank also reflects in the commitment to support RMCs in the area of addressing the plagues of unemployment and underemployment that affect population, especially the youth. In 2016 the Bank adopted a Strategy for Jobs for Youths in Africa (JfYA) with the objective to create 25 million jobs for youths and equip 50 million to accomplish their goals by 2025. Implementation of that strategy is a Bank-wide approach carried out in projects located in different

departments including climate change.

Based on the foregoing, the Bank came up with an elaborated model to estimate the number of gross direct and indirect jobs created during the project implementation. The model captures jobs created in all sectors including agriculture, energy, finance, transport, social, environment and climate change, etc. In furtherance to this, the Bank also recognises the importance of tracking and monitoring green jobs and to provide support as part of the Bank's TYS on transition to green growth to build an integrated green job tracking tool.

It is therefore imperative that the Bank develops a green job tracking tool that is linked and harmonised with its existing tools aimed at promoting green growth in Africa. Upon examination of these existing toolkits, a Position Paper was developed which looked at the level of commitment and approach towards embracing green job across African Countries. Based on the general review, the paper attempts to define green jobs and their indicators as well as suggesting best approaches that can be adapted by the Bank towards tracking this category of jobs within its pipeline of projects.

The Paper recommended adding a module to the Bank's existing tracking toolkit, to streamlines and estimates the number of green jobs created by the Bank's efforts. It also recorgnized that tracking the volume of green jobs created directly from financing green and climate resilient projects by the Bank could involve enormous data gathering which will depend on the nature, dynamics, and sector of the financed projects and SMEs. Thefollowing key areas should be put into consideration:

- The bank should develop a methodology for tracking green jobs
- The bank should develop green jobs tracking module;
- The bank should promote mainstreaming of green jobs into the Bank's investment at design stage;
- The Bank should track direct green jobs at PCR stage
- The bank should consider building capacities of RMCs as a critical agender towards ensuring green job tracking
- Creating a proactive and an interactive platform that harmonizes different green opportunities for youth and women.
- Creating a network of green entrepreneurs and the direct and indirect jobs created because of the supported climate resilient enterprises and projects.

To develop effective indicators, the methodology include the following:

- mapping of the Bank related green jobs based on existing supported projects.
- understanding and defining the thematic priorities relating to green jobs; and
- development of the appropriate green job indicators (the production of green products and services, decent jobs, employment of environmentally friendly processes, gender balanced, employment in the production of environmental outputs and employment in environmental processes).

In the development of the tracking tool and framework for the Bank, while a combination of the existing methodologies and approaches should be considered, the following key outline will provide the guide in the light of what the Bank intends to use this for (tracking and monitoring the number of and trend over time in green jobs):

- Understanding green jobs from a global context.
- Environmental dimensions to green jobs.

- Social dimension to green jobs – work decency in line with ILO indicators.
- Critical drivers of change to Green Jobs (theory of change/rationale) - the importance of climate action and climate finance towards green jobs creation:
    - Changing the environment.
    - Green technology and innovation.
    - Green markets – Industries and consumer demand.
- Green jobs creation opportunities as a result of climate impacts.
- Alignment of green jobs creation with its impacts on the UN SDGs.
- Methodology for estimating green jobs from financed green businesses and activities.
    - Employment factor approach
    - Input and output approach
    - Multipliers: direct and indirect jobs
    - Tool/template development in a Microsoft Excel environment.

SECTION 6: CAPACITY BUILDING AND MATERIALS FOR THE SUSTAINABILITY INITIATIVE

SECTION 6: CAPACITY BUILDING AND MATERIALS FOR THE SUSTAINABILITY INITIATIVE

6.0 INTRODUCTION

There is a subsisting urgency to raise climate change mitigation, adaptation and resilience ambition of African countries. It has, therefore, become imperative to create avenues for the development, incubation and acceleration of innovative climate-smart business ideas for African start-ups and SMEs in the NDCs priority sectors, as well as FIs across the continent.

This section highlights capacity building efforts carried out based on methodology already reported in the Section 2. It also covers the modality and resource developed for the bank's sustainability initiative.

6.1 CAPACITY BUILDING WORKSHOP

In line with the project design and as a way to further ensure further refinement of the toolkits and guideline, the second part of the assignment, which is capacity building workshops, was carried out to demonstrate the use of these instruments.

The capacity building component, which was originally designed to be face-to-face training, was later implemented as an online workshop considering COVID-19. It featured renowned Climate Experts as facilitators and had participants selected from a pool of SMEs, FIs(Including DFIs), donor agencies and concerned MDA, based on guidance received from each of the country experts and the Bank's country offices in the six pilot countries.

6.1.1 WORKSHOP OBJECTIVES

These workshop were designed to meet the following objectives: s:

- Be better equipped with additional knowledge and capacity to support the various African countries in meeting their NDC goals and building low-carbon climate-resilient economies;
- Be in a position to scale up climate action based on enhanced awareness of Climate Finance Actions, opportunities and, challenges;
- Understand the importance and application of climate change mainstreaming and the use of climate change tools;
- Understand the concepts of incremental cost and climate finance;
- Be in a position to develop a climate action plan and match such action with needed climate finance actions/services;
- Improve awareness and knowledge of private sector actors such as project developers, sponsors, investors, banks, insurance, and leasing companies about investment opportunities for NDC implementation;
- Scale up capacity of the financial sector, project developers, sponsors, and other relevant actors for integrating climate change and green growth measures in the design, financial structuring and analysis and preparation of compelling project proposals that facilitate low carbon and climate-resilient development.

6.1.2 WORKSHOP SESSIONS

To properly address the target audience and achieve the overall goal of the capacity building as well as to ensureadequate coverage of the relevant subjects agreed on with the Bank, the Workshop was held in three streams, namely:

a. Stream 1: -which was a Two-day workshop held on October 6-7, 2020 with selected delegates from amongst the SMEs and FIs from the six pilot countries, focusing on the Climate Opportunities and Risk Screening as well as Business Carbon Footprint toolkit.

b. Stream 2: -which was a One-day workshop held on October 8, 2020 with participants from Financial Institutions and with focus on how to mainstream climate actions into lines of credit and investment processes, using the developed Guidance Notes.

c. Steam 3: - which is a Three-day workshop held on 1-2 June, 2021, with selected delegates from amongst DFIs across the entire continent. It served as a platform to build the capacity of participants on how to use a new set of Climate investment assessment toolkits developed by the Bank. It had the collaboration of the Association of African Development Finance Institutions (AADFI) and builds on the African Financial Alliance on Climate Change (AFAC) work to make Financial Institutions FIs (including DFIs) across Africa, be major drivers of support towards implementing countries' NDCs.

Detailed reports for each workshop sessions are presented in Annexes 7 and 8.

6.1.3 ATTENDANCE AND MODALITIES

About 450 participants consisting mainly of SMEs and FIs (Including DFIs) benefited from the capacity building programme. These participants were drawn from the six pilot countries, except the DFIs who were drawn from across the entire continent under the umbrella of the Association of African Development Finance Institutions (AADFI). Some Government and non-governmental organizations, as well as officers from AfDB country offices in the pilot countries also benefited.

At each of the three streems of workshops, invitees were required to register before they could connect to the training sessions via a zoom web-links provided. To optimize the interactive nature of the virtual training sessions the following steps were taken:

- Training materials, including an introductory video giving an overview of climate actions as well as theory of change for the new toolkit, were shared with participants in advance for easy preparation before the workshop.
- Each day's programme was structured to last for a maximum duration of four hours, to give ample time to achieve the day's objectives, while avoiding prolonged sessions and boredom associated with online learning.
- A dedicated email account was shared with participants at the point of registration, to receive their early concerns and questions. This was also necessary to promote proper time management and ensure a good number of questions were taken from workshop participants,
- Break-out sessions were introduced each day, after the overview and practical demonstrations were done on the toolkit/guideline. In this case, the general class was divided into two smaller groups in a breakout, which allowed active participation of attendees.

- Lectures and practical sessions were done in English with translations provided in Portuguese and French.
- Recordings for the workshop were also shared with participants at the end of the workshop.

6.2 TRAINING MATERIALS FOR THE CAPACITY BUILDING WORKSHOP AND AFDB SUSTAINABILITY INITIATIVE

6.2.1 TRAINING MATERIALS FOR THE CAPACITY BUILDING WORKSHOPS

Some of the key considerations towards the development of training Materials include ensuring that they are developed to:

- enhance the capacity of NDCs implementing entities and the private sector to develop project pipelines with climate co-benefits for climate and carbon finance investments;
- facilitate the development, adoption and deployment of low-carbon technologies in Africa;
- support the alignment of NDCs within the Bank's private sector operations;
- mainstream climate actions in LoCs; and
- aid monitoring and evaluation initiatives designed to ensure the success of the Bank's operations

6.2.2 FRAMEWORK OF THE SUSTAINABLILITY INITIATIVE

Considering the exigency of today's world and challenges posed by the Covid-19 pandemic, as well as the Bank's efforts towards addressing these challenges by creating an on-line learning platform on its intranet as part of sustainability initiative, an assemblage of training resources were designed and developed with the following specific objectives of the sustainability initiative:

- Provide TA on climate change, by supporting Bank's sector and regional operations through advisory services on climate change mainstreaming throughout the project cycle.
- Provide technical support to task teams involved in Bank's projects, to access climate finance, from both internal and external trust funds, in close collaboration with Climate Change and Green Growth officers and Climate Finance Officers.
- Contribute to the evaluation of projects through the climate risk screening and the Adaptation Review and Evaluation Procedures functions of the Climate change screening, Greenhouse Gas Accounting tool, LoC and Green Job tracking tools.
- Support the preparation and implementation of the Bank's Climate Change Training Programme as well as efforts towards operationalizing the Africa tools that have been developed.
- Support cross-cutting initiatives of the Climate Change and Green Growth Department in particular, and the Bank in general.
- Support the target audience to identify and adopt innovative /best practice on green financing measures, identifying incremental costs of climate measures that are eligible for climate finance at scale, and proactively considering climate finance in the financial structuring of

projects.

- Provide a collaborative learning environment that also allows networking and growth of a community practice amongst the SMEs.

Theseresources were thematically designed to address the needs form target audience, including SMEs, FIs and Bank Staff (PECG staff and Investment Officers)They include:

- Audio-visuals
- Toolkits and guidelines
- Online self-training modules

Access are possible online for all resources which are uploaded and hosted on a standalone online platform accessible via a link provided on AfDB dedicated website.

6.2.3 OUTLINE AND CONTENTS OF THE RESOURCES FOR THE SUSTAINABILITY INITIATIVE

A host of self-learning online modules were prepared as shown in Table 26 and Table 27. All of these materials representing the sustainability initiative package were uploaded as online capacity-building resources upon ratification with the Bank.

Table 26: Start-ups and SME (Including FIs) acceleration Package.

Course Title	Scope
Introduction to Climate Finance	• General knowledge/overview of climate change • Climate change, Good Business- (This module will focus on the various opportunities available to solve climate change)
SME /Enterprise Development	• Co-creative customer-led customer acquisition and procedures • Climate taxonomy (Understanding the industry) • Your Financials: Business & Revenue Models • Your Traction: Marketing Techniques & Customer Acquisition
SME Operational Structure	• Team Building and Human Resource Development (Culture Setting). • System Design (Processes and Procedures) • Governance
Breakeven Analysis	• Driving key monetary performance indicators and targets
Understanding Role of Policy for SME growth	• Policy review • Policy analysis, current policies and bylaws of climate mitigation activities by governments and relevant agencies • Innovative and best practice benchmark from other regions • Future policy options
Budgeting Financial Modelling	• Risks Analysis • Break-Even Analysis • Understanding Business ratios • Fund Structuring

Climate risk screening	• Answers the question "what are the climate risks for business?"
Climate action	• Answers the question "what are the opportunities for businesses and entrepreneurs?"
Climate change mitigation	• Relevance of greenhouse gas emissions to business
Greenhouse Gas Accounting	• methods available for businesses to apply in GHG accounting
Accessing climate finance	• opportunities and pitfalls for small business?
Climate Change Tools Application	• Toolkit application

Table 27: Training materials developed for PECG staff and Bank Investment Officers

Course Title	Scope
Introduction to the Task Manager's Pock Handbook	High-level application processes for mainstreaming climate change into LOC.
The LOC Climate Action Taxonomy	The LOC Climate Action Taxonomy – Detailed Integration of Mitigation and Adaptation Climate Actions across Africa SME sectors
Financing instruments for climate /green actions	Financial instruments useful for climate actions such as grants, concessional loans, bonds, equity, blended finance
Role of Development Finance Institutions (DFIs) and Commercial Banks (CBs) in Climate Finance	Complementarity in the roles of the DFIs and CBs in financing climate actions.
Exploring different innovative and practicable blended financing scenarios	Detailed practical scenarios of blended financing and securitizations/refinancing
Case Studies on Originating and Financing Bankable Green Businesses and Climate Actions (mitigation & adaptation)	To test our understanding of previous training modules
Instruments module	Instruments module
Mainstreaming CC in LoC: How can bank portfolio be designed to incorporate climate best practice	Examine a test scenario on an existing LOC of the Bank

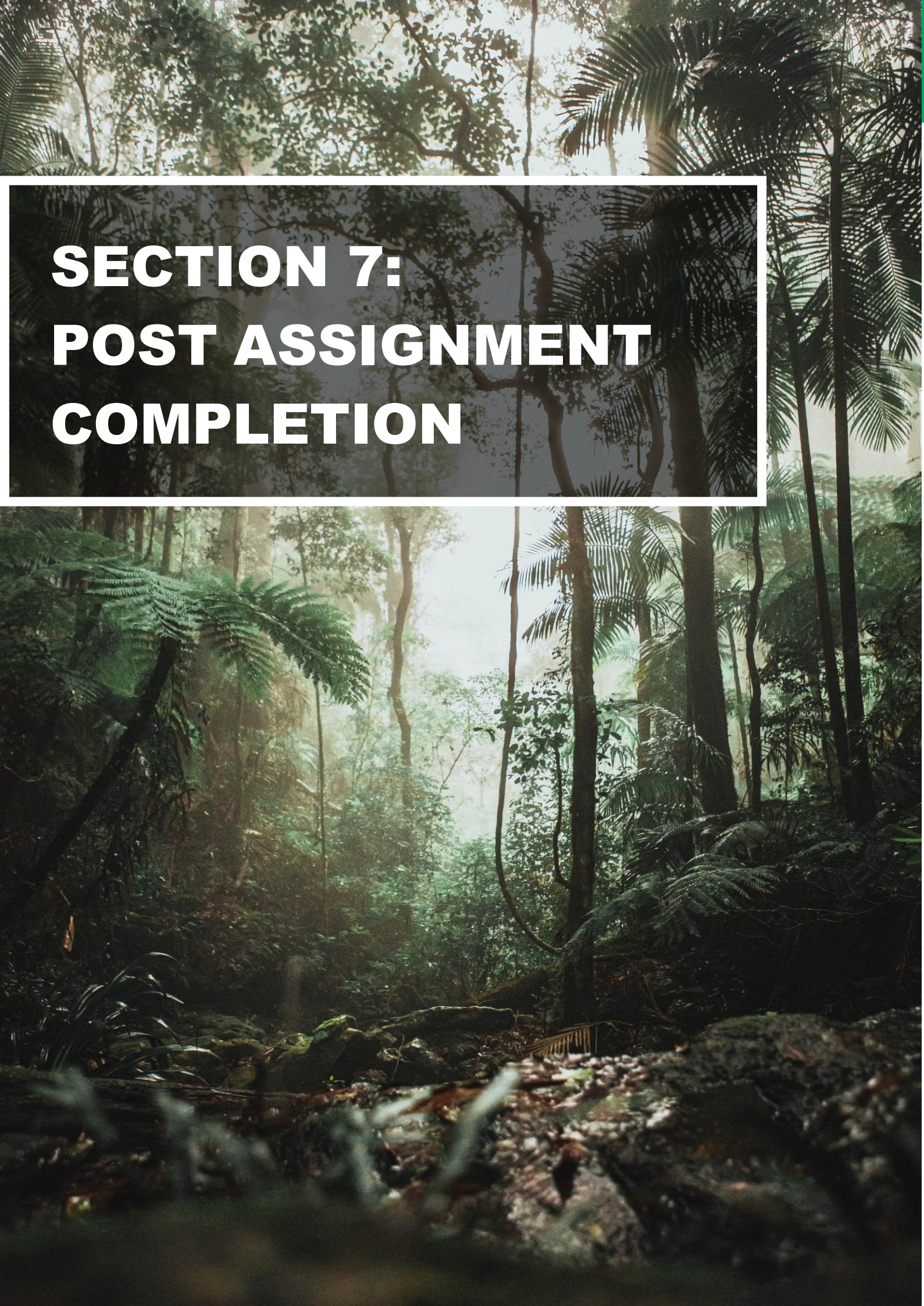
6.3 AUDIO-VISUAL TRAINING MATERIAL

In addition to training manuals and online practical training resources, audio-visual resources were prepared to further enhance skills of SMEs to utilize the new instrument developed, as well as enable users integrate climate change measures in the design, financial structuring and analysis and preparation of compelling project proposals that facilitate low-carbon and climate-resilient development.

The audio-visual materials were designed to be comprehensive enough to serve as a stand-alone training package, for trainees who may not have the opportunity to participate in the practical session or have all the time to read through each of the training manuals. Though the training materials covered a range of topics, the audio-vision training material were limited mainly to the following aspects of the training:

- General introductory lecture to climate change and overview of the new toolkit and guidelines developed under the FAPA Project.
- Demonstration of the Climate Risk Screening and Opportunity toolkit.
- Demonstration of the Business Carbon Footprint toolkit.

These training resources also followed the same format with the training manuals and provided case-based learning and analysis opportunities.



SECTION 7: POST ASSIGNMENT COMPLETION

SECTION 7: POST ASSIGNMENT COMPLETION

7.0 Preamble

Beyond its design, development and completion, this assignment also provided for post-completion services to ensure sustainability and enrichment of outcomes. This section of the Report is intended to highlight such support services to be provided by the consultant.

7.1 Technical Backstopping

Upon completion of the assignment, a technical backstopping for three months shall be provided in support of the main activities delivered in the course of this assignment. This arrangement will follow through with the project goal and objectives to ensure they are fully achieved. Necessary TA by key experts will be available to AfDB country offices, SMEs and key PECG staff and other key departments of the Bank. Advice will also be provided to guide concerned authorities across pilot countries in the area of application of deliverables and implementation of lessons learned from the assignment.

Activities that have been identified under this phase of the assignment, shall include:

- Support services on the Toolkits, Guidance Note and associated Training Resources.
- Assisting the target audience for easy access and understanding of the trainings and online platform.
- Follow up with identified SMEs and providing guidance in the area of climate screening.

7.1.1 Support Services On The Developed Toolkits And Guidance Note

Support services will be provided for concerned stakeholders including SMEs, FIs and Bank Staff on the continual usage and mastering of created toolkits and Guidance Note. This support will either be through direct communications via online meetings, emails and conducting diagnostic (physical) missions as well as indirect communications through information broadcast on dedicated online platform.

Some of the key areas and activities include:

- Further simplification of toolkits and upgrade base on feedback to be received from users.
- Toolkits conversion from excel layout into applications with user-friendly interfaces.
- Introduce the best project management practices to support and sustain developed tools and guideline.
- Develop a summary pocket handbook that managers of the FIs can easily refer to as they originate bankable green projects across the various sectors.

7.1.2 Support Services For Capacity Building Programme And Sustainability Initiative

The capacity building programme will be majorly online. This arrangement already provided a sort of sustainability outlay where users can always access training beyond the project completion period. The consultant is also prepared to provide technical support, in terms of the following:

- Revision and uploading revised versions of training modules based on further improvements made on toolkits and Guidance Note.
- Adding new resources that will enhance platform performance.
- Evaluate feedback from users and as much as possible revert via available medium.
- Upgrade the technical skills and enhance the project management capabilities of the project management staff of the Bank.
- Provide further TA and follow up services to identified SMEs (including FIs) and concerned authorities across pilot countries, in the utilization of new toolkits for climate risk screening and identification of opportunities.
- Engage in activities towards raising SMEs' awareness of the need to align their activities/business with environmental challenges, making economies more sustainable in the long term.

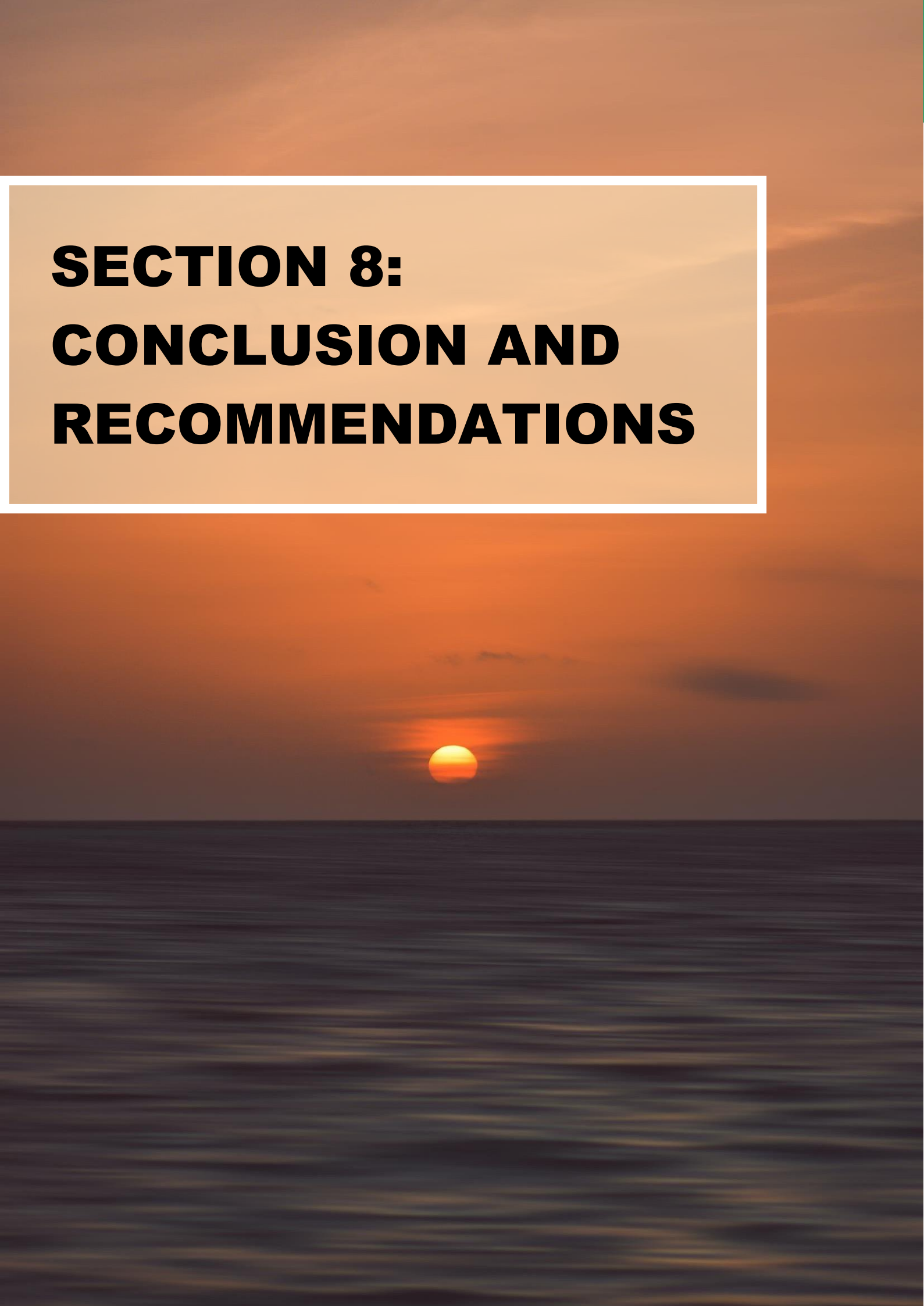
7.1 Reporting Technical Backstopping

There will be a Report on the technical backstopping, three months after completion. Before this Final Report, monthly updates of online and offline engagements on the use of developed toolkits have been provided to the bank to cover progress made within the different stages of the assignment. The technical backstopping will support services on the tools created by addressing challenges. Assist the target audience for easy access and understanding of the trainings and online platform. Support in growing a community of practice on the use of the toolkits. Follow up with identified SMEs and providing guidance in the area of accessing climate funding using online and offline platforms.

7.2 Project Closure And Evaluation

The assignment is scheduled for completion on March 31, 2021. This date also marks the beginning of a three-month backstopping exercise that will be concluded by June 2021. Checks and completeness exercises will be undertaken in accordance with the AfDB Policy. A completion and project termination brief will be submitted to the Bank for approval.

SECTION 8: CONCLUSION AND RECOMMENDATIONS



SECTION 8 CONCLUSION AND RECOMMENDATIONS

8.1 CONCLUSION

The Assignment, *"Scaling Climate Action Through Technology and Innovation by SMEs"* has been successfully executed in line with the ToR. It provided support to Africa private sector, especially SMEs and FIs to assess climate risks and opportunities for NDCs and green investment. It was implemented in five phases accompanied by associated deliverables. These phases ranged from outline design of toolkits, guidelines and training materials to detailed development of these deliverables, and finally execution of training programme to strengthen capacities of target stakeholders on the use of these instruments. In summary, the assignment has led to the accomplishment of the following outcomes:

- Development of climate change screening and opportunity toolkit as well as the development of a Business Carbon Footprint toolkit, for SMEs to mainstream climate change in key sectors.
- Support Bank mainstreaming of climate change through lines of credit and developed Guidance Note for Bank staff and Investment Officers.
- Development of practical working materials that supported SMEs analysed climate change risks/ opportunities and generate strong adaptation strategies.
- Raised awareness and strengthened capacities of SMEs, FIs, and other concerned authorities in identifying incremental cost due to climate change and identifying climate finance and climate innovation opportunities.

The Capacity Building arrangements took the form of online virtual workshops as well as provision of self-learning training resources which were uploaded on the Bank's online training platform, to complement existing training modules. In the end, at least 30 entities comprising 25 SMEs (including FIs) and fiveBank Staff were trained in each of the six (6) pilot countries. This is also in addition to series of web-conferences which engaged over 1300 different stakeholders, including regulatory agencies of government, associations, and other non-profit organizations to create awareness on the needs and benefits of mainstreaming climate change into their various operations and services.

In addition to the developed and submitted toolkits, guidelines, and training materials; this assignment also resulted in the submission of a number of reports, including monthly progress Reports, Inception Report, First and Second Interim Reports, and lastly, the Final Report. These Reports captured activities leading to the design, implementation, and completion of various phases of the assignment.

8.2. RECOMMENDATIONS

By endorsing and promoting climate change screening tools and key policy recommendations, AfDB will help policymakers in the developing world focus their resources on creating the right environment for SMEs access to financial services, address remaining market failures through well-designed government interventions, more consistently measure effectiveness, and continuously strive for the adoption of best practice by benchmarking themselves to their international peers. On the basis of the key lessons learned from the Climate Screening and Assessment Toolkits pilot exercise, Table 28 presents some recommendations to the bank.

Table 28: Recommendations to the Bank.

Field	Concern	Recommendation	Expected outcome
	• FIs are mostly profit-driven and lacking in policies that should demand compliance with climate best practice from customer/project.	• Through AFAC, the AfDB could advocate integration of climate finance taxonomy within the "financial sector actors' risk management frameworks through knowledge sharing, capacity building and policy integration. • Promote co-creative customer-led and impact-led customer acquisition and project origination mechanisms/procedures that promote mainstreaming of climate actions.	By adapting necessary policies that promote climate actions, FIs assume a strategic position to drive climate policies in Africa by demanding integration of climate actions by businesses/project across sectors.
Policy	• Inadequate regulatory frameworks, economic incentives, human and institutional capacity and fiduciary standards by participating countries.	• Promote and provide support towards development of strategic regulatory frameworks, provision of economic incentives, and building human and institutional capacity and fiduciary standards by countries in the region and adoption of Climate Screening Toolkit which can unlock international and domestic private finance for adaptation.	This approach, if strengthened, will increase the adoption and utilization of the toolkits within key sectors.
		• Enabling environments not only include aspects of regulatory frameworks and economic incentives, but also incorporate developing institutional capacities and strengthening human capital (e.g., raising awareness and enhancing technical and administrative capacities) across different levels of governance by exploring synergies and co-benefits between adaptation and multiple domestic policies.	This will allow for more coherent and cost-efficient policies and improves adoption rate within the key sector.
	• Needs for a wider application of new toolkits: Climate risk screening and assessment toolkits tested in the pilot phase created an opportunity to strengthen the climate resilience of country development efforts and strategies, including projects, programmes and policies. Awareness-raising for the private sector is a pre-requisite for this and the experience so far from the pilot indicates that use of climate risk	• Toolkits testing and deployment as well as awareness-raising on their usage can be mobilized or scaled to cover other African countries, beyond the six pilot countries.	This will promote wider publicity and adoption of climate best practice by SMEs and FIs across Africa.

Field	Concern	Recommendation	Expected outcome
Toolkits	screening and assessment tools in the pilot phase has contributed significantly to raising awareness among key stakeholders.		
	• Toolkit simplification for common use SMEs across the continent, design of both the Business Carbon Footprint toolkit and the Climate Risk Screening and Opportunity toolkits were generalized, with little focus on necessary details for each NDCs priority sector. For instance, the Business Carbon Footprint toolkit took only inventory on abatement measures and their effects on SMEs' energy and fuel usage only.	• The new toolkits cannot be a one-size-fits-all. Therefore, the bank could consider building on them to develop more advanced toolkits that are sector-specific and may target mainly the medium and large-scale private enterprises, for intensive climate screening and accounting of GHG.	This will lead to the development of a suite of toolkits that are sector-specific with necessary details for each NDC priority areas.
	• A one size fits all approach to the toolkits does not work given the wide range in size, resources and capabilities of SMEs in Africa, particularly given the SMEs sector is dominated by micro-enterprises.	Highly recommended that the toolkits are adapted in further work under the guidance of the AfDB to address different levels of SMEs – and their different needs and capabilities, starting with a highly simple tool for MSMEs, including a more advanced 'mid-level' version for the next category of SMEs and culminating in a 'high-level' version for well established and resourced enterprises. This is particularly important for the Business Carbon Footprint Toolkit and the Cost-Benefit Analysis components.	This will maintain the integrity and simplicity of the toolkits aimed at MSMEs while providing more established SMEs to make serious applications for climate finance – in turn establishing a pipeline of SMEs in CC investments for the AfDB.
	• Technology gap in climate mainstreaming actions.	• Application and integration of technologies (built on artificial intelligence internet of things and other platforms) to enable and accelerate scalability of climate action in various sectors/projects.	Scalability of climate actions across different sectors/projects.
	• The pilot exercise revealed knowledge-gap as may facilitate SME's identification of opportunities and pave the way for the scaling-up and replication of identified opportunities.	• Bring up programmes targeted on raising awareness of stakeholders on the linkages and overlaps between development and climate change adaptation, climate risk screening efforts among SMEs is essential.	This will facilitate the identification of opportunities and pave the way for the scaling-up and replication of identified opportunities.
	• Regularized capacity building programme	• Periodic (Quarterly) capacity development and knowledge sharing sessions through online and offline engagements should be conducted building largely on real cases of implemented innovative green financing instruments to successful execute climate	Enhance the knowledge and capacities of stakeholders in the area of climate change

Field	Concern	Recommendation	Expected outcome
Capacity Building		resilient projects/enterprises from green bonds, to structured and specialized funds, grants, and concessional loans, cross guarantees/credit enhancement instruments.	mitigation and adaptation process.
	• Increasing the capability of in-country entities, private sector and SMEs to analyse climate change risk/opportunities and strong adaptation strategies is good and should be scaled for future finance inflows. However, also of great importance is the need to build capacities of these entities in the area of reporting climate actions and proposal writing to attract international finance.	• Develop programmes to build capacities of SMEs in the area of reporting climate actions and proposal writing to attract international finance.	This will increase chances for access to climate funding by SMEs across Africa.
LoC	• Inadequate climate mainstreaming criteria in loan procurement.	• Ensure customization of loan products and value-added services in line with the peculiarities and nature of the different SMEs along the various climate-resilient sectors/projects.	This will drive mainstreaming of climate actions in FIs and SMEs operations.
	• To further underpin the AfDB's line of credit structure to cover climate best practice.	• Adoption of steadfast co-creation innovative and best practice on green financing, the market and industry led co-creation of innovative green financing tools and instruments should be spurred. • Modify LoC criteria to accommodate grants to support aspects of knowledge transfer and equipping credit beneficiaries with capacity to mainstreaming climate actions in operations and projects. • Modify credit reporting template as will require credit beneficiaries to specify number of jobs created with interest in green jobs.	To make the investment opportunities positioned in the strategic sectors where climate resilience is paramount.

BIBLIOGRAPHY

Additionality and Development Outcomes Assessment (ADOA, 2017). *Additionality and Development Outcomes Assessment Framework 2.0 for Private Sector Operations* (March 2017 Update). African Development Bank Group

AfDB (2017). *Angola: Country Strategy Paper.* Available at: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Angola_-___Country_Strategy_Paper_2017-2021.pdf

AfDB PECG (2016). *The African Development Groups Second Climate Action Plan. African Development Bank Group- Climate Change and Green Growth Department.* Available [Online]:https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AfricanDevelopmentBankClimateChangeActionPlan2016-2020.pdf

African Centre for Economic Transformation (ACET, 2018). *Strengthening the private sector in African regional policymaking*.12 April. Retrieved from: https://acetforafrica.org/media/strengthening-the-private-sector-in-african-regional-policy-making/

African Development Bank (AfDB, 2018). *Mozambique Country Strategy Paper 2018-2022: Supporting Mozambique Towards the High5S*. Available: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Boards-Documents/MOZAMBIQUE_-_CSP_2018-2022__Final_.pdf

Business Tech. (2018): https://businesstech.co.za/news/business/260797/the-alarming-truth-about-the-number-of-small-businesses-in-south-africa/amp/

Devissher, T., Mayhew, J., Downing T., and Bonjean, M. (2011). *Climate Safeguards System (CSS)-An Overview.* Retrieved from: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/CSS%20Basics-En_def.pdf. African Development Bank Group.

Etuk Reuben, Etuk Grace & Baghebo Michael (2014). *Small and Medium Scale Enterprises (SMEs) and Nigeria's Economic Development. Mediterranean Journal of Social Sciences, MCSER Publishing, Rome-Italy. Vol. 5, No. 7*

Genesis Analytics (2019): *Mapping SME development on AfDB programmes*. Retrieved from https://www.genesis-analytics.com/projects/mapping-sme-development-for-afdb-projects

Gibson, T., van der Vaart, HJ (2008). *Defining SMEs: a less Imperfect Way of Defining Small and medium Enterprises in Developing Countries. Brookings Global Economy and Development.* Retrieved on 17.04.2020 from: http://www.brookings.edu/~/media/research/files/papers/2008/9/development% 20gibson/09_development_gibson.pdf.

Global Entrepreneurship Monitoring (GEM 2017). Retrieved from: https://www.gemconsortium.org/report/gem-south-africa-2016-2017-report

Harsdorff and Phillips (2013*). Methodologies for assessing green jobs Policy brief* February 2013

Hogarth, J. R, Harwood, C., & Whitley, S. (2015). *Low-carbon development in sub-Saharan Africa – 20 cross sector transitions* Retrieved from https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9878.pdf. Overseas Development Institute

International Energy Agency (IEA, 2015). *Angola.* Available at: https://www.iea.org/policies/5841-national-renewable-energy-strategy

International Labour Organization (ILO, 2016). *What is a green job?* Accessed on the 16th of May, 2020. https://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm

Nationally Determined Contribution (NDC, 2015). *Morocco.* UNFCCC. Available [Online]: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Morocco%20First/Morocco%20First%20NDC-English.pdf

National Institute Of Statistics (INE 2017). Retrieved from: http://ghdx.healthdata.org/record/mozambique-population-and-housing-census-2017

ND-GAIN Country Index (2018). Retrieved from: ND-GAIN Country Index rankings | ND-GAIN Index.

NOOZZ (2018). Morocco: Small and Medium Enterprises. NOOZZ.com. Available [Online]: https://noozz.com/downloads/morocco-small-and-medium-enterprises/

Olhoff, A. and Schaer, C. (2010). *Screening tools and guidelines to support the mainstreaming of climate change adaptation into development assistance-a stocktaking report. Screening tools and guidelines to support the mainstreaming of climate change adaptation into development assistance-a stocktaking report.*

Seed Academy (2017). Retrieved from: https://www.iafrikan.com/2017/07/28/more-than-80-of-early-stage-entrepreneurs-in-south-africa-have-never-applied-for-funding-according-to-seed-academys-latest-survey-results/

United Nations Economic Commission for Africa (UNECA, 2016). *Economic Report on Africa*. Retrieved from https://www.uneca.org/publications/economic-report-africa-2016

World Bank (2015). Policy Research Working Paper. SMEs, Age, and Jobs. A Review of the Literature, Metrics, and Evidence World Bank Group, Development Economics. Global Indicator Group. Pp 39. Retrieved from: http://documents.worldbank.org/curated/en/451231468000937192/pdf/WPS7493.pdf

World Resource Institute (2017). *Emission Factors from Cross-Sector Tools. Greenhouse Gas Protocol.* Retrieved from https://ghgprotocol.org/calculation-tools#cross_sector_tools_id

Gasse, F., Chalie´, F., Vincens, A., Martin, A., Williamson, D. (2008). *Climatic patterns in equatorial and southern Africa from 30,000 to 10,000 years ago reconstructed from terrestrial and near-shore proxy data.* Quaternary Science Reviews 27 (2008) 2316–2340. https://www.researchgate.net/publication/223520100_Climatic_patterns_in_equatorial_and_southern_Africa_from_30000_to_10000_years_ago_reconstructed_from_terrestrial_and_near-shore_proxy_data

ANNEXES

REPORT

SCALING CLIMATE ACTION

THROUGH CLIMATE TECHNOLOGY AND INNOVATION BY SMES UNDER PRIVATE SECTOR INVESTMENT INITIATIVE FOR NATIONALLY DETERMINED CONTRIBUTIONS (NDCS) IN AFRICA

2021

AFRICAN DEVELOPMENT BANK
CLIMATE CHANGE & GREEN
GROWTH DEPARTMENT (PECG)

PREPARED BY:
natural eco capital