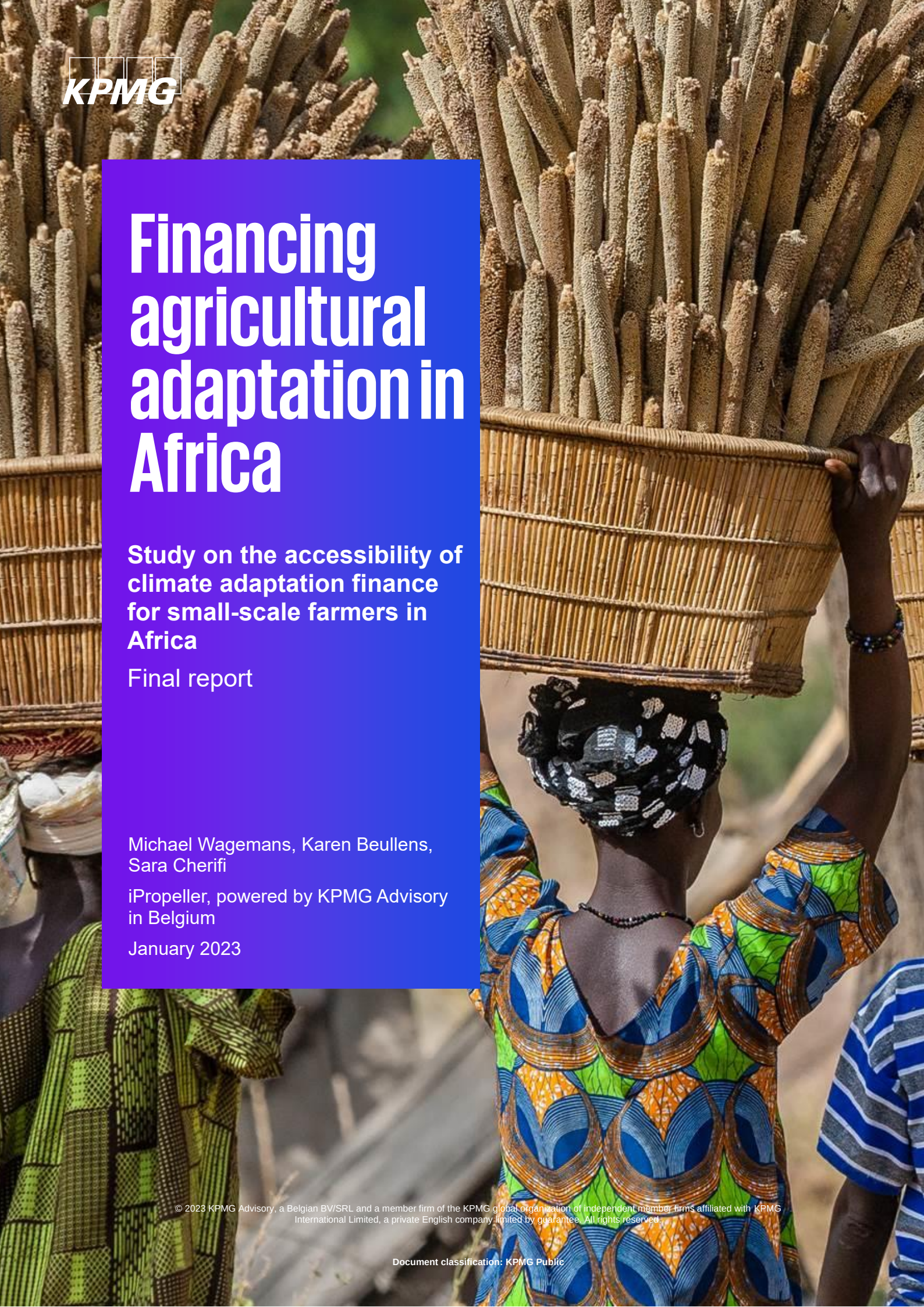

Financing agricultural adaptation in Africa

Study on the accessibility of climate adaptation finance for small-scale farmers in Africa

Final report

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iPropeller, powered by KPMG Advisory in Belgium

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Context

This research is part of the "KLIMPALA" project, a three-year project managed by VITO (Vlaamse Instelling voor Technologisch Onderzoek) in collaboration with ACMAD, iPropeller/KPMG, KENTER and Ondernemers voor Ondernemers (OVO). The KLIMPALA project has the ambition to build a Climate Platform for Adaptation in the Agricultural Sector in Africa (KLIMPALA) by expanding the country coverage of the agro-climate information tool CLIMTAG and supporting stakeholders in the African agricultural sector with practical information for climate adaptation. Given the relatively bigger exposure of the African continent and its agricultural sector to climate change, and the relatively smaller availability of high resolution climate information, agro-climatic indicators and projections, providing long-term climate information is crucial to support the sector's climate adaptation planning. The agro-climate information platform will therefore display relevant climate-related indicators, including long-term projections, that can be used for that purpose. This will allow the countries, to which the platform will be expanded, to better manage the projected impacts of climate change and improve their existing adaptation plans which often are not yet established or do not yet include projected climate changes.

In addition to the development of an agro-climatic information platform, the KLIMPALA project also intends to support local agricultural stakeholders in effectively implementing adaptation measures. Climate-robust initiatives for the agro-sector by local entrepreneurs will be implemented in three African countries with financial and capacity building support of the project consortium. Stakeholders involved throughout the project will also be supported with insights in barriers for effective climate adaptation and for the acquisition of climate adaptation finance. The latter is covered in this report, which provides insights in the obstacles African stakeholders encounter in their quest for climate adaptation finance, what their needs are towards adaptation funding, and which practical recommendations can be implemented to overcome these barriers.

Executive Summary

Climate change is emerging as a key challenge for the African agriculture sector with projections indicating an increase in the frequency and intensity of extreme weather events. The negative impacts of climate change will be particularly harmful to small-scale farmers, who are obstructed in their capacity to adapt to climate change due to a lack of institutional, technical, and financial support. Effectively channelling international climate finance to small-scale farmers will thus be key to ensure that they can successfully implement adaptation measures.

African stakeholders are, however, confronted with various obstacles that hinder their capacity to increase the access to adaptation funding for small-scale farmers. Numerous financing obstacles have been identified that are either linked to the market environment, the regulatory sphere, the technological and institutional capacity of local organizations, sociocultural norms or the lack of information transparency and knowledge sharing. While some regions in Africa might be less exposed to certain barriers than others, these obstacles (and the multiple subcategories they are made of) were found to be present across all countries in scope.

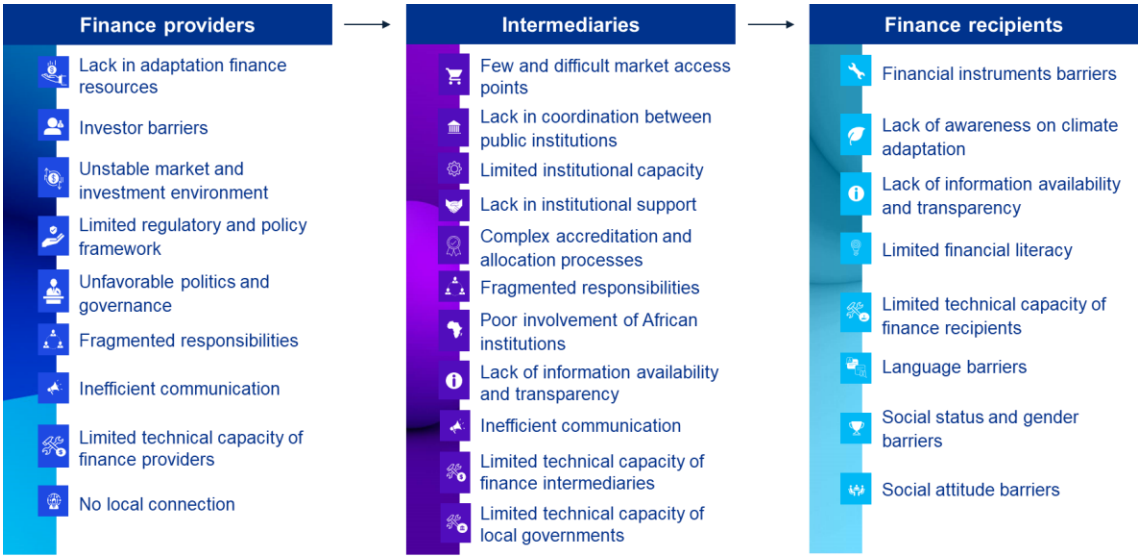


Figure 1. Overview of identified barriers to adaptation finance structured according to the stakeholders of the finance flow system they have impact on

The landscape of climate finance in Africa consists of a wide range of public and private stakeholders that can join forces to eliminate the identified barriers to climate adaptation funding. These stakeholders can be finance providers and/or finance intermediaries that channel domestic and/or international climate finance to finance recipients in the African agricultural sector. Depending on their risk appetite and

the size of the agricultural adaptation project, certain finance providers and intermediaries might be more favourable to get involved compared to others.

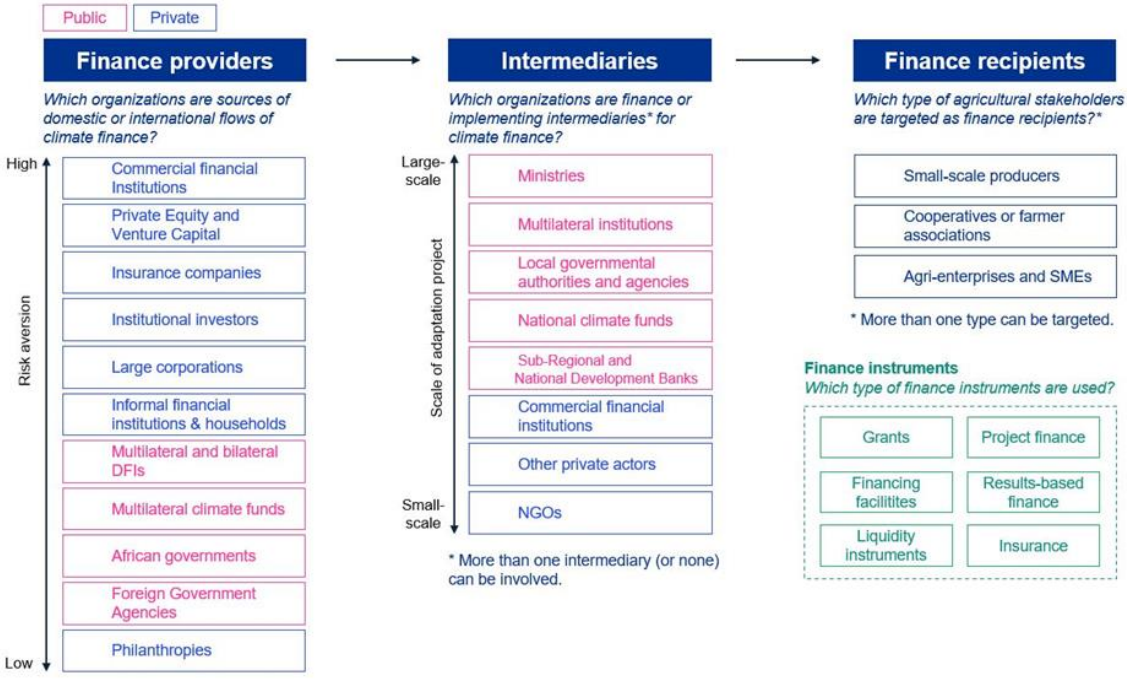


Figure 2. Landscape of climate adaptation finance in Africa

Collaboration across public and private actors in the climate finance and agricultural field will be instrumental in solving the issue of agricultural financing. These local and international stakeholders can implement various measures to facilitate the access to adaptation finance for small-scale farmers. Key actions include a.o. the development of favourable legal and regulatory frameworks, the use of finance instruments that are adapted to the needs of small-scale farmers and the provision of on-the-ground assistance to increase the access to international climate finance.

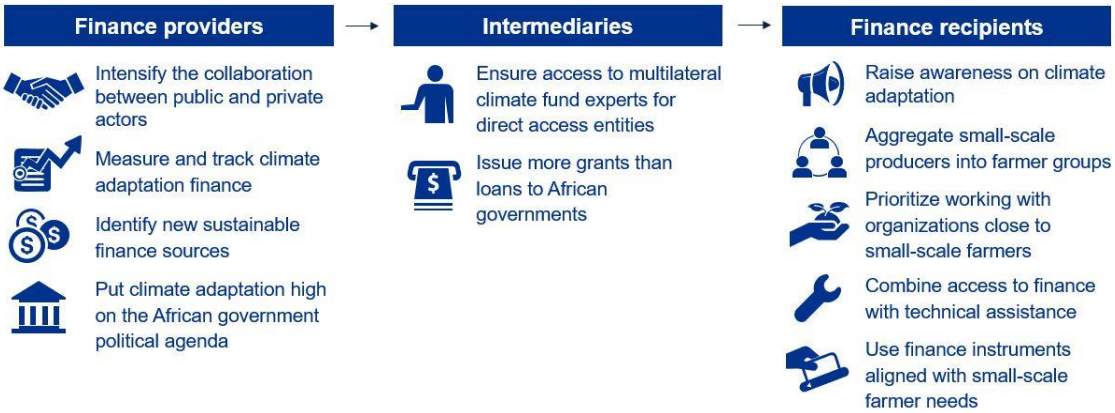


Figure 3. Overview high-level recommendations structured according to the key players of the climate finance landscape they are benefitting

Recommendations to tackle the (sub)barriers on the level of the finance providers

(Sub)barriers	Key actions	Stakeholders involved
Lack in adaptation finance resources	Identify alternative sources of finance (e.g. philanthropy)	Multilateral climate funds and DFIs
Investor barriers	Provide blended finance mechanisms	Multilateral climate funds and DFIs African governments
	Integrate climate change considerations into policy reforms, improve the access to public data, develop market supportive legal and regulatory frameworks	African governments
	Set a common definition and methodology to measure and track adaptation finance	Multilateral climate funds and DFIs African governments Developed countries governments
	Aggregate small-scale farmers in farmer organizations	Farmer organizations Public, private or non-state extension workers
Unstable market and investment environment	Pass policy reforms, improve the access to public data	African governments
Limited regulatory and policy framework	Set a common definition and methodology to measure and track adaptation finance	Multilateral climate funds and DFIs African governments Developed countries governments
	Integrate climate change considerations into policy reforms, develop market supportive legal and regulatory frameworks	African governments
Unfavorable politics and governance	Put climate adaptation high on the political agenda, integrate climate change considerations into policy reforms, develop market supportive legal and regulatory frameworks	African governments
Fragmented responsibilities	Involve locally anchored organizations with direct access to small-scale farmers	Multilateral climate funds and DFIs
Inefficient communication	Put climate adaptation high on the political agenda, integrate climate change considerations into policy reforms	African governments
Limited technical capacity of local finance providers	Provide capacity building-programs and technical assistance for climate adaptation policies	Multilateral or regional organizations
No local connection	Involve locally anchored organizations with direct access to small-scale farmers	Multilateral climate funds and DFIs

Recommendations to tackle the (sub)barriers on the level of the intermediaries

(Sub)barriers	Key actions	Stakeholders involved
Few and difficult market access points	Involve locally anchored organizations with direct access to small-scale farmers	Multilateral climate funds and DFIs
	Couple access to adaptation finance with technical assistance and training on climate-resilience	Local intermediaries*
	Invest in innovative finance instruments to channel climate finance and explore fintech opportunities	Multilateral climate funds and DFIs African governments Local financial institutions
Lack in coordination between public institutions	Integrate climate change considerations into policy reforms, improve the access to public data, develop market supportive legal and regulatory frameworks	African governments
	Provide capacity building-programs and technical assistance for climate adaptation policies	Multilateral or regional organizations
Limited institutional capacity	Provide financial support and technical assistance to local organizations for capacity building	Multilateral climate funds and DFIs
Lack in institutional support	Provide financial support and technical assistance to local organizations for capacity building	Multilateral climate funds and DFIs
Complex accreditation and allocation processes	Provide financial support and technical assistance to local organizations for capacity building	Multilateral climate funds and DFIs
Fragmented responsibilities	Involve locally anchored organizations with direct access to small-scale farmers	Multilateral climate funds and DFIs
Poor involvement of African institutions	Integrate climate change considerations into policy reforms, improve the access to public data, develop market supportive legal and regulatory frameworks	African governments
	Provide capacity building-programs and technical assistance	Multilateral or regional organizations
Lack of information availability and transparency	Improve the access to public data	African governments
	Set a common definition and methodology to measure and track adaptation finance	Multilateral climate funds and DFIs African governments Developed countries governments
	Provide financial support and technical assistance to local organizations for capacity building	Multilateral climate funds and DFIs
	Aggregate small-scale farmers in farmer organizations	Farmer organizations Public, private or non-state extension workers
Inefficient communication	Put climate adaptation high on the political agenda, integrate climate change considerations into policy reforms	African governments
Limited technical capacity of finance intermediaries	Provide financial support and technical assistance to local organizations for capacity building	Multilateral climate funds and DFIs
Limited technical capacity of local governments	Provide capacity building-programs and technical assistance for climate adaptation policies	Multilateral or regional organizations

* i.e. agricultural extension workers, research institutions, rural-based financiers, NGOs and agri-businesses

Recommendations to tackle the (sub)barriers on the level of the finance recipients

(Sub)barriers	Key actions	Stakeholders involved
Financial instruments barriers	Provide more grant-based financing to developing countries	Multilateral climate funds and DFIs Developed countries governments
	Involve locally anchored organizations with direct access to small-scale farmers	Multilateral climate funds and DFIs
	Invest in innovative finance instruments to channel climate finance and explore fintech opportunities	Multilateral climate funds and DFIs African governments Local financial institutions
Lack of awareness on climate adaptation	Put climate adaptation high on the political agenda	African governments
	Raise awareness via communication campaigns	Public, private or non-state extension workers
	Couple access to adaptation finance with technical assistance and training on climate-resilience	Local intermediaries*
Lack of information availability and transparency	Aggregate small-scale farmers in farmer organizations	Farmer organizations Public, private or non-state extension workers
Limited financial literacy	Aggregate small-scale farmers in farmer organizations	Farmer organizations Public, private or non-state extension workers
	Couple access to adaptation finance with technical assistance and training on climate-resilience	Local intermediaries*
Limited technical capacity of finance recipients	Aggregate small-scale farmers in farmer organizations	Farmer organizations Public, private or non-state extension workers
	Couple access to adaptation finance with technical assistance and training on climate-resilience	Local intermediaries*
Language barriers	Aggregate small-scale farmers in farmer organizations	Farmer organizations Public, private or non-state extension workers
Social status and gender barriers	Aggregate small-scale farmers in farmer organizations	Farmer organizations Public, private or non-state extension workers
Social attitude barriers	Raise awareness on climate adaptation via communication campaigns	Public, private or non-state extension workers

* i.e. agricultural extension workers, research institutions, rural-based financiers, NGOs and agri-businesses

1 Introduction

1.1 Global overview on climate finance

The access to finance is central to achieving the long-term goals of the Paris Agreement. Without sufficient financial resources, developing countries that are most vulnerable to climate change will face even more difficulties in adapting to the harmful effects of a hotter climate. The need for financial assistance from nations with enough resources to those that are less endowed and worst-impacted has been recognized as early as in the Rio United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol of 1997 (UNFCCC, 2022a). To accelerate the process, developed countries made the commitment in 2010 to jointly mobilize $ 100 billion per year by 2020 in support of climate action in developing countries. This deadline was extended to 2025 at COP21 in Paris, to ensure that developed countries could mobilize sufficient funds to support developing countries in reducing their emissions and meeting the costs of adaptation (UNFCCC Standing Committee on Finance, 2022).

Yet, according to the latest data on climate finance, developed countries fell short of $ 16.7 billion to meet the initial $ 100-billion-per-year target in 2020 (OECD, 2022a). The total climate finance provided and mobilized by developed countries for less-advantaged nations amounted to $ 83.3 billion in that year. Of this, $ 68.3 billion was provided in public climate finance (bilateral and multilateral), with most funds coming from multilateral development banks, institutions and climate funds. The rest ($ 15 billion) stemmed from private money mobilized by the developed countries' governments[1]. When comparing these numbers to previous years, an increase in both public and mobilized private finance can be discerned. Compared to 2013, public climate financing increased with 80% and got larger on a consistent year on year basis since 2015. Mobilized private climate finance on the other hand increased with approximately 30% in the period 2016-2020. Still, developed countries were unable to achieve the yearly $ 100 billion climate goal as needed to support developing countries in carrying out climate action measures. Oxfam (2022) even estimates that the total climate finance in 2020 approximated $ 21-24.5 billion due to an overestimation of the climate relevancy of certain projects and a financial reporting based on face value rather than grant equivalent. According to Islamic Relief (2022), developed countries should deliver at least $ 600 billion by 2025 to allow climate-vulnerable nations to effectively tackle climate change.

Of all climate finance, only a fraction goes to small, vulnerable and low-income countries, despite being the most at risk for climate change. In 2016-2020, Middle-

[1] The OECD's climate finance tracking and reporting methodology solely considers private funds that would have not moved forward in the absence of governments' interventions (OECD, 2015b).

Income Countries (MICs) were the main beneficiaries of climate finance, accounting for 43% of all funds provided and gathered by developed countries. Least Developed Countries (LDCs), Low-Income Countries (LICs) and Small Island Developing States (SIDS), respectively received 17%, 8% and 2% of total climate finance for that same period (OECD, 2022a). Africa, the continent in scope of this research, is home to the vast majority of the world's LDCs (33 out of the 43 Least-Developed Countries are located in sub-Saharan Africa) (UNCTAD, 2022). According to the UNFCCC (2022b), Africa is the continent that has the lowest total greenhouse gas emissions (7% of the world's share), but stands out as one of the most vulnerable regions on earth. Climate projections indicate an increase in the frequency and intensity of heavy precipitation events across the continent, resulting in stronger and more frequent extreme events (such as floods) (IPCC, 2022). These extreme climatic changes are expected to further challenge weather-dependent economic sectors, such as agriculture. The agricultural sector is a big employer in Africa (World Bank Group, 2021), making African countries particularly vulnerable to the negative impacts of climate change and thus more in need for financial support.

Rapid action is needed to accelerate investments in adaptation to ensure that the Global Goal on Adaptation (GGA) can be met. The GGA was established under the Paris Agreement in 2015 to drive collective action on adaptation with the aim to strengthen the resilience of climate-vulnerable countries. At COP26, developed nations agreed to at least double the adaptation funding provided to developing countries from 2019 levels by 2025, increasing the annual figure to around $ 40 billion (UNEP, 2021b). In 2022, at COP27 in Sharm el-Sheikh, new pledges were made to increase climate finance for adaptation purposes, amounting to more than $ 230 million (UNFCCC, 2022c). Such increases will have to continue in order to reach the $ 100-billion-per-year-target in 2025 and help vulnerable communities to adapt to climate change. Locally-led adaptation (LLA) will be key to ensure that those who are disproportionally affected by climate impacts can implement concrete adaptation solutions and access the funding they need to build resilience.

1.2 Research objectives and approach

The overall aim of this research is to identify the obstacles and needs of African stakeholders in the agricultural sector regarding their access to (international) climate finance for adaptation activities. The targeted audience of this report are policy makers, financial institutions and (non-)governmental organizations who have the capability to improve the access to finance for small-scale farmers and therefore to support them to effectively implement adaptation measures. Institutions that indirectly support the agricultural sector in adapting to climate change through tailored weather information and agro-advisory are also considered. These are amongst others National Meteorological Services (NMS), Ministries of Agriculture and development organizations

involved in agricultural adaptation initiatives. Private actors and research institutions with similar offerings can also benefit from the recommendations made in this report to attract additional funds. This is the case for VITO's agro-climate information tool CLIMTAG that can use the insights on climate finance to extrapolate the tool to other countries across Africa and beyond.

To gather information on the current state of play regarding the access to climate finance for agricultural adaptation activities, an extensive desk research was conducted in the first place in combination with a questionnaire and remote interviews. Stakeholders from different countries in scope of the KLIMPALA project were contacted to share their views on, and experience with, the accessibility to climate adaptation finance for the agricultural sector in Africa. The aim of this first phase of the research was to (1) develop an initial understanding of the institutions and financial flows that are involved in climate adaption financing, (2) identify the obstacles and needs related to adaptation finance requests and (3) to articulate a first set of recommendations based on that information. These findings were then complemented with on-the-ground insights gained from field visits in Senegal (September 2022) and Uganda (December 2022). During the field trip in Senegal additional interviews were organized with local stakeholders and during the field trip in Uganda a stakeholder workshop was conducted. The list of interviewees and stakeholder participants can be found in appendix.

2 Landscape of climate adaptation finance in Africa

At present, no common reporting framework exists on how to systematically track climate finance and climate finance needs, making it notoriously challenging to determine current and past climate finance flows (The Rockefeller Foundation & BCG, 2022). Climate finance can stem from a wide variety of public, private and alternative sources and uses a variety of financial instruments and distribution channels, that are either locally-led or managed by a national or transnational organization (UNFCCC, 2022a). Many initiatives have been set up by multilateral institutions and research organizations to monitor climate financing flows, but these differ in their approach to private sector money in particular.

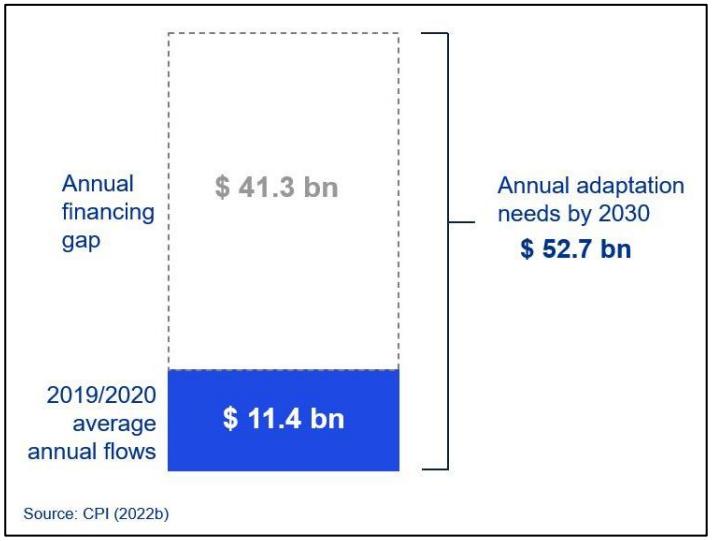
Prominent climate finance measuring systems

OECD Rio Marker System: The OECD measures current climate finance flows through its specifically conceived *Rio Marker System* for climate mitigation and adaptation. This system, however, only looks at climate finance provided and mobilized by developed countries to developing countries. It does not take into account financing from developing countries to developing countries nor financing stemming from private sources to developing countries (that has not been mobilized by developed countries' governments) (OECD, 2015b).

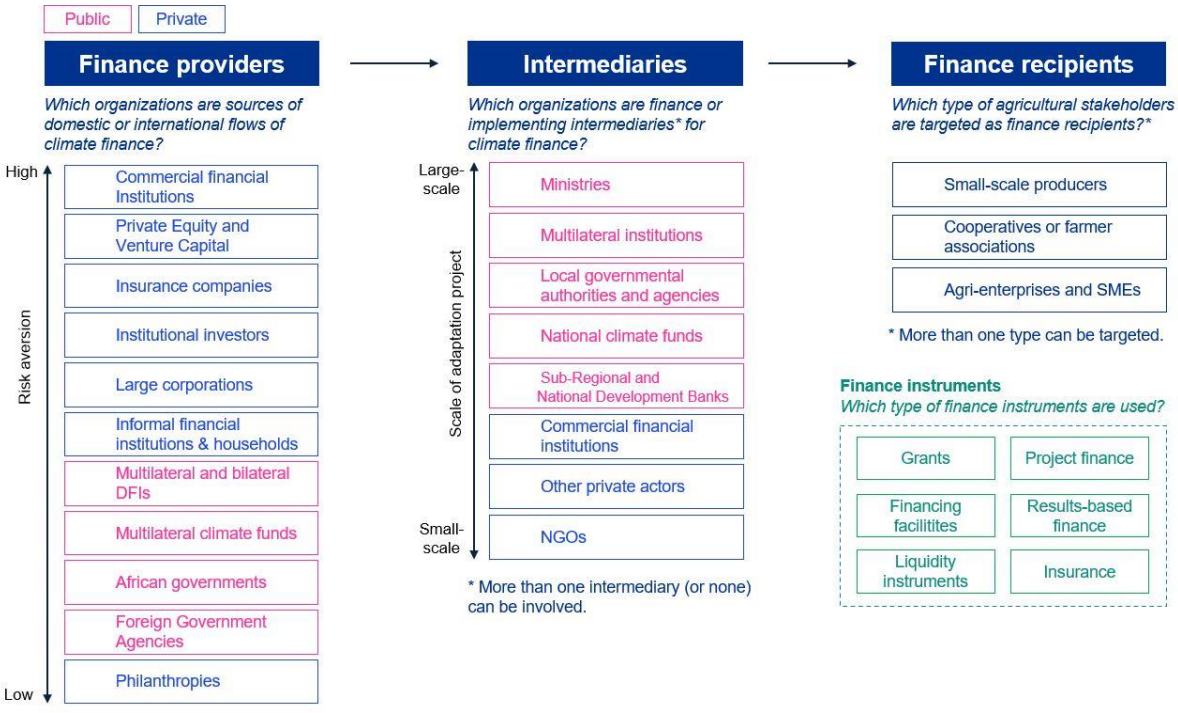
CPI Climate Finance Tracking: The Climate Policy Initiative (CPI) uses multiple data sources and works together with various actors in the field to assess domestic and international investments from both public and private sectors. It tracks climate finance flows by geography, at regional, national, and subnational levels, as well as per sector. The CPI provides the most complete overview of how much climate finance is flowing from public and private sources to end-use recipients (CPI, 2022a).

The CPI managed to approximate the adaptation finance needs and actual climate finance flows for African countries, discovering an annual financing gap of $ 41.3 billion to reach Africa's adaptation needs by 2030. Based on the NDCs of 51 out of 54 African countries (approximately 93% of Africa's GDP), the CPI (2022b) estimated that climate adaptation in Africa will cost around $ 52.7 billion annually for the period 2020-2030. This is 5 times more than the most recent numbers on incoming climate finance flows for adaptation, evaluated at $ 11.4 billion for the years 2019/2020. Regarding the agricultural sector, a breakdown in adaptation finance needs and actual financing flows cannot be made for the African region specifically due to major data constraints. However, the CPI (2022) discovered that only 9% of global adaptation finance flows went to the agricultural sector in the years 2019/2020, despite accounting for the largest adaptation finance needs. In addition, merely 0.8% of these adaptation

investments for the agricultural sector actually reaches small-scale farmers, showing the large financing divergence for those who need it the most (CPI, 2020).



International climate finance is typically invested in large-scale adaptation projects (e.g. irrigation), whereas small-scale climate-resilient activities (e.g. crop diversification) are predominantly financed with conventional sources of funding. These conventional financing flows are not taken into consideration by climate finance measuring systems due to a lack of data on their existence. When small-scale farmers use conventional sources of funding for adaptation activities (e.g. a change in crops), they often resort to the informal economy or make use of standard (microfinance) loans. These financial products are not labelled as climate finance instruments and can thus not be traced back by international finance tracking mechanisms. To capture the full breadth of financial stakeholders and instruments involved in the financing landscape for agricultural adaptation in Africa, both conventional sources of finance as international



climate funding are considered. The figure above provides an overview of the most prominent providers, intermediaries and recipients of climate finance for adaptation activities in the agricultural sector. The following subsections describe the roles of, and linkages between, these actors in more detail.

2.1 Finance providers

The finance providers in the financing landscape for agricultural adaptation in Africa comprise the public and private sources of domestic or international financing flows. These providers can have a direct link to finance recipients (this is the case for the informal financial institutions that are directly connected to small-scale farmers) or use finance intermediaries to channel climate funding to agricultural stakeholders (such as multilateral climate funds). These public and private sources of funding are structured in the overview above according to their risk profile, with conventional financial institutions being the most risk averse and philanthropies the least risk averse. A brief description of each of these finance providers are provided below, starting with the public actors.

2.1.1 Public actors

Almost all climate adaptation finance is provided by public actors. On a global scale, multilateral and bilateral development finance institutions (DFIs) care for 80% of all public adaptation finance (CPI, 2021). Other public stakeholders involved in the climate finance landscape for adaptation projects in Africa are international climate funds, African governments and foreign government agencies.

2.1.1.1 Multilateral and bilateral DFIs

Multilateral development finance institutions (DFIs) are supranational organizations, established by sovereign states, that aim to provide financial, technical and social support to developing countries. These multilateral DFIs receive financial resources from developed nations and seek to reflect the cooperation policies established by those states (EIB, 2022). Examples of multilateral DFIs are the World Bank Group, the European Investment Bank (EIB) and the African Development Bank.

The African Development Bank has introduced a **Climate Action Window** of up to $13 billion to its **African Development Fund (ADF)** as a means to support climate adaptation in sub-Saharan Africa. This new financing mechanism is related to the Africa Adaptation Acceleration Program (AAAP), an initiative led by the African Development Bank and the Global Center on Adaptation (GCA). The Climate Action Window of the ADF aims at facilitating the access to climate-smart agricultural

technologies for small-scale farmers as well as provide them with weather-indexed insurance (AFDB, 2022).

Bilateral DFIs are specialized development banks owned by national governments that receive financial resources from national development funds or benefit from governmental guarantees. The latter ensures their creditworthiness, which allows them to raise funds from international capital markets and provide financing at competitive terms (OECD, 2022b). The Belgian Investment Company for Developing Countries (BIO) is an example of a bilateral DFI.

2.1.1.2 Multilateral climate funds

As mentioned in the introduction, the UNFCCC and the Kyoto Protocol foresee financial assistance from developed countries to developing countries (that are highly vulnerable to climate change) through the so-called *financial mechanism*. This *financial mechanism* is operational though one or more multilateral climate funds, that have been established and designated as the operational finance arms of the UNFCCC. These international climate finance institutions are accountable to the COP, which determines their program priorities (e.g. more climate adaptation projects compared to mitigation investments) and eligibility criteria for funding. Examples of multilateral climate funds established as operating entities of the *financial mechanism* and which provide financial resources to adaptation projects in the agricultural sector are the Global Environment Facility (GEF), the Green Climate Fund (GCF) and the Adaptation Fund (AF). The GEF also manages two special funds, namely the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF) (UNFCCC, 2022a).

2.1.1.3 African governments

Developed countries are not the only public actors that fund climate adaptation activities in Africa. According to the ACPC (2017), African governments are already spending a large contribution of their budget to adaptation projects. It is even estimated that the adaptation expenditure of African governments already covers 20% of total adaptation needs in Africa, more than the shares of these countries' contributions to global GHG emissions. Moreover, for 42 African countries for which data was available, the weighted government expenditure for adaptation as a share of GDP was estimated to be larger than the share of adaptation finance received by foreign countries (CPI, 2022c). Hence, the need for foreign finance flows to invest in adaptation activities in the continent to make up for the rest (80%) of the climate adaptation needs that are not covered by local governments' budgets.

According to the South African Climate Finance Landscape 2020 of the CPI (2020), the South African government has spent approximately 15% of the government's budget to climate adaptation projects. Of these expenditures, more than 80% went to adaptation and dual objective activities (CPI, 2022c).

2.1.1.4 Foreign government agencies

Foreign government agencies are official development assistance organizations that aim to de-risk adaptation activities, build local capacity and create a pipeline of locally-driven projects. Examples of bilateral agencies present across Africa are the Belgian Development Agency, Enabel, or the United States Agency for International Development, USAID. These organizations have the capacity to integrate climate change elements in their investment decisions, allowing them to stream large shares of public government finance towards climate projects. According to the CPI (2022c), foreign government agencies contributed to 19% of globally tracked adaptation finance in the years 2017/2018. In Sub-Saharan Africa and East Africa, most climate finance flows from bilateral agencies even went to adaptation activities compared to mitigation projects (CPI, 2022c).

2.1.2 Private actors

Private sector investments in adaptation activities have increased the past years, but not at the scale that is needed to fulfill the adaptation finance needs of African countries. According to the CPI (2022d), private finance only accounts for 14% of all climate finance provisions in Africa, while making up 50% of global climate finance flows. The agricultural sector is a high-risk industry, hence the fact that fewer private sources are financing agricultural adaptation activities compared to public actors (CPI, 2022e). Various financiers have been identified that contribute to agricultural adaptation finance, from commercial financial institutions to corporations, insurers and philanthropies. These private actors are described in more detail in the following sections.

2.1.2.1 Commercial financial institutions

Across Africa, commercial banks are the most prominent provider (and intermediary) of conventional financial products. Commercial banks have the ability to raise their own funds through bank deposits, but are quite risk averse due to the regulations imposed by international standards, such as Basel II and III. The latter two enforce minimum capital requirements for market risks, forcing commercial financial institutions to invest in activities that generate market-based returns. Given the perception of the private sector that climate adaptation projects are not profitable on the short term, commercial banks and microfinance institutions across Africa have not yet mainstreamed climate

considerations in their lending portfolio. However, they do have strong networks with key stakeholders, such as famer organizations, cooperatives and agri-businesses (CPI, 2022c).

> "Commercial banks, and in particular microfinancing institutions, are extremely risk averse. The interest rate they request is often three times the current rate of subsidized credits at the agricultural bank. In addition, they claim a collateral for the loans they issue, which most small-scale farmers, and especially women, do not have." - Ibrahima Diop, Project Expert, FAPAL (Senegal)

2.1.2.2 Private equity and venture capital

According to the GCA & CPI (2022), the private equity and venture capital industry in Africa was shaped by DFIs investing in private businesses that contributed to social and economic development goals. Currently, more than 400 private equity and venture funds are active in Africa. The largest investors in private equity funds are DFIs, such as African Development Bank or the European Investment Bank.

2.1.2.3 Insurance companies

Insurance companies have an advanced knowledge on how to measure climate risks and incorporate them in innovative risk transfer mechanisms (e.g. weather index insurance). They play a key role in safeguarding agricultural stakeholders from climate change impacts and helping them in building resilience against climate-related shocks. Insurance penetration is, however, concentrated in a few markets, such as South Africa, Morocco or Kenya, while being less prominent in other countries. In line with other private players, insurance companies have a low risk appetite as they need to maintain a strong liquidity ratio (GCA & CPI, 2022).

2.1.2.4 Institutional investors

There is no universal definition of what institutional investors entail as they include a wide range of actors, such as sovereign wealth funds, insurances and pension funds. The main objectives of institutional investors is to gain a maximum capital and sustain long term returns on investment. They can easily mobilize funds through pensions, but they do not have yet the ability to deploy climate finance for adaptation projects as they are quite risk averse. However, they remain an important source of finance, especially in Africa where institutional investors managed approximately $ 1.8 trillion in assets in 2020 (CPI, 2022c).

2.1.2.5 *Large corporations*

Multinationals in the food and agriculture industry are increasingly taking sustainability and climate-resilience considerations in their global supply chains. In Africa, large corporations have already taken steps ahead by addressing climate risks in the agricultural sector through physical climate risk analyses, sustainable agroforestry initiatives and climate-smart buildings for small-scale farmers (GCA & CPI, 2022). An example of a multinational that support small-scale farmers across Africa in their capacity building is Mondelez (CPI, 2022c).

2.1.2.6 *Informal financial institutions and households*

Informal financial institutions and private households cover the families and informal local networks that people belong to. The financial power of this group comes from personal savings, heritage assets, family loans and borrowing from friends and others (Khan & Anuar, 2017). Savings and Credit Cooperative Societies (SACCOs) are an example of informal financial institutions, which are often formed by small-scale farmers to mobilize and intermediate savings.

2.1.2.7 *Philanthropies*

Philanthropies are charitable funds consisting of donations from private individuals or organizations, which are meant to be invested in public good initiatives. According to the CPI (2022c), the OECD measures adaptation finance to Africa from six philanthropic foundations, among which the Bill & Melinda Gates Foundations that delivers the most philanthropic climate funding to the continent. Philanthropies have the highest risk appetite and can thus easily be used to de-risk adaptation activities.

2.2 Finance or implementing intermediaries

Finance or implementing intermediaries are public, private or non-state actors that either act as financial middleman between finance providers and the targeted stakeholders or ensure that climate projects are correctly implemented and benefit the intended end-users. For instance, an international climate fund can provide financial resources to a national development bank, which can in turn issue loans on concessional terms to a high-risk sector as the agricultural industry. Another possibility is that a multilateral DFI supplies climate finance to a multilateral institution, such as the United Nations Development Programme (UNDP), to oversee the implementation of a local climate project. Cases in which more than one intermediary is involved – or none – are also possible. For instance, informal financial institutions can directly access small-scale farmers without having to go through an intermediary. On the other hand, certain international flows of climate finance first need to go through ministries, then national

climate funds before reaching small-holder farmers. In total more than 8 intermediaries have been identified that are either engaged in large-scale (e.g. infrastructure) or small-scale (e.g. crop diversification) projects.

2.2.1 Public intermediaries

Depending on the level of development of a country, either national or supranational public intermediaries can be involved. These include multilateral institutions, ministries, local governmental authorities, national climate funds and sub-regional or national development banks. Ministries, such as the ministry of agriculture, the ministry of environment or the ministry of sustainable development, can be appointed as National Designated Authority (NDA) to serve as intermediary between a developing country's government and international climate finance funds. NDAs are government institutions that ensure ownership of climate change funding by being the first organization to approve climate finance projects in the country before the climate investment institution gives its final consent. Next to NDAs, multilateral climate funds also work with Accredited Entities to translate national climate policies into concrete projects on the ground. Accredited Entities can either be representatives from the public, private or non-profit sector that develop climate finance proposals and/or implement them. Depending on the institutional capacity of the developing country in need, these Accredited Entities can be multilateral DFIs or local organizations. The former are known as International Accredited Entities and are often deployed in least-developed countries, where they have a strong experience in promoting socio-economic growth (T. Bishop, personal communication, November 10, 2022). The latter are labeled as Direct Accredited Entities and have the capacity to provide strong boots on the ground, which is essential to link climate finance to local innovation (GCF, 2022).

National climate change funds

In addition to these supranational or national government institutions, local governments can also decide to set up a national climate fund in order to take ownership of foreign climate finance and ensure a more local access to grants and project finance. For instance, the government of Rwanda established the Rwanda Green Fund (FONERWA), a climate change fund that invests in the green economy by facilitating a direct access to international climate finance. This fund is the first of its kind in Africa (FONERWA, 2022).

At last, sub-regional and national development banks are also seen as important intermediaries of international climate finance. Sub-regional development banks have the responsibility to support regional integration and manage regional infrastructure development projects. Some of them even incorporate climate change considerations into their strategic planning. There are four sub-regional development banks in Africa:

the Eastern and Southern African Trade Development Bank, the East African Development Bank, the West African Development Bank and the Ecowas Bank for Investment and Development. 40 African countries are shareholders of these sub-regional development banks (CPI, 2022c). National development banks on the other hand are state-owned and therefore have a mandate to contribute to the country's development agenda. They often provide blended finance structures for the private sector to invest in sectors with high risks, such as agriculture (GCA & CPI, 2021).

2.2.2 Private intermediaries

Next to public organizations, more and more private stakeholders are getting involved as intermediary in the climate finance sphere, albeit to a lesser extent than their public counterparts. International climate funds strive to involve more private actors and non-state organizations as direct access entities instead of solely focusing on national and multilateral public institutions (T. Bishop, personal communication, November 10, 2022). Examples of such private actors are commercial financial institutions and NGOs. In Senegal, both Attijariwafa Bank (AWB) and La Banque Agricole (LBA) have been recognized as direct access entities within the GCF (GCF, 2022). Other private actors include research institutions, that are often involved to conduct research studies regarding climate adaptation in the agricultural sector. These private actors can get their accreditation by international climate funds as well, as long as they meet the requirements of the fund in that regard. With respect to NGOs, they have long been known as essential players in connecting development aid and resources to local needs. By taking advantage of the direct access they have to local communities, they can effectively support the implementation process of adaptation activities. An example of an NGO active in agricultural adaptation in Africa is Rikolto.

2.3 Finance recipients

Climate finance for adaptation activities in the agricultural sector can either reach finance recipients in a direct way or benefit them in an indirect way. In the first case, the finance recipients, being small-scale farmers, cooperatives and farmer associations, or agri-enterprises and SME's, have a direct access to financial resources through grants, (microfinance) loans or insurance products. In the second case, an intermediary organization receives climate finance instead to invest in a large-scale project that facilitates the implementation of adaptation activities on the level of the smallholder farmers. For instance, a multilateral climate fund can provide a grant to the National Meteorological Services of a developing country to improve its weather forecasts and agro-advisory services, which would ultimately benefit the small-scale farmers in adapting to extreme weather events. Either way, the agricultural stakeholders that are most targeted as finance recipients in the context of climate adaptation are small-holder

producers. Next in line are cooperatives or farmer associations, followed by agri-enterprises and SMEs. According to the CPI (2020), climate adaptation projects in agriculture often have a broad target group (e.g. rural economies), which makes it difficult to unravel the exact allocated funds per beneficiary. Also, more than one target group can be targeted. Given that value-chain actors are the least targeted and small-scale farmers are the most targeted, the next chapter focusses on the barriers of accessibility to climate adaptation finance for those that are at the forefront of the climatic crisis, i.e. the small-holder farmers.

2.4 Finance instruments

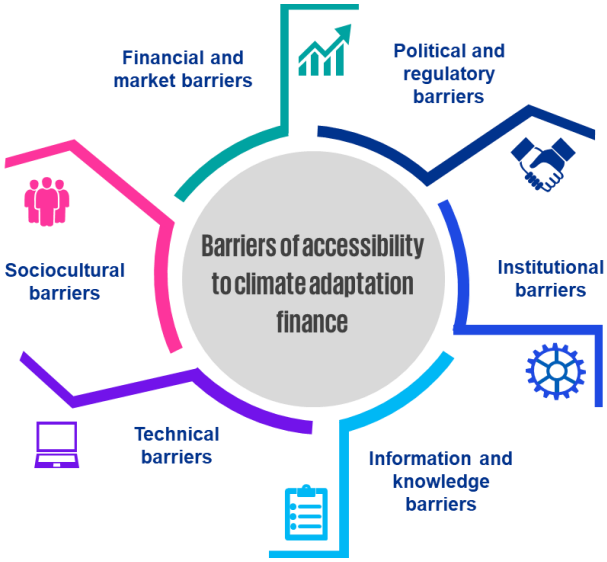
The table below provides an overview of the finance instruments that can either be deployed by finance providers or finance intermediaries. Both a short description and the popularity of the finance instrument in financing agricultural adaptation are given.

Finance instrument	Short description	Prevalence
Grants	Non-repayable concessional sources of funding that are mostly used for technical assistance or capacity building. Grants are the preferred instruments for climate adaptation in Africa (GCA & CPI, 2022).	
Project finance	Commercial sources of finance, such as direct debt or equity investments for a single project; can also include concessional forms, such as loan guarantees, first loss debt or even policy incentives (GCA & CPI, 2022).	
Financing facilities	Commercial sources of finance, such as direct debt or equity investments for a pool of projects or farmers; can also include concessional forms, such as subordinate debt or equity (GCA & CPI, 2022).	
Results-based finance	Blended sources of finance, including debt or grant capital for a project, that include some forms of concessionality to the achievement of adaptation outcomes (e.g. favorable repayment terms or lower interest rates) (GCA & CPI, 2022).	
Liquidity instruments	Concessional sources of finance designed to offer immediate assistance to actors in need of climate funding (e.g. liquidity support provided for an emergency response) (GCA & CPI, 2022).	
Insurance	Commercial risk transfer instruments, such as risk pooling mechanisms or weather-index insurance. Pooling mechanisms aggregate risk across a portfolio of projects or actors, while index insurance pays out the benefits based on a predefined metric (e.g. inches of rainfall) (GCA & CPI, 2022).	

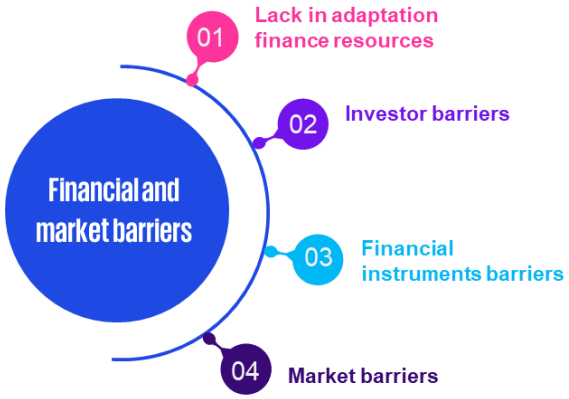
According to the CPI (2022d), the predominant funding vehicle for the agricultural sector in Africa are grants (54% of all climate finance in 2019/2020). How prevalent this finance instrument is in financing climate adaptation specifically varies by country. While low-income countries prefer grants (69% of all climate finance in 2019/2020), middle-income countries rather choose loans (73% of all climate finance in 2019/2020) (CPI, 2022d).

3 Barriers of accessibility to climate adaptation finance

African stakeholders involved in the access to finance for small-scale farmers, and small-scale farmers themselves, are confronted with a number of key barriers that impede their access to adaptation funding. In total six overarching financing obstacles have been identified that are either linked to the market environment, the regulatory sphere, the technological and institutional capacity of local organizations, sociocultural norms or the lack of information transparency and knowledge sharing. It is important to note that these barriers are not uniformly applicable to all countries in scope as they have to undergo a thorough assessment to be context-specific; however, they are in some way (in)formally present across the continent. The following subsections describe each of these key barriers, and the multiple subcategories they are made of, into more detail using insights gained during the desk research and interviews.



3.1 Financial and market barriers



Financial and market barriers are common in Africa, especially in a high-risk sector as agriculture. These barriers exist and persist due to the unstable political and regulatory environment in most countries of the continent. Obstacles such as a general lack in adaptation finance resources, high-risk management requirements and market uncertainty negatively impact the flow of climate adaptation funding.

The subsections below elaborate further on these common financial and market-related barriers.

01 Lack in adaptation finance resources

a. A general lack of climate finance resources

Multilateral climate funds exclusively depend on voluntary contributions of donor governments to fulfill the climate finance needs of developing countries. According to ODI & Heinrich Böll Stiftung (2021b), the largest part of public adaptation finance comes from the United Kingdom, followed by Germany and the United States. These three countries represent on their own 57% of all public finance that is flowing towards the Adaptation Fund. These donor countries, however, fail to deliver on the annual pledges they make to multilateral climate funds, resulting in funding requests that far outpace the climate finance available. In a context where climate mitigation projects are often favored due to the lower financial risks they entail, adaptation activities are left with a meager financing volume to be used across developing countries in need (Antwi-Agyei, Dougill & Stringer, 2015; Adenle, Manning & Arbiol, 2017b; CFAS, 2017; Gancheva et al., 2020).

b. Predomination of mitigation over adaption finance

Despite the fact that climate funds are striving for a 50:50 allocation of climate finance, an imbalance between the funds mobilized for mitigation on the one hand, and adaptation on the other hand, has persisted over the years (Bapna & McGray, 2008; CFAS, 2017; ECDPM, 2019). In the period 2019-2020, only 7% (or US$46 billion) of global climate finance was dedicated to climate change adaptation (CPI, 2021). If we take a look at the GCF for instance, the largest part of collective resources goes toward climate mitigation, while barely US$22 billion per year is spent on adaptation activities. This contrasts with the estimation of the UN Environment Programme (UNEP) that annual adaptation costs could hit US$140-300 billion by the year 2030 (UNEP, 2021a).

The literature identifies two main reasons behind this uneven distribution in funding (ECDPM, 2019). First, mitigation actions have the advantage being clearly defined and can thus leverage on this convenience to attract more funding. Adaptation activities on the contrary still lack a universally accepted definition, which obstructs them in reaching the desired amount of financing. The second reason relates to the fact that mitigation actions can be easily measured in quantifiable terms, such as reductions in greenhouse gas (GHG) emissions. This is not the case for location-specific adaptation activities that need tailor-made instruments to assess their effectiveness, which creates an extra barrier in their quest for similar funding as mitigation actions. Both reasons relate to the ease of reporting on the project results, which is vital in the current context of climate

protests and the related media coverage on the global efforts to prevent drastic climate change.

c. Unpredictable finance contributions

Multilateral climate funds and DFIs are facing difficulties with predicting the actual budget contributions of developed countries due to the absence of hard obligations on the mobilization climate finance. In 2015, the principle of "*mutual accountability*" was introduced in the Paris Agreement, ensuring reciprocate commitments for both developed and developing countries. However, a large gap remains between the pledges and actual deposits of public contributors to adaptation funds and multilateral DFIs (AFDB & OECD, 2011). Similar conclusions can be drawn for private philanthropy, that can greatly vary over time and thus be unpredictable too.

02 Investor barriers

a. Lack in opportunity information for investors

To determine the financial risks of adaptation investments in the agricultural sector, investors need to have access to the (physical) financial assets of small-scale farmers. This target group, however, does not have the capacity to aggregate data on their actual possessions, past successful adaptation projects or positive credit history. This lack of information undermines the correct assessment of investment risks, which is essential for investors to tap into climate adaptation opportunities (World Bank Group, 2016).

b. High transaction costs

Due to the remoteness of small-scale farmers, finance providers have to face high transaction costs. This lowers their financial returns and hampers them from providing services that are adapted to farmers' needs. As a result, finance providers remain reluctant to work with geographically dispersed smallholder farmers, while the farmers themselves remain obstructed from accessing the formal financial market (CPI, 2020).

> "Commercial banks are not interested to lend money to small-scale farmers and if they do it is often small amounts with high transaction costs." – Nadia Ouriemchi, Inclusive Finance Expert, ADA

c. High risk-management requirements

Most financial institutions are risk averse and therefore demand an effective management of the risks involved in climate adaptation projects. This is particularly relevant for adaptation activities within the agriculture sector, given their exposure to the direct impacts of climate change. Unfortunately, rural customers involved in agricultural

practices have limited capital available and do not dispose of risk management instruments, such as insurances or guarantees, to protect themselves from external risks (CPI, 2020).

> "Private sector actors, such as banks and microfinance institutions, ask for an interest rate that is higher than what a small-scale farmer can pay. This is why farmers resort to the informal economy to borrow money." – Thierno Boubacar Kallo, President, UGAS Guinea

03 Financial instruments barriers

a. Financial instruments not fit for purpose

The majority of finance instruments available on the market are not adapted to the needs of small-scale farmers. Commercial banks often ask for a minimum amount that is way higher than what farmers request, while microfinancing institutions impose a costly interest rate. In addition, repayment schedules are almost never aligned with agricultural production cycles, which is crucial for small-scale farmers to be able to pay back their loans (CPI, 2020). If a cooperative or small-scale farmer is looking for a credit in its proximity, but there is no bank or financial institution to offer this loan, then these rural recipients are left nowhere. This incongruity between demand and offer is an important factor that obstructs remote finance requestors to access climate adaptation funds.

b. Complex financial channels

There is a need for efficient, innovative and transparent financial channels that are tailored to the needs of small-scale farmers. Poor policies and regulations on climate finance mechanisms make delivery channels unnecessarily complex, which hinders the access of finance to those that need it the most (World Bank Group, 2016). In fact, the system is currently relying on an excessive number of intermediary organizations, that add more complexity and costs to the system and usually even run outside of the recipients' countries (ECDPM, 2019).

04 Market barriers

a. Unstable market and investment environment

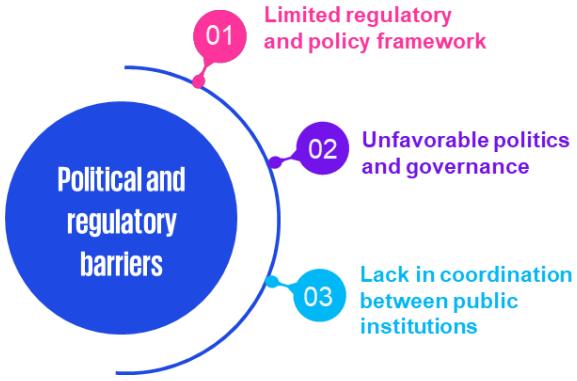
Investors rely on stable market environments that are supportive of private capital investments. Unfortunately, most market environments in developing countries in Africa are characterized by a weak economy, low political stability and inexperienced financial systems. Despite the growing demand for climate adaptation in these regions, the

instability of their market and investment environment impedes the stimulation of foreign investment (CPI, 2018).

b. Few and difficult market access points

Current climate finance mechanisms are characterized by few market access points, that are only available to an elite group of multilateral or public organizations. In most African countries, accredited entities are often Ministries or high-level governmental agencies, that are too distant from the climate adaption reality of small-scale farmers. This jeopardizes the access of local organizations, such as NGOs, that do not have sufficient knowledge on the standards, procedures and operational practices of international climate funds and related finance sources (AFDB & OECD, 2011).

3.2 Political and regulatory barriers



Political and regulatory barriers refer to the obstacles generated by the limited governance infrastructures. These obstacles can arise from a lack of effective policies and rules on climate change, unfavorable politics or the absence of strong coordination among governmental agencies. The following paragraphs describe each of these identified subbarriers in more detail.

01 Limited regulatory and policy framework

Most African countries lack the enabling environments, i.e. policy, regulatory and governance frameworks, for climate adaptation finance. Without targeted regulatory and policy frameworks that take into account climate change conditionalities, mainstreaming private investment in agricultural adaptation will remain a difficult task. Examples of supportive policies are regulatory incentives for climate-resilient agriculture, a national plan for adaptation that focusses on tracking adaptation practices for small-scale farmers or legislations for open data that ensures the access to public climate information. Yet, these policies and legislations have often not yet been established in developing countries, which consequently dissuades financial actors to invest in climate adaptation and hence creates an additional barrier to the liquidity flow. This situation is even worse in countries where public authorities do not see climate action as a first concern and do not prioritize climate adaptation objectives (Gancheva et al., 2020).

02 Unfavorable politics and governance

Politics play an important role in prioritizing the climate agenda. The active involvement of core governmental functions and their political will to consider climate change as a priority is key to channel more investments into climate adaptation activities (Adenle et al., 2017b). Developing countries, however, can be confronted with unfavorable politics and governance infrastructures that do not incorporate climate considerations yet. And if they do, they only consider climate change as a priority when it can be combined or included into more immediate priorities, such as energy management or food production. This situation is known as the domestic leadership effect, which exists in most developing countries across Africa (AFDB & OECD, 2011). It neglects climate change as a priority and makes it more difficult to attract attention on adaptation needs in particular.

03 Lack in coordination between public institutions

Failing in establishing a coherent national plan on climate adaption can be an obstacle for national governments in coordinating their activities for a more climate-resilient agriculture. It is therefore crucial that public ministries and governmental agencies work together to come up with a clear set of climate priorities (CPI, 2020).

3.3 Institutional barriers

All finance providers involved in the climate finance scene can be confronted with a number of institutional barriers. These obstacles relate to the lack of resources to facilitate, manage and implement adaptation finance initiatives, from the moment climate funding is requested to the point where finance requestors have to report back on the achieved adaptation objectives. The various institutional barriers and the impact they have on local stakeholders in Africa (particularly small-scale farmers) are discussed in the sections below.

01 Limited institutional capacity

The institutional capacity of a governmental agency, a financial institution or a non-state actor refers to the ability of those entities to manage finance projects with the use of internal knowledge and resources, such as human resources, financial resources or technical resources. These entities in Africa often lack the institutional capacity to, first of all, request climate finance and, second of all, effectively channel and transfer this finance to those who need it the most (Adenle et al., 2017a). This is particularly the case for smaller actors, such as NGOs, that lack the required institutional capacity to request adaptation finance. Both their small size and lack of experienced staff hinders them from applying to multilateral climate funds, whereas the ministries who get access to these funds do not have the institutional capacity to use and track these finances in an effective manner (Gancheva et al., 2020).

Besides governmental institutions and NGOs, also rural-based financial institutions have to face the consequences of a limited institutional capacity. The high risks involved with climate adaptation investments, such as large upfront costs, long payback time and climate change uncertainties, need to be thoroughly assessed. However, these banks lack the institutional capacity to run this assessment, which creates an additional barrier for local adaptation projects to receive the necessary funds (WRI & UNDP, 2015).

02 Lack in institutional support

In addition to not having enough institutional capacity, local finance providers and intermediaries have to face an additional barrier due to the lack of technical support for capacity building. This technical support can be provided by international climate funds, multilateral institutions or regional development organizations. The GCF for example has already put measures in place to provide technical assistance and financial support to NDA's (i.e. the Readiness Program), but these tend be meager compared to what is needed to build capacity (WRI, 2021).

03 Complex accreditation and allocation processes

One of the major obstacles for African governments and local entities when it comes to applying for international climate finance is the lengthy, complex and stringent accreditation process imposed by multilateral investment funds. Only a handful of project proposals are succeeding in receiving the funds required to execute their adaptation activities (ECDPM, 2019). Understanding the funds' standards and processes and conforming to them is key to be considered in the allocation process. However, most local organizations in Africa lack clarity on the accreditation processes of multilateral

climate funds due to poor knowledge and capacity to access these funds. Moreover, multilateral investment institutions predominantly use English as working language, creating an additional barrier to finance for French-speaking African entities (Omari-Motsumi, Barnett & Schalatek, 2019). Another obstacle is the extensive project approval process, which can take months, sometimes even more than a year. Lastly, there is also the tough transparency check that local organizations have to go through before getting the label of accredited entity. Although requirements for transparency are justifiable, some organizations have withdrawn their proposals in the middle of their application, because of the intensity of investigation into their finances (ECDPM, 2019). These barriers can discourage local organizations with limited resources from submitting their application to international climate funds, rendering it only possible for international organizations, such as the World Bank Group or the UNDP, to access such funding programs. Various measures have been adopted by multilateral climate investment funds to facilitate the access to accreditation (e.g. the Enhancing Direct Access pilot of the GCF) and finance allocation (e.g. the Simplified Approval of the GCF), but these have yet to show their effectiveness (CFAS, 2017).

> "The lengthy accreditation process of international climate funds is dissuading governmental agencies and other accredited entities from submitting project proposals to the NDA of the country. A simplified project approval process whereby local organizations can complete the required documents in a local language instead of English or French would be more effective in attracting grassroots organizations." – Moussa Minthé Condé, Expert in sustainable development, Guinea Ministry of Environment and Sustainable Development

04 Fragmented responsibilities

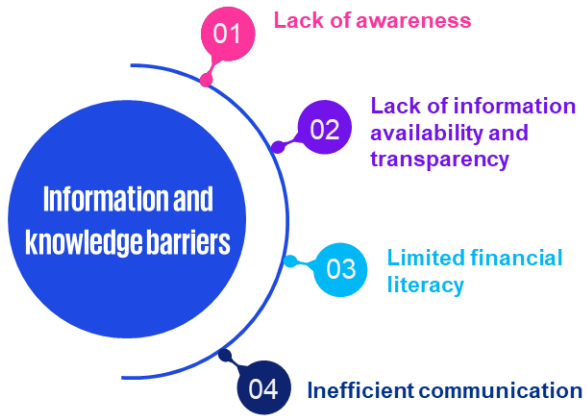
The traditional "top-down" approach of climate finance has contributed to a fragmented climate finance landscape, causing potential problems of accountability, legitimacy and effectiveness (ODI, 2014; CPI, 2019). There are currently many actors who have a mandate to deliver climate finance, such as multilateral climate funds, development finance institutions and private financiers. Although this diversity in finance providers is a good thing to attract more financial resources for adaptation investments, the excess of institutional players in the field has led to complex and fragmented responsibilities.

05 Poor involvement of African institutions

African institutions are key players in effectively channeling international climate finance to small-scale farmers. These entities understand the local context better than any other international organization and can thus provide better support to local recipients.

However, until now, mostly the World Bank Group and UN agencies have been on the forefront of climate finance in Africa (ODI & Heinrich Böll Stiftung, 2011).

3.4 Information and knowledge barriers



Small-scale farmers in Africa are not always aware of climate finance opportunities due to information and knowledge barriers. These barriers hinder them from having access to available subsidies, guarantees and insurance for climate adaptation. Information and knowledge obstacles identified in the course of this research are a general lack in awareness on climate finance possibilities, a lack of information availability and transparency from finance providers, the limited financial literacy of small-scale farmers and the inefficient communication between the many intermediaries involved in the climate finance scene.

01 Lack of awareness on climate adaptation

As briefly touched upon in the previous sections, the lack of awareness on the importance of climate adaptation is one of the many reasons why small-scale farmers have a low access to adaptation finance. Crucial intermediaries, such as agricultural extension workers, rural-based financial institutions and agri-businesses, are not always conscious on the benefits of agricultural adaptation practices and can therefore not communicate related information to small-scale farmers. Multiple developing countries face major obstacles in their journey towards a more climate-resilient economy precisely because they lack sufficient knowledge on national and local adaptation needs (WRI & UNDP, 2015).

> “The major challenge is not the access to finance, but the fact that climate-resilient agricultural practices are not known by small-scale producers nor by public extension workers. It is therefore crucial to first raise awareness to spread the word about climate adaptation.” – Nadia Ouriemchi, Inclusive Finance Expert, ADA

02 Lack of information availability and transparency

Local organizations can be confronted with two types of information-related barriers when accessing climate funding (Gancheva et al., 2020). The first one relates to the lack of understanding on the requirements imposed by climate investments programs. These requirements are usually too complex, written in English and use legal terms, that are not necessarily mastered by locally-driven organizations. The second information-related barrier refers to the inexistence of information on climate investment opportunities tout court, which exacerbates the issue associated with the lack of awareness discussed above. If eligible recipients do not know that they can request climate finance, they will not be incentivized to take climate-resilient measures.

Next to the lack of information availability, the lack of transparency on climate finance data is also an issue. Gancheva et al. (2020) reports on the existence of gaps in the data on climate financing from local to international levels. The approaches used to track investments are also not coherent and lack consistency. This creates difficulties in assessing whether there are enough funds to reach climate objectives and complicates the monitoring of climate finance impacts on all levels. Similar remarks have been made by the Climate Policy Initiative (2020), who suggest the inclusion of datasets on small-scale farmers to crystalize practical actions that (non)-state actors could take.

03 Limited financial literacy

Small-scale farmers generally have little to no financial literacy. Most of them do not dispose of additional sources of income, have no or little credit history and cannot present a track record of successfully repaid loans (World Bank Group, 2016). This hampers them from accessing the necessary funds for climate adaptation projects they would want to implement on a local scale.

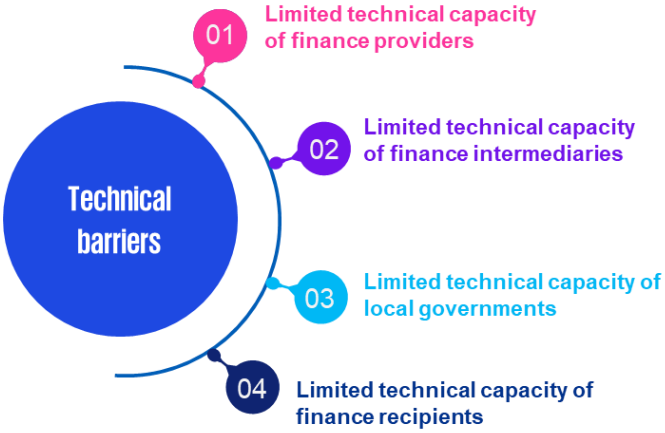
04 Inefficient communication

To increase the access to climate finance and make the overall grant oversight and operational management of multilateral funding more effective, there is a need for more frequent, transparent and structured communication. However, current providers and intermediaries of climate finance do not disseminate the existence of such funds in an accessible and effective way, leaving small-scale farmers at the end of the line uninformed on the availability of finance for climate adaptation. With funds increasing in size, communication will become more important as documentation on rules and

procedures that can be understood by all actors will become more important too (ODI, 2014).

> "We were not aware that the government provides climate finance to small-scale farmers and farmer organizations until an international NGO, who got access to this information, told us so. We tried to contact the Ministry of development to receive more details on those funds, but we have not gotten an answer yet." – Ibrahima Diop, Project Expert, FAPAL

3.5 Technical barriers



Although the rollout of technology in Africa happens at full speed, the access towards these technologies can differ among various stakeholder groups. Both finance providers, intermediaries and finance recipients in developing countries can be confronted with additional challenges due to a lack of technical capacity and access to public data. These technological challenges are briefly discussed below.

01 Limited technical capacity of finance providers

Private finance providers, such as banks and other commercial financial institutions, need to have access to sufficient and quality climate data to deploy effective finance instruments for the agricultural sector. In a high-risk industry as agriculture, disclosing the actual and future climate-related risks for small-scale farmers is essential to mainstream resilience in the investments that private financial institutions are making. With the use of climate data, finance institutions can come up with adequate instruments that can build resilience to climate change impacts (e.g. climate bonds) or help to recover from potential climatic events (e.g. weather-index insurances). This data, however, is often inexistent or of low quality in developing countries, due to a lack of funding or technical resources (GCA & CPI, 2022).

02 Limited technical capacity of finance intermediaries

Also finance intermediaries experience limited technical capacity, which can negatively impact their quest for climate adaptation finance. Local organizations, such as district governments, NGOs and other grassroots organizations, do not always have access to the technological tools required to apply for climate funding. This hampers their access to information on climate finance as well as hinders their ability to aggregate their financial assets to attract private adaptation funding (CPI, 2019).

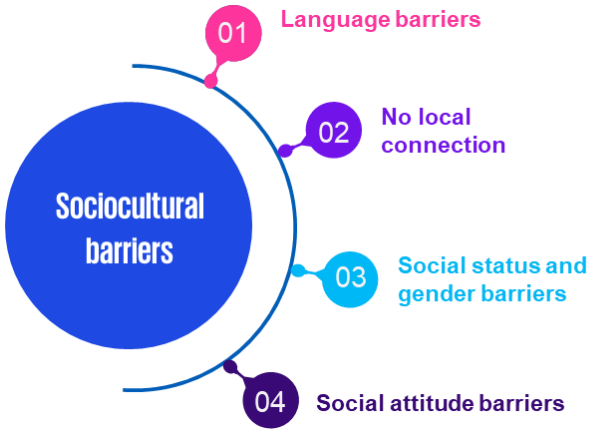
03 Limited technical capacity of local governments

As mentioned above, many developing countries in Africa lack the necessary climate data for adaptation activities, which creates uncertainty on how to build resilience. Local governments do not have the technical resources to develop e.g. seasonal weather forecasts or long-term climate projections. This data, however, is essential to undertake climate risk assessments as a basis for agricultural adaptation planning (GCA & CPI, 2022).

04 Limited technical capacity of finance recipients

Both farmer organizations and small-scale farmers have limited technical capacity too, hindering them in adopting climate-resilient practices. The lack of training on adaptation activities and absence of key information, such as seasonal weather forecasts and local early warning indicators, negatively impact their ability to adapt to climate change. As a result, they experience trouble in mapping their climate adaptation needs and related costs, not knowing how much finance they need to accommodate to build climate resilience.

3.6 Sociocultural barriers



Sociocultural barriers refer to the social and cultural issues that are hampering finance recipients in their quest for adaptation funding. These relate to the language used, the social status system in a community or the overall attitude of the recipients towards climate adaptation. The following subsections describe each of the identified sociocultural barriers in more detail.

01 Language barriers

The first sociocultural barrier identified in accessing adaptation finance for African countries relates to the challenges associated with the language used and its complexity. As discussed above, most climate funds use English as working language to request financial resources, receive practical information or submit project proposals. This can be challenging for the non-English speaking actors in Africa as they need to spend significant time and resources on translating the documents they receive and those they need to hand in. Moreover, the use of jargon can further exacerbate this issue and even require external consultants to decrypt the hidden message. This is an additional difficulty for smaller organizations that do not dispose of in-house staff with the necessary expertise or financial resources to get outside support (Omari-Motsumi et al., 2019).

Defeating these language barriers will help increase awareness on climate adaptation and access to international climate finance on national and local levels. Various service providers active in development projects have already stepped up and now provide their standards and procedures in more than just one language, but there is still a long way to go (OECD, 2015a).

02 No local connection

An important issue that has been addressed throughout this paper, is the lack of connection between international climate funds and the local context. Multilateral institutions are often too distant from the reality of local finance recipients in countries where they invest in (ECDPM, 2019). This creates a potential defiance in local expertise on adaptation planning, which is essential to be able to monitor the impacts of financed initiatives (Adenle et al., 2017a). In the absence of strong boots on the ground, via local

development organizations, NGOs or agricultural extension workers and researchers, climate finance will not be able to effectively reach small-scale farmers.

03 Social status and gender barriers

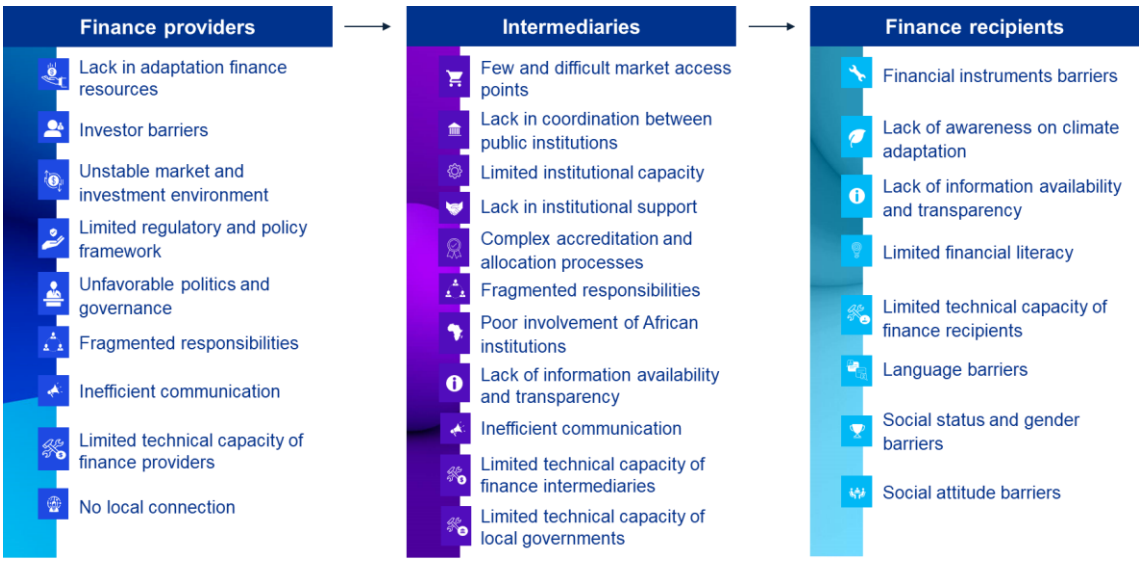
Certain community members can be hindered in their quest for climate finance due to an imbalance in social power relations and gender biases. This is particularly the case for women and poor community members. In 2015, Antwi-Agyei et al. (2015) conducted a study on the barriers to climate change adaptation in northeast Ghana, where they discovered that women were less likely to partake in climate adaptation actions, such as climate migration, due to cultural pressure. Hence, it is important to bear in mind that social statuses play an important role in the climate scene and can be an additional challenge in accessing climate adaptation finance.

> "Female farmers cannot easily access loans due to a lack of collateral. In the agricultural sector, a common form of collateral is land. However, in most cases women do not own nor control the land they are farming on and can thus not offer it up as collateral for a loan. At Kango Microfinance we want to help these women by organizing them in farmer groups and supporting them with affordable loans." – Barbara Mwagale, Founder, Kango Microfinance Uganda

04 Social attitude barriers

At last, weak or incorrect social attitudes towards climate adaptation also exist. These social attitudes can be negative biases or prejudices on the need or use of climate adaptation programs and related financing sources. Changing those social attitudes and making them more positive is crucial to be able to engage with local entities (WRI & UNDP, 2015).

To summarize this chapter, an overview is provided of the identified barriers of accessibility to adaptation finance according to the key stakeholders of the climate financing landscape they have an impact on.



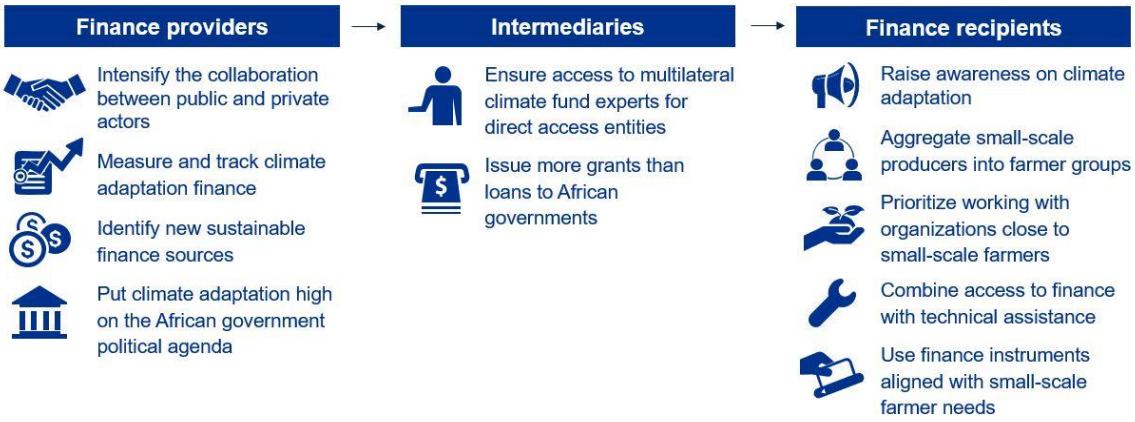
Most obstacles are experienced by local organizations that either channel international or domestic flows of climate finance to small-scale farmers (i.e. intermediaries) or actually receive climate funds as targeted stakeholders (i.e. finance recipients). These barriers are the primary obstacles that have to be tackled to ensure that climate finance effectively reaches small-scale farmers, but equally important are the challenges encountered by finance providers to guarantee a greater and stable volume of climate funding. The box below shows how the identified barriers can be prioritized using examples that are applicable to all countries in scope. As for the other obstacles, these strongly depend on the country-specific context, determined by factors such as the existence of a sound regulatory framework or the presence of strong public institutions. The next chapter goes into depth on how these barriers can be tackled by the wide range of stakeholders in the climate finance field and beyond.

Prioritization of identified barriers

- Barriers that make the access to finance impossible: e.g. the overall lack of adaptation finance resources and the persistent investor barriers.
- Barriers that greatly impact the access to finance: e.g. language barriers and lack of local connection.
- Barriers that impact the access to finance to a limited extent: e.g. the limited technical capacity of finance intermediaries and the inefficient communication between local governmental agencies.

4 Recommendations to advance climate adaptation finance

All actors involved in the financing landscape for agricultural adaptation have a role to play in eliminating the identified barriers to climate financing. The recommendations below seek to provide practical suggestions on how these public, private and non-state actors can take the lead in facilitating the access to adaptation finance for small-scale farmers. The recommendations are formulated in a general way to fit the context of each African country; however, it is important to keep in mind that some recommendations might be easier to apply in regions with more favorable market conditions. These recommendations are structured according to the key players of the climate finance landscape they are benefitting, being the finance providers, the intermediaries or the finance recipients.



4.1 Recommendations benefitting finance providers

Intensify the collaboration between public and private actors when mitigating the risks associated with investing in agriculture and to mobilize additional resources.

De-risking adaptation investment in small-scale agriculture is indispensable to attract climate finance from private actors. The public sector has a key role to play in this through the set-up of blended finance structures, the availability of government guarantees and policy incentives, supported by the appropriate regulatory frameworks. To address the persistent market and information barriers that impede private actors from investing in climate-resilient activities, local public institutions, multilateral DFIs and climate funds can e.g. provide catalytic funding for climate-smart agricultural practices or share the risks of innovative adaptation technologies. Next to providing finance, the public sector can also use policy reforms to drive private investments in agricultural adaptation. For instance, governments could ensure that priority actions for adaptation are incorporated

into national strategies for agricultural planning. A last thing that the public sector could do is improving the access to public data, such as climate information, to support private investors in assessing climate risks. The latter would ensure that current private investments become climate-resilient and thus more financial resources would flow towards adaptation projects.

The **Incentive Mechanism for Agriculture Financing Based on Risk Sharing (MIFA)** is a Togolese financing tool that has specifically been conceived to increase the access to financial resources for the agricultural sector. The aim of this public-private financing mechanism is to promote risk sharing, provide insurance schemes, offer technical assistance, deliver interest rate subsidies and deploy policy incentives that are adapted to the needs of small-scale farmers. It is a multi-actor initiative that wants to solve the issue of agricultural financing beyond the funding aspect by helping small-scale farmers to group into cooperatives, strengthen their skills and develop business plans. The MIFA was launched in 2018 by the Ministry of Agriculture, Livestock and Rural Development and the Ministry of Economy and Finance of Togo and is funded by a wide range of partners, such as the African Agricultural Bank, International Fund for Agricultural Development (IFAD) and the World Bank Group. These partners act as guarantor for small-scale producers when requesting a loan at commercial banks.

The formation of the MIFA was inspired by a similar initiative established in Nigeria, the Nigerian Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), which provided technical expertise to set up the MIFA in Togo. This concept of risk sharing can be used as a basis to increase finance to adaptation activities in agriculture by incorporating climate change considerations, which is not yet the case for the MIFA nor NIRSAL. Other countries in the continent with a similar agricultural context as Togo and Nigeria, such as Niger for example, could also be inspired by this innovative financing tool to attract private investment in the agricultural sector (South-South Galaxy, 2022).

Table 1. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Provide blended finance mechanisms ▪ Pass policy reforms ▪ Improve the access to public data	▪ Multilateral climate funds and DFIs ▪ Local public sector (African governments)	▪ Lack of information availability and transparency ▪ Investor barriers ▪ Unstable market and investment environment ▪ Technical barriers for finance providers

Measure the impacts of financed adaptation projects and track climate finance.

In an ideal world, most climate finance would go to successful adaptation activities that aim at improving the climate resilience of small-scale farmers. However, until now, the bulk of adaptation funding has gone to large-scale infrastructure projects instead of low-cost adaptation activities led by local communities (GCA & CPI, 2021). Although investments in infrastructure (such as effective grain storage silos) are necessary to enable a climate-resilient agriculture, adaptation activities on the level of a small-scale farmer (such as crop diversification and resilience) would be more effective to make progress on climate adaptation. Measuring successful adaptation on a small-scale level is thus essential to investigate whether climate investments are actually reaching the most vulnerable communities. For this, consensus on what climate adaptation entails and how it can be measured is crucial.

> "Large-scale infrastructure projects, such as tanks and pipes, are not replicable and useful on the level of a small-scale farmer. Small-scale infrastructure is more effective, but is unfortunately underfinanced." – John Ereng, Rice Cluster Director, Rikolto in East Africa

Governments from developed countries and developing countries as well as multilateral institutions and climate funds should work together to come up with a common definition and set methodology on how to measure and track the impacts of, and finance flows towards, adaptation activities. This measuring system should target both large-scale adaptation projects and activities on the level of the small-scale farmer. Such dialogues can take place during annual COPs or through the bias of the Standing Committee on Finance (SFC), that was established during COP 16 to provide support in implementing the financing mechanism of the UNFCCC (UNFCCC, 2022a). Existing reporting methodologies, such as the OECD's Rio markers for climate, can be used as a basis to develop a systematic approach to measuring climate finance for adaptation. Particular attention should be paid to high-risk sectors, such as small-scale agriculture. Finance providers and intermediaries require an enhanced reporting framework in which flows to small-scale farmers are specifically tracked. These reporting mechanisms should also consider the needs of the private sector to ensure a consistent approach to tracking climate adaptation finance in the future.

Consistency will guarantee a more efficient and reliable reporting, which will contribute to the policy making process of local recipient governments. This will address some of the persistent political and technical barriers to climate adaptation finance as local governments (e.g. through the Ministries of Finance) will be able to better estimate their needs and costs of climate adaptation measures. These more accurate estimations can in turn support the elaboration of climate adaptation programs and related budgeting and

regulatory frameworks. Reinforced reporting mechanisms, adaptation programs and suitable legal frameworks will actively bring in more accountability, transparency and inclusiveness, which are all effective anti-corruption measures.

Table 2. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Set a common definition and methodology to measure and track adaptation finance	▪ Governments from developed countries ▪ African governments ▪ Multilateral public sector (DFIs, international climate funds)	▪ Investor barriers ▪ Political and regulatory barriers ▪ Lack of information availability and transparency

Identify new finance sources beyond the voluntary country contributions of donor countries.

International climate finance providers, such as multilateral climate funds, DFIs and development aid agencies all rely for the majority on voluntary contributions from developed nations. This source of financing, however, remains extremely low compared to what is needed to cover the costs of climate adaptation in Africa. Unless donor governments increase their contributions to climate finance, multilateral institutions and investment funds will have to resort to alternative sources of finance to cover the needs of climate-vulnerable countries. Potential new donors for climate finance can be philanthropies. According to Mckinsey Sustainability (2021), philanthropists can play a key role in making the agricultural sector more climate resilient as they can effectively target the industry and its stakeholders. Existing financing mechanisms, such as the GCF, already looking into new ways to mobilize investments from this and other new financing sources.

> "The most catastrophic impacts of climate change – rising sea levels, extreme weather events and unpredictable weather patterns – are already having a devastating impact on the agriculture sector, which is the source of livelihoods for many local communities and indigenous people. At GCF we use innovative finance mechanisms, de-risk private investors and enable developing countries' access to capital markets to scale up adaptation finance, increase agricultural resilience and promote food security." – Thomas Bishop, Climate Investment Specialist, Green Climate Fund

Table 3. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Identify alternative sources of finance, such as philanthropies	▪ Multilateral climate funds and DFIs	▪ Lack in adaptation finance resources

Put climate adaptation high on the political agenda of African governments and build an enabling environment to attract and retain climate investment.

Politics and governance play an important role in catalyzing climate finance for adaptation activities. Without an active involvement of core governmental functions, private and public investments in climate adaptation will continue to be insufficient compared to what is needed to cover the costs of building resilience against climate change. It is thus essential that African leaders that have not yet made a priority out of climate adaptation take the responsibility to do so by integrating climate change considerations into socio-economic and financial policymaking. The public opinion is key to convince ministries in doing so, but equally important are capacity building-programs and technical assistance from multilateral or regional organizations, such as the World Bank Group or the East African Community (EAC). These institutions can support African governments in developing legal and regulatory frameworks that increase the attractiveness of African markets and encourage investments in climate adaptation. Examples of relevant regulatory adjustments are national adaptation plans and innovative fiscal transfer instruments to boost private investments in climate-resilient agriculture. With these tools, local governments could exempt activities that contribute to climate adaptation from certain taxes and deploy subsidy programs to incite the agricultural sector in adopting climate-smart practices.

> "If climate adaptation is not a priority for the prime minister's office, other ministries and governmental agencies won't take it seriously. It is essential to have the prime minister push for this." – Stakeholder workshop in Kampala

Table 4. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Put climate adaptation high on the political agenda ▪ Integrate climate change considerations into socio-economic and financial policymaking ▪ Develop market supportive legal and regulatory frameworks ▪ Provide capacity building-programs and technical assistance	▪ African governments ▪ Multilateral or regional organizations	▪ Investor barriers ▪ Limited regulatory and policy framework ▪ Unfavorable politics and governance ▪ Lack in coordination between public institutions ▪ Poor involvement of African institutions ▪ Lack of awareness on climate adaptation ▪ Limited technical capacity of local governments

4.2 Recommendations benefitting intermediaries

Ensure that direct access entities have access to experts who understand the complex accreditation and allocation processes of multilateral climate funds.

To involve local organizations, such as NGOs, agri-businesses and rural financial institutions, multilateral climate funds need to ensure that these organizations can get accredited as direct access entities (i.e. entities with a direct access to international climate funds). For that, they need to have access to sufficient financial resources for capacity building and understand the requirements that are imposed by international climate funds.

To overcome the barriers local organizations are confronted with, climate funds should provide technical experts, such as internal consultants, to assist local entities in developing concept notes and filling in the necessary documents. These consultants and translators should stay for a period that is long enough to fully train and support local organizations, who can in turn support other local organizations that would like to apply for climate funding or would want to become accredited entities (train-the-trainer approach). Translators should also be appointed by the multilateral climate funds on a permanent basis to translate the required documents for non-English speaking stakeholders, especially in French. In terms of costs, this would provide enormous benefits to local stakeholders applying for international climate funding, while carrying a small ticket price for multilateral climate funds to appoint a translator.

Table 5. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Provide local organizations with financial support and technical assistance (via internal consultants) to become an accredited entity and apply for climate funding	▪ Multilateral climate funds and DFIs	▪ Language barriers ▪ Complex accreditation and allocation processes ▪ Lack of information availability and transparency ▪ Technical barriers of finance intermediaries ▪ Institutional barriers of finance intermediaries

Issue more grants than loans to developing countries governments.

Adapting to climate change involves high risks. The focus should therefore be on providing grants rather than issuing loans to developing countries. This is especially relevant for financing adaptation activities in a high-risk industry as agriculture, where private investments tend to be minimal. In a context where developing countries are already facing major debt burdens, forcing them to take out loans to build resilience against a climate crisis they barely contributed to, would further exacerbate the debt-related challenges they are experiencing since the COVID-19 pandemic (Oxfam, 2022). According to Debt Justice (2022), the average government external debt payments amounted to 14.3% of total governmental revenue in 2021 compared to 6.8% in 2010. Foreign governments should therefore take the responsibility to fill the climate financing gap of African countries by providing grants or innovative finance instruments for public debt management. An example of such instrument is the debt for climate adaptation swap. Debt swaps are a form of results based financing whereby creditors, such as developing countries, accept to receive less than the nominal value of the debt that was initially agreed upon if the freed up capital is used for environmental or climate purposes (CPI, 2022c). Such debt swaps can be introduced by developed countries to finance climate adaptation in debtor nations across Africa.

In 2017, the Seychelles introduced the first debt for climate swap specially aimed at conserving the ocean. To make this possible, the government of Seychelles created the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) together with The Nature Conservancy (TNC). The latter acquired the foreign external government debt of Seychelles at a discounted price and raised additional donor funding to feed the fund they have established together. Instead of repaying the loans to the initial creditors, the government of Seychelles will repay its debt to the SeyCCAT trust that

has been specifically conceived to protect the coral reefs and shallow waters in Seychelles (CPI, 2022c).

Table 6. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Provide more grant-based financing to developing countries	▪ Governments from developed countries ▪ Multilateral climate funds and DFIs	▪ Financial instruments barriers for local governments ▪ Limited financial capacity of local governments

4.3 Recommendations benefitting finance recipients

Raise awareness on climate adaptation to increase demand and supply of climate adaptation finance products and services.

Although the impacts of climate change are already visible across the African continent, not all stakeholders are aware about their climate-vulnerability and the measures they can take to adapt to climate change. Public awareness, in the agricultural sector and beyond, is thus essential to increase support for climate action, stimulate self-mobilization and enhance the use of local knowledge and resources. Both policymakers and politicians have a crucial role to play in increasing awareness on the matter. These public actors can set up communication campaigns, run by public, private or non-state extension workers, to raise awareness among the local population with the aim to achieve long-lasting behavioral change. Awareness raising should be the first step in the adaptation finance process as it would help to increase the supply and demand for climate adaptation products and services (e.g. weather-index insurance).

"It is crucial to raise awareness on the effects of climate change in first place to hopefully change attitudes of local public and private stakeholders and get them to take action." – Moudou, Head Sustainable Development Service, Dagadana City Department

Table 7. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Set up communication campaigns to raise awareness on climate adaptation	▪ Public, private or non-state extension workers	▪ Lack of awareness ▪ Inefficient communication ▪ Social attitude barriers

Aggregate small-scale producers into farmer groups to increase their access to climate finance.

As mentioned before, small-scale farmers are often geographically dispersed, making it difficult for them to be approached by finance providers or extension workers. By aggregating them in sufficiently large groups, these farmers can cluster their financial resources as collateral and decrease the transaction costs banks have to bear. This is especially beneficial for small-scale farmers that are obstructed in their access to climate finance due to sociocultural barriers, such as social status, gender or (financial) literacy. Vulnerable farmers that do not have the financial means to protect themselves against potential climate risks, would be able to do so by acquiring insurance products on group level. In addition, farmer groups can also ensure that small-scale farmers become bankable through financial management and record keeping. These metrics could be used as an alternative to providing a collateral, facilitating the access to finance.

Another advantage of farmer groups is the continuous knowledge sharing among group members on information shared by extension workers, such as climate-resilient agriculture for instance. Adaptation activities could be implemented by many farmers at once and, after successful completion, these could be used as potential data source to lower the persistent information asymmetry between the local level and private investors. Lastly, farmer groups also provide a privileged access to input suppliers and commercial markets, ensuring the long-term sustainability of group members and their financial capacity to adapt to climate change. Needless to say, these recommendations on farmer groups will be better implemented in countries where farmer groups are recognized as reliable partners of the public sector.

> "Both banks and microcredit institutions privilege grouped credits over individual loans for small-scale farmers given the lower risk for nonpayment." – Assane Diop, Senegal Representative, SOS Faim

Table 8. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Aggregate small-scale farmers in large-scale farmer organizations	▪ Public, private or non-state extension workers ▪ Farmer organizations	▪ Investor barriers ▪ Lack of institutional capacity of finance recipients ▪ Lack of information availability and transparency ▪ Limited financial literacy

- Technical barriers of finance recipients
- Language barriers
- Social status barriers

Prioritize working together with organizations that are close to smallholder farmers, such as NGOs, agri-businesses and rural-based finance institutions.

The international climate finance scene is considered to be too complex and fragmented due to the high number of institutional players it encompasses. These institutional players are usually unfamiliar with what is happening on the ground and do not use the right communication tools to communicate with small-scale farmers and farmer associations on existing climate funds and guarantees provided by local ministries. The access to these climate funds is in most cases managed by a multilateral DFI or the Ministry of Finance, which - in comparison to the Ministry of agriculture - does not have a close relationship with agricultural stakeholders. In addition, according to the participants of the stakeholder workshop in Kampala, local ministries barely communicate with each other on certain matters that might be of interest to the other party. This leaves out agricultural extension workers on crucial information, such as the existence of climate funding, that might be of relevance to local farmer organizations.

> "Ministries have neither the resources nor the time to inform small-scale farmers and farmer organizations about climate funding opportunities. It is therefore essential to involve other more technical groups in doing so." – Moussa Condé, Expert in sustainable development, Ministry of Environment in Guinea

Instead of channeling international climate funding through public ministries and distant multilateral organizations, climate funds could opt to involve locally anchored organizations that have a direct access to remote target groups. This does not mean that ministries and government agencies should be entirely skipped in the international climate finance scene as they need the funds to carry on with their work; however, involving local grassroots organizations can specifically help with effectively channeling the funds to small-scale farmers. These local organizations can be NGOs, agri-businesses or a rural-based finance institution that work closely with small-scale farmers and thus understand their unique needs. NGOs are already quite present in the climate financing scene, especially in Africa, but agri-businesses and local finance institutions less so. However, the latter two are well-placed to maximize the impact of climate adaptation finance for small-scale producers given that they play a crucial role in linking them to commercial markets. By targeting them through direct investments and capacity building, climate funds can support these actors in mainstreaming climate adaptation

conditions in their supply chains, products and services. For instance, rural microfinance institutions could use grants from multilateral climate funds to provide low-interest loans to small-scale farmers on the condition that these microfinance loans are used for climate adaptation purposes only. Another possibility is to directly provide climate funding as input subsidies on climate-resilient agricultural necessities, such as seeds or fertilizers. Lastly, climate funds could also invest in agri-businesses that only buy produces from climate-resilient farms (e.g. by tracking a food label), this way motivating farmer organizations to adopt climate adaptation practices. This does not mean that Ministries and government agencies should be

> "Agri-businesses are key players in the climate finance field as they allow small-scale farmers to get commercial contracts and sustain their businesses." – Ibrahima Diop, Project Expert, FAPAL

Table 9. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Involve locally anchored organizations with direct access to small-scale farmers to channel climate finance as finance intermediaries (e.g. NGOs, agri-businesses or rural-based finance institutions)	▪ Multilateral climate funds and DFIs	▪ Financial instruments barriers for finance recipients ▪ Complex accreditation and allocation processes ▪ Fragmented responsibilities ▪ Lack of local connection ▪ Market barriers

Combine the access to finance for small-scale farmers with technical assistance and training on climate smart practices.

Climate adaptation projects have shown to be successful when coupling financial resources with capacity building and training on climate-resilient agriculture. Intermediaries, such as agricultural extension workers, research institutions, rural-based financiers and NGOs, should work together to tackle the barriers that hinder small-scale farmers from adapting to climate change, such as the lack of awareness on climate adaptation, training on climate-smart practices and climate finance for adaptation activities. Local agri-businesses also have a role to play in this by providing small-scale farmers with direct sales opportunities, which can help them in achieving sustainable incomes. An example of a successful climate adaptation project that is based on cross-sectoral collaboration, is the Measures Against Climate Change in Agriculture (MACCA) project in Uganda that has been launched as part of the KLIMPALA project. The MACCA

project receives climate finance from the Flemish government and is being implemented by a consortium of private and third party actors. While Ondernemers voor Ondernemers (OVO) and Einstein Rising are in the lead, Amelia Agro Africa Limited, Akaboxi Limited and Rena Beverage Solutions Limited take care of the practical implementation of different elements of the initiative. Amelia Agro Africa Limited acts as a real agro lab, providing training in agroecology for female smallholder farmers in the region of Busoga. Akaboxi Limited is a digital financial inclusion system that enables smallholder farmer organizations to manage their savings and access affordable microfinancing loans. As for Rena Beverage Solutions Limited, the private company committed to buy all hibiscus flowers produced by those same farmers, this way ensuring that they can have a direct and sustainable access to the commercial market.

> "Small-scale farmers appreciate coaching more than funding alone as it helps them to translate their needs and the knowledge they get from extension workers into concrete actions." – Björn Macauter, General Manager, Ondernemers voor Ondernemers (OVO)

Table 10. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Couple adaptation finance for small-scale farmers with capacity building and training on climate-resilient agriculture	▪ Local finance and implementing intermediaries (i.e. agricultural extension workers, research institutions, rural-based financiers, NGOs and agri-businesses)	▪ Market barriers ▪ Technical barriers for finance recipients ▪ Lack of awareness on climate adaptation ▪ Lack of financial literacy

Use innovative finance instruments that are complementary to the adaptation finance needs of small-scale farmers.

Small-scale farmers often lack adequate collateral to secure traditional commercial loans, forcing them to turn to the informal economy. To increase the access to conventional finance for small-scale agricultural adaptation in Africa, innovative finance instruments can be used instead. For instance, public funders could invest in weather index insurance with international climate finance to de-risk loan products and increase the climate resilience of small-scale farmers. Another possibility would be to explore fintech opportunities to lower the transaction costs fueled by the dispersion of small-scale farmers across vast areas of land within African countries. According to the GSMA (2022), sub-Saharan Africa has the fastest growing market for mobile money, paving the way for small-scale farmers to use digital finance services as an alternative to cash. It

goes without saying that the uptake of mobile money-enabled services in small-scale agriculture can only be enhanced if investments are made in telecom infrastructure, the services are tailored to the needs of these stakeholders and technical assistance is provided (e.g. in the form of a local agent where farmers go to for technical support on how to use their mobile phone to access their finances or assistance on how to carry out financial transactions if they do not own a mobile phone). If these requirements are fulfilled, mobile money could help farmers to access financial services without having to physically go to a bank, increasing their trust in the formal economy. As such, small-scale farmers would be able to get mobile money-enabled insurance services linked to a credit, which would allow them to invest in climate-resilient agricultural inputs, such as improved irrigation or eco-friendly fertilizers.

Following Typhoon Haiyan in the Philippines, **mobile money-enabled government-to-person (G2P) payments** were made to affected communities. These payments successfully reached the most rural populations, allowing them to clear roads, buildings and hospitals in the disaster aftermath (GSMA, 2014). Similar mobile money transfers could be made by public actors for small-scale farmers to adapt to extreme climatic events using international climate finance.

Table 11. Overview of key actions, stakeholders involved, and (sub)barriers addressed

Key actions	Stakeholders involved	(Sub)barriers addressed
▪ Invest in innovative finance instruments to channel climate finance (e.g. weather index insurance to de-risk loan products) ▪ Explore fintech opportunities to lower the transaction costs (e.g. mobile money-enabled services)	▪ Multilateral climate funds and DFIs ▪ African public sector ▪ Local financial institutions	▪ Market barriers ▪ Financial instruments barriers ▪ Technical barriers for finance recipients ▪ Lack of financial literacy

5 Conclusion

Climate change is expected to disproportionally affect small-scale farmers in Africa by further exacerbating the challenges they already face. Small-scale farmers are extremely vulnerable to climatic changes due to their limited institutional, technical and financial capacity to adapt to climate change. The access to international climate finance is therefore key to ensure that small-scale farmers can implement adaptation activities. Actors in small-scale agriculture, however, are subject to a number of barriers that hinder their access to the funding they need. These barriers can be financial and market barriers, political and regulatory obstacles, institutional barriers, information and knowledge hurdles, technical barriers or sociocultural impediments. While some regions in Africa might be less exposed to certain barriers than others, these obstacles were found to be present across all countries in scope.

Various actors can take the lead in increasing the access to climate adaptation finance for agricultural stakeholders in Africa. The African landscape of climate finance consists of a wide range of public and private stakeholders, that either provide or channel domestic and/or international finance to small-scale farmers. These actors all have a role to play in eliminating the identified barriers of accessibility to adaptation funding. To attract more finance for climate adaptation, African governments could for instance integrate climate change considerations into socio-economic and financial policymaking, develop supportive market regulation frameworks and provide blended finance mechanisms. Multilateral climate funds could take the lead in defining a common climate finance measuring system, identify new sources of finance (a.o. from philanthropies) and support domestic governments with capacity building-programs and technical assistance. Regarding local stakeholders, such as rural-based financial institutions, agri-businesses and NGOs, these could get a more direct access to international climate funds to effectively channel adaptation funding to small-scale farmers, while helping them to group into farmer cooperatives and providing them with technical support.

Collaboration across public and private actors in the climate finance and agricultural field will be instrumental in solving the issue of agricultural financing. Combining the access to finance with technical assistance and training on climate smart practices is key to ensure that small-scale farmers understand how they can build resilience against climate change. This, coupled with a more favorable enabling environment and a direct access to market opportunities, will further leverage the success of financed adaptation projects, increasing the adaptive capacity of small-scale farmers.

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7 Appendix

7.1 List of interviewees

Name	Surname	Organization	Country	Date	Place
Mamadou Minthé	Camara	Eucord	Guinea	09.12.2021	Remote
Moussa	Condé	Ministry of Environment and Sustainable Development	Guinea	10.12.2021	Remote
Björn	Macauter	Ondernemers voor Ondernemers (OVO)	Belgium	16.12.2021	Remote
Ward	Goossenaerts	Rikolto	Uganda	16.12.2021	Remote
Thierno	Boubacar Kallo	UGAS (Union des Groupements Agricole de Soumbalako)	Guinea	22.12.2021	Remote
Bram	Willem van den Bosch	Emata	Uganda	12.01.2022	Remote
Barbara	Mwagale	Kango Microfinance Uganda	Uganda	14.01.2022	Remote
Nadia	Ouriemchi	Appui au Développement Autonome (ADA)	Luxembourg	14.01.2022	Remote
Jean	Yao Assogba	FUCEC-TOGO (Micro finance institution)	Togo	17.01.2022	Remote
Hassan	Diop	SOS Faim Sénégal	Senegal	09.01.2022	Thiès, Senegal
Ibrahima	Diop	FAPAL (Fédération des associations paysannes de la région de Louga)	Senegal	02.09.2022	Louga, Senegal
	Moudou	Dagadana City Department	Senegal	02.09.2022	Saint-Louis, Senegal
Ndeye	Fatou Dieng	APAF (Association pour la Promotion de l'Agroforesterie et de la Foresterie)	Senegal	02.09.2022	Louga, Senegal
Khaled Mohammed	Ammar	Egyptian Meteorological Authority	Egypt	27.10.2022	Remote
Godefroid	Nshimirimana	African Centre of Meteorological Applications for Development (ACMAD)	Niger	27.10.2022	Remote
Kosi Tchaa	Agninga	Météo Togo	Togo	27.10.2022	Remote
Audace	Hakizimana	Burundi Hydro Meteorological Department (BHMD)	Burundi	27.10.2022	Remote

Fatima Kimoun	Temfemo	Ministry of Agriculture	Cameroon	27.10.2022	Remote
Thomas	Bishop	Green Climate Fund (GCF)	South Korea	10.11.2022	Remote

7.2 Stakeholder workshop participants

The stakeholder workshop took place on Wednesday 30th of November 2022 in Kampala, Uganda.

Name	Surname	Organization
Cosmas	Alfred Butele	Ministry of Agriculture, Animal Industry and Fisheries
	Openytho	Independent Consultancy
Fauzia	Namukuve	Ministry of Water and Environment
Cyprian	Ssekubulwa	Ministry of Agriculture, Animal Industry and Fisheries
Africano	Kangire	National Agricultural Research Organisation
Cassius	Aruho	National Agricultural Research Organisation
Idd	Ramathani	National Agricultural Research Organisation
Barry	Kamira	National Fisheries Resources Research Institute
James	Ogwang	National Agricultural Research Organisation
Grace	Kazigati	National Agricultural Advisory Services
Nakayimba	Rehema	National Agricultural Research Organisation
Ssekandi	Wilber	National Agricultural Research Organisation
Daniel	Musiitwa Ssubi	Federation for Small & Medium Enterprises Uganda
Sylivia	Logose	Chain Uganda- National Research Organization
Apolo	Kasharu	National Agricultural Research Organisation
Paul	Opio	Makerere University Regional Center for Crop Improvement
Aruho	Simplisio	Agropreneur Initiative
John	Ereng	Rikolto in East Africa
Bart	Dewaele	Join For water
Marion	Iceduna	Join For water
Richard	Nsamba	TRIAS
Pius	Kifiigi	Einstein Rising
Arnold	Mugabe	Einstein Rising
Brian	Mangeni	Einstein Rising

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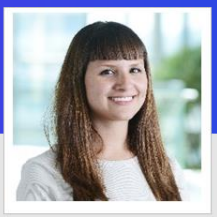

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