CLIMATE FINANCE IN AFRICA

Needs, challenges and opportunities to deliver the financial resources required to drive low-carbon and climate-resilient development

APRI
AFRICA POLICY RESEARCH INSTITUTE

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Acronyms and abbreviations

AfDB	African Development Bank
AFOLU	Agriculture, Forestry and Other Land Use
BRICS	Brazil, Russia, India, China and South Africa
COP26	26th United Nations Climate Change Conference
CIF	Climate Investment Fund
CPI	Climate Policy Initiative
CSO	Civil Society Organisation
DFI	Development Finance Institution
ESG	Environmental, Social and Governance
EU	European Union
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
LCOE	Levelized Cost of Energy
MDB	Multilateral Development Bank
MGEE	Ministry of Green Economy and Environment
NAP	National Adaptation Planning
NAMA	Nationally Appropriate Mitigation Actions
NCCP	National Climate Change Policy
NDA	Nationally Designated Authority
NDC	Nationally Determined Contribution
NPCC	National Policy on Climate Change
ODA	Official Development Assistance
OECD	Organisation for Economic Co-Operation and Development
PPP	Public–Private Partnership
RE	Renewable Energy
REDD+	Reducing Emissions from Deforestation and Forest Degradation

SDGs	Sustainable Development Goals
SSA	Sub-Saharan Africa
SME	Small and Medium-Sized Enterprise
SOE	State-Owned Enterprise
SWF	Sovereign Wealth Fund
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

Summary

Objective of the study

Finance in support of technological and societal changes for a net-zero, climate-resilient future is a contested political battleground globally. Climate finance is a delicate policy issue, where even the definition is contested: Distributional conflicts are determined by which financial flows should count as climate finance, with further procedural and recognitional legitimation questions including Who gets what? Who qualifies to unlock funds classified as climate finance, and how?

This report investigates the emerging climate policy arena and maps actors, coalitions and contestations associated with implementing nationally determined contributions (NDCs) in Africa. We focus on the current status, practical experiences and perceptions of state and non-state actors in Africa in securing climate financing to implement the NDCs. While there is no broad global consensus on the definition of climate finance, the closest is provided by the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC defines climate finance as "local, national or trans-national financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change".[1] Another definition provided by the UNFCCC Standing Committee on Finance (SCF, 2014)[2] is as follows: climate finance is financing "that aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing [the] vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts".

Africa is one of the world's most vulnerable regions to climate change. The Glasgow Climate Pact agreed at COP26 resulted in global governments pledging to phase down fossil fuels and increase financing for climate change adaptation. Likewise, developed economies pledged to double their support from 2009 levels by 2025. However, Africa remains highly dependent on external financing to implement its NDCs and meet net-zero goals under the 2015 Paris Agreement. Meeting those goals is also confounded by the limited fiscal space available to governments in the sub-region to implement the NDCs. We undertake this study within the context of limited domestic fiscal resources and a challenging external environment with the aftershocks of the ongoing Russia-Ukraine war.

The report focuses on two areas:

- **Global narratives on climate change and climate finance and its application to Africa**. We analyse how global climate financing categorisations (for example, adaptation versus mitigation and loss and damage) feed into how stakeholders conceptualise these issues at the African country level. These global norms are further tested against country-level developmental objectives such as the twin issues of energy poverty and affordability and the pursuit of low-carbon industrialisation.

- **Deep dives on three countries (case studies): Ghana, South Africa and Zambia.** These countries allow us to provide a nuanced picture of which set of factors are driving both flows into and demand for climate finance in some archetypal countries and what valuable lessons could be learned to shape continental climate financing policy. Based on the analysis and these case studies, this report builds an evidence base on climate finance needs, perceptions, challenges and solution pathways.

The methodology used in producing this report encompassed qualitative, quantitative and political economy analysis. First, we conducted an extensive literature review to understand the main stakeholders and their responsibilities or mandate concerning climate finance policy formulation and investment attraction on the continent. We then undertook selected stakeholder interviews with individuals and organisations engaged in the respective national policy debate on these issues at the country level. This exercise also helped identify possible misalignment in stakeholder interests and motivations vis-à-vis climate financing and the energy transition.

That research was followed by an analysis and reconciliation of climate finance information collected from multilateral, bilateral and national stakeholder institutions. The findings from the qualitative and quantitative analyses were further analysed using a Problem-Driven Political Economy Analysis (PDPEA) to identify the root causes or bottlenecks to attracting and accessing climate financing. They thus allow us to propose possible intervention areas (recommendations).

We expect the report to contribute to discussions before and during COP27 by providing empirical evidence to support negotiating positions around equity and fairness in accessing finance and effectiveness.

Key findings

Global narratives on climate change and climate finance and its application to Africa

1. **Africa has contributed the least to global climate change – the region is not a significant source of greenhouse gases (GHGs) – but it stands to bear the severest negative consequences of it.** Available data from various global organisations indicate that Africa's contribution to global GHGs stood at less than 4% as of 2020. In contrast, the top ten developed economies, with 75% of global economic output as measured by GDP, account for two-thirds of annual global GHGs: China (26%), the United States (13%), India (7%), European Union (7%), Russia (4%), Indonesia (4%), and Brazil (3%), among others. Within Sub-Saharan Africa (SSA), CO_2 emissions per capita have barely increased over the past three decades despite the two-fold increase in the sub-region's population from 509 million in 1990 to 1.11 billion in 2019. This mismatch reflects the continent's development deficit and pervasive energy poverty. At a sectoral level, most of Africa's GHG emissions come from land-use change and forestry (LUCF: 36%) and the energy sector (35%). These sectors are followed by agriculture (21%), industrial processes (4%) and waste (4%).

2. **Climate financing inflows into the region have been far short of what is needed.** Conservative estimates indicate that Africa needs US$2.5 trillion (74% of the continent's US$3.4 trillion GDP in 2021) or US$250 billion annually in conditional and unconditional financing between 2020 and 2030 to implement its NDCs under the Paris Climate Agreement. Current reported annual climate finance inflows to the continent amount to US$30 billion (equivalent to only 12% of conservative annual required flows). That amount is woefully inadequate to address the continent's needs as

per the NDCs. Of the US$30 billion amount, the Climate Policy Initiative recently estimated that public finances mostly from multilateral development finance institutions, comprise 86% (US$25 billion), while private sector financing (mostly corporates) contributed 14% (US$4.2 billion). Private financing clearly needs to be stepped up on the continent by addressing the constraints to securing such financing.

3. **Constraints to securing such financing at the national and sub-national levels encompass governance and regulation, infrastructure/technical, and financial risks.** Governance includes political instability/political risks; limited awareness and limited technical capacity of climate change policies and climate financing instruments at the national and sub-national levels (information asymmetries); lack of inter-agency coordination at the national and sub-national levels (information asymmetries); inadequate regulatory frameworks – e.g., low tariffs for off-grid renewable energy (RE) power. Technical constraints, especially in attracting the private sector to finance adaptation and mitigation projects (private finance), include low grid capacity (inability of the grid to handle the load) and commercial risks (engineering, procurement and construction and operational risks). Financial risks, on the other hand, include high sovereign credit risk - FX volatility (currency instability), inflation, credible off-takers, lack of local financing in most cases due to the state of local financial institutions, not enough sovereign wealth funds sovereign wealth funds to finance large-scale, long-term projects and a lack of a bankable pipeline of projects (especially for mitigation-related financing).

4. **The arduous funding approval process also drives the limited capacity to access climate funds**. Countries can be disadvantaged at several stages, especially regarding project justification. Interactions with stakeholders revealed that most climate funds require proposals to be backed by scientific data, which must justify the need for funds. However, those data are rarely available on demand and would necessitate member countries conducting prior studies for such justifications. These studies may require substantial funding and are likely to be beyond the capacity of those applying for the funds.

5. **African countries are calling for an equitable transition and are already closely scrutinising volumes of climate finance flows this year, given the inadequacy of funds and a significant proportion of loans offered at commercial rather than concessional rates.** Moreover, it has become more challenging for African governments to mobilise external financing given penalisation in the market and weaker credit ratings, even if these are not representative of the project-specific risks on the continent. Lenders and investors in Africa have often cited country risk and poor credit ratings as key challenges to attracting financing. Many of the lenders and investors often use top-down assessment processes, typically involving sovereign-based indicators produced by Fitch, Moody or Standard & Poor to assess stability and creditworthiness. However, those ratings are often not sensitive to a project's specific context and can overestimate the risks for developing economies such as those in Africa, raising financing costs. Furthermore, environmental, social and governance (ESG)-related norms and regulations have a penalising effect of forcing certain investments, such as natural gas financing, away from Africa. Ahead of COP27 in Egypt, African leaders must continue to lobby for a needs-based assessment to drive long-term financing pledges – mainly as grant funding – to implement the NDCs, which include a shift to clean energy for some countries in the region.

Country case studies

Ghana

6. **Ghana's government has outlined several key policies that set targets, action plans and financing strategies for climate action, of which mitigation actions such as increasing RE penetration are paramount.** The energy sector has received much attention in the policy documents due to its role in GHG emissions reduction in the country. The technologies highlighted in the energy sector include RE integration, clean cooking technologies, biogas and reduced gas flaring. Other vital sectors include agriculture, forestry, land use, water resources and disaster management. In addition, many of the policy documents have associated strategies for raising finance; however, the flows are still comparatively small.

7. **Ghana's updated NDC includes 19 policy actions, classified under eight socio-economic outcomes, which translate to 47 programmes of action (of which 13 are adaptation and 34 are mitigation actions**). Seven of the 13 adaptation actions are unconditional, requiring financial mobilisation from the government of Ghana. Nine of the 34 mitigation actions are unconditional.

8. **Estimated financial needs to support the program of actions range between US$9.3 billion and US$15 billion (down from an estimated US$22 billion in 2015).** The reduction in the financial requirements is due to clarity in cost assessment and developments after the initial NDC in 2015. However, Ghana's Fourth National Communication Report to the UNFCCC (2020) estimated the total financial inflows for climate action between 2011 to 2019 at about US$1.3 billion. About 87% of that amount was allocated towards mitigation activities. In comparison, adaptation efforts received about 4% of the inflows while the 9% remaining was earmarked to support means of implementation activities, especially for capacity development of the receiving institutions.

9. **Ghana has received the largest share of climate financing from bilateral channels**. Between 2011 and 2019, bilateral financing contributed 45.1% of the total US$1.3 billion financing received, with 29% contributed by multilateral funding and 11.6% from global projects. Important is also that about 92% of the financing received from 2011 to 2019 went through government institutions, including ministries, public corporations and regulators. Beyond those institutions, international non-governmental organizations operating in the country received 3.3%, while universities received 2.6% of the funding. It is likely that frontline communities that are affected by climate change are not getting the needed resources as most of this funding seems to be concentrated at the top with little trickle-down.

10. **The main barriers to climate finance include inadequate capacity to develop bankable projects and nascent and weak institutional capacity for undertaking climate investments.** Additionally, a lack of public knowledge about climate finance means there is no clear understanding of the available climate finance opportunities available to the private sector via accredited institutions. As of October 2022, the Green Climate Fund (GCF), the world's largest climate fund mandated to support developing countries raise and realise their NDCs, had funded only six projects in Ghana worth US$89.4 million. Stakeholders indicated that some projects had suffered project funding rejections due to weak documentation. Furthermore, climate financing by local commercial banks in Ghana is still nascent, mainly because the banks have traditionally prioritised yield and risk.

11. **Stakeholder engagements indicated that the nature of climate financing from local banks has been largely private-sector focused**, i.e., de-risking capital flow to private businesses and entities with investments spanning across climate-resilient agriculture, clean energy and green infrastructure. Moreover, some banks are integrating sustainability into their traditional lending operations to make room for providing flexible funding for climate-related projects in efficient green buildings, sustainable waste management, sustainable land use and clean transportation.

South Africa

12. **Private finance in clean energy plays the biggest role in South Africa's climate finance flows.** According to recent studies, two-thirds of the tracked private investments were raised as debt and a quarter in equity. Three local banks, the International Finance Corporation and the African Development Bank count as the main financing institutions for renewable energy and are involved in parts of the negotiations around the Just Energy Transitions Partnership (JET-P). Some local studies and interviews with stakeholders confirm an alarming underfinancing of adaptation funding in comparison to mitigation funding. There is a high risk that adaptation finance will be overlooked as reducing the coal dominance of the electricity sector is determining funding.

13. **South African climate finance composition stands out, compared to other African countries, with its predominant focus on mitigation.** Climate finance flows in South Africa are predominantly focusing on mitigation, by a factor of 10, over adaptation funds. Most of the current mitigation funding is from private investments in the renewable energy sector. Only 5% of South Africa's climate finance comes in grants. South Africa's ecosystem is already fragile as a result of exposure to recurring drought and flooding, yet finance for adaptation projects is relatively marginal. Furthermore, 90% of the adaptation funds were public funds, with only 10% coming from so-called "blended finance" approaches, where public or philanthropic finance mobilises additional private funds in public-private partnerships. This imbalance may be problematic as South African society is highly vulnerable to the impacts of climate change: Drought and flooding are already acting as stressors, especially in communities that are experiencing deprivation.

14. **Political contestation emerges from the definition of climate finance.** Climate finance in South Africa is defined in broader sustainable and green finance terms. A green finance taxonomy is currently under development to make green and climate-related investments more transparent.

15. **South Africa's diplomacy determines the international climate finance landscape.** Bilateral relationships with Europe and the US and new multilateral groups dominate the policy arena. JET-P is currently the most prominent outcome. The impact of these innovative climate finance frameworks has yet to be proved. Additionally, ambiguous diplomatic positions that try to satisfy expectations from western nations and BRICS countries have become polarised with Russia's invasion of Ukraine.

Zambia

16. **Zambia has commenced the preparation of a green growth strategy.** It is envisaged that executing the strategy will contribute to the efficient use of natural and other resources, reduce GHGs, enhance coping with climate change and sustainably drive economic growth. Furthermore, the country **has made strides, albeit insufficient, to formulate sector-specific national adaptation plans.** Thus far, only the Health National Adaptation Plan (HNAP) has been developed. The HNAP identifies climate risks and adaptation measures relevant to the health sector and sets out the road map for implementing the HNAP. It also acts as a vehicle for resource mobilisation for addressing health climate risks

17. **Climate finance is now recognised in Zambia.** The flow of climate finance in Zambia increased from less than US$20 million per annum in 2010 to more than US$50 million per annum in 2021. This increase has been attributed to institutional strengthening, such as the establishment of the Ministry of Green Economy and Environment, which has consolidated all environmental sustainability functions and enhanced coordination, including climate finance. Climate financing is implemented through the National Designated Authority (NDA) for the GCF and the Adaptation Fund, the focal point institution for the Climate Investment Fund. Further, there has been an improvement in the skills required for generating bankable projects for the mobilisation of climate financing. However, a lot still needs to be undertaken to reach an optimal level of climate finance and enhance the execution of mitigation and resilience-building actions to reverse the adverse impacts of climate change.

18. **Attaining the ambitious targets outlined in Zambia's NDC will require strong institutional coordination.** Currently, even if non-state actors are represented in the Technical Committee, the representation is weak as it does not address the varied categories of non-state actors in the broad segments such as the private sector, civil society and academia. Additionally, there is a case for including non-state actors in the Steering Committee.

19. **As in Ghana, the main barriers to climate finance in Zambia include inadequate capacity to develop bankable projects and nascent and weak institutional capacity for undertaking climate investments.** These barriers are related to there only being one national NDA to the GCF, which was only accredited in 2021 and has not yet effectively participated in GCF climate finance mobilisation. A further drawback springs from there being real and perceived corruption that is preventing players from participating in this space. Additionally, there is inadequate information on and, particularly in the private sector, no clear understanding of the available climate finance opportunities.

20. **Stakeholders indicated that most climate finances had been channelled to the energy, agriculture, forestry and water sectors.** It was also observed that the allocation and channelling of climate finance to the highlighted sectors were consistent with the prioritised sectors in Zambia's national policy documents, such as the eight national development plans, the NDC and the National Policy on Climate Change. **Further, stakeholders observed that the private sector held the best opportunities for Zambia to mobilise climate finance.** It was also indicated that institutional investors such as pension funds had the potential to invest in green infrastructure projects. However, stakeholders emphasised the need for enhanced engagement of the private sector through capacity building and awareness-raising meetings on climate finance. There is also a need to build the business case, particularly for adaptation, to ensure that the private

sector participates in climate finance. Lastly, stakeholders stated that there was huge potential to mobilise climate finance from bilateral partners, particularly the governments of the USA, the UK, Germany and the EU.

Recommendations (Policy Priorities)

Two classes of recommendations are provided: for the global climate financing community and for African governments.

For the global climate financing community

1. **Honour past pledges: Developed countries must redeem their pledge of providing adequate finance to support African climate action.** During the high-level consultations at COP26, developing countries criticised developed countries for failing to pledge to commit about US$100 billion annually to support climate action in developing countries. Developed countries promised to scale up financial contributions to support climate schemes. However, according to some estimates, the funding has fallen short and is unlikely to be attained until 2025. Africa cannot meet its climate obligations without a major increase in international financing. Therefore, international institutions and developed countries must go beyond the promises to fulfil their pledges, including previous commitments on providing adequate financing for climate action. This action is relevant to ensuring that such established funds are continuously replenished and disbursed in line with the needs of developing countries such as those in Africa.

2. **Establish clear accounting rules and common reporting standards to account for climate finance: Internationally agreed accounting rules that would allow more transparency on the disclosure of climate financing at the global level, including to African countries, are needed.** The UNFCCC working definition of climate finance does not provide clear rules on what can be counted as "local, national or trans-national financing" or "public, private and alternative sources of financing". In its stead, international organisations such as the OECD[3] have sought to provide operational definitions of what can be counted and the underlying financing instruments. It is those operational definitions that are currently used in various reporting protocols. However, as the UNFCCC (2020: p.6) rightly noted, "operational definitions for climate finance in use generally reflect a common understanding of what is considered mitigation or adaptation finance but differ when it comes to details of sector-specific activities, certain financial instruments and approaches to public and private finance flows" [4]. Additionally, several developing countries (such as India) have refuted the claims by wealthy nations that they have delivered a US$100 billion annual budget to support climate action in developing countries. Critiques have ranged from these figures being "overstated" and the methodological basis being "deeply flawed".[5] An EU Court of Auditors report[6] recently indicated that the EU had not met its climate spending targets. Reported spending of €216 billion on climate action in the EU's 2014-2020 budget was more likely to be around 13% of the EU budget rather than the reported 20% and thus "not as high as reported". Oxfam also reported in 2020 that "bilateral climate finance could be about 30% lower due to over-reporting of climate relevance".[7] The African Group of Negotiators has also called for a clear operational definition of climate finance that allows "tracking and assessing the fulfilment of obligations and the effective functioning of the financial mechanism of the UNFCCC".[8] Thus, the UNFCCC reporting architecture needs to provide further granular operational definitions otherwise the practice of each developed country deciding independently on what it reports as 'climate finance' is likely to persist.

3. **More concessional public and private funding from the international community must go towards mitigation and adaptation efforts to drive low-carbon and climate-resilient development in Africa.** Justice and equity require that climate finance be provided to African countries at no to low cost, given their small contribution to global emissions. However, the grant funding ratio is dwindling, and the cost of finance is extremely high for African countries. Sovereign guarantees and other types of risk sharing that governments are required to assume when agreeing to finance are unsustainable. The provision of mitigation-oriented just transition- and adaptation-related finance on terms that are costly to the recipient/borrower nations, such as those in Africa, is infeasible in the first place and not fit for purpose. As previously highlighted, most of Africa's GHG emissions at a sectoral level come from LUCF (36%). To that extent, climate financing coming to and from the continent should not only prioritise low-carbon energy generation sources (mitigation) but must equally prioritise LUCF reductions (in this case, more dual mitigation and adaptation finance such as that for financing forest conservation, protection and restoration).

4. **There is a need to look at how to combine adaptation-focused public funds with private funds in new and innovative ways, including at the community level.** Gabon, one of the world's most forested nations, has demonstrated this potential by planning to sell 90 million carbon credits via its sovereign wealth fund to corporations and individuals that wish to offset their carbon emissions using the voluntary carbon offset market under the UNFCCC's REDD+ mechanism.[9] At a reported US$20 to US$30 per credit, this plan could fetch Gabon at least US$1.8 billion (11.5% of the country's 2020 GDP).

5. In an environment of the limited fiscal space available to African countries due to the COVID-19 pandemic and the ongoing Russia-Ukraine war, and with declining official development assistance or aid, **developed countries and multilateral institutions must offer debt relief (debt swaps) to African countries in return for the countries undertaking to use the funds for climate actions judiciously.** This relief would encompass both adaptation and mitigation funding. Interventions in the past, such as the Highly Indebted Poor Countries initiative, had conditionalities tied to countries channelling debt relief to attaining the Millennium Development Goals. Debt for climate swaps[10] can be tied to attaining climate goals defined in the respective NDCs and aligned to sustainable development goals (SDGs). In addition, while multilateral institutions such as the International Monetary Fund (IMF) have commendably committed to placing climate change at the heart of their work. Rechannelling of the IMF's Special Drawing Rights to fight climate change under the Fund's proposed US$50 billion[11] Resilience and Sustainability Trust (RST) must be fast-tracked. It is encouraging to hear that African countries such as Rwanda will be among the first beneficiaries of the RST.[12]

For African governments

6. **National and sectoral adaptation plans: Public funding in adaptation efforts must be increased as they are not attracting enough private funding**. Adaption finance is already being overlooked, as reducing the fossil dominance of the electricity sector dominates the African narrative on climate financing. Overcoming this caveat necessitates the preparation of sector-specific national adaptation plans (NAPs), particularly for climate-sensitive sectors such as agriculture, water and energy. These plans must identify climate risks and adaptation measures and set out the roadmaps for implementing the NAPs. Sector-specific NAPs and associated investment

plans can act as vehicles for mobilising resources to address the sector-specific climate risks. They would allow a delineation of what the bankable projects might be and draw in private-sector investment for adaptation.

7. **Improved technical capacity: To bridge the climate finance information asymmetry gap, there is a need for continuous professional development to thoroughly build the technical capacity of all stakeholders, especially state agencies and private sector agents.** African countries must ensure that private and public-sector entities have the documentation relevant to enhancing their eligibility to receive funds. As we found, climate funds such as the GCF are provided competitively, and adequate documentation is required to access such funding sources. However, the limited capacity of state agencies and private-sector agents to prioritise projects and prepare proposals often affects a country's ability to access funds. Stakeholder interactions also revealed that some agencies do not have specific project appraisal procedures to guide project evaluation in line with the requirements of external entities. Ongoing technical capacity training by organisations such as the African Development Bank (AfDB), GCF and others must be scaled up, with the overall objective of getting more agencies and the private sector to access international financing. Our interactions with stakeholders revealed that specific foci of the training must include (1) preparation of project appraisal templates and procedures to aid project prioritisation and proposal preparation and (2) accessing financial assistance (such as grants) to collect baseline scientific data to support project justification.

8. **Institutional coordination structures:** An environment appropriate to attracting investment in green businesses must be created: a deliberate attempt to ensure a well-regulated environment that allows value creation among green companies needs to be nurtured. Again, to raise the needed capital for green projects in Africa, government institutions and businesses should take advantage of the opportunities available to private and public-sector players for trading in the carbon market. To do this, **first, respective African nation states must curate available data into a single portal (database) to point the private sector to the available financing options with respect to climate change and how to access them**. While recognising that technical capacity is weak at all levels, it is even weaker at the sub-national level and needs to be prioritised. **Second, regional integration has the potential to create larger climate financing markets that attract private investments**. There is a need to accelerate regional integration to decarbonise some aspects of Africa's power pools (mitigation financing). For example, such possibilities exist within the South African power pool as it has greater opportunities to decarbonise from largely coal-based generation. **Third, African governments must use public funds (catalytic public finance) to create access for those organisations and projects that do not have the financial muscle to reach financial closure or to get their projects to the bankability stage.** Examples are renewable energy Independent Power Producer (IPP) projects procured through municipalities and communities.

1. Introduction

1.1 Overview and context

Climate finance is undoubtedly one of Africa's most significant challenges. The region faces a huge financing gap, particularly in adaptation financing. It is estimated that Africa needs US$250 billion annually in conditional and unconditional financing between 2020 and 2030 to implement its nationally determined contributions (NDCs) under the Paris Climate Agreement.[13] At COP15 in Copenhagen in 2009, industrialised countries committed to collectively contributing US$100 billion annually until 2020 to support developing countries in their climate change needs. Despite expected increases in adaptation costs, estimated to reach US$140 billion to US$300 billion in 2030,[14] the support pledged for climate finance by the world's wealthiest economies has failed to materialise. In 2020, only US$83 billion[15] of the commitment was met, while an average of US$75 billion was delivered between 2016 and 2019. Only around US$20 billion (27%) of this latter amount was provided to Africa between 2016 and 2019.[16] It is worth noting that this climate financing gap is separate from Africa's other infrastructure financing gaps.

Aside from developed countries reneging on their climate finance commitments, **the structure of existing climate finance continues to perpetuate greater inequities because climate finance to developing countries has largely been disbursed as loans and not as grants**.[17] In 2019, an OECD study[18] indicated that loans represented 71% of public climate finance. However, the terms of the loans are prohibitive, and their design excludes the poorest and most vulnerable countries from benefitting. Moreover, the heavy dependence on loans has negative social and economic implications for African countries, including contributing to an increase in debt vulnerability, raising the question of why African countries should be saddled with loan repayments and interest to finance their climate actions.

Regrettably, COP26 ended with no major breakthrough on this issue, and parties continue to negotiate on the New Collective Quantified Goal on Climate Finance while they aim to decide by 2024. Going into COP27, Africa needs to make a strong case that the **current global climate finance mechanism and architecture are not aligned with realities in African countries and are not meeting Africa's needs**. To contribute to addressing these challenges and capitalising on the agency of African policymakers and practitioners, it is necessary to explore the systems that underpin public climate finance delivery and implementation.

To this end, this report focuses on the current status, practical experiences and perceptions of state and non-state actors in Africa on the issue of climate finance. The report is structured into two parts: first, we conduct a political economy analysis to understand and critique existing global narratives on climate change and climate finance and its application to Africa. Within this context, we also test how global climate financing categorisations (adaptation versus mitigation, and loss

and damage, among others) feed into how stakeholders conceptualise these issues at a country level. These global norms are further tested against country-level developmental objectives such as the twin issues of energy poverty and affordability and the pursuit of low-carbon industrialisation. We also review the evidence base of the barriers to climate innovation and financing in Africa. The second part of the report provides deep dives into case studies in three countries: Ghana, South Africa and Zambia. These countries allow us to provide a nuanced picture of which factors are driving the climate financing flows into exemplar countries and what useful lessons could be learned to shape climate financing policy on the continent.

Based on the analysis and these case studies, this report builds an evidence base on climate finance needs, perceptions, challenges and pathways to solutions.

We expect the report to contribute to discussions before and during COP27 by providing empirical evidence to support negotiating positions around equity and fairness in accessing finance and effectiveness.

1.2 Report approach

1.2.1 Objective and scope of work

This report examines the systems that underpin public climate finance delivery and implementation in Sub-Saharan Africa. It will contribute to discussions before and during COP27 by providing empirical evidence to support negotiating positions around equity and fairness in accessing finance and effectiveness.

The report entails the following:

i. **Analysing** the needs and challenges of African countries regarding climate finance from the country perspective.

ii. **Undertaking a stakeholder mapping** of organisations engaged in climate finance in selected African countries.

iii. **Leveraging** the research output to commence a series of advocacy engagements with identified stakeholders to influence development planning on climate financing in Africa.

1.2.2 Methodology

The methodology used in producing this report encompassed qualitative, quantitative and political economy analyses (Fig 1-1), which are explained in more detail below.

Qualitative analysis

- **Literature review:** We extensively reviewed relevant documents across Africa's climate financing landscape. The literature review aimed to understand the main stakeholders and their responsibilities or mandate concerning climate finance policy formulation and investment attraction on the continent. We, furthermore, drew case study parallels from African countries that have demonstrated a commitment to and an attracting of climate financing for projects

(both adaptation and mitigation). These case studies provide a more nuanced picture of which factors are driving the climate financing flows[19] into countries and what useful lessons can be learned about shaping climate financing policy on the continent.

- **South Africa** – the highest recipient[20] of multilateral climate financing on the continent and sixth highest internationally. However, only about 10% has been directed to adaptation. The largest share of funding went into energy projects, transportation and storage.
- **Ghana** – mid-tier multilateral climate financing on the continent. The largest share of funding went into agriculture, forestry, fishing and the energy sector.
- **Zambia** – received relatively high amounts of adaptation financing relative to the country's assessed climate vulnerabilities.[21]

- **Stakeholder mapping and analysis:** This research involved a deep dive mapping and analysis of the different stakeholders involved in climate financing in three selected countries (Ghana, Zambia and South Africa) to understand stakeholder interests and needs and how they have evolved, especially in the context of the energy transition and climate financing. This understanding was accumulated through selected stakeholder interviews (interactions/ engagements) with persons and organisations engaged in the national policy debates on these issues. This exercise also helped identify possible misalignment in stakeholder interests and motivations vis-à-vis climate financing and the energy transition.

The framing questions asked during the stakeholder consultations are listed in the Table 1.1.

Quantitative analysis

- **Analysis and reconciliation of climate finance** collected from different multilateral, bilateral and national stakeholder institutions.

- **Spreadsheet-based data triangulation** to establish the potential gaps and misalignments in climate funding vis-à-vis the commitments that the three countries have made as per their respective intended NDCs.

Political economy analysis

- The findings from the qualitative and quantitative analyses were analysed in more depth using a **Problem-Driven Political Economy Analysis (PDPEA)** to identify the root causes or bottlenecks to attracting climate financing, allowing us to propose possible intervention areas (recommendations).

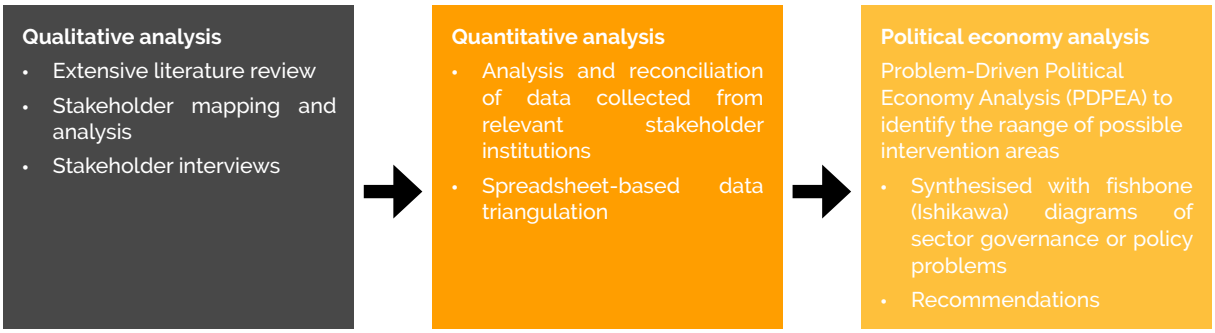
- **Fishbone (Ishikawa) diagrams** of sector governance or policy problems were used to identify the root causes of each problem and entry points for each issue in terms of intervention or output areas.

This all-encompassing approach allows the harnessing of the underlying data and the views of multiple stakeholders on leveraging the opportunities within Africa's climate financing landscape.

Table 1.1 Framing questions for stakeholders

Climate financing	Overcoming domestic capacity bottlenecks and how to tailor climate finance for your country/Africa
1. How is the government using and defining the notion of climate finance, and with what goals? (Describe what targets are included in official policies) 2. Is the country participating in global discussions for a just transition for developing countries? What is the position of the country? 3. What are the main policies in the country for attracting and addressing issues related to climate finance? 4. How is the energy and economic crisis linked to the COVID-19 pandemic and the war in Ukraine impacting the country's policies and debates on the energy transition and climate finance? 5. What is the evolution of financial climate financing investment in your country? Where have these funds come from (donors, bilateral funding, development finance institutes and multinational development banks, grants, commercial debt, among others) and which areas/sectors have they been channelled to (if the data exists)? Are these areas which the monies are going into aligned with the country's development needs/priorities? If there is a mismatch, then why? 6. Where are the current opportunities for mobilising investments in your country? Which areas have the most pressing needs? How are these needs assessed and communicated to attract the needed financing? 7. Is the domestic financial system (banks and non-bank institutions) of your country involved in providing climate financing? What projects and sectors are they involved in? What financial intermediation tools/instruments are they using? How do/did they go about de-risking these projects (e.g., guarantee schemes, blended finance, equity finance, blue/green bonds)? 8. Is there further potential to leverage intermediaries to accelerate clean energy investment in your country? 9. Is there a pipeline of bankable projects that would attract private stakeholders and development finance institutions to accelerate the promotion of public–private partnership projects? 10. Has the government developed or published a risk analysis related to oil, gas and coal production in the context of the energy transition? What price assumptions are used in these analyses, if available?	1. What are the barriers and risks (real and perceived) that hinder climate financing and investments in your country? e.g., financial barriers, governance barriers, project barriers, political/social barriers and skills and infrastructure barriers. 2. How do these barriers play out at the respective sectoral level – e.g., energy, transportation, forestry and land use, buildings? i.e., Is there heterogeneity in the practical manifestation of these barriers? 3. How are the different stakeholders addressing these barriers? i.e., What is being done within your country by the government, private sector, civic society, academia and beneficiary communities [solely or working together] to address these barriers. Please provide some contextual examples to substantiate points. Is this ultimately translating into improved climate financing flows into your country? If not, what must change or be done differently? 4. Is there evidence of broader stakeholder collaboration/engagement to address these identified barriers? That is, what spaces/policies for an inclusive dialogue around climate finance exist in the country or in the relevant regions? How are communities and civil society engaging with energy transition policies? 5. What problems in the domestic energy sector could a transition to renewables help resolve (e.g., high costs, high tariffs, costly state-owned enterprises (SOEs), and energy access, among others.)?

Fig 1.1 Research methodology outline



Source: Authors' construct (2022)

1.3 Report structure

The remainder of the report is structured as follows:

- **Section 2** lays the conceptual foundations of climate financing and underlying geopolitics.
- **Section 3** covers the Ghana country case study.
- **Section 4** covers the South Africa country case study.
- **Section 5** covers the Zambia country case study.
- **Section 6** harnesses the cross-thematic issues from the case studies and a broader continental level review.

PART ONE

Existing narratives on climate change and climate finance

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This section of the report covers the following:

- Global narratives on climate change and its application to Africa.
- Global climate financing categorisations (adaptation versus mitigation, and loss and damage, among others).
- How these categorisations feed into how stakeholders in Africa conceptualise these issues.

2. Climate Change and Climate Finance

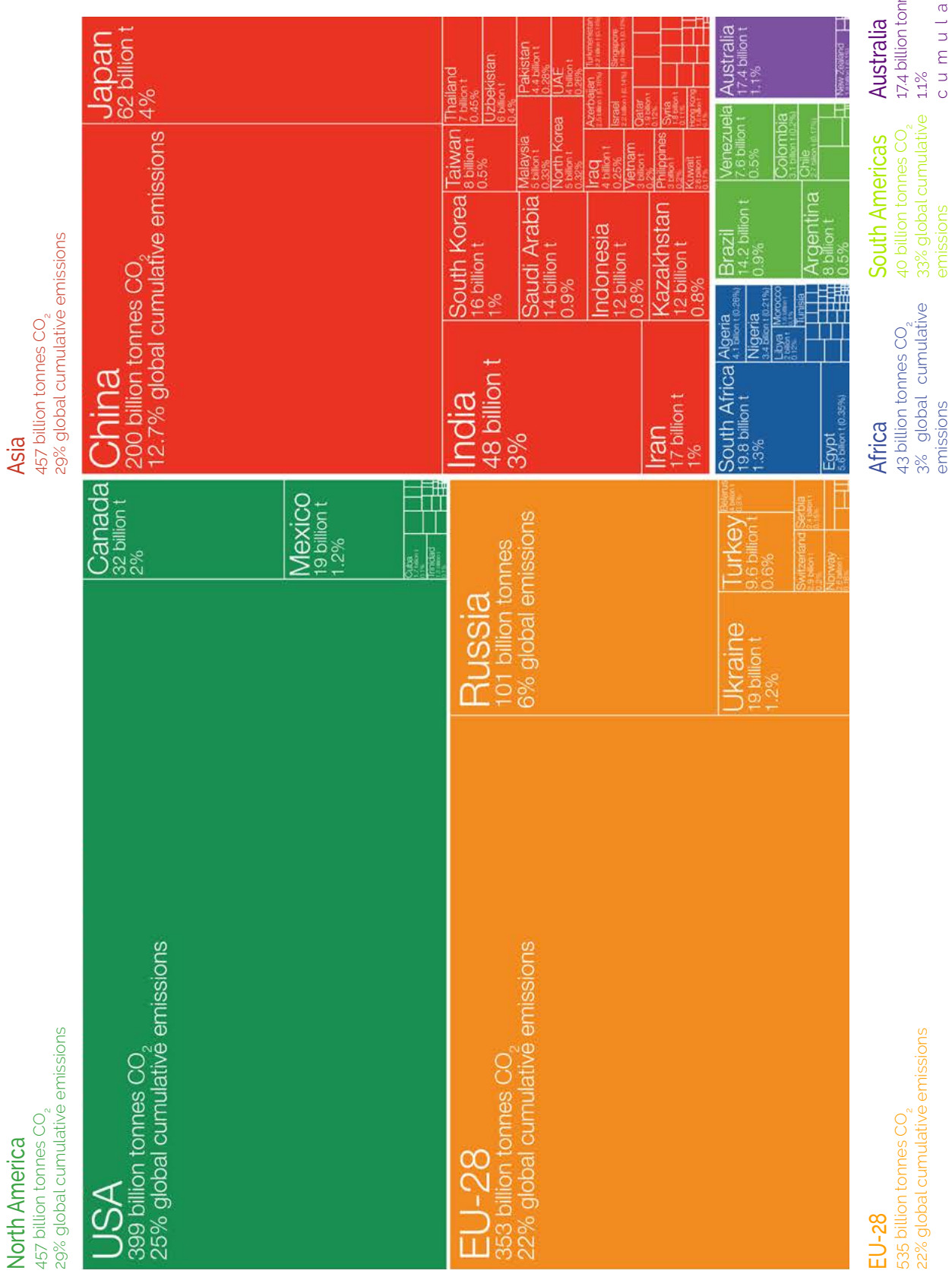
2.1 Africa and climate change

Four main greenhouse gases (GHGs) are responsible for climate change — mostly human-induced long-term shifts in temperatures and weather patterns[22] — which has resulted in rising surface temperatures leading to extreme weather conditions such as droughts, heavy rainfalls, floods and heatwaves. Those gases are carbon dioxide (CO_2), which comprises 75% of GHGs; Methane (CH_4) and nitrous oxide (N_2O), which make up 17% and 6% of GHGs, respectively. The remaining 2% is accounted for by fluorinated gases such as perfluorocarbons, sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3).[23] Given that CO_2 is the most significant contributor to global warming, it is no wonder that global efforts towards its abatement have increased.

The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report is unequivocal in saying that we must limit the global temperature rise to 1.5˚C (2.7˚F) as per the 2015 Paris Climate Agreement to prevent the worst effects of climate change. For this limit to be reached, global emissions must peak before 2025 and "without immediate and deep emissions reductions across all sectors, limiting global warming to 1.5˚C is beyond reach".[24]

Africa has, however, contributed the least to global climate change – the region is not a significant source of GHGs – although it stands to bear the severest negative consequences of climate change.[25] Available data from various global organisations indicate that Africa's contribution to global GHGs stood at less than 4% as of 2020 (Fig 2-1).[26] In contrast, the top ten developed economies, with 75% of global GDP, account for two-thirds of the annual global GHGs:[27] China (26%), the United States (13%), India (7%), European Union (7%), Russia (4%), Indonesia (4%), and Brazil (3%), and others.[28] Africa's contribution to CO_2 emissions is, also, fairly negligible at 3%. Here again, the biggest polluting countries are the United States (25%), the European Union (EU-28: 22%), China (13%) and Russia (6%), among a host of other developed countries.[29]

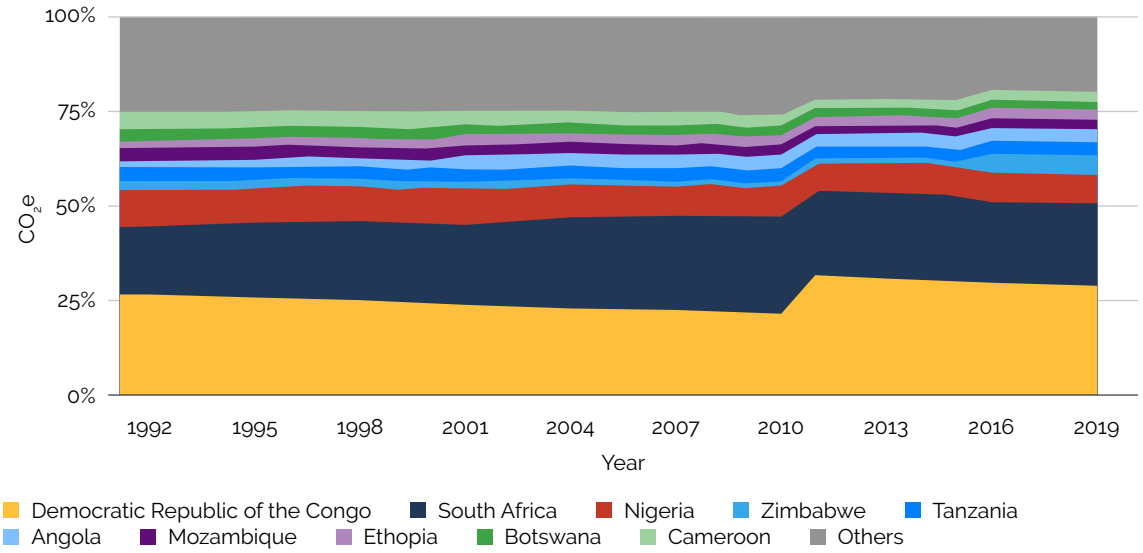
Fig 2.1 Global CO2 emissions by region



Source: OurWorldInData (2019)

Within Sub-Saharan Africa (SSA), the largest GHG-emitting countries are the Democratic Republic of Congo (19%), South Africa (16%), Nigeria (9.8%), Ethiopia (5.1%), Tanzania (4.3%), and Angola (3.5%) (Fig 2.2). This list looks similar for CO_2 emissions.[30] **However, the largest contributor to CO_2 emissions on the continent on a per capita basis is South Africa** at 7.5 metric tons (MT) per capita, followed by the Seychelles (6.2 MT), Equatorial Guinea (3.9 MT), Mauritius (3.3 MT), Botswana (3.1 MT), Gabon (2.4 MT), and Namibia (1.7 MT).[31]

Fig 2.2 Historical GHG emissions in SSA



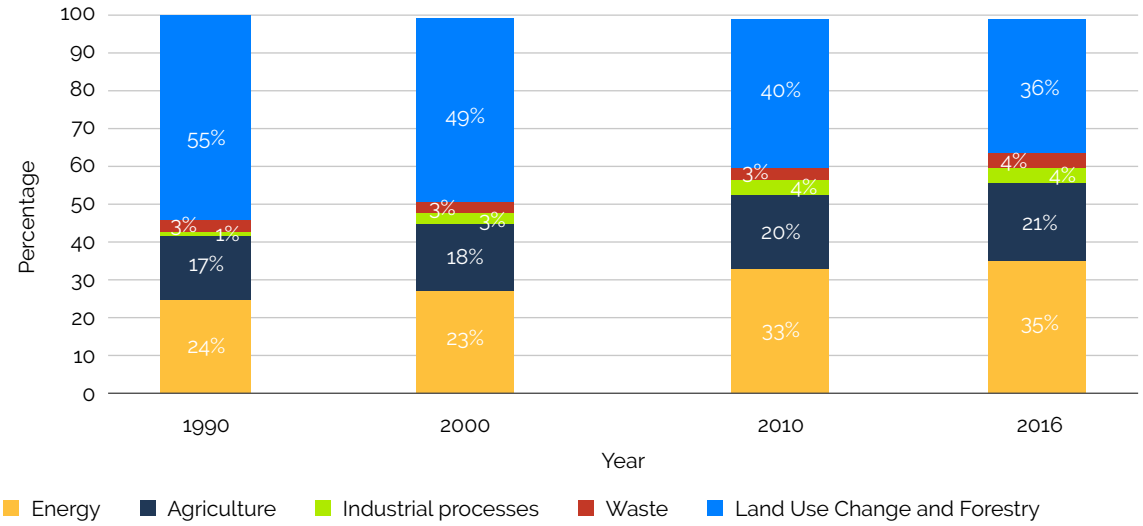
Source: ClimateWatch/CAIT; Location: Sub-Saharan Africa; Sectors/Subsectors: Total including LUCF; Gases: All GHG; Calculation: Total; Show data by Countries.

Overall, Africa's CO_2 emissions per capita have barely increased over the past three decades despite the two-fold increase in the sub-region's population from 509 million people in 1990 to 1.11 billion in 2019. SSA's emissions were 0.8 MT per capita in 1990 and marginally declined to 0.7 MT per capita in 2019.[32] This amount pales in comparison to the rises in China (from 1.9 MT per capita in 1990 to 7.6 MT per capita in 2019), OECD countries (from 10.2 MT per capita in 1990 to 8.5 MT per capita in 2019) and the United States (from 19.4 MT per capita in 1990 to 14.7 MT per capita in 2019).[33] At a sectoral level, most of SSA's GHG emissions come from land-use change and forestry (LUCF: 36%) and the energy sector (35%) (see Fig 2-3).[34] These sectors are followed by agriculture (21%), industrial processes (4%) and waste (4%).[35]

These statistics imply that climate financing to and from the sub-region should prioritise LUCF reductions (in this case, more adaptation-related financing) and adopt low-carbon energy generation sources (mitigation funding). However, with the latter, the sub-region faces pressing twin issues of energy poverty and affordability, made more onerous by the COVID-19 pandemic and the ongoing Russia-Ukraine war. Thus, the sub-region must seek to use all available energy resources, including natural gas, to meet the energy deficit. Estimates show that about 600 million (almost 52%) of the sub-region's 1.17 million population lack access to electricity.[36] Another implication is that **justice and equity require that climate finance be provided to African countries at no to low cost, given their small contribution to global emissions.**

In addition, except for South Africa, which has a largely carbonised energy sector with the heavy dominance of coal,[37] most countries in the region have a largely decarbonised energy sector. For example, in West Africa, most of the electricity generation is via a mix of natural gas and hydropower.[38] Also, Central Africa's share of the electricity mix is driven by hydropower and conventional fuels while, in East Africa, the driving factors are conventional fuels, hydropower and renewables. **There is scope to use climate mitigation financing to increase the renewable energy penetration in the energy mix**. However, this mix must complement existing base load energy sources such as natural gas-based thermal power generation.

Fig 2.3 Africa's GHG emissions by sector 1990-2016 (%)



Source: AfDB

2.2 Some conceptual narratives on climate finance

Moving to a net-zero future requires significant amounts of capital. According to estimates, between US$125 trillion[39] and US$275 trillion[40] will be required by 2050 to meet net-zero goals. The lower end of the estimate translates to US$4 trillion of annual investments, while the higher end of the estimate translates to US$9.2 trillion per year of investments on average in energy assets and land-use systems, including agriculture and forestry; this figure represents an annual increase of US$3.5 trillion from current spending levels. The US$9.2 trillion annual investment translates to about 10% of the global GDP of US$96.1 trillion in 2021, half of the GDP of China or the combined GDP of Germany and the United Kingdom.[41]

In this regard, climate finance has become one of the buzzwords in the global development community in recent years. However, what exactly is it and is there a universally accepted definition of what climate finance encompasses? While there is no broad global consensus on the definition of climate finance, the closest is provided by the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC defines climate finance as "local, national or trans-national financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change".[42] Another definition provided by the UNFCCC Standing Committee on Finance (SCF, 2014) is as follows: climate finance is financing "that aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing

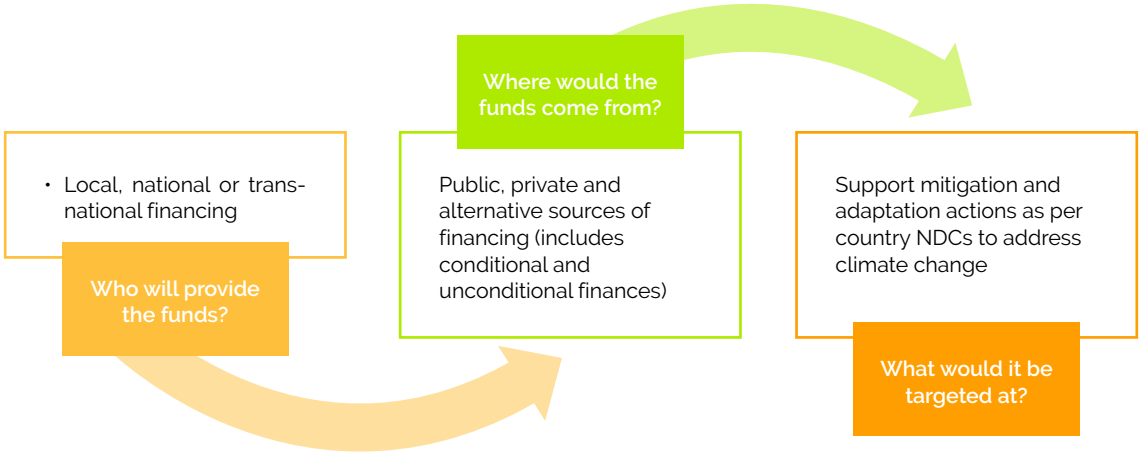
[the] vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts"[43]. Other advocates have sought to include reparations or finances for 'loss and damages' into the broader climate finance architecture.[44]

In essence, **climate financing seeks to address three core developmental imperatives** (Fig 2.4 and Table 2.1): first, who will provide the funds; second, where would the funds come from; and third, what would these funds be used for? In other words, the UNFCCC envisages that the funds to fight climate change would be sourced at the sub-national (community), national (country) and supra-national (multilateral, bilateral) levels. Also, regardless of the level of sourcing, the monies would come from a mix of public, private and alternative avenues and would subsequently be channelled into supporting mitigation and adaptation actions (Fig 2-5).

These mitigation and adaptation actions are captured in the respective country's nationally determined contribution (NDC) statements, which are updated every five years.[45] NDCs are the climate action plans produced by countries. They measure and outline how they intend to cut emissions and adapt to climate impacts.[46] Each party to the 2015 Paris Agreement (Article 4, paragraph 2) is required to prepare, communicate and maintain an NDC which contains set targets for **mitigating** GHGs and for **adapting** to climate impacts, and **monitoring and verifying** progress.[47] Some of the NDCs also include a detailed financing strategy. As of October 2022, all 194 Parties to the 2015 Paris Agreement had submitted at least their first NDC, of which 151 had submitted new or updated NDCs as of November 2021.[48]

However, as the OECD[49] noted as far back as 2013, **there is still no clear definition of which climate activities, flows or other interventions count towards the US$100 billion climate finance target or what "mobilising" means,** although the issue of the countries covered by the commitment has been resolved. While the UNFCCC definition has been around for a long time, other parties have nonetheless sought to redefine climate finance to suit their convenience or need, thus making its broad acceptance murky or debatable.[50]

Fig 2.4 The three core imperatives of climate finance



Source: Authors' construct (2022)

Table 2.1 Mapping of the climate financing architecture

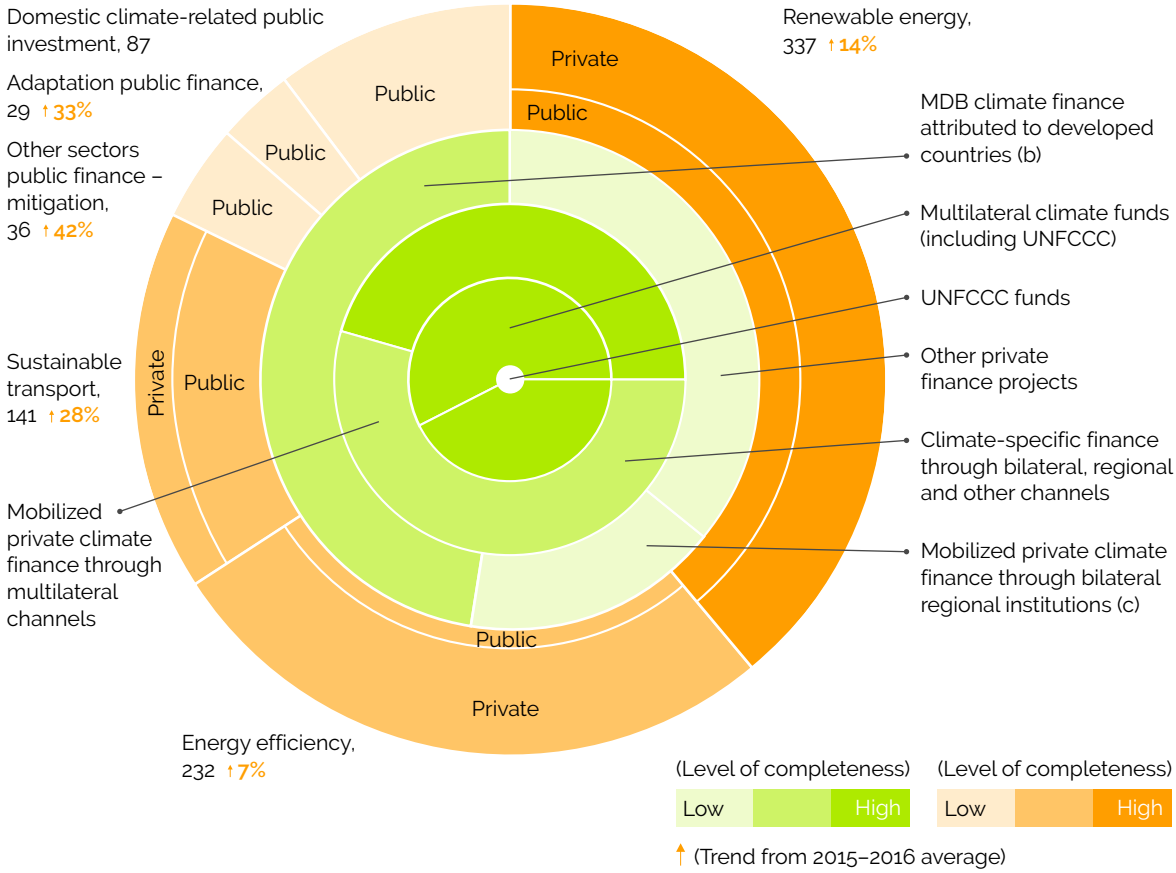
Who will provide the funds?	Definitions
Local financing	We broadly understand this to mean financing at the sub-national level, including from municipal governments via budgetary allocations, local climate bonds and local-level climate adaptation funds.
National financing	We broadly understand this to mean financing from national governments via budgetary allocations as well as national financing institutions such as commercial banks.
Trans-national financing	We broadly understand this to mean financing from global climate finance institutions such as the UNFCCC funds: GCF, Adaptation Fund and GEF; other UN Agencies as well as regional funds; and international private sources, among others.

Where would the funds come from	Definitions
Public financing	• **Bilateral** - public climate finance commitments (excluding export credits) by developed countries for developing countries. This financing comes typically from development cooperation agencies such as the FCDO, DANIDA, USAID, AfD, NORAD.[51] It comes as grants, loans or equity investments. • **Multilateral** – this financing includes climate finance provided by multilateral development banks (such as the World Bank and the African Development Bank) and multilateral climate funds (such as the GCF) to developing countries. It also includes climate-specific contributions by developed countries to multilateral bodies for which climate outflow data are unavailable. It comes as grants, loans or equity investments.
Private financing	• Finance from private sources mobilised by both bilateral and multilateral public climate finance and which can be attributed to developed countries. Investment instruments used here include grants, loans, mezzanine/hybrid finance, equity and developmental guarantees.
Alternative sources of financing	• Climate-related export credits (loans, guarantees and insurance) provided by developed countries' official export credit agencies, mostly for renewable energy projects.

Where would the funds be used or targeted at?	Definitions
Mitigation funding	Interventions [funding] to reduce or prevent GHG emissions and enhance carbon sinks. For example, increasing renewable energy generation, e-mobility solutions such as electric cars in the transport sector, expanding forests and other sinks to remove greater amounts of CO2.
Adaptation funding	Interventions [funding] to reduce the current harm and future adverse impacts of climate change, including by altering behaviour and ways of life. For example, building sea defences to protect against sea-level rise, early warning systems for cyclones and switching to drought-resistant crops.
Loss and damage funding	Intervention [funding] used to respond to climate impacts that have already occurred, including both sudden and slow onset events.

Source: Authors' construct based on OECD[52] and UNFCCC[53] reporting (2022)

Fig 2.5 Biennial assessment and overview of climate finance flows



Source: UNFCCC (2020)[54]

While financing is key to implementing NDCs, not every country or region is financially endowed with the resources needed, and many of those countries are not the most significant historical contributors to GHGs — Africa falls into this category. Thus, the UNFCCC acknowledges under the established principle of **"common but differentiated responsibility and respective capabilities"**[54] and Article 9 of the Paris Agreement[55] that financial assistance would need to be provided by countries that have more resources (developed countries or Annex II Parties) to those that are "less endowed and more vulnerable"[56] with respect to a balance of both mitigation and adaptation. In addition, developed countries are mandated to "take the lead in mobilising climate finance from a wide variety of sources, instruments and channels" for developing countries, especially in sourcing public funds.[57]

At COP15[58] in Copenhagen in 2009, developed countries committed to contribute collectively US$100 billion[59] of public funds a year by 2020 to support developing countries in their climate change needs. Despite expected increases in adaptation costs, estimated to reach US$140 billion to US$300 billion per year in 2030,[60] the support pledged for climate finance by the world's wealthiest economies has failed to materialise. **As of 2020, only US$83 billion[61] of the US$100 billion per annum commitment had been met** (Table 2-2). **About US$30 billion[62] of that sum was provided to Africa.** Between 2013 and 2019, an average of US$64 billion was delivered, out of which 26% went to Africa (Fig 2-6).[63] Most of the total climate finance in Africa is concentrated in ten countries, namely Morocco and Egypt (North Africa), Kenya, Nigeria, Ethiopia, South Africa, Mozambique, Cote d'Ivoire, Tunisia and Ghana (Sub-Saharan Africa).

Over and above the monies missing from the pledges, Africa faces a huge financing gap: Conservative estimates indicate that Africa needs US$2.5 trillion (74% of the continent's GDP[64] of US$3.4 trillion in 2021) or US$250 billion annually in both conditional and unconditional financing between 2020 and 2030 to implement its NDCs under the Paris Climate Agreement.[65] It is worth noting that this climate financing gap is separate from Africa's other infrastructure financing needs. Thus, **current reported climate finance annual inflows of US$30 billion (equivalent to only 12% of conservative annual required flows) are woefully inadequate to address the continent's needs as per the NDCs.** Of this amount, the Climate Policy Initiative (CPI) estimates that public finances, mostly from multilateral development finance institutions, comprise 86% (US$25 billion), while private sector financing (mostly corporates) contributed 14% (US$4.2 billion).[66]

Private financing clearly needs to be stepped up on the continent by addressing the constraints to securing such financing. Understanding these constraints is very much at the heart of Part II of this report, which explores them in great detail, as evidenced in the country case studies. Africa's private sector financing remains lower than that of other regions such as South Asia (38%), East Asia and Pacific (39%), and Latin America & Caribbean (48%), according to the CPI.[67]

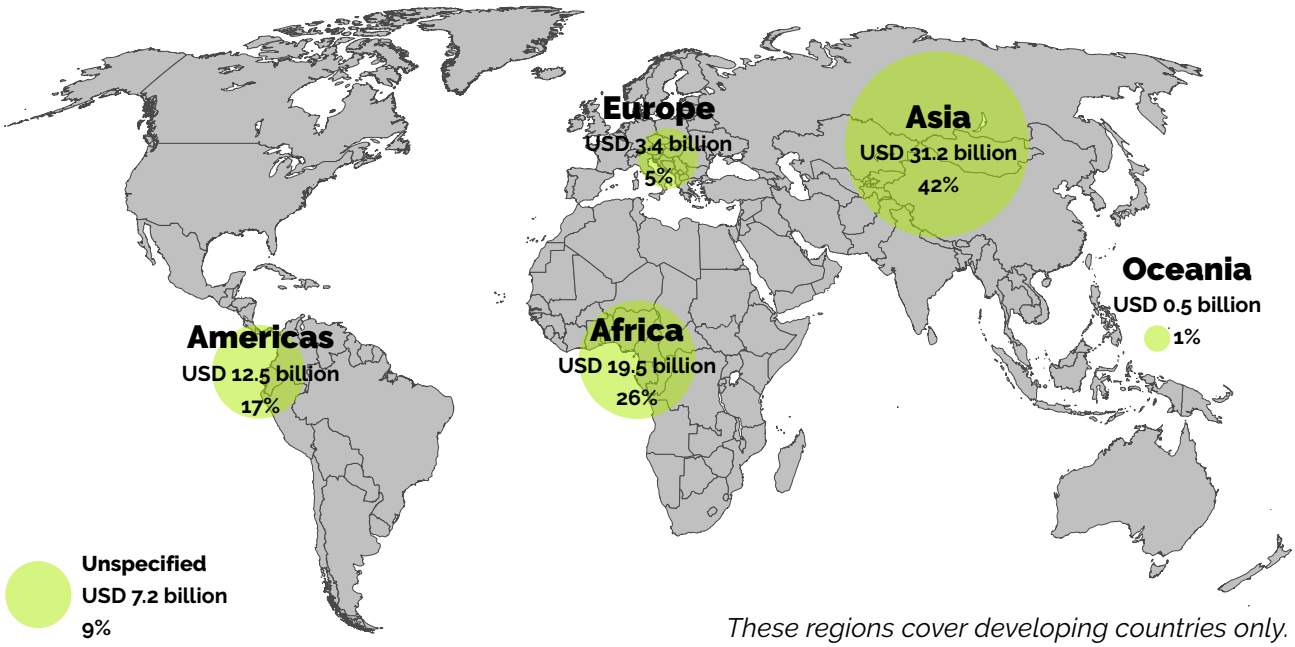
Table 2.2 Climate finance provided and mobilised by component and sub-component, 2013-2020 (US$ billion)

	2013	2014	2015	2016	2017	2018	2019	2020
Bilateral public finance (1)	22.5	23.1	25.9	28.0	27.0	32.0	28.7	31.4
Multilateral public climate finance attributable to developed countries (2)	15.5	20.4	16.2	18.9	27.1	30.5	34.7	36.9
Multilateral development banks	*13.0*	*18.0*	*14.4*	*15.7*	*23.8*	*26.7*	*30.5*	*33.2*
Multilateral climate funds	*2.2*	*2.0*	*1.4*	*2.6*	*2.9*	*3.5*	*3.8*	*3.5*
Inflows to multilateral institutions (where outflows unavailable)	*0.3*	*0.4*	*0.4*	*0.6*	*0.5*	*0.3*	*0.3*	*0.2*
Subtotal (1 + 2)	**38.0**	**43.5**	**42.1**	**46.9**	**54.1**	**62.1**	**63.4**	**68.3**
Climate-related officially-supported export credits (3)	1.6	1.6	2.5	1.5	3.0	2.7	2.6	1.9
Subtotal (1 + 2 + 3)	**39.5**	**45.1**	**44.6**	**48.5**	**57.1**	**64.8**	**66.0**	**70.2**
Mobilised private climate finance (4)	12.8	16.4	N/A	10.1	14.5	14.7	14.4	13.1
By lateral public climate finance	*6.5*	*8.4*	*N/A*	*5.2*	*4.0*	*3.8*	*5.8*	*5.1*
By multilateral public finance attributable to developed countries	*6.2*	*8.6*	*N/A*	*4.9*	*40.5*	*11.0*	*8.6*	*8.0*
Grand total (1 + 2 + 3 +4)	**52.4**	**61.8**	**N/S**	**58.5**	**71.6**	**79.9**	**80.4**	**83.3**

Note: The sum of components may not add up to totals due to rounding. The gap in time series in 2015 for mobilised private results from the implementation measurements methods. As a result, grand totals in 2016–2020 and in 2013–2014 are not directly comparable.

Source: based on Biennial Reports of the UNFCCC, OECD DAC and Export Credit Group statistics, complementary reporting to the OECD

Fig 2.6 Distribution of climate finance across developing country regions, 2016-2020



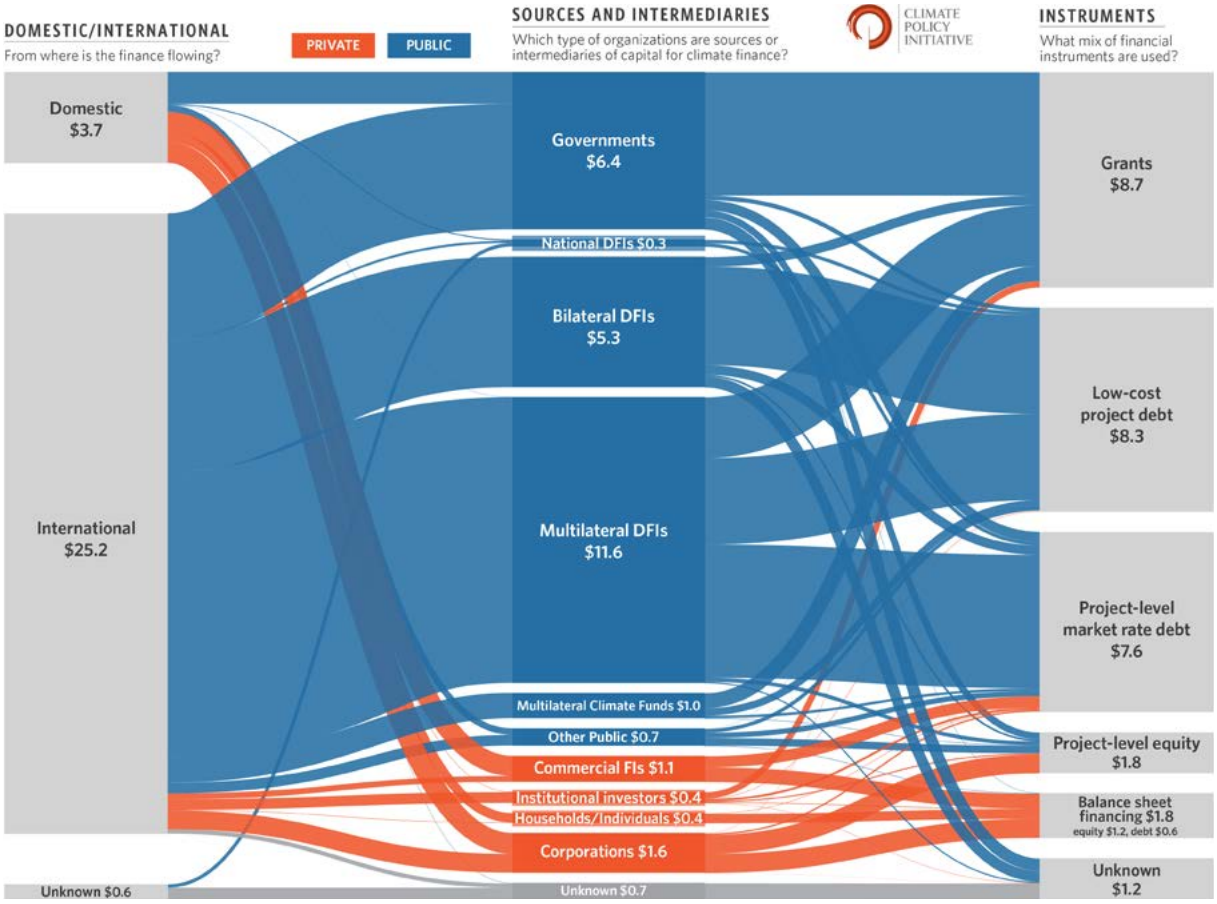
These regions cover developing countries only.

Source: OECD

In addition, the structure of existing climate finance continues to perpetuate more significant inequities as much of the funding is disbursed as loans (debt) and not as grants (Fig 2.7 and Fig 2.8). In 2019, an OECD study[68] indicated that loans represented 71% of public climate finance. However, **the terms of these loans are prohibitive, and their very design excludes the poorest and most vulnerable countries from benefitting**. Moreover, the heavy dependence on loans has negative social and economic implications for African countries, including contributing to an increase in debt vulnerability. These issues raise the question of why African countries should be saddled with loan repayments and interest to finance their climate actions when they contribute least to global GHG emissions but face the severest consequences of climate change. The debt crisis is one of the biggest drivers of the current African discussion on climate finance.

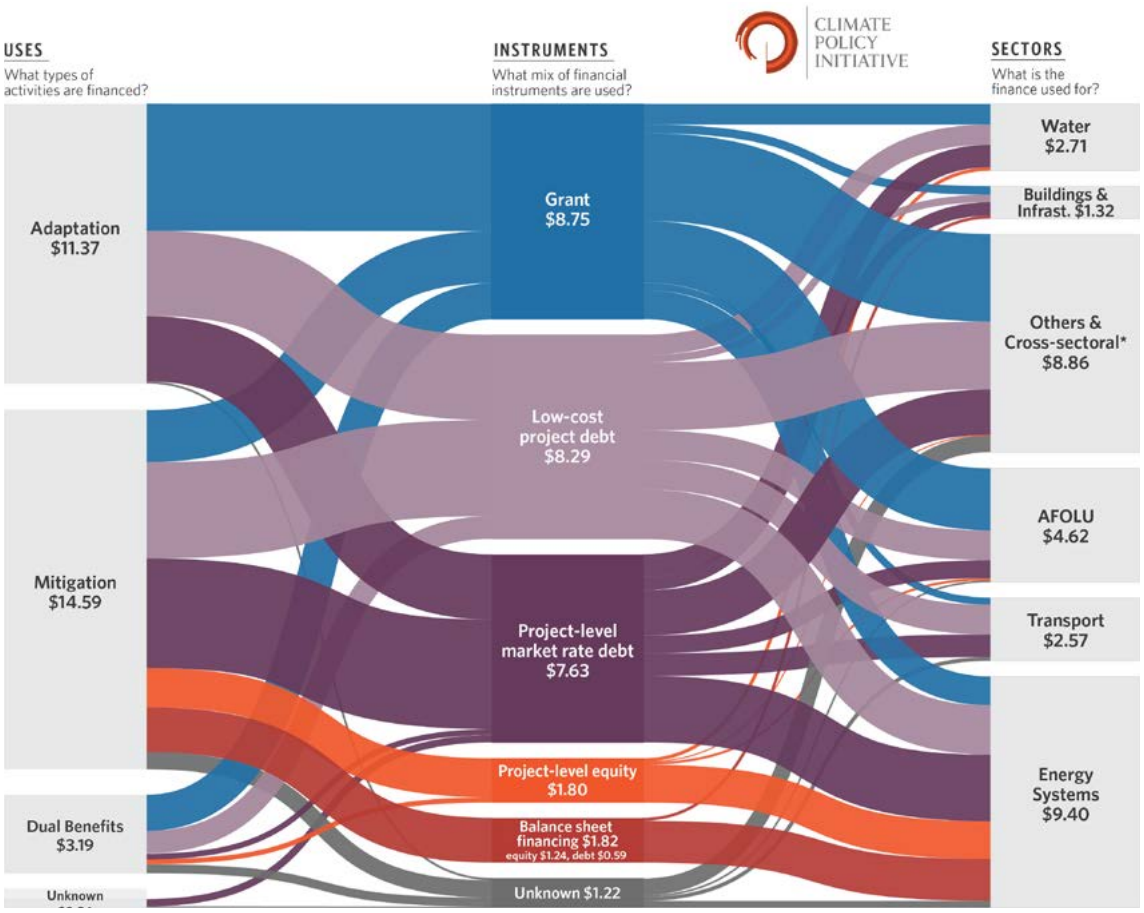
African governments do not have the fiscal space to spend on climate domestically, as a significant portion of their finances are spent on debt servicing.[69] Recent IMF estimates show that sub-Saharan Africa's public debt, for example, increased by more than six percentage points to 58% of GDP in 2020, the highest level in almost two decades.[70] **Thus, taking on more climate debt (climate finance loans), even with some degree of concessionality, is beyond most African governments at the moment.** This inability to take on more climate debt calls for novel forms of finance, such as using debt-for-climate swaps and the need for grant-based or highly concessional finance.

Fig 2.7 Climate finance sources and instruments



Source: Climate Policy Initiative (2022)

Fig 2.8 Climate finance uses, instruments and sectors



Source: Climate Policy Initiative (2022)

2.3 Summary

Africa has contributed the least to global climate change. Available data from various global organisations indicate that Africa's contribution to global GHGs stood at less than 4% as of 2020. However, the continent bears the severest negative consequences of climate change. Within SSA, the largest GHG emitting countries are the Democratic Republic of Congo (19%), South Africa (16%), Nigeria (9.8%), Ethiopia (5.1%), Tanzania (4.3%) and Angola (3.5%). However, the largest contributors to CO2 emissions on the continent on a per capita basis are South Africa, at 7.5 MT per capita, and the Seychelles, at 6.2 MT per capita. The emissions of other countries, e.g., Equatorial Guinea, Mauritius, Botswana, remain below 4 MT per capita per country. Nevertheless, Africa's CO_2 emissions per capita have barely increased over the past three decades despite the two-fold increase in the sub-region's population from 509 million people in 1990 to 1.11 billion in 2019. This mismatch indicates the low level of development and pervasive energy poverty, with over 600 million (50%) of the continent's population (mostly in SSA) lacking access to electricity.

Moving to a net-zero future and adapting to climate change requires significant amounts of capital. According to some estimates, between US$125 trillion and US$275 trillion will be required by 2050 to meet net-zero goals at a global level. While financing is key to implementing NDCs, not every country or region in Africa is financially endowed with the resources needed, nor are they the most

significant historical contributors to GHGs. Conservative estimates indicate that Africa needs US$2.5 trillion (74% of the continent's GDP of US$3.4 trillion in 2021) or US$250 billion annually in conditional and unconditional financing between 2020 and 2030 to implement its NDCs under the Paris Climate Agreement. It is worth noting that this climate financing gap is separate from Africa's loss and damage finance or other infrastructure financing needs. Some indicative assessments from the AfDB show Africa's loss and damage needs due to climate change in the range of US$289.2 billion to US$440.5 billion.[71] Thus, the current reported climate finance annual inflows of US$30 billion (equivalent to only 12% of conservative annual required flows) are woefully inadequate to address the continent's needs as per the NDCs. The CPI estimates that, of that amount, public finances, mostly from multilateral development finance institutions, comprise 86% (US$25 billion) while private sector financing (mostly corporates) contributed 14% (US$4.2 billion).

In addition, the structure of existing climate finance continues to perpetuate greater inequities as many of these facilities are disbursed as loans and not as grants. However, the terms of these loans are prohibitive, and their very design excludes the poorest and most vulnerable countries from benefitting.

PART TWO

Country case studies

This section of the report covers the following:

- The policy and institutional set-up for climate finance in three African countries.
- Who the stakeholders are, their roles in the climate finance landscape and their stories.
- The priorities of the countries when it comes to climate finance - and comparing the climate finance coming into the country with the priorities of the countries.
- The content of the finance flows.

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3. Ghana

3.1 National policy and regulatory context

Ghana has demonstrated its commitment to responding to the global call for climate action through adaptive and mitigation strategies. It is a signatory to several regional and international protocols that focus on environmental sustainability and the need to adapt or mitigate the impacts of climate change. At the regional level, it has aligned with initiatives such as the West African Alliance on Carbon Markets and Climate Finance, the West Africa Science Centre on Climate Change and Adaptive Land Use and the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE). At the global level, Ghana joined the UNFCCC in 1995 and is a signatory to the Paris Agreement, which provides a global framework to reduce global temperatures to well below 2°C and pursue efforts to limit it to about 1.5°C. It has subsequently submitted its NDC, which outlines adaptive and mitigation strategies to meet the Paris Agreement target, and has advanced in its implementation.

Ghana's commitment to climate action has led to the development of legal, regulatory and policy frameworks that outline the country's laws, strategies and roles of responsible state and non-state institutions. The 1992 Constitution is the principle law of the republic around which all other laws of the country revolve. For climate change and environmental conservation, the Constitution is explicit about safeguarding the environment for posterity. Article 36 (9) states that "the State shall take appropriate measures needed to protect and safeguard the national environment for posterity; and shall seek cooperation with other states and bodies for purposes of protecting the wider international environment for mankind". The government of Ghana has enacted several legal frameworks to broaden the scope of the regulations on climate change and environmental sustainability. These laws span various sectors, including energy, forestry, agriculture and land and water management. Some of the key legal frameworks and regulations are indicated in Table 3.1.

Between 2010 and 2019, Ghana's government outlined several key policies that set targets, action plans and financing strategies for climate action. The energy sector has received much attention in these policy documents. Most documents outline the energy sector's role in reducing greenhouse gas emissions. The technologies highlighted in the energy sector include renewable energy integration, clean cooking technologies, biogas and reduced gas flaring. Other vital sectors include agriculture, forestry, land use, water resources and disaster management.

Many of these policy documents have associated strategies for raising finance. Finance for these policies is mainly raised through government funding, private sector investment and funding from bilateral and multilateral institutions. The sources of funding highlight the applicability of various approaches for climate financing. For the government of Ghana, the financial strategies for climate

action cannot be based on funding from development partners alone but must come from a plethora of funding sources in which the government and private sector play a significant role. Table 3-2 summarises the relevant policy documents with their various sectoral roles.

Table 3.1 Legal frameworks on climate change and environmental sustainability in Ghana

Law	Description
The control and prevention of bushfires act (1990) (PNDCL 229)	PNDCL 229 prohibits the starting of bushfires in the country. The law sets up bushfire committees within every district assembly with authority to draw appropriate bye-laws to ensure the adequate prevention, control and monitoring of bushfires.
Environmental Protection Agency Act, 1994 (Act 490)	This act established the Environmental Protection Agency to provide technical advice on formulating environmental policies and making recommendations for protecting the environment. Additionally, the agency ensures compliance with the laid down environmental impact assessment procedures in the planning and executing development projects, including compliance regarding existing projects. There are vital regulations that provide additional rules on environmental protection that the Environmental Protection Agency enforces: 1. **Environmental Assessment Regulations, 1999:** The Regulations provide additional rules focusing on issuing the environmental permit and environmental impact assessments. 2. **Management of Ozone Depleting Substances Regulations:** The law provides regulations and restrictions on trade and permits for products that contain substances that contribute to the depletion of the ozone layer.
Energy efficiency regulations	Regulations on energy efficiency provide standards to minimise electricity consumption. Key among these standards are a. Energy Efficiency Standards and Labelling (Non-Ducted Air Conditioners and Self-Ballasted Fluorescent Lamps) Regulations, 2005(LI 1815). b. Energy Efficiency Standards and Labelling (Household Refrigerating Appliances) Regulations, 2009(LI 1958) c. Energy Efficiency (Prohibition of Manufacture, Sale or Importation of Incandescent Filament Lamp, Used Refrigerator, Used Refrigerator-Freezer, Used Freezer and Used Air-Conditioner) Regulations, 2008(LI 1932) d. Efficiency Standards and Labelling (Light Emitting Diode and self-ballasted fluorescent lamps) Regulations, 2017(LI 2353).
Forest Plantation Development Fund Act, 2000 (Act 583)	This act established the forest plantation development fund to provide financial assistance to develop private forest plantations on lands suitable for commercial timber production. It also provides funds for research and technical advice to persons involved in commercial plantation forestry on specified conditions.
Renewable Energy Act, 2011 (Act 832)	The RE act provides for the development, management and utilisation of renewable energy sources for producing heat and power in an efficient and environmentally friendly manner. The act was amended in 2021 to repeal feed-in tariffs and encourage competitive tendering of renewable energy technologies.

Source: Authors' construct based on official sources (2022)

Table 3.2 List of policies that address climate action

Policy	Objective	Sector	Funding source
Energy Strategy and Development Plan	To ensure availability and universal access to energy services for export by 2020.	Energy	Government funding Private sector investment attraction Bilateral and Multilateral financing
National Energy Policy	To secure a reliable supply of high-quality energy services for all sectors of the Ghanaian economy and to become a significant exporter of oil and power by 2012 and 2015, respectively.	Energy	
National Climate Change Adaptation Strategy	To provide strategies to adapt to the future impacts of climate change without compromising on social and economic needs.	Multisectoral	
Sustainable Energy for All Action Plan	To accelerate access to clean, modern energy for households and productive uses as a means for achieving accelerated growth through job creation and poverty reduction.	Energy	Global Environmental Facility Climate Investment Funds Credit facilitation for SMEs Awareness creation among financial institutions Incentives for private-sector financing
National Climate Change Policy	To ensure effective adaptation, social development. To promote climate change mitigation.	Multisectoral	Carbon markets Private investments International sources Create an enabling environment for businesses to encourage support and use of RE
The National Climate Change Action Plan	The action plan sets out, by sector, the initiatives and programmes identified in the national climate change policy as action programmes for implementation.	Multisectoral	National allocation is based on annual work plans and budgets. Donor agencies (development partners) Cooperation from the private sector To encourage metropolitan, municipal and district assemblies s to use part of the common fund to finance climate change-related activities CSO involvement
National Renewable Energy Action Plan	To ensure sustainable development and productive use of renewable energy to address energy access issues. To contribute to the fight against climate change. To resolve sanitation problems and create green jobs for Ghanaians. To promote and support the development of renewable energy resources.	Energy	Tax reduction schemes government's Energy fund

Policy	Objective	Sector	Funding source
Low carbon development strategy	The strategy ensures that Ghana's economic transformation occurs along a low-carbon pathway, leading to better growth, lives and climate.	Multisectoral	As examples: Climate Funds (e.g., Adaptation Fund, International Clean Technology Research and Development Fund) Global Research and Development Funds, Venture Capitalists, Global Pension Funds, International Climate Initiatives, NAMA Facility, Global Environment Facility, Latin American Investment Facility (LAIF), EU-Africa Infrastructure Trust Fund (ITF), Neighbourhood Investment Facility (NIF), Austrian NAMA Initiative, Support for Activities related to sustainable management of forests, ODA for Climate Change Measures, Spanish NAMA Platform, Private sector funds
National Adaptation Plan Framework	To guide the country in developing, coordinating and implementing its NAP process.	Multisectoral	Set up of Ghana Green Fund. Private sector financing. Empowering the private sector to write bankable proposals.
NAP to Mitigate Short-Lived Climate Pollutants	To identify and prioritise the policy options that government can adopt to reduce or avoid the emission of short-lived climate pollutants from key economic sectors.	Multisectoral	Private sector NGOs Financial institutions
Renewable Energy Master Plan	To propose targets and action plans for all renewable energy technologies by 2030.	Energy	As examples: **Government funding** (Petroleum Fund; Ghana Infrastructure Investment Fund (GIIF), Multilateral Development Banks) **Donor funds (**Green Climate Funds, Global Environment Facility (GEF), Sustainable Energy Fund for Africa (SEFA), Abu Dhabi Fund, Africa Renewable Energy Fund, African Catalytic Fund, Rural Electrification Levy for mini-grid development, Loans and grants negotiated for rural electrification, Grants and matching funds, and Renewable Energy Fund (when operational), Private sector

Source: Authors' construct (2022)

3.1.1 Regulatory framework

No single body manages the implementation of Ghana's climate change policies, and the government of Ghana has outlined several implementation bodies responsible for policy making, implementation and regulation of laws.

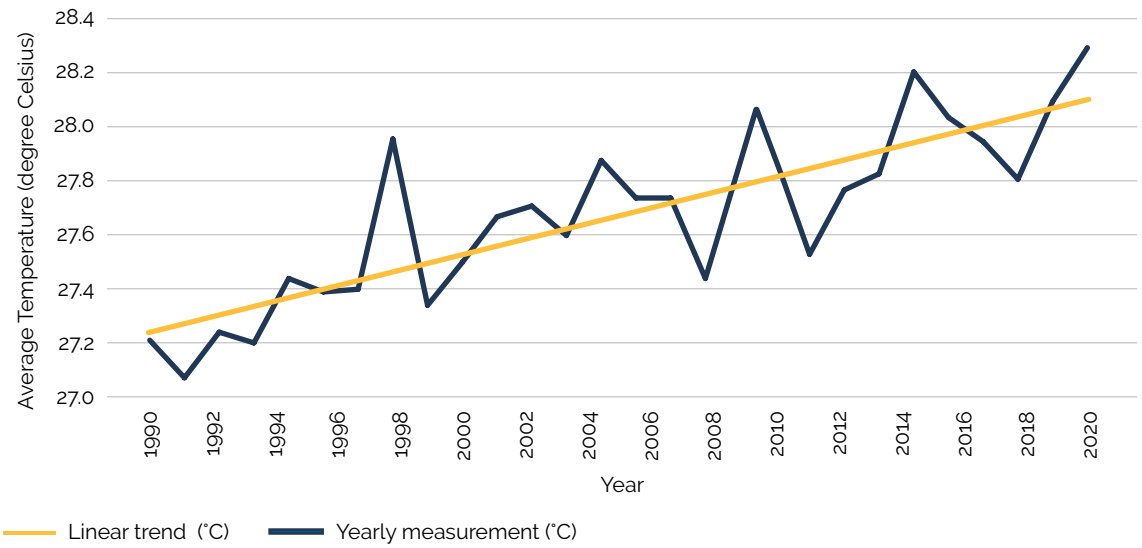
- **Ministry of Finance:** The Ministry is responsible for implementing, monitoring and evaluating macroeconomic, fiscal and financial policies for sustainable development. It also ensures an effective mobilisation of domestic and external resources.

- **Ministry of Energy:** The Ministry is responsible for energy policy formulation, implementation and supervision of energy sector agencies.
- **Ministry of Environment Science, Technology and Innovation:** The Ministry is responsible for ensuring accelerated socio-economic development of the nation through the formulation of policies to promote the use of appropriate environmentally friendly technologies.
- **Ministry of Food and Agriculture:** The Ministry promotes sustainable agriculture and thriving agribusiness through research and technology development, effective extension and other support services to farmers, processors and traders for improved livelihood.
- **Forestry Commission:** The Commission coordinates, implements and enforces policies, laws and regulations on the management and utilisation of forest and wildlife resources.
- **Energy Commission:** The Commission licenses public utilities for the transmission, wholesale supply, distribution and sale of electricity and natural gas. It provides a database for national decision-making for the efficient development and utilisation of energy resources.
- **Environmental Protection Agency:** The commission is responsible for protecting and improving environmental standards in Ghana.

3.2 Climate change situation

The 2010 National Climate Change Adaptation Strategy outlines four areas that manifest Ghana's climate change situation – rising temperatures, declining rainfalls and intense variability, rising sea levels and a high incidence of weather extremes and disasters. Ghana's average temperature has steadily increased over the years. The average temperature rose by 1 degree Celsius between 1990 and 2021 (See Fig 3.1). The current temperature trend indicates that temperature will keep rising if urgent action is not taken towards mitigating climate change.

Fig 3.1 Average temperature trend in Ghana between 1990 and 2021



Source: World Bank Climate Knowledge Portal

Rainfall patterns in the past years show that rainfall is highly variable over annual and decadal timeframes. This variability makes it difficult to identify projected patterns. However, Ghana's climatology shows a potential increase, especially in the forest regions.[72] Generally, rainfall is expected to increase, and there will potentially be more erratic and intense flooding, especially during the wet seasons. These phenomena call for more adaptive measures to reduce the occurrence of natural disasters associated with flooding.

Ghana has a coastline of about 550km, with almost a 4th of its population living along the coast. Sea-level anomalies relative to the average sea level between 1993 and 2012 have increased over the past years. As of 2015, the annual sea-level anomaly was about 85.7mm. A vast population is affected by coastal erosion caused by rising sea levels. Coastal erosion occurs when the shoreline retreats inland, displacing the homes and properties of victims. For example, Fumeve was a fishing community in the Keta Municipality in the Volta Region of Ghana. In 2016, the community was displaced due to a sea surge transforming it into packs of islands.[73] Five years on, another sea surge displaced about 4000 people in the Keta Municipality. While adaptive measures, including the construction of sea defence walls, are proffered, the threat of a rising sea level and its impact persists, requiring urgent preventive measures.

3.2.1 Greenhouse gas emissions in Ghana

In Ghana, CO_2 accounts for about 64.7% of all GHGs, followed by nitrous oxide and methane, which account for 18.3% and 15.4% of emissions, respectively. Gases with fluorine contents (hydrofluorocarbons and perfluorocarbons) account for the remaining levels of contributions. The GHG contribution to climate change increases the need to consider decarbonisation techniques as necessary mitigating actions.[74]

The total GHG emissions as of 2016 stood at about 42.2 million tonnes of CO_2 equivalent ($MtCO_2e$), with an annual growth rate of approximately 2.1% between 2010 and 2016. The Agriculture, Forestry and Land Use (AFOLU) sector is the most significant contributor to GHG emissions (Fig 3.2 and Fig 3.3), followed by the energy sector, which accounts for about 36% of GHG emissions. Emission reductions from forestry and land use reduced the country's 2016 total emissions to about 29.28$MtCO_2e$, of which emissions from the energy sector contribute about 51%.

Fig 3.2 2016 GHG emissions considering AFOLU

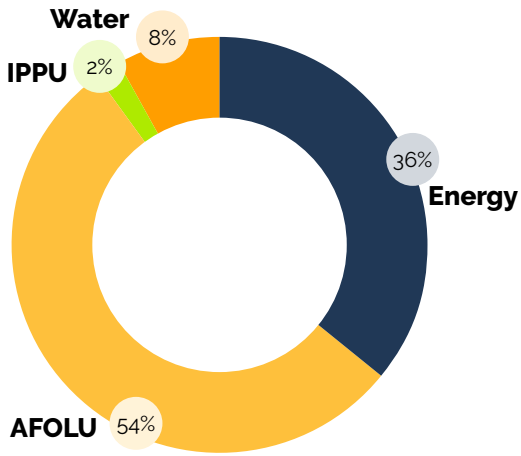
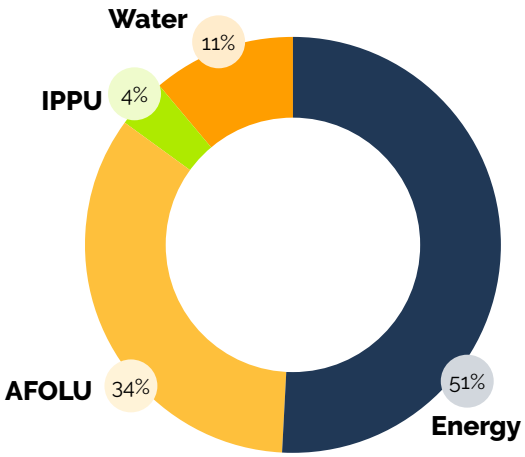


Fig 3.3 2016 GHG emissions after accounting for emissions reduction from forestry



Source: Environmental Protection Agency (2019)

3.3 NDC gap analysis

3.3.1 Ghana's Climate Mitigation and Adaptation Plans

In 2015, Ghana submitted its mitigation and adaptation actions as its NDC, as required by the Paris Agreement. The NDC contains 31 action plans for climate action (20 mitigation and 11 adaptation plans), which are either conditional (i.e. actions that depend on support from international bodies or countries) or unconditional (i.e. actions based on the country's resources). These actions were designed in line with the Ghana Shared Growth and Development Agenda II and the country's anticipated 40-year development plan outlined by the National Development Planning Commission.

In 2015 the government of Ghana selected five sectors on which to focus its mitigation actions: energy, transport, AFOLU, waste and industry. The energy sector had the largest number of mitigating action programmes (nine actions), followed by the AFOLU sector (five actions) and the waste sector with three actions. The most notable of the programme of actions for climate change mitigation are integrating renewable energy, using clean cooking technologies, enhancing energy efficiency, scaling up institutional biogas and abating fluorinated gases. Of the mitigation actions, the government identified only two actions as unconditional. Those actions are in the energy and AFOLU sectors. In the energy sector, the government's unconditional action was to scale up the replacement of light crude oil with natural gas for energy generation in thermal plants by about 120mmscf. The AFOLU sector's unconditional action was to continue its annual afforestation/ reforestation plans of about 10,000 ha of degraded land.

Ghana's initial NDC indicates that the mitigation actions require about US$9.8billion, mainly conditional mitigation actions (79% of financial requirement under mitigation). Again, the energy sector forms a significant component. The financial requirement from that sector constitutes about 51% of mitigation actions and 22% of the entire financial requirement for Ghana's NDC, followed by the transport sector with a financial requirement of approximately US$3.5 billion, representing 36% of the needed funds for mitigation actions and 16% of the entire financial requirement (Table 3-3).

Ghana's adaptation plans focus on six core areas: agriculture and food security, sustainable forest resource management, resilient infrastructure in the built environment, climate change and health, water resources and gender and the vulnerable. In addition, the adaptation plans have 11 programme actions required to meet Ghana's target for climate action. Seven of the 11 adaptation measures are unconditional programme actions. In its NDC, Ghana explains that it will focus more on reducing climate risk impacts due to urgent development needs and the country's exposure to climate change risks in sectors such as agriculture, infrastructure and water. Therefore, it is not surprising that Ghana intends to focus more of its resources on adaptation plans.

Financial requirements for adaptation plans form about 56% of the total financial requirement for supporting Ghana's NDC. The unconditional action points constitute about 52% of the financial requirements for adaptation plans and 29% of the total fund needed for the NDC. The sector that focuses on resilient infrastructure received the largest financial requirement of about US$3.9 billion, followed by the agriculture and food security sector with a funding need of about US$3.19 billion (Table 3.4).

Table 3.3 Mitigation measures for climate action

Variable	No/amount (US$ million)	%
Sectors		
Energy	9	29.0%
Transport	1	3.2%
AFOLU	5	16.1%
Waste	3	9.7%
Industry	2	6.5%
Status		
Conditional	18	58.1%
Unconditional	2	6.5%
Financial requirement		
Energy	4,953.00	21.9%
Transport	3,564.60	15.8%
AFOLU	8.70	0.0%
Waste	1,201.00	5.3%
Industry	80.00	0.4%

Source: Authors' construct (2022) based on data from Ghana's NDC submissions to the UNFCCC

Table 3.4 Adaptation plans for climate action

Variable	No/amount (US$ million)	%
Sectors		
Agriculture and food security	3	9.7%
Sustainable forest resource management	2	6.5%
Resilient Infrastructure in built environment	2	6.5%
Climate change and health	2	6.5%
Water resources	1	3.2%
Gender and the Vulnerable	1	3.2%
Status		
Conditional	4	12.9%
Unconditional	7	22.6%
Financial requirement		
Agriculture and food security	3,188	14.1%
Sustainable forest resource management	1,279	5.7%
Resilient Infrastructure in built environment	3,961	17.5%
Climate change and health	1,411	6.2%
Water resources	1,919	8.5%
Gender and the Vulnerable	1,023	4.5%

Authors' construct (2022) based on data from Ghana's NDC submissions to the UNFCCC

Financing is a significant factor contributing to attaining the NDC objectives. As indicated, Ghana's 2015 NDC in 2015 has a financial requirement of about US$22 billion, which has to be obtained from various sources. The government of Ghana has stated its commitment to mobilising funds to support the unconditional NDCs. This commitment suggests that other sources of finance are necessary to fund the remaining part of the conditional NDCs. Potential domestic funding sources include corporate social responsibility activities from corporate bodies and commercial facilities from financial institutions. In addition, Ghana has identified the GCF as a key source for climate financing, providing up to about US$5 billion, representing 17.3% of the total financial requirement (Table 3.5).

Table 3.5 Financial requirements for updated NDC

Variable	Amounts (US$ billion)	% of total investment
Domestic sources		
National budget	1.40	4.8%
Corporate Social Responsibility	1.70	5.9%
Commercial facilities	3.20	11.1%
Total domestic	**6.30**	**21.8%**
International sources		
Green climate fund	5.00	17.3%
Other multilateral funds	1.10	3.8%
Bilateral agreements	2.80	9.7%
Private capital investment	3.80	13.1%
International carbon market	3.60	12.5%
Total international	**16.30**	**56.4%**
Total	**28.90**	**100.0%**

Authors' construct (2022) based on data from Ghana's NDC submissions to the UNFCCC

Ghana's updated NDC

In 2021, Ghana announced its updated and enhanced NDC under the Paris Agreement. The updated NDC includes 19 policy actions, classified under eight socio-economic outcomes (see Table 3.6), which translate to 47 programmes of action (of which 13 are adaptation and 34 are mitigation actions). Seven of the 13 adaptation actions are unconditional, requiring financial mobilisation from the government of Ghana. Nine of the 34 mitigation actions are unconditional.

The revised NDC requires less financing, although the programme of actions has increased. Financial needs to support the programme of actions range between US$9.3 billion to US$15 billion (about 12% to 19% of the country's 2021 GDP). The reduction in the financial requirements could be due to clarity in cost assessment and developments after the initial NDC in 2015. For example, before the implementation of NDCs, natural gas was not a major fuel source for powering Ghana's thermal plants. In 2016, about 3.6 million barrels of Light Crude Oil (LCO) and 26.9 bcf (billion cubic feet) of gas were consumed for power generation. However, natural gas has significantly

replaced liquid fuels in recent periods. In 2020, the consumption of LCO fell to about 360,000 barrels, whereas gas consumption increased to about 95 bcf. The statistics show that Ghana has been on track with its NDC target of switching from liquid fuels to gas, which reduces the financial commitment required to meet the NDC target.

Table 3.6 Socio-economic outcomes for Ghana's updated NDC

Socio-economic outcome	Form of action
Social inclusion	Mitigation/Adaptation
Early warning and disaster risk management	Adaptation
Resilience building	Adaptation
Food and landscape restoration	Adaptation
Smart communities	Mitigation
Sustainable mobility	Mitigation
Sustainable Energy Transition	Mitigation
Responsible production	Mitigation

Authors' construct (2022) based on data from Ghana's NDC submissions to the UNFCCC

3.3.2 Monitoring, Reporting and Verification mechanisms

Monitoring and reporting mechanisms are crucial in tracking and assessing the country's commitment to meeting its NDC targets. Articles 12 of the UNFCCC and Article 13 of the Paris Agreement mandate countries to provide inventory reporting of anthropogenic emissions in line with methodologies adopted by the IPCC. These reporting frameworks deepen transparency in implementing climate change adaptation and mitigation actions.

In 2013, Ghana adopted the Climate Ambitious Reporting Program (CARP) as its measurement, reporting and verification (MRV) framework to democratise the climate data in support of the global report on greenhouse gases. The CARP is a base with four connected components: institutional arrangements; data handling;, methods, tools and protocol; and skills development.

Like other countries, Ghana has created a reporting platform where a contact person represents each sector responsible for a particular NDC. The contact person is responsible for the data collection, processing and documentation of specific mitigation actions. The document is archived, and all contact persons' submissions are sent to the Environmental Protection Agency for additional analysis. The analysed and relevant data are subsequently sent to the Greenhouse Gas Abatement Cost Model developed by the United Nations Environmental Program. The model allows for emission projections, setting emission reduction targets, and compiling the collection of individual mitigation actions. It also helps to assess climate actions contributions toward meeting the national target. Table 3.7 details key government institutions responsible for the data collection on specific mitigation items.

Table 3.7 Key institutions responsible for MRV under the NDCs

Institution	Data	Source document
Ministry of Food and Agriculture	Food and livestock data	Agriculture facts and figures
Energy Commission	Energy production and consumption pattern	Energy Outlook Energy Information Database
Forestry Commission	Forestry production Harvesting, land use and change data Land disturbances data	Forestry Inventory
Ghana Statistical Service	Household and demographic data	Ghana Living Standards Survey Population and Housing Census Reports
Environmental Protection Agency	Climate change data Greenhouse gases, mitigation and adaptation data Environmental performance data	Annual Climate Change Report Biennial Update Report Akoben and EIA Reporting National Communication
Driver Vehicle Licensing Authority	Vehicle population	Vehicle registration and road-worthy database
Ministry of Local Government and Rural Development	Data on liquid and solid waste	Sanitation Database

Source: Authors' construct (2022)

3.4 Mapping Climate financing flows in Ghana

3.4.1 Evolution of climate finance and investment in Ghana

Climate financing in Ghana has generally followed commitments made in the various climate strategies, plans, frameworks and policies developed by the relevant sector agencies. Several efforts have been made to track the flow of climate finance and investments into Ghana over different periods. For example, Ghana's Third National Communication Report to the UNFCCC (2015) tracked and reported on the financial flows from 2011 to 2015, while the Fourth National Communication Report to the UNFCCC (2020) mapped financing flows from 2011 to 2019. The Forest Trends REDDX Report (2016) also mapped REDD+ finance flows from 2009 to 2014.

These tracking and mapping efforts reveal six key channels of climate financing in Ghana:

i. Bilateral channels

ii. Multilateral

iii. Global projects

iv. National funds or government co-financing

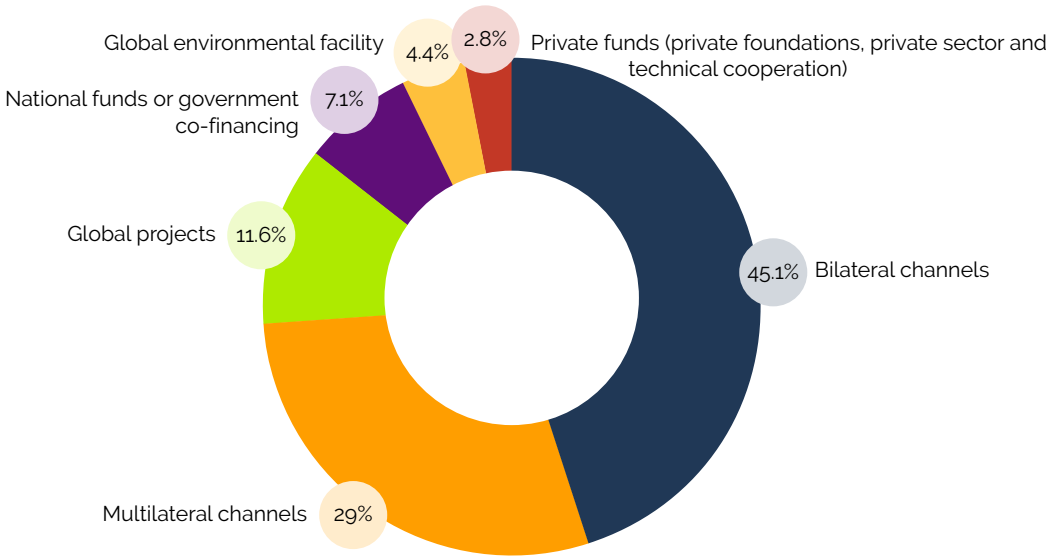
v. Global Environmental Facility

vi. Private Funds (private foundations, private sector and technical cooperation)

Ghana's Fourth National Communication Report to the UNFCCC (2020) estimates the total financial inflows for climate action between 2011 to 2019 at about US$1.3 billion. This estimate excludes the US$14.2 billion financial investment to develop Ghana's natural gas industry. Ghana has received the largest share of climate financing from bilateral channels. **Between 2011 and 2019,[75]bilateral financing contributed 45.1% of the total US$1.3 billion financing received** (Fig. 3.4). This sum is followed by 29% receipts from multilateral funding and 11.6% from global projects, as shown in Fig. 3-4. It is essential to highlight that while the Global Environment Facility (GEF) contributed 4.4% of the financing flows for the period, it was one of Ghana's traditional climate financing sources even before Ghana's Initial National Communication to the UNFCCC in 2000.

It is also important to highlight that about **92% of the financing received from 2011 to 2019 went through government institutions, including ministries, public corporations and regulators**. Beyond these institutions, **international non-governmental organizations operating in the country received 3.3%,** while universities received 2.6% of the funding.

Fig 3.4 Share of total financing from the key channels (2011-2019)



Source: Ghana's Fourth National Communication Report to the UNFCCC (2020)

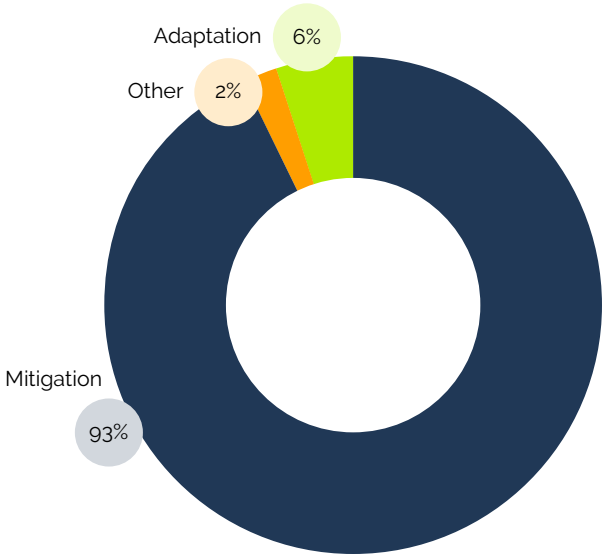
3.4.2 The flow of financing and Ghana's climate priorities

Ghana's National Climate Policy, developed in 2013 to provide strategic direction and coordinate climate action in Ghana, spells out three key objectives for climate action for the country: effective adaptation, social development and mitigation. They can be surmised to be Ghana's key priorities for climate action. From the strategies outlined to drive the realisation of these objectives, it can be observed that t**here is a significant focus on delivering effective adaptation, albeit interlaced with mitigation measures**. In addition, four key thematic areas are identified for attention: energy and infrastructure, natural resource management, agriculture and food security and disaster preparedness and response. Prior to the National Climate Policy, Ghana's climate priorities were established in the Ghana Shared Growth Development Agenda II – GSGDA 2, its medium-term development plan, and the national communications to the UNFCCC.

However, in 2015 Ghana submitted its initial INDC to the UNFCCC, which **shifted focus from the adaptation actions to mitigation** by outlining 20 mitigation and 11 adaptation measures proposed for implementation in seven priority economic sectors over 10 years (2020-2030). Moreover, Ghana's updated INDC reaffirms the country's focus on mitigation through the proposed 13 adaptation measures and 34 mitigation measures. The strategies outlined are expected to draw financing into these key areas to support Ghana in achieving its climate objectives.

A review of the climate financing received between 2011 and 2019 shows a significant allocation towards mitigation rather than adaptation actions.[76] Of the US$1.3 billion received, **about 93% was allocated towards mitigation activities. In comparison, adaptation efforts received about 5% of the inflows** (Fig. 3.5). While it is essential to finance mitigation actions, similar attention must be paid towards financing adaptation activities. This attention is important, especially considering that Ghana, like other African countries, remains vulnerable to the impacts of climate change. The approximately 2% remaining was earmarked to support other initiatives not classified under mitigation or adaptation. The adaptation and mitigation activities also included Means of Implementation (MOI) activities, especially for capacity development of the receiving institutions.

Fig 3.5 Share of financing received by climate action areas (2011-2019)



Activity	Amount (USD million)	Percentage
Adaptation	44.12	3.4%
Adaptation MOI	17.70	1.3%
Finance MOI	0.94	0.1%
Mitigation	1 146.33	87.4%
Mitigation MOI	80.08	6.1%
Other	22.94	1.7%
Total	**1 312.10**	**1.00**

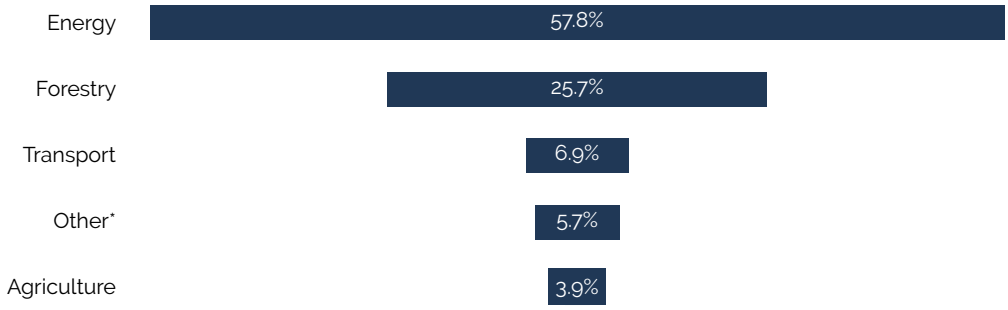
Source: Ghana's Fourth National Communication Report to the UNFCCC (2020)

About 94%[77] **of the funding received over the 2011 to 2019 period went to four sectors: energy, forestry, agriculture and transport** (Fig 3-6). The energy sector received the largest allocation of 57.8% to implement several mitigation measures in the sector, including the promotion of energy efficiency and conservation, improving access to clean cooking solutions and scaling up the penetration of renewables on the national grid. The forestry sector received the second largest allocation of 25.7% to increase forest cover, restore degraded lands and promote sustainable cocoa and shea production.

Further data disaggregation shows the sectoral focus on mitigation and adaptation financing. For example, Fig 3.7 shows agriculture, education and the environment as the largest recipients of adaptation financing. Similarly, Fig 3.8 shows that mitigation financing was focused on the energy, forestry and transport sectors. Together, they receive 96.5% of the total disbursements for mitigation

measures, with the energy sector receiving 61.8%. It is essential to highlight that about 30% of the funding received for adaptation was allocated for MOI activities: US$16.51 million was for MOI activities, particularly for the education sector.

Fig 3.6 Sectoral receipts of climate financing (2011-2019)



** This includes environment, education, finance, development planning, interior, water and health.*

Source: Ghana's Fourth National Communication Report to the UNFCCC (2020)

Fig 3.7 Adaptation financing by sector

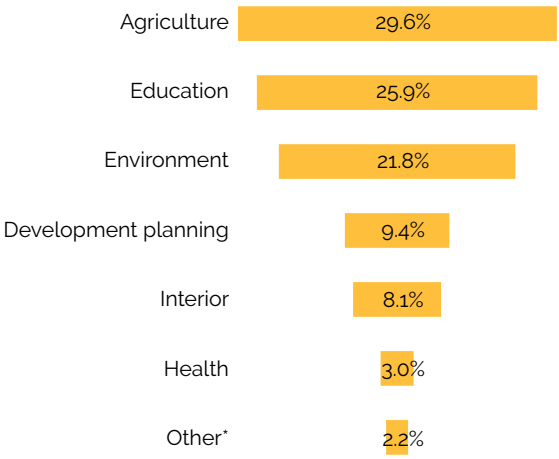
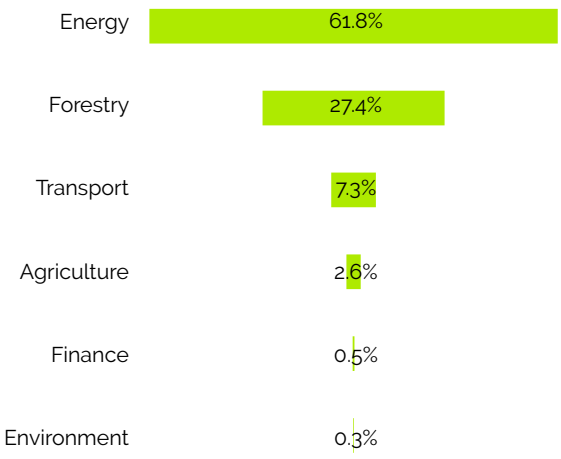


Fig 3.8 Finance mitigation by sector



** This includes water and forestry.*

Source: Ghana's Fourth National Communication Report to the UNFCCC (2020)

3.4.3 The role of local banks in climate financing

Climate financing by local commercial banks in Ghana is still at its nascent stage of development, mainly because the banks have traditionally prioritised yield and risk. However, the Bank of Ghana (BoG) has been instrumental in driving the innovation of local Ghanaian banks to sustainable financing, including climate financing. In November 2019, the BoG, in collaboration with the Ghana Association of Bankers, launched the Ghana Sustainable Banking Principles[78] to provide a framework for sustainable banking that promotes effective environmental and social risk management for Ghanaian banks. **By 2020, 24 local commercial banks had signed on to the principles to contribute to sustainability through their financial products, models, marketing services and business operations.** Even before the Ghana

Sustainable Banking Principles, six commercial banks, Fidelity Bank, Absa Bank, Access Bank, Guarantee Trust Bank, Ecobank and Zenith Bank, had signed onto the UN Environment Program Finance Initiative to apply the industry frameworks and developed practical guidance and tools that positioned their businesses for the transition to a sustainable and inclusive economy.

The nature of climate financing from local banks has been largely private sector focused, i.e. de-risking capital flow to private businesses and entities with investments spanning across climate-resilient agriculture, clean energy and green infrastructure, as opposed to financing government climate projects. Some banks attract financing from global climate finance funds for on-lending to private businesses engaged in climate-related investments. For example, in 2020, Ecobank became Ghana's first Accredited Entity for implementing GCF funds in Ghana. This accreditation allows the bank to finance up to US$250 million in climate projects. However, Ecobank is yet to receive programme approval to access funds. Instead, in 2021, it received US$13.25 million[79] from the African Development Bank (AfDB) through AfDB's GCF-administered resources for financing climate-resilient agricultural practices in Ghana. Moreover, the Agence Francaise de Development-backed €32.5 million SUNREF[80] Green Finance Programme is run through CalBank Ghana and GCB Bank. The facility aims to support private sector investment in renewable energy technologies and sustainable energy in the country.

There are also examples of government-sourced climate financing being run by local banks as partner finance institutions. An example is the €20 million Green Credit Line[81] secured from the German KfW Bank to deepen green investment project financing in Ghana and build the capacity of local financial institutions in green financing. Ecobank, Stanbic Bank and the Agricultural Development Bank are the partner financial institutions on-lending the funds to local businesses. In addition, through the ECOWAS Refrigerators and Air Conditioners Initiative[82] implemented by the Energy Commission, four banks – Fidelity Bank, Ecobank, Absa Bank and CalBank – are running the Green On-Wage financing mechanism to unlock at least US$11 million financing to support the purchase of more sustainable cooling appliances in Ghana.

Moreover, some other banks, such as the Access Bank,[83] have been able to integrate sustainability into their traditional lending operations to make room for providing flexible funding for climate-related projects in efficient green buildings, sustainable waste management, sustainable land use and clean transportation.

It is expected that the commitment to the Ghana Sustainable Banking Principles will accelerate the growth of green financing by local commercial banks for both private and government climate action projects.

3.4.4 Current opportunities for mobilising climate investment in Ghana

Ghana estimates between US$9.3 and US$15.5 billion as the investment required to implement its updated NDC between 2022 and 2030. The policy actions outlined in the National Climate Policy and Ghana's NDC provide investment opportunities that could be scaled up to accelerate climate finance in some sectors of the economy. These sectors include energy, agriculture, forestry, transport and waste management.

Energy

Ghana aims to reduce GHG emissions unconditionally by 15% relative to its business-as-usual scenario emission by 2030 and a further conditional reduction of 30% when it receives external support. This ambition requires accelerating clean cooking solutions, scaling up renewable energy penetration and promoting energy efficiency. With electricity access currently at 87%,[84] small-scale renewable energy systems provide the opportunity to achieve universal access, especially for hard-to-reach areas for the national grid.

However, the Africa Centre for Energy Policy identifies the initial cost of investment as the demotivating factor for renewable technology investment among small and medium-sized enterprises (SMEs) in Ghana and households to a large extent.[85] While the government is currently undertaking efforts to establish green credit lines to accelerate the penetration of renewable energy, more investment is required to achieve the country's goal of scaling up the 200,000 solar home systems for lighting in urban and non-electrified rural households and establishing 55 solar mini-grids towards universal electricity access. Other areas of development for climate finance include scaling up clean cooking solutions, including biofuels as a replacement for wood fuel, on-grid renewable energy generation and efficient energy consumption.

Agriculture

Ghana's agriculture sector contributes to 24% of the total national emissions. Therefore, mitigating the emissions would significantly contribute to greening the sector. The government is implementing the National Climate Smart Agriculture and Food Security Action Plan in response to the climate challenges in the sector. However, to sustain the gains made so far, there is the need to complement and scale up these efforts, particularly in reclaiming degraded lands from illegal mining activities for agricultural purposes, sustainable cash crop (cocoa, shea, cashew) production, scaling up penetration of climate-smart technologies to increase livestock and fisheries productivity and accelerating innovations in post-harvest storage and food processing.

Forestry

The forestry sector significantly supports the sustainability of agricultural activities in Ghana and serves numerous environmental and ecological functions. Unfortunately, these benefits are threatened by deforestation from illegal mining activities, settlements, agriculture expansion, bushfires and wood fuel extraction. Ghana has made significant gains in curbing deforestation and promoting sustainable land use through REDD+ interventions. These efforts include the conservation of mangroves, increasing Ghana's carbon stocks, wildfire management in the savannah zones and curbing the destruction of forest cover by illegal mining activities.

Transport

The transportation sector contributes 17%[86] of Ghana's total national emissions. These emissions come from the road, rail and aviation subsectors. Road transport, which is heavily dependent on fossil-fuelled vehicles, has been the most significant contributor to emissions in the transport sector. With a growing middle class, the number of vehicles on the road is expected to increase significantly with attendant traffic congestion. Moreover, the retooling and expansion of Ghana's collapsed rail infrastructure is expected to increase the consumption of fossil fuels in the sector, resulting in

increased emissions. The domestic aviation subsector has also seen significant growth with increased flight routes across the country. The growth in the subsector is expected to increase aviation fuel consumption with its attendant emission challenges. While substantial global efforts and actions on greening transportation, including electric vehicles, have been underway, progress has been nascent in Ghana. The government recently launched a National Electric Mobility Policy and Market Readiness Framework for Ghana[87] to drive innovation in improving public transportation and vehicle efficiency. The Energy Commission has also embarked on a Drive Electric Initiative to promote electric vehicle use in the country. However, these efforts need to be scaled up significantly to realise the emissions reduction target set for the sector.

Waste Management

Population growth and urbanisation are significantly driving waste generation in Ghana. Inefficient waste management, which results in methane emissions, is a crucial climate change concern. Moreover, improper plastic waste disposal coupled with a poor drainage system has caused floods that have destroyed lives and property. Efficient urban waste management would save lives and create the opportunity for waste-to-energy generation and organic compost to supplement the fertiliser needs of the agriculture sector. The government's efforts in this sector have been aimed at enhancing an alternative to urban waste management, improving an effective urban waste collection system and driving innovation in Decentralised Treatment, Re-Use and Recovery Systems, including scaling up 200 institutional biogas plants in senior high schools and prisons nationwide. A key challenge to realising these objectives has been the cost of collecting and managing waste in the country. Fortunately, the private sector has been intervening to improve waste collection and management. However, these efforts need to be scaled up significantly to enable the country to manage its waste comprehensively.

3.5 Stakeholder mapping, alignment and practical realities

The study involved the selection of stakeholders from agencies relevant to climate financing. These agencies include government agencies (Ministry of Finance and the Environmental Protection Agency), development finance institutions responsible for providing climate financing, banks and green industry associations. Interaction with the stakeholders aimed at obtaining reports on practical experiences on Ghana's climate funding architecture, especially regarding the barriers and the way forward for the country.

3.5.1 National perspectives on climate finance needs

Our interaction with stakeholders provided several perspectives on Ghana's climate financing architecture. The stakeholders identified several available climate funds for Ghana to secure. These funds include the GEF, Special Climate Fund, the Green Climate Fund and the Climate Investment Fund (CIF).

The interaction highlighted several challenges related to climate financing, mainly in the form of capacity building to strengthen institutions and the need to redeem financial commitments of developed countries. The climate finance barriers reduce the ability of countries to access the required financing from the climate funds that provide such finance.

Limited capacity to access climate funds

The interactions identified the **limited access to climate funds as the main barrier hindering Ghana's access to climate financing.** Generally, climate funds are provided on a competitive base, and adequate documentation is required to access these funding sources.

a. Project prioritisation and justification

Usually, **Ghana suffers from limited capacity in project prioritisation and proposal preparation, which affects the country's ability to access funds.** The interactions also revealed that some agencies (both government and private sector) do not have specific project appraisal procedures that guide project evaluation in line with the requirements of external entities. Therefore, government and private institutions must begin to document guidelines and procedures to enable them to access and meet external requirements for funding support.

The limited capacity to access climate funds also extends to the funds' approval processes. Countries can be disadvantaged at several stages, especially regarding project justification. Interactions with stakeholders revealed that most climate funds require that proposals are backed by scientific data, which must justify the need for funds. However, these data are rarely available on demand and would require member countries to conduct prior studies. Such studies may require substantial funding and are likely to be beyond the capacity of the entity applying for the funding.

Again, **countries are required to demonstrate that the funds they receive are used to achieve climate outcomes.** Thus, the funding requires transparency and accountability systems. The absence of such transparency systems also reduces the likelihood of securing financing from major climate funds.

b. The requirement of co-financing

In some cases, beneficiary institutions or countries are required to bear part of the cost of the projects for which they are securing funds. For example, the GCF has a co-financing policy that aims to create ownership and provide resources for the long-term sustainability of climate actions in developing countries. The GCF does not have any minimum requirements or ratios for co-financing. However, the Ministry of Finance (Ghana's National Designation Authority (NDA) for GCF) requires a minimum co-financing ratio of 2:1 for mitigation or private sector proposals and 20% to 50% co-financing for adaptation projects.[88] In addition, the Ministry of Finance indicates that co-financing could be sourced from bilateral agencies, public and private financing sources and other market investments.

While co-financing could be beneficial for creating ownership, **our interactions with stakeholders indicated that it could limit the ability of entities to raise the co-financing required to secure the needed climate funds.** Thus, institutions with limited access to finance for co-financing are left out of the funding process. The absence of internally generated funds to match climate funds reduces the likelihood of some developing countries accessing certain climate funds.

c. Accreditation challenges

Climate funds such as the GCF work through various institutions to provide funding to support programmes aimed at climate action. These institutions, known as Accredited Entities, differ from the NDA. The Accredited Entities can be private, public, subnational or non-governmental and are responsible for overseeing, supervising, monitoring and managing respective GCF-approved projects. Agencies that apply to be accredited undergo rigorous assessments in multiple stages. They must have documentation that proves their institution's legal status and must demonstrate evidence of fiduciary status. The agencies must also have environmental, social and gender policies at their institutional level and must show a track record of adherence to such policies. These are the first-level requirements before endorsement by the agency's NDA, assessment by an independent accreditation panel and the GCF board's decision.

Ecobank Ghana is the only Ghanaian agency out of 113 Accredited Entities operating with the GCF. However, the interactions with stakeholders revealed that the agencies that could have been well-positioned to secure accreditation do not have the necessary documentation for accreditation. For example, many banks that could have been legible for accreditation do not have most of the social, environmental and gender policies and hence do not qualify for the accreditation process. However, Ghana's Central Bank's (the Bank of Ghana) Sustainable Banking Principles could guide Ghanaian universal banks in implementing applicable banking principles that adhere to ESG standards. There are seven core principles:

- Principle 1: Identify, measure, mitigate and monitor environmental and social risks in our business activities. Identify environmental and social opportunities in our business activities.
- Principle 2: Promote good ESG practices in our internal business operations.
- Principle 3: Promote good corporate governance and ethical standards
- Principle 4: Promote gender equality
- Principle 5: Promote financial inclusion
- Principle 6: Promote resource efficiency and sustainable consumption and production
- Principle 7: Reporting

Adherence to these principles could open doors for universal banks to follow the example of Ecobank Ghana towards becoming Accredited Entities and working with the GCF. However, banks must become aware of the need to develop the documentation necessary for accreditation to receive multilateral funding, especially considering their role as financial intermediaries. Accreditation also needs to become a simpler process if the flow of finance to Ghanian beneficiaries is to be realised.

Financial intermediaries to support other climate action initiatives

The previous subsections have focused on assessing funding from big-ticket climate funds such as the GEF and GCF. This section **focuses on the challenges faced by financial intermediaries in**

providing financing to green businesses that cannot access available funds from the already existing funds but can assess loans to ensure business growth.

a. Start-ups and risk of debt default

As already indicated in previous sections, local banks are essential financial intermediaries that can support green businesses and promote climate action. Local banks can provide loans to green businesses on terms that encourage such businesses to thrive. However, the banks must continually decide on the investment areas into which they should channel their funds. Generally, banks prefer to channel funds towards options that are de-risked.

The stakeholder interaction highlighted that a large portion of green businesses are start-ups, creating additional risks of debt default. Thus, there is a huge trade-off between the bottom-line concept and the public good. The critical question remains as to what extent a bank will finance a climate change intervention that carries significant investment risks and may not achieve the bottom line.

b. Creation of bankable projects

Stakeholders from the banking sector further reiterated that, to secure the needed financing and reduce the risk of debt default, green businesses need to be more intentional in creating projects that meet banks' bottom lines. Generally, banks will not provide reduced financing only because the business supports climate action. Instead, the challenge has been the inability of such green firms to provide the necessary bankable projects that can justify the funding requirement from the banks.

3.5.2 National and international stakeholders engaging in climate finance and what they are doing

Climate finance involves local, national or transnational financing from public, private and alternative sources to support climate change mitigation and adaptation actions. The active involvement and participation of national and international stakeholders will play a pivotal role in this new sector. Key stakeholders include governments, development partners and climate financing providers

Ministry of Finance

The Ministry of Finance formulates, implements, monitors and evaluates macroeconomic, fiscal and financial policies for sustainable development. It is also responsible for effectively mobilising domestic and external resources. Accordingly, the Government of Ghana has nominated the Economic Strategy and Research Division (ESRD) of the Ministry of Finance to be the nationally designated authority (NDA) to liaise with the GCF. The roles of the ESRD as Ghana's NDA include:

- Endorsing applications for accreditation made by prospective Direct Access Entities

- Endorsing any project proposals that would be implemented in Ghana.

The Ministry of Finance has developed several guidelines and tools for climate financing, including

- GCF project prioritisation tool
- Climate change finance tracking tools
- Climate change operation manual
- Sustainable finance principles.

Ministry of Energy

The Ministry of Energy is responsible for energy policy formulation, implementation, monitoring and evaluation, as well as for supervision and coordination of activities of Energy Sector Agencies. The Ministry is also responsible for implementing several renewable energy plans. The 4th communication of Ghana's NDC shows that the Ministry of Energy implements many energy sector projects under the NDC.

Environmental Protection Agency

The Environmental Protection Agency is responsible for formulating policies regarding environmental sustainability and climate change and regulates the activities of almost all the country's other environmental organisations. The agency is also the focal point for other international bodies, such as the UNFCCC and the IPCC. In addition, it is responsible for providing information on Ghana's emission inventory and communicating implementation updates on Ghana's NDC.

It is finalising a national framework for international carbon credits. The framework will guide the public and private sectors in raising carbon finance to support NDC implementation and other green investments. These efforts are in response to Article 6 of the Paris Agreement.

The SUNREF programme

The SUNREF (Sustainable Use of Natural Resources and Energy Finance) programme is a scheme to mobilise public and private banks to provide finance towards private-sector green investments. SUNREF Ghana works with the Energy Commission and its local bank partners (Cal Bank and GCB Bank) to offer businesses, organisations and households an opportunity to access financing for sustainable energy projects and assistance in structuring green investments. The goals of the SUNREF programme include the following:

Developing and consolidating a financing market for green investments (energy efficiency, renewable energies, environmental services).

- Improving energy security.
- Developing a viable market in sustainable energy and environmental services.

- Supporting the development of eligible, innovative and profitable green projects.
- Increasing the competitiveness of businesses, especially SMEs, by reducing their energy bill.
- Facilitating access to "green" financing for companies and individuals.
- Strengthening the capacity of local stakeholders (companies, business associations, sustainable energy agencies, ministries, partner banks, among others).

Energy Commission

The Energy Commission is responsible for regulating, managing and utilising energy resources in Ghana. The Commission also provides regulatory and supervisory frameworks and is responsible for granting licenses for the transmission, wholesale, supply, distribution and sale of electricity and natural gas and related matters.

Beyond its regulatory activities, the Commission also undertakes key climate-related implementation projects. Currently, the Energy Commission is leading the implementation of Ghana's Sustainable Energy for All (SE4All) action plan. SE4All is a global initiative with three key objectives:

- Ensuring universal access to modern energy services,
- Doubling the global rate of improvement in energy efficiency, and
- Doubling the share of renewable energy in the global energy mix.

Commercial Banks

The commercial banks involved in the climate finance stakeholders' engagement are Ecobank Ghana, Cal Bank and GCB. Ecobank Ghana has been nominated as an Accredited Entity and can receive funds from the GCF on behalf of Ghana. The Ecobank undertakes activities related to climate change in the energy access and generation, renewable energy, transport, infrastructure and food and water security sectors. Cal Bank and GCB partner with SUNREF Ghana to offer businesses, organisations and households an opportunity to access financing for sustainable energy projects and assistance in structuring green investments. Table 3.8 provides a summary of the key stakeholders responsible for climate action.

Table 3.8 Key stakeholders responsible for climate action in Ghana

Stakeholder	Examples	Function
International bodies		
Development Finance Institutions	Norfund Camco Sunref	Provide equity, loans and guarantees to businesses operating in the world's most challenging markets.

Stakeholder	Examples	Function
Multinational development banks	Africa Development Bank (AfDB) ECOWAS Bank for Investment and Development (EBID)	Provide loans and grants to member nations to fund projects that support social and economic development.
Development Partners	Danish International Development Agency (DANIDA) Foreign Commonwealth Development Organization (FCDO)	Assist with budgetary support, projects/ programmes and technical assistance.
Climate Funds	GCF, SDG Delivery Fund and Green Fund	Provide investments to enable activities that reduce GHG emissions or support adaptation to climate change.
Local funding agencies		
Commercial banks	Stanbic Bank Cal Bank Ecobank	Accept deposits, grant loans, advances, cash, credit, overdraft and discounting of bills.
Small and Medium-Sized Enterprise Finance Agencies	Wangara Green Ventures Grofin Ghana Ltd	Help entrepreneurs succeed by providing them with business loans and business support (expert advice and continuous guidance) to grow their businesses.
Institutional fund managers	Social Security and National Insurance Trust (SSNIT) Private pension fund managers (e.g., Petra trust)	Are responsible for implementing a fund's investment strategy and managing its trading activities. They mainly oversee and manage pension funds.
Ministries Departments and Agencies		
Ministry of Finance		Formulate, implement, monitor and evaluate macroeconomic, fiscal and financial policies for sustainable development. Ensure effective mobilisation of domestic and external resources.
Ministry of Energy		Is responsible for energy policy formulation, implementation, monitoring and evaluation, as well as for supervision and coordination of activities of Energy Sector Agencies.
Ministry of Environment, Science, Technology and Innovation		Is responsible for ensuring accelerated socio-economic development of the nation by formulating sound policies to promote the appropriate use of environmentally friendly technological practices.
Ministry of Food and Agriculture		Promotes sustainable agriculture and thriving agribusiness through research and technology development, effective extension and other support services to farmers, processors and traders for improved livelihood.

Stakeholder	Examples	Function
Forestry Commission		Coordinates, implements and enforces policies, laws and regulations on the developing, managing and using forest and wildlife resources.
Energy Commission		Licenses public utilities for the transmission, wholesale supply, distribution and sale of electricity and natural gas and secures a database for national decision-making for the efficient development and utilisation of energy resource.
Environmental Protection Agency		Is responsible for protecting and improving the environment in Ghana.
Green Tech Companies and industry associations		
Industry associations	Association of Ghana Industries (AGI) Association of Small-Scale Industries (ASSI) Renewable Energy Association of Ghana (REAG)	Coordinate and ensure the quality of training, such as apprenticeship systems, in their respective trades.
Utilities	Electricity Company of Ghana (ECG) Northern Electricity Distribution Company (NEDCO)	Undertake economic dispatch and transmission of electricity from wholesale suppliers (generating companies) to bulk customers or consumers.
Photovoltaic manufacturers / Installers	SPS, Starsight, Zola	Assemble and install solar panels on roofs and other structures. They also configure photovoltaic systems based on site conditions and customer needs.
Civil society and advocacy groups		
Energy policy	Africa Centre for Energy Policy (ACEP) Institute of Energy Security (IES)	Are responsible for conducting evidence-based research, policy analysis, capacity development and advocacy to ensure effective and equitable energy utilisation.
Clean cooking	Clean Cooking Alliance	Works to reduce the disease burden associated with household air pollution through cleaner, more modern stoves and fuels.
Environmental Protection	Arocha Ghana; Strategic Youth Network for Development	Are responsible for improving, conserving and promoting the country's environment and striving for environmentally sustainable development with sound, efficient resource management, taking social and equity issues into account.

Source: Authors' construct (2022)

3.6 Summary

Ghana has developed the legal and policy frameworks relevant to climate action. However, beyond these frameworks, there is a need to ensure that the requisite funds are mobilised towards ensuring climate action and meeting targets under the NDC. The existing funding gap underscores why it is essential for the country to have a further plethora of approaches to secure funding in addition to current sources.

The stakeholder engagements have highlighted the essence of financing to support climate action. The main barrier, as revealed in the interactions, relates to the capacity of governments and other private sector institutions to provide the needed justification to secure funding from big-ticket green funds such as the GCF and the GEF. Generally, it was revealed that the various institutions have inadequate capacity to access these climate funds successfully. Again, the co-financing requirement presents an additional challenge for Ghana to match up investments and thus to secure the relevant funding, especially under the GCF. The supply-side challenges mainly relate to the fact that many developed countries have not fulfilled their commitment to providing the requisite financing to support climate action.

Banks and other financial institutions equally have a role as financial intermediaries in providing the relevant financing. However, green businesses, especially start-ups, must prove their projects' creditworthiness and economic viability. Thus, these businesses must build their capacity to provide bankable projects that attract financing from financial intermediaries, which is currently lacking. Again, many local banks do not have the documentation relevant for obtaining climate funds for subsequent on-lending to green businesses. These inadequacies limit the banks' potential to receive cheap financing to support green businesses. That notwithstanding, it is hoped that the sustainable banking principles, spearheaded by the Central Bank, will ensure that banks begin considering ESG issues as part of their operations.

COP26 ended with a renewed commitment from developed countries to increase financing flows into climate funds. There is a need for international institutions and developed countries to go beyond the promises to fulfil their pledges towards providing adequate financing for climate action. This action is relevant to ensuring that such funds are established and continuously replenished and disbursed adequately to meet the needs of developing countries. However, developing countries, such as Ghana, must ensure that private and public-sector entities have the relevant documentation that enhances their eligibility to receive funds. Again, climate funds must go beyond the development partners' assistance to create more innovative ways of raising funds.

The government of Ghana must create the appropriate environment for investment attraction in green businesses. There must be a deliberate attempt to ensure a well-regulated environment that allows value creation among green companies. Again, government institutions and businesses must take advantage of the opportunities for trading in the carbon market, which is available to private and public-sector players, to raise the needed capital for green projects.

4. South Africa

4.1 National policy and regulatory context

This section of the report analyses the politics of climate finance in South Africa, an upper-middle-income country with high levels of inequality in the distribution of wealth and intensity of emissions. The analysis of the political debates and contestation in the emerging climate finance policy arena focuses on two major aspects.

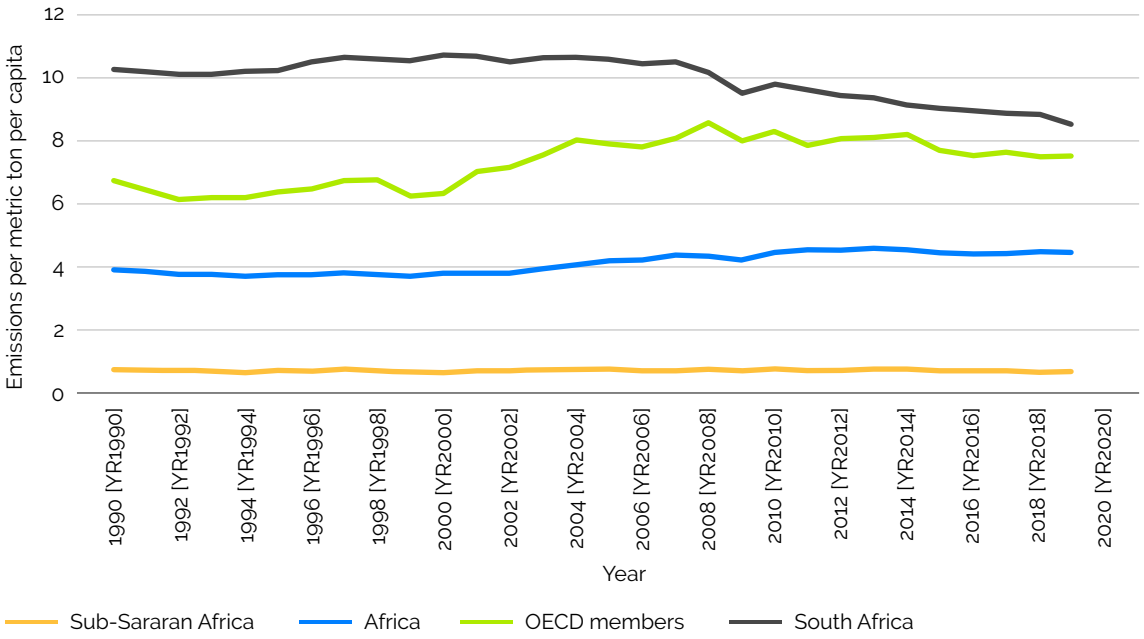
First, the debates on the current definitions of climate finance, which are not clear cut and can include private or public financial flows such as development aid, private equity, loans or concessional finance. The UNFCCC Standing Committee on Finance's defines climate finance as *"finance that aims at reducing emissions and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts"*[89] **The vagueness of the definition is one of the central issues in political debates on climate finance**. The ensuing questions include Do climate finance flows bring new funding or just go to redress existing commitments? Do loans count if countries need to pay them back? What about the conditionalities of these loans?

Second, the uncertainties of the definitions fuel the politics of climate finance along the central parameters of South Africa's climate change puzzle. These parameters include an energy and emissions intensive economy with highly unequal distribution of wealth, high unemployment, technological lock in, political rent seeking and path dependencies in the traditional coal and mining sectors. At the same time, climate change has been formally recognised as a problem and a diplomatic drive has arisen in the government of South Africa to play an active role in the UN climate change negotiations.[90]

4.1.1 Historical evolution of a coal-fuelled economy and electricity system

On the continent, South Africa's economy stands out in its energy use and emission intensity. The country's carbon footprint differs from other African countries, with per capita emissions similar to those in industrialised countries (Fig 4.1). However, the high energy input only translates into a GDP category of a middle-income country. The mining sector contributes around 11% of GDP and has recovered from the negative impacts of the COVID pandemic more quickly than other sectors, due to international investments and trade.[91]

Fig 4.1 CO_2 emissions in metric tons per capita



Source: Authors' compilation based on World Development Indicators

The economy has historically evolved from mining activities. Coal remains the main primary resource in South Africa's energy sector and around 90% of South Africa's electricity comes from coal. The abundance in coal has been conducive to the development of energy- and emissions-intensive industries including the polluting production of liquid fuels.

South Africa's energy balances show heavy reliance on fossil fuels, including 65% of primary energy sources from coal, 18% from imported crude oil and 3% from gas. South Africa imports natural gas through an 865km long pipeline into Mozambique's Temane and Pande gas fields, estimated to hold 2.6 trillion cubic feet. The pipeline has a capacity of 240 million gigajoules (GJ) per annum. Sasol uses approximately half of the imported quantities in the Gas-to Liquid processes and chemicals plant in Secunda. A pipeline network of 2000 km distributes the remaining quantities to industries in the Free State, Gauteng, Mpumalanga and KwaZulu-Natal (DMRE 2021).

The South African government released its South Africa's 7th National Greenhouse Gas Inventory Report 2000 to 2017, which shows an increase by 10.4% in GHG emissions over the 17-year period (DFFE 2021). The energy sector remains the main source of GHGs, accounting for 80% of total emissions (Table 4.1).

The economic focus on extractive industries along with a legacy of exclusion of most of the population from independent economic opportunities has resulted in a highly unequal distribution of wealth. South Africa is the most unequal society in the world, as measured by the GINI index.[92]

The uneven emissions balance translates into GDP ranging at ZAR 1.1 billion. Six out of ten industries have not yet recovered to pre-COVID levels, leaving 34.5% of South Africa's labour force formally unemployed. These figures look even worse for those aged 15-24 years, with 63.9%, almost two thirds, unemployed and 42.1% unemployed in the age group 25- 34 years, and 47% of South Africa's female labour force are currently unemployed.[93]

Table 4.1 National GHG Emissions Inventory in South Africa, 2021

Sector	2000 Emissions (Gg CO_2e)	200 % Contribution by sector	2017 Emissions (Gg CO_2e)	2017 % Contribution by sector	Change GgCO2e	% Change 2000–2017
Engery	349 099.70	78%	410 685.30	80.1%	61 585.60	17.6%
IPPU	32 987.30	7%	32 084.60	6.3%	–902.70	–2.7%
AFLO (exlusing FOLU)	52 229.40	12%	48 164.80	9.5%	–4 587.60	–8.6%
AFOLU (including FOLU	41 088.701	–	17 997.50	–	–23 091.20	–56.2%
Waste	13 557.80	3%	21 0419.00	4.1%	7 691.10	56.7%
Total (excluding FOLU)	**448 874.20**	**–**	**512 660.70**	**–**	**63 786.50**	**14.2%**
Total (including FOLU)	**436 733.50**	**–**	**482 016.40**	**–**	**45 282.90**	**10.4%**

Source: DFFE 2021

4.1.2 Mitigation-focused climate policy

As a result of its reliance on fossil fuels and the high levels of unemployment, South African climate policy is dominated by debates on mitigation and emission reduction, the management of "just transitions" and employment implications of technological change (Table 4.2). These topics overshadow adaptation efforts to climate change, although the country is highly vulnerable to the impacts of climate change and is continuously suffering from extreme weather events.[94]

Table 4.2 Central climate energy policies and legislations

Energy policies	Climate policies
• White Paper on the Energy Policy, 1998 • White Paper on Renewable Energy, 2003 • Integrated Resource Plan (IRP) 2010-30 • National Energy Act, 2008 • Petroleum Products Act, 1977 • Nuclear Energy Act, 1999 • The Gas Act, 2001	• National Climate Change Response White Paper 2011 • Climate Change Bill (2022) • Carbon Tax (2012) • National Adaptation Plans • South Africa's National Determined Contribution (2015, 2021)
Climate cross sectorial related strategies	
• Energy Efficiency Strategy • Transport Strategy • Long Term Mitigation Strategy	
Implicit fossil fuel subsidies	
• Direct transfers and loans to Eskom to sustain coal infrastructure • Eskom diesel rebates • Eskom loan guarantees • Fuel price parity and market support for liquid fuels	

Source: Authors' compilation based on World Development Indicators

4.2 South African climate diplomacy and its role in the world

The South African government plays an active role in climate change negotiations, bridging the diverse positions between developing countries in Africa and negotiating groups of middle-income countries. At the same time, South African diplomacy maintains bilateral cooperation agreements with "donor" countries in developed countries. Ties with Brazil, Russia, India and China have firmed up through the BRICS club over the past decade.[95]

The South African engagements in the African Union, the G77 and China echo continental negotiation positions prioritising climate finance requests on adaptation and loss and damage. The differences in the economic performances and emissions outputs, however, create contestation between the least developed countries and the middle-income countries in Africa.

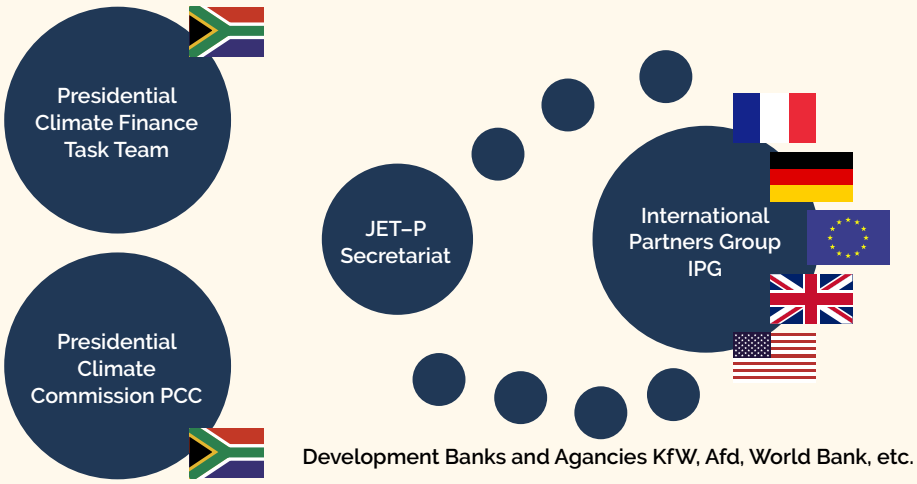
Ties to developed countries continue to play an important relationship in South African diplomacy both in its bilateral and multilateral forms. The South African government has close bilateral relationships with most European countries, the US, Canada, Japan and Australia. These bilateral relationships are critical for South Africa's climate finance partnerships, while the traditional aid (Official Development Assistance - ODA) funds play a relatively minor role with less than 1% of the annual budget, according to the CPI.

The South African government was subject to international sanctions against its white minority regime over the course of the "lost decade" in the 1980s. As a result, the Structural Adjustment Programmes of the Bretton Woods Institutions under the Washington Consensus did not affect South Africa's economy as much as they impacted Latin American and other African nations. A World Bank loan created access to finance for the largest new built coal plant – the Medupi power station.[96] Medupi may lock South Africa's economy into an emissions-intensive coal-dependent trajectory for another 50 years.[97]

Historical sensitivities about conditionalities in the loans provided by Bretton Woods institutions remain. Nevertheless, the government accepted loans from the World Bank and, for the first time in history, from the IMF in support of its recovery efforts from the COVID pandemic.[98] Caution about conditional policy reform in return to access to loans persists in the negotiations in the novel Just Energy Transitions Partnership (JET-P) – see Box 1. The JET-P is a critical partnership that evolved during preparations for COP26 in Glasgow during the updating process of South Africa's NDC. The JET-P stood out, at the time, for its ambition in both funding amounts and impact on emission reductions.[99] The following sections unpack the JET-P in South Africa's current eco-system of climate finance actors, flows and projects.

BOX 1: Innovation and institutional change in South Africa's Just Energy Transition Partnership (JET-P)

The South African government signed a framework agreement with a group of international partners to unlock US$8.5 billion of climate finance in support of just energy transitions. The much-lauded agreement was presented at the COP26 in Glasgow. Over the course of the year, the parties in the JET-P - South Africa, UK, US, EU, Germany and France - have worked towards an investment plan in support of retiring coal plants, rolling out renewable energy, developing green hydrogen and transitioning towards electric vehicles. The plan will be launched at the COP 27 in Sharm El-Sheikh and released for public comment.



What is new and what is relevant for other developing countries?

Innovative elements:

- Institutional innovation lies in the partnership itself, which convenes a new multilateral group of states and facilitates exchange between governments, implementation agencies and scientific experts.
- JET-P is well aligned to the objectives of the South African NDC and creates a formal link and investment instrument that can facilitate the implementation of the NDC in the absence of a formal plan (RSA 2015, RSA 2021).
- The partnership implicitly structured consensus to decrease the dependence on coal in South Africa, but underlying contestation within the South African political economy may undermine this narrative.

Risks and considerations:

- Risks emerge from the details of the transaction including the competitiveness of interest rates for concessional finance and conditionalities for implementation and political reform. The JET-P agreement is a loan instrument and does not foresee any grants.
- There is a major question around the implementation and conditionalities of these loans using the same development agencies and banks with similar instruments in the absence of grants. The JET-P may well reduce the cost of mitigation, depending on the finance modalities. In the absence of access to the classified investment plan, it is difficult to tell how the transaction will support the "justice" element of the various transitions.
- Implementation risks emerge from possible changes in the South African government. President Cyril Ramaphosa stands for election for his second term as president of the African National Congress (ANC). The outcome will determine the ANC's presidential candidate in the next election, which the party is expected to win in the absence of a competing dual-party system. The competing faction in the ANC may reverse the slow progress in the renewable energy roll out and revert to the leadership practices of former president Jacob Zuma. His ex-wife Nkosazana Dlamini Zuma is likely to stand for election for the ANC presidency again; she lost narrowly to Ramaphosa in 2017.

- The above-mentioned institutional innovation may mitigate risks from changes in the government.
- JET-P has already inspired different actors to develop similar frameworks for Indonesia, Vietnam and Senegal.

Food for thought for countries in Africa from South Africa's experiences in the JET-P:

- How can access to cheaper finance contribute to just transitions in the absence of highly emitting energy sectors?
  - Use it for the expedited roll out of renewable energy to ensure security of supply and decarbonize future energy infrastructure.
- How can climate finance best work for adaptation without replicating ODA-funded projects?
  - Observe the capital markets so that you will not commit to unnecessary conditionalities without accessing the cheapest finance – there may be cheaper options.
  - Develop an implementation plan for your NDC so that you know what you need to fund and how these funds can be used strategically in support of your net-zero journey.
  - Replicate new multi-lateral partnerships on the African side to strengthen regional approaches to fast-track the integration of Africa's power pools.
  - Use climate finance to increase transmission lines between the power pools and expedite building renewable energy infrastructure so that security of energy supply will be inclusive to all countries on the continent without locking limited capital into unnecessary new coal plants.
- Increasing regional collaboration between African countries can strengthen their negotiating power to access climate finance jointly, to increase accountability and to reduce temptations of small national elites to eye further development of fossil fuels.

4.3 NDC gap analysis: South Africa's climate mitigation and adaptation plans

South African society has experienced a change in its climate policy processes since 2020. The government had submitted its INDC prior to the conference of the parties in Paris 2015. The INDC built on the National Climate Change Response White Paper (NCCRWP) and mirrored a politically contested range of emission reduction scenarios.[100] The ranges of emission reduction scenarios in the NCCRWP were criticised for lack of ambition and their logic of peak plateau and decline in emissions, which delay any climate action into a future post 2030 (Fig 4-2).[101]

The South African government articulated financial support for implementing climate action in adaptation and mitigation in 2015. The adaptation component of the INDC articulates six goals for adaptation action based on the NCCRWP. These include

i. develop a NAP to implement the White Paper up to 2030

ii. build subnational and sector policy frameworks between 2020 – 2030

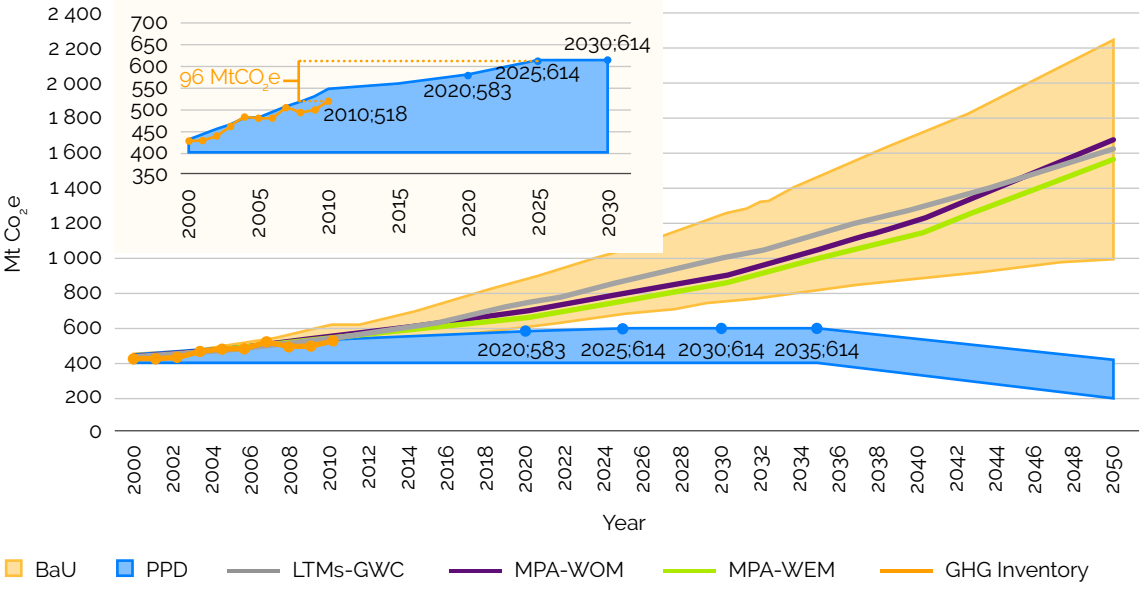
iii. build institutional capacity for climate change response

iv. develop an early warning, vulnerability and adaptation monitoring system to understand vulnerable sectors and geographies

v. develop a vulnerability assessment and adaptation needs framework, and lastly,

vi. communicate investments in adaptation to increase awareness, learning and international recognition. **Fig 4.2** South Africa's peak plateau and decline scenarios in 2011

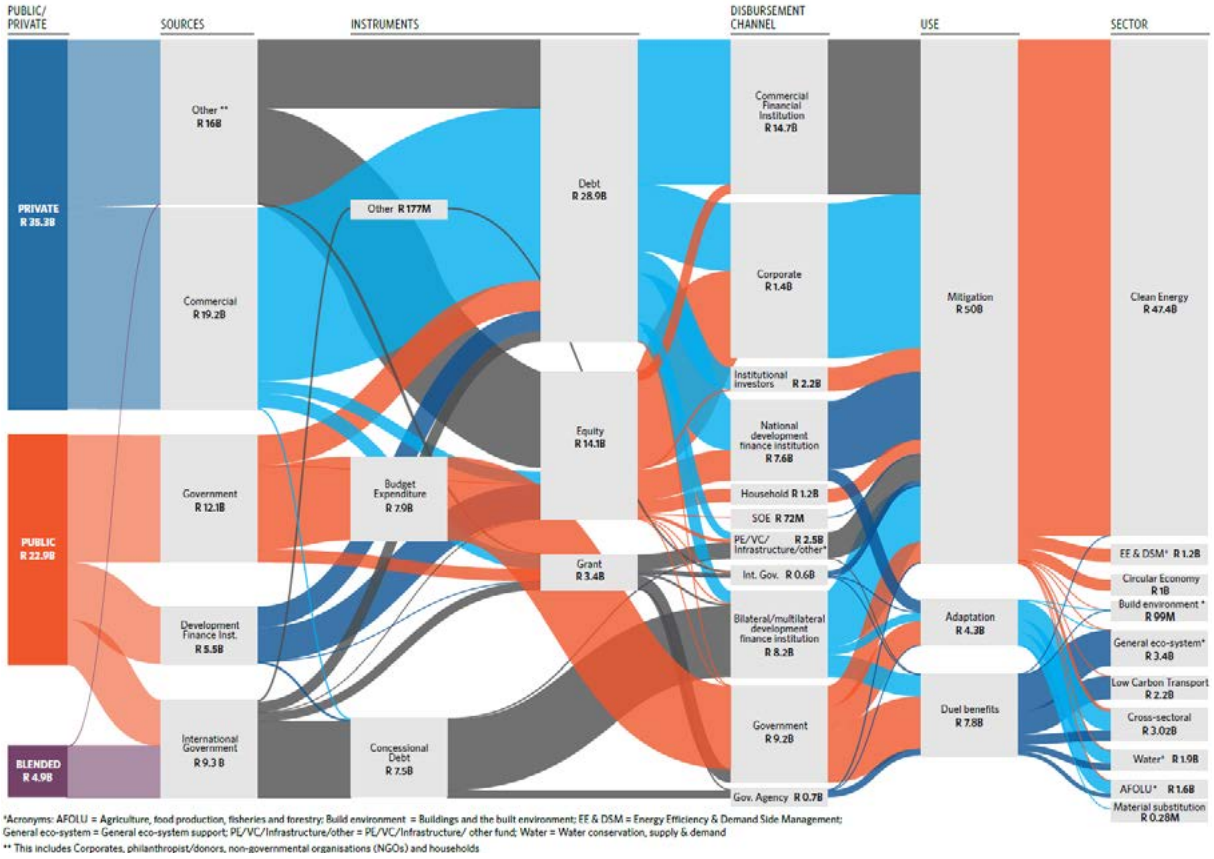
Fig 4.2 South Africa's peak plateau and decline scenarios in 2011



Source: South African Government

The South African government reports an increase in domestic investment in adaptation from US$1.64 billion to US$2.3 billion between 2010 and 2015 (INDC 2015). The INDC reports a wide emissions range between 2025 and 2030 at 398 and 614 Mt Co_2e, in line with the NCCRWP. **The main climate finance reported in the mitigation component emerged from investments in a Renewable Energy Programme, which allowed IPPs to sell electricity to the utility for the first time in the country's history.** The programme attracted investments of US$16 billion between 2012 and 2015 alone. Costs to expand the programme to 2025 were estimated at US$3 billion per year.

Fig 4.3 South Africa climate financing flows 2014–2018



Source: Cassiem et al (2021)[102]

Institutionally, climate policy processes were historically mainly coordinated under the authority of the Department of Environment. The NCCRWP emerged in a favourable window for policy change ahead of the 17th UN Conference of the Parties (COP17) in 2011. The international attention on South Africa created performance pressures and opportunities for institutional change in South Africa's central climate policies.[103] The NCCRWP informed the emission reduction scenarios for the INDC, which turned into an NDC after ratification of the Paris Agreement in 2016. One of the means for mitigation in the White Paper includes a carbon budget for large emitters, which are in the process of being substantiated through a climate change bill.

The carbon tax process under the lead of the Department of Finance or National Treasury exemplifies coordination struggles between government departments. The implications for employment emerging from technological change through an increase in renewable energy technology triggered a global concern around justice in technological transitions. These concerns resonated in South Africa as the coal and mining sectors are traditionally important for employment. As a result, a job summit in 2018 led to the establishment of a cross-governmental Commission in charge of managing transitional justice in the energy sector.

Once established in 2020, the Presidential Climate Commission (PCC) wasted no time in engaging a far-reaching stakeholder process on South African climate policy. The Commission supported the Department of Environment (DFFE) in its updating process of the NDC to a cross-governmental

process that created a new and transparent policy arena. The PCC lead strategically supported DFFE's NDC processes and managed a process towards lowering the emissions range of the updated NDC. The association of emission-intensive businesses, Business Unit South Africa, revised its position on the mitigation target three times over the course of the participative process.[104]

As a result, South Africa's mitigation targets aim for lower ranges at 398 - 510 MT CO_2e for 2025 and 350 – 420 MT CO_2e for 2030. **The most significant progress is a 32% reduction of the upper-end target by 2030.[105] Achieving these emission reductions targets will depend on the successful implementation of measures to decarbonize the electricity and transport sectors.**

The PCC's argument for a more ambitious NDC framed a wider concept of climate finance in support of South Africa's economic recovery, increased competitiveness through decarbonization and new social opportunities through just transitions. The PCC argued for a unique window of opportunity to shape novel and robust frameworks for the implementation of the NDC.[106]

The consultation processes for updating the NDC created space for research and knowledge production. **Outstanding, by developing country standards, is that the research space was dominated by South African-based researchers and institutions.**

The University of Cape Town's Energy Systems Research Group estimated costs of US$12 billion (ZAR 200 billion) for every additional 50 Mt CO_2e emissions reduced.[107] A study at the University of Cape Town's Bertha Centre collaborated with the international CPI, which estimated climate finance for mitigation only at an average of US$3 billion (ZAR 50 billion) per annum, accounting for 81% of the finance flows.[108]

The National Business Initiative estimated the cost of transitioning towards "emissions optimal pathways" to 2050 at US$170 billion (ZAR2.9 trillion).[109]

4.4 South Africa's policy arena in climate finance

Generally speaking, South Africa has a relatively favourable investment climate compared to most other African countries.[110] Critical institutions in the court system including the central bank are still functioning, despite a decade of state capture. Credit ratings have been positive and stable in 2022 for the first time in 15 years.

4.4.1 Stakeholder mapping and alignment, national perspectives on climate finance needs

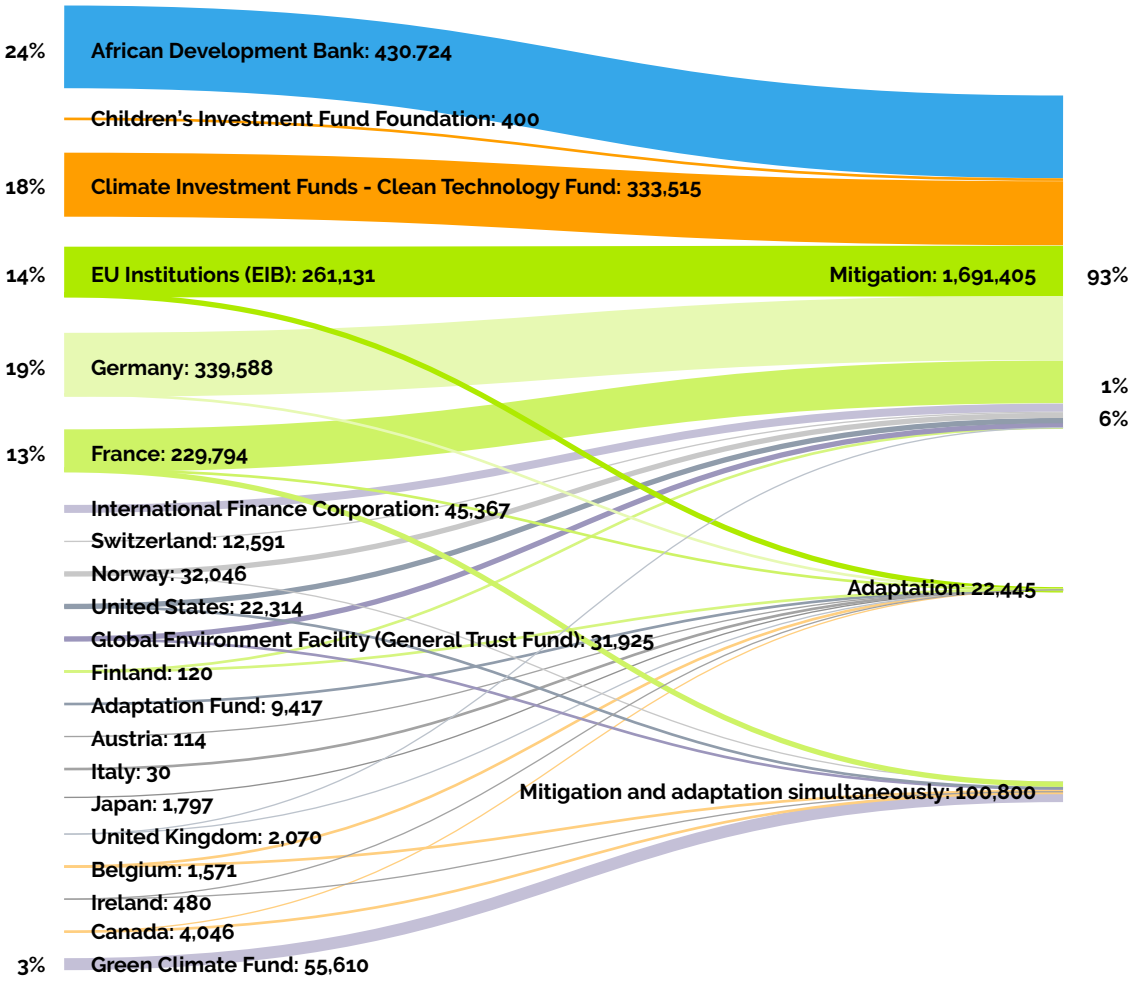
The South African climate policy arena is currently a busy space in terms of actors and different negotiations. The main nation state contributors in the international climate finance architecture are Australia, Canada, the EU, France, Spain, the UK, Germany, Japan, Norway, the US, Denmark (Fig 4-4). These governments operate through their bilateral implementation agencies – many of them being the same actors who implement ODA-funded projects. Alternatively, these states commit funding into dedicated climate finance funds. Examples are the German International Climate Initiative (IKI) or the British International Climate Finance (ICF). IKI currently funds 53 projects in South Africa with different focus areas ranging from supporting the implementation of the Paris Agreement, to green economy, transport and biodiversity projects.[111]

Multilateral climate finance arrangements operate within the UNFCCC's financial mechanisms, such as the GCF, the GEF and the Adaptation Fund. Market mechanisms include the Joint Implementation Facility and the Clean Development Mechanism. Examples include the GCF engagements with the Development Bank of Southern Africa supporting renewable energy infrastructure.[112]

Other multilateral institutions outside the UNFCCC include the United Nations Environment and Development Programmes,and the United Nations Development Program (UNDP), the World Bank and regional development banks, such as the AfDB.

In line with its diplomatic strategies, the South African government has established close relations in building climate finance programmes with the regional organisations such as the AfDB and the EU. Germany and France are significant bilateral climate funders contributing about a third of South Africa's public finance.[113]

Fig 4.4 Actors in South Africa's climate financing space



Source: 20211[114] cited in Winkler et al 2021[115]

South Africa's JET-P comprises a new partnership that includes some of the main funders – the EU, France, Germany, the UK, the US. The governments of JET-P have pledged an initial amount of US$8.5 billion to implement South Africa's NDC and associated "Just Transitions". Originally, the partnership emerged through the discussions concerning the NDC update.[116] Eskom, South Africa's largest energy supplier, carried a US$24 billion debt, which has continuously lowered the economy's credit rating over time. About half of this amount is regarded as "stranded debt", unlikely to be recovered under Eskom's current business model and electricity generation costs and tariffs. Over the course of domestic negotiations between the National Treasury, the departments of Public Enterprises and of Environments, the Presidency and other actors in the government, the proposal emerged for a decarbonization plan with Eskom at its core.[117] The declaration negotiated at the COP26 in Glasgow, however, expanded the decarbonization plan beyond the electricity sector and included electric vehicles, green hydrogen and socio-technical transitions, which are even harder to achieve.[118]

The governance of the partnership is structured between the international consortium of funders, the South African government delegation and a secretariat supported by academic, business and non-governmental organisation (NGO) representatives. **The current state of the partnership has resulted in an investment plan that is currently undergoing the processes of cabinet approval and will be presented at the COP27 in Egypt.** The current state of negotiations involves predominantly loans, structured by the development banks and agencies of the European and the US governments and the World Bank. The collective of these organisations has yet to prove whether it can produce an impactful set of instruments to overcome the underlying inequalities that have nurtured the current climate crises in South Africa over decades.

Central barriers to the influx of climate finance into South Africa are associated with investment risks. These differ between the different sectors. The energy sector mainly suffered from political risk as the uncertainties about the pace of the bidding windows in the Renewable Energy Independent Power Procurement Programme (REIPPP), uncertainties around achieving financial closure and the agreed power purchase agreements from Eskom. Risks have now, in the 5th bidding window, increased, with inflation and changes in pricing for technological components, but the winners of previous rounds keep winning and have learned how to manoeuvre the local environments.[119] The state may not continue to provide guarantees on the Power Purchase Agreements and where financial institutions such as the ICF may fund transmission infrastructure.[120]

The new power plan lifted the 100 MW limit for generation, so there is a lot more room for investment in the South African power market. The current shortages in electricity supply have increased the pressure on the government to procure and open the market to investors. The energy sector exemplifies the critical role of the government in creating enabling conditions for private investments. Other sectors for climate finance are even more difficult to de-risk, as they are often less known and less accessible to foreign investments.[121]

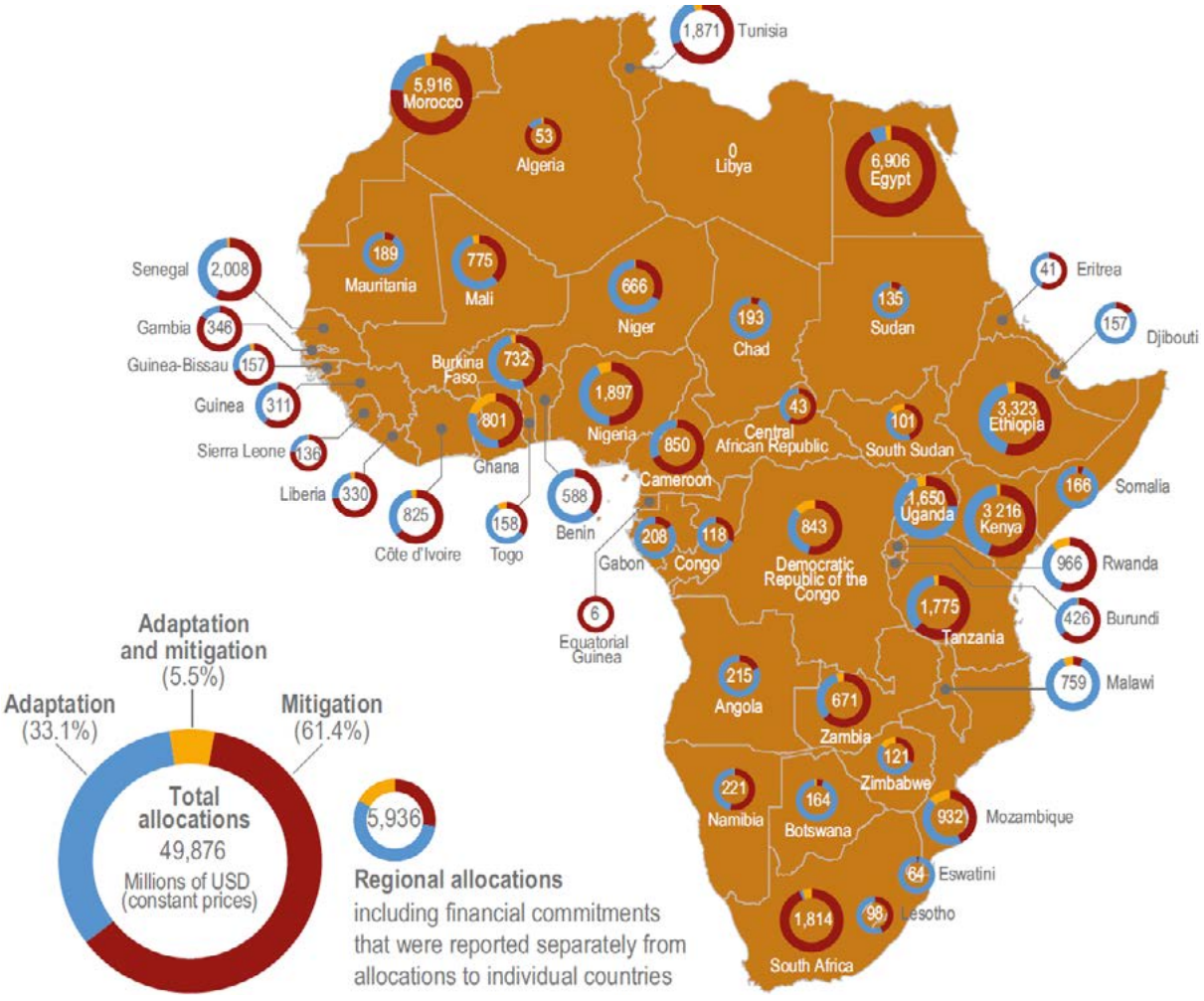
The internal party politics pose a major risk to implementing the JET-P. The partnership plans for decarbonization of considerably more renewables than are in the Integrated Resource Plan (20 GW) – a big gap in the decommissioning plan. The presidency supports this plan, but its implementability depends on the outcome of the ANC election and the continuity in government policy.

4.5 Mapping climate financing flows in South Africa

The South African climate finance composition stands out, by comparison to other African countries, with its predominant focus on mitigation. An IPCC comparison based on OECD data shows the ratios between adaptation and mitigation finances for other African countries (Fig 4-5). **Two local studies confirm that there is an alarming underfinancing of adaptation funding in relation to the focus on mitigation funding.** Adaptation finance only adds up to a 10th of mitigation finance flows.[122] According to a tracking effort of climate finance flows in South Africa between 2017 – 2018, adaptation funding only added up to 7% of the total in those years with an average of ZAR 4.3 billion per year.

In addition, 90% of these funds were public funds, 10% came from so-called "blended finance" approaches, where public or philanthropic finance mobilises additional private funds in public-private partnerships.[123] The most significant international funds for adaptation activities emerge from a partnership between the GCF and the South African Biodiversity Institute. The imbalance may be problematic as South African society is highly vulnerable to the impacts of climate change. Drought and flooding are already acting as stressors especially on communities that are already experiencing deprivation.

Fig 4.5 Total African adaptation and mitigation-related finance commitments, 2014–2018



Source: IPCC (2022)[124]

The same IPCC report tracked ZAR 22 billion or 25% of total climate finance in South Africa in 2017 and 2018 from public finance. These funds are mainly provided by governments, international development finance institutions and international finance institutions. Most of these funds were raised and spent domestically.

Private finance in clean energy plays the biggest role in South Africa's climate finance flows. Two thirds of the tracked private investments were raised as debt, a quarter in equity.[125] Three local banks, the International Finance Corporation and the AfDB count as the main financing institutions for renewable energy and are involved in parts of the negotiations around the JET- P.[126] The detail of the tracking study needs to be understood in the larger context of the energy sector reform.

The first NDC had already reported US$16 billion as the critical investment into clean energy infrastructure as a success story between 2011-2015. The pace of the REIPPP procurement windows had slowed down significantly during the second term of the Zuma administration from 2015-2018. The inability of the electricity system to meet demand caused planned power outages (locally known as load-shedding), which were caused by unreliable performance of Eskom's ageing coal fleet, and partially combined with strike action.[127] The negative impacts on economic recovery eventually gave path to policy reforms, which opened up the electricity sector for private investments.[128]

The decline in renewable energy investments and the recovery since 2018 align with the change in the presidency and the restart of the IPP programme. South Africa has many of the policy mechanisms in place to attract private investment, even beyond the REIPPP programme. Independent power producers in South Africa alone added more renewable energy capacity through the competitive bidding programs in only four years than the rest of Sub-Saharan Africa has in more than 20 years.[129] Over the course of four auction processes, Eskom signed some power purchase agreements at a lower cost than the utility's average cost of supply.[130] The progress in the large-scale diffusion of renewable energy remains politically contested, despite significant coalitions in support of the programme.[131]

Resolving political contestation and successful regional integration will be critical for South Africa's clean energy future. Least-cost-optimised models for the Southern African Power Pool have shown that wind and solar technologies can supply Africa's largest power pool, which currently heavily relies on fossil fuels.[132] Grid investments will be essential to expand transmission, which will make new coal infrastructure unnecessary. Hence, renewable energy technologies can set African countries on low emissions development pathways that can power Africa's ambitious human development agenda and create universal energy access. The main risk to realising clean energy futures resides in the political decision-making process, which need to prioritise the diffusion of renewable energy rapidly and inclusively.

4.6 Summary

South Africa's decarbonization challenge can be resolved through private and blended finance. **There is a high risk that adaptation finance will be overlooked, as reducing the coal dominance of the electricity sector dominates.** The global divestment pressures may attract investors into exploiting the large potential for renewable energy if government policy continues to enable these investments.

A regional perspective on the larger Southern African energy pool and its climate vulnerability may be conducive to unlocking greater volumes of private investments, increasing electricity access in neighbouring countries and preventing further new investments into coal-fired power plants in the region.

Whether the current transition partnerships will expand their scope to rethinking justice at a regional, rather than provincial and national perspectives, remains to be seen.

5. Zambia

5.1 Climate Change Situation

Zambia is highly vulnerable to the impacts of climate change, which pose a major threat to the sustainable development aspirations of the country, as outlined in the Vision 2030 and national development plans. The 2020 University of Notre Dame Global Adaptation Initiative index ranked Zambia as the 41st country most vulnerable to the impacts of climate change out of 182 countries.[133] Climate change and variability, and the ensuing events such as droughts, floods and extreme temperatures, have led to adverse effects on key sectors including energy, agriculture, water and forestry. These effects have negatively impacted food and water security, water quality and the energy and livelihoods of the people, especially in rural communities. Since 1960, the mean annual precipitation countrywide has been decreasing by 1.9mm per month per decade, most notably in the summer months, and the growing season for crops has been shortening.[134] Contrastingly, Zambia's average annual temperature has increased by 1.3˚C since 1960, an average rate of 0.29˚C per decade. Over the same period, more than nine million Zambians have been affected by seven major droughts and 20 major floods.

These extreme weather events have exacerbated the poverty of over 60% of the population, particularly in rural areas that are dependent on rain-fed agriculture for their livelihood. The rural poor have experienced crop failures and death of livestock, which have caused them to turn to other natural resources such as forestry for survival. The health sector is not spared as there is expansion of disease vector habitats for malaria and bilharzia and increased incidences of cholera, typhoid and dysentery, putting pressure on the health care system. Existing and planned infrastructure projects are also at risk due to more frequent and severe floods.

In addition, the droughts have caused energy crises due to low surface water levels in water bodies. In some years, these water levels have reduced power supply levels to below demand, necessitating load management and stalling progress in reducing energy poverty. Zambia's energy mix is highly dependent on hydropower, accounting for 80%, followed by coal and heavy fuel oil, accounting for 11% and 4%, respectively.[135] Additionally, solar and diesel power sources account for 3% and 2.7%, respectively. The energy system is thus vulnerable to climate shocks, evidenced by the 2015 and 2018 droughts, which culminated in load management and power rationing by the national utility company, ZESCO.

As a result of the energy crises many micro, small and medium-scale enterprises find it hard to cope and, in some cases, shut down operations altogether. The population has turned to charcoal for cooking solutions, thereby driving the deforestation rate to over 170,000 hectares per year. This deforestation is constraining the attainment of SDGs 7 and 13 in Zambia. As climate patterns change,

the natural resource-driven sectors are under threat and potentially putting the economic development gains scored in past decades at risk.

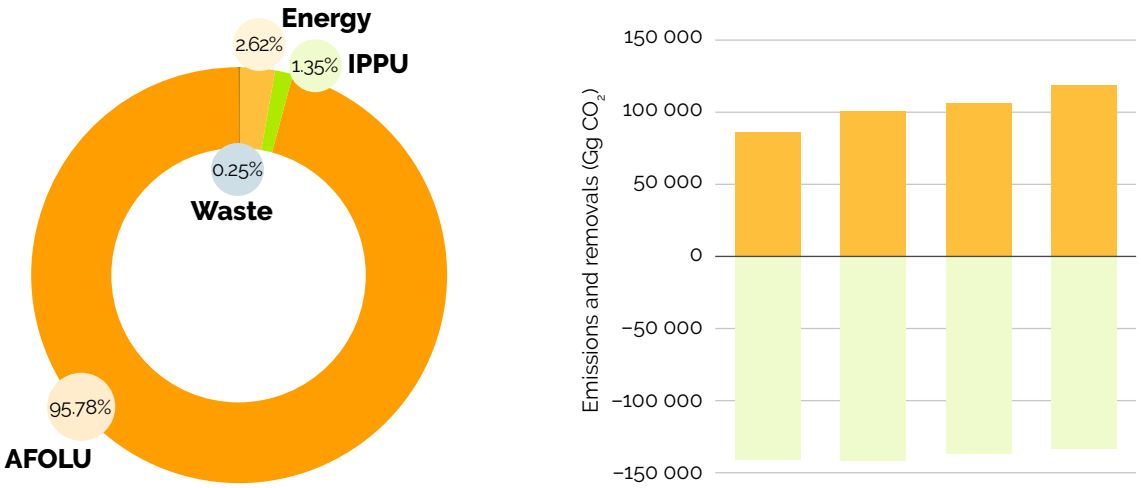
The impacts of climate change over the last 30 years, such as floods and droughts, are estimated to have cost the Zambian economy US$13.8 Billion in GDP losses.[136] With extreme weather events projected to increase in intensity and frequency, t**he impact could rise to 0.9% of GDP over the next decade.**[137]

GHG Emission Trends

According to the Third National Communication to the UNFCCC, Zambia is a net carbon sink. The total GHG emissions by source were estimated at 120,507.7 Gg CO_2 eq and 106,967.1 Gg CO_2 eq in 2010 and 2005, respectively. The total GHG removals were, however, 137,322.9 Gg CO_2 eq and -138,259 Gg CO_2 eq in 2010 and 2005, respectively. However, in 2010, the net sink status was reduced by 70% to -16,815.2 Gigagrams (Gg) carbon dioxide (CO_2) equivalent from the -57,124.0 Gg of CO_2 equivalent estimated in 1994[138] (TNC, 2020).[139]

In terms of sector contribution to GHG emissions, in 2010, the AFOLU sector contributed 95.75% of the total emissions with 2.6% from energy, 1.4% industrial processes and product use and 0.25% from the waste sector. Over half (55.2%) of the emissions in the AFOLU sector were attributed to wood removals for commercial timber and fuelwood and about 21.3% of the emissions were from forestland conversions into cropland. Land conversions to settlements contributed 8.28% of the emissions, biomass burning 8.6% while enteric fermentation emission contribution stood at 1.9% (Fig 5.1).

Fig 5.1 Zambia GHG emissions by sector-2010, and trends of GHG emissions and removals



Source: Third National Communication to the UNFCCC (2020)[141]

5.2 National policy and regulatory context

5.2.1 Global context

Zambia is a party to the UNFCCC, having signed and ratified the Convention on 11th June 1992 and 28th May 1993, respectively. It is also a party to the Kyoto Protocol, which it signed on 5th August 1998 and ratified on 7th July 2006. Additionally, it signed and ratified the Paris Agreement on 20th September 2016 and 9th December 2016, respectively. As part of its commitment to the UNFCCC, Zambia has submitted three National Communications (NCs): the initial one in 2004, the second in 2014 and the third in 2020 while the initial Biennial Update Report (BUR) was submitted in 2020. The NCs and BURs enable the country to report on GHG inventories and the corresponding measures for effective climate actions to reduce GHG emissions. Zambia's GHG ambitions were submitted through an initial NDC in 2015 and an updated NDC in 2021.

Zambia is also a party to the 2030 Agenda for Sustainable Development with the accompanying SDGs, which include dedicated goals on climate action (SDG 13) and protecting, restoring and promoting sustainable use of terrestrial ecosystems (SDG 15).

In 2015, Zambia also adopted the 2015-2030 Sendai Framework for Disaster Risk Reduction, which recognizes that the state has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders, including the private sector and civil society organisations.

5.2.2 National context

Zambia has a National Policy on Climate Change (NPCC) 2016 to address climate change. The policy seeks to provide a framework for coordinating climate change programmes in order to ensure climate resilient and low carbon development pathways for sustainable development towards the attainment of Vision 2030.[141]

Over the years, the country has developed other national policy instruments to address the climate change challenge (Table 5-1).

Additionally, Zambia has commenced the preparation of a green growth strategy.[142] Its execution is envisaged to contribute to efficient use of natural and other resources, reduction in GHG emissions, and to enhance coping with climate change and drive economic growth sustainably. It is expected that the preparation of the green growth strategy will be concluded by the end of the first half of 2023.

In addition to the Vision 2030 and the climate-change-related policies outlined in Table 5.1, **the country has several sectoral policies to support the implementation of climate change adaptation and mitigation** actions, including the National Policy on Environment of 2007, the National Forestry Policy of 2014, the National Energy Policy of 2019, the Second National Agriculture Policy of 2016, the Second National Biodiversity Strategy and Action Plan and the Technology Needs Assessment of 2013. However, the climate actions outlined in the NDC and the NPCC are currently not sufficiently mainstreamed into sectoral policies. **Achieving the NDC-targeted reduction in GHG emissions requires ensuring that the climate actions in the NDC are mainstreamed into the sectoral policies.**

Table 5.1 Policy instruments to address the climate change challenge

Policy	Description
The National Adaptation Programme of Action (NAPA) (2007)	This identifies the sectors most vulnerable to climate change and recommends relevant stakeholders, policies, programs and projects that could help address the impacts of climate variability and change in the country.
The National Climate Change Response Strategy (NCCRS) (2010)	This provides a comprehensive national institutional and implementation framework through which climate change adaptation, mitigation, technology, financing, public education, and awareness-related activities in Zambia can be coordinated and harmonized. It also emphasizes the importance of focusing on the most vulnerable sectors of the economy and mainstreaming climate change into development plans.
National Strategy for Reducing Emissions from Deforestation and Forest Degradation (REDD+)	This provides a framework that enables Zambia to protect, better manage and wisely use forestry resources, contributing to the fight against climate change.
Nationally Determined Contribution (2020)	This covers both mitigation and adaptation components while focusing on key sectors such as agriculture, energy, forestry, transport coal and liquid waste.
The National Policy on Climate Change (2016)	This, currently under review, provides a framework for a coordinated response to climate change by putting in place long-term institutional arrangements to address the challenges. It gives guidance on how the economy can grow in a sustainable manner and thereby foster a smooth implementation of the national development agenda.
The Eighth National Development Plan (8NDP) (2022-2026)	This defines the country's development agenda in the medium term and has mainstreamed climate change.
Vision 2030	This defines the country's development agenda in the long term and emphasizes development that is anchored on sustainable environment, ecosystems and natural resource management principles.

Source: Adapted from the NPCC 2016

The implementation of the climate change strategies and policies is complemented by sectoral legal frameworks outlined in Table 5-2.

Table 5.2 Sectoral legal frameworks

Enabling Legislation	Purpose
Environmental Management Act No. 12 of 2011	The Act provides for the management of environment and natural resources.
Forest Act No. 4 of 2015	The Act provides for the conservation and protection of forests and trees.
Zambia Wildlife Act No. 15 of 2014	The Act is responsible for wildlife management and conservation.
Lands Act Cap 184	The Act is responsible for the management and administration of land in Zambia.
Agriculture Lands Act Cap 187	The Act provides for sustainable agricultural practices, development, investment and management.
Agriculture (Fertiliser and Feed) act No. 13 of 1994, Cap 226	The Act provides for the regulation and control of manufacture, processing, importation and sale of agriculture fertilisers.
Energy Regulation Act No. 23 of 2003	The Act regulates energy use and efficiency.
Mines and Minerals Act 11 of 2015	The Act provides for minerals and minerals' development.

Enabling Legislation	Purpose
Urban and Regional Planning Act No.3 of 2015	The Act provides for planning for all land in Zambia.
Road Traffic Act No. 11 of 2002	The Act provides for road safety and transport management.
Water Resources Management Act No. 21 of 2011	The Act provides for the regulation and management of water resources.
Zambia Development Agency Act No. 11 of 2006	The Act provides for trade, investment and industrial development in Zambia.
National Heritage Conservation Commission Act, Cap 173	The Act provides for heritage conservation and management.
Fisheries Act No. 22 of 2011	The Act provides for sustainable fisheries and aqua-cultural development and management.
Disaster Management Act No. 13 of 2010	The Act provides for disaster preparedness and response.
Public Finance Act of 2018	The Act provides for the control and management of public finances.

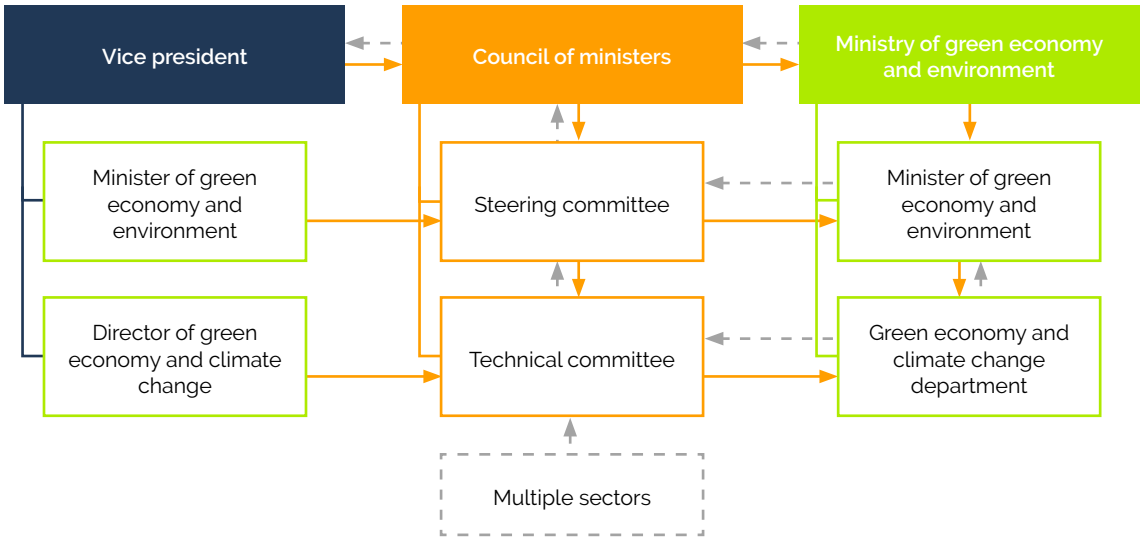
Source: Adapted from the NPCC 2016

In 2019, the government commenced the process of developing standalone legislation on climate change to anchor the long-term institutional arrangements outlined in the NPCC as well as of domesticating international protocols such as the UNFCCC, the Kyoto Protocol and the Paris Agreement. It is envisaged that the climate change legislation will be enacted by the first quarter of 2023.[143]

5.2.3 Climate change institutional coordination structures

The institutional coordination structures on climate change in Zambia are at three levels: The Council of Ministers, the Steering Committee and the Technical Committee (see Fig. 5.2).

Fig 5.2 Climate change institutional coordination structures



Source: Authors' construct (2022)

Climate change coordination at sub-national level

At the sub-national level, the planning and development coordination structures provided for under the National Planning and Budgeting Act Number 1 of 2020, the Provincial Development Coordinating Committees (PDCCs) and the District Development Coordinating Committees (DDCCs), coordinate the implementation of climate change activities. The Chairpersons to the PDCCs and DDCCs are the respective Provincial Ministers and District Commissioners while the Secretariats are the Ministry responsible for development planning at provincial level and the Directorate of Planning in a local authority in each district, respectively. Each DDCC reports to the PDCC in the respective province.

We note that there is a deep capacity gap at the sub-national level for undertaking climate action.

The Ministry of Green Economy and Environment

The Ministry for Green Economy and Environment (MGEE) is the Secretariat to the Council of Ministers on Climate Change through the office of the Minister. Additionally, the Ministry chairs the Steering Committee of Permanent Secretaries and, through the department responsible for green economy and climate change, is the Secretariat to the Steering Committee.

Additionally, the Ministry, through the Meteorological Department, is the country's primary provider of meteorological services and is charged with monitoring, predicting, analysing and providing weather and climate-change-related data and information, as well as providing advice and assessments for related policy formulation.

Further, the Ministry is the focal point for the UNFCCC and the GEF and the United Nations Convention to Combat Desertification. The Ministry, through the Forestry Department, is responsible for the reducing emissions from deforestation and forest degradation and has the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (REDD+).

The Ministry is the NDA for the GCF and the Adaptation Fund and is the focal point institution for the CIF. Through the facilitation of the Ministry, the Development Bank of Zambia was accredited for direct access to the GCF. Currently, the Ministry of Finance, ZANACO PLC and the National Savings and Credit Bank are the country's aspiring National Implementing Entities for direct access to the GCF.

With respect to coordination of the GHG management system, the Ministry, through the Zambia Environmental Management Agency is responsible for the GHG management system. The lead institutions responsible for sector inventory preparation are the Department of Energy, which is responsible for reports on energy; the Department of Commerce and Industry, for reporting on industrial processes and product use; the Department of Agriculture for reporting on the agriculture component of AFOLU; the Department of Forestry for reporting on Forestry and Land Use of AFOLU and the Department of Local Government for reporting on waste.

While the climate change institutional coordination structures are seemingly thorough, there is a need to strengthen these structures and anchor them in legislation for stability. Further, the capacity of the institutions represented at various levels in climate change needs to be built for enhanced participation and outcomes on not only climate change but also the NDC in general.

Over the years, Zambia has put in place several climate mitigation and adaptation plans. However, continued mainstreaming of climate change in the national development planning process, particularly in the sectors identified in the NDC, is cardinal for Zambia to fulfil the climate ambitions set out in the NDC.

5.3 NDC gap analysis: Zambia's climate mitigation and adaptation plans

Zambia is a party to the Paris Agreement, which it signed and ratified on 20 September 2016 and 9 December 2016, respectively. Following Zambia's ratification of the Paris Agreement, as provided for under the Accord, the country, on 9 December 2016, submitted its first NDC. Zambia's first NDC included both mitigation and adaptation components based on the country's national circumstances and in line with the UNFCCC's decisions 1/CP.19 and 1/CP.20. The first NDC was submitted with a conditional pledge of reducing GHG emissions by 25% (20,000 Gg CO_2 e) by 2030 against the base year of 2010 under the business-as-usual scenario with limited international support or by 47% (38,000 Gg CO_2e) with substantial international support.

The mitigation actions under the first NDC were focused on three programmes:

i. Sustainable forest management

ii. Sustainable agriculture and

iii. Renewable energy and energy efficiency.

Adaptation actions were focused on adapting strategic productive systems, namely, agriculture, wildlife and water; the adaptation of strategic infrastructure and health systems and enhanced capacity building, research, technology transfer and finance for adaptation.

The successful implementation of the first NDC was conditional and subject to the availability of international support in the form of finance, technology and capacity building. **The total budget for implementing both the mitigation and adaptation components was estimated at US$50 billion by the year 2030. Out of that sum, US$35 billion was expected to come from external sources while US$15 billion was expected to be mobilised from domestic sources.**

In 2021, Zambia submitted the updated NDC to the UNFCCC. Zambia's updated NDC enhances both the mitigation and adaptation components as compared to the first NDC by **broadening the scope of sectors covered by the mitigation component by adding transport, liquid waste and coal (production, transportation and consumption). It also elaborates the adaptation component of the NDC by developing indicators that will enable the country to track progress on building resilience in both the human and physical ecosystems and on adaptation actions. In addition, gender, youth actions and SDGs are considered in the updated NDC.** The updated NDC also maintains the emission reduction ambition provided in the first NDC with the target of 25% (20,000 Gg CO_2e) by 2030 against the base year of 2010 under the business-as-usual scenario with limited international support, or, by 47% (38,000 Gg CO_2) with substantial international support.

The updated NDC builds upon Zambia's first NDC, the National Policy on Climate Change of 2016 and the first Biennial Update Report (BUR 1) and reflects subsequent work as captured in Zambia's

Third National Inventory Report. Additionally, the updated NDC was informed by a more detailed and complete assessment of mitigation and adaptation measures, based on improved information and data, and an extensive stakeholder consultation process.

As was the case for the first NDC, the **successful implementation of the updated NDC is conditional and subject to the availability of international support in the form of finance, technology and capacity building.** The revision of the total budget for implementing the updated NDC to reflect the enhanced ambition is underway but currently the budget being used is the same budget as for the first NDC with the same contributions from external and domestic sources.

While Zambia has developed and submitted the updated NDC, **the country has not yet prepared the NDC investment plan to act as an entry point for the private sector to "co-own" the NDC with the government**.

The implementation of Zambia's NDC is anchored within the framework outlined under Section 5.2.3 as provided for in the NPCC, coordinated by the MGEE.

5.3.1 National Adaptation Plan

In 2021, Zambia, with US$2.1 million support from the GCF and with the Global Water Partnership as the delivery partner, commenced the formulation of its NAP for long-term **adaptation planning and mainstreaming of climate change into the national development planning process.** The NAP will provide a climate hazard and vulnerability assessment and set out priority adaptation actions.

Since inception, some of the requirements under the element on "laying the groundwork and addressing gaps" of the NAP process as provided for by the Least Developed Countries Expert Group Guidelines have been accomplished. The activities undertaken include stocktaking of available information on climate change, consensus building among stakeholders on the NAP Roadmap and official launch of the NAP process in April 2021, identification of capacity gaps for the implementation of the NAP including weaknesses and gaps in climate change coordination, mainstreaming of climate change into the Eighth National Development Plan (8NDP) and training of the National Technical Committee on Climate Change provincial and district planners in all the ten provinces on climate-sensitive planning and budgeting.

While mainstreaming of climate change in the 8NDP and some sectoral policies, plans and strategies including the Second National Agriculture Policy and the National Urbanisation Policy has been undertaken, **mainstreaming is yet to be made in several climate-sensitive sectoral policies, plans and strategies.**

Similarly, mainstreaming of climate change in plans and policies at the sub-national level has commenced but is facing capacity challenges and is yet to be completed. Only the districts in Eastern Province, with support from the World Bank-funded Zambia Integrated Forest Landscape Project, have formulated and mainstreamed climate change in district integrated development plans. The other district integrated development plans across the country are at various stages of formulation and thus require strong collaboration between the MGEE and the Ministry of Local Government and Rural Development to ensure that climate change is sufficiently mainstreamed in all the outstanding district integrated development plans.

While there are strides in mainstreaming climate change at both national and subnational levels, very little has been undertaken by the various stakeholders in the key vulnerable sectors to ensure the integration of climate change within their plans, policies and strategies. This lack of action has been largely attributed to the **lack of sector-specific mainstreaming guidelines to guide the various stakeholders in the key climate-sensitive sectors** on the step-by-step process to mainstream climate change. In this regard, the process of formulating sector-specific mainstreaming guidelines has started to foster participation of stakeholders in the key vulnerable sectors to ensure the integration of climate change within their plans, policies and strategies at both national and sub-national levels. This should be a continuous process where the MGEE and the Ministry of Local Government and Rural Development, for instance, could collaborate and engage more on mainstreaming climate change in the integrated development plans to finance climate actions at sub-national levels. This mainstreaming could include development of new policies in sectors (agriculture, water, infrastructure and energy) identified as priority, as stipulated in the NDC and 8NDP.

Further, the formulation of the NAP readiness, where provincial planners and district planners are enabled to work on climate risks and vulnerabilities in their localities, could inform integration of the risks and vulnerabilities in the planning and budgetary processes. The NAP process is expected to conclude in 2023 with the delivery of **Zambia's National Long-term Adaptation Plan,** which will provide a climate hazard and vulnerability assessment and set out priority adaptation actions.

5.3.2 Sectoral National Adaptation Plans

The sector-specific NAPs can act as vehicles for resource mobilisation for addressing the climate risks that are specific to the sectors. Zambia has made strides, albeit insufficient, to formulate sector-specific NAPs. Thus far, only the Health National Adaptation Plan (HNAP) has been developed. The HNAP identifies climate risks and adaptation measures relevant to the health sector and sets out the road map for the implementation of the HNAP. It also acts as a vehicle for resource mobilisation for addressing the health climate risks.

Additionally, the process of formulating the Agriculture National Adaptation Plan (ANAP) had commenced in 2017 but concluded at only the development of a roadmap for the preparation of the ANAP. Resources are yet to be mobilised to conclude the process. The preparation of the Water National Adaptation Plan (WNAP) is in the pipeline and awaits the development of the NAP. The GCF, which is supporting the preparation of the NAP, has pledged to release US$900,000 for formulating the WNAP when the formulation of the NAP is concluded.

5.3.3 Nationally Appropriate Mitigation Actions

In 2014, Zambia formulated its Nationally Appropriate Mitigation Actions (NAMAs) to chart a low-emissions development pathway in the agriculture, energy, transport, waste management and forestry sectors. Although the NAMAs are strictly not plans but projects, their implementation would contribute to the overall plan on emission reduction articulated in the NDC and the 8NDP.

The Agriculture NAMA, called Sustainable Agriculture through Integrated Crop and Livestock Farming, has the objective of reducing GHG emissions, as well as of increasing crop and livestock productivity, and includes information on technological, financial and capacity-building needs as well as opportunities for effective actions towards the sustainable development of the agriculture sector.

The objective of the Transport, Waste and Energy NAMAs, called the **Green Urban Mobility Solution for Zambian City Integrated Tramway, the Integrated Waste Management and the Small Hydro Projects Development in Zambia**, respectively, was to reduce emission reductions and guide the country towards a low carbon pathway while advancing long-term sustainable development benefits.

The purpose of the forestry NAMAs, aiming to Increase efficiency in harvesting, processing and use of charcoal, is to develop a sustainable wood harvesting mechanism for charcoal production and increase efficiency in charcoal production and use of charcoal to reduce forest-related GHG in Zambia and contribute to sustainable forest management. While these NAMAs have huge GHG emission reduction potential and would, thus, contribute significantly to Zambia meeting the GHG emission reduction target outlined in the NDC, very few have been implemented because the country could not raise the requisite financing.

5.3.4 NDC Measuring, Reporting and Verification System

As part of implementation of its NDC, from 2020, Zambia, with support from UNDP, has been establishing an enhanced transparency framework that is central to the design, credibility and operation of the Paris Agreement. The framework guides the country on reporting GHG emissions, progress towards the attainment of the NDC, climate change impacts and adaptation, support including climate finance provided and mobilised and support needed and received. The Measuring, Reporting and Verification (MRV) system will facilitate sharing of information and lessons learnt and allow the assessment of whether set targets have been achieved. It will help create transparency and show the continuity of Zambia's climate actions, and strengthen trust for climate finance from other investors.[144]

In terms of design, Zambia's MRV system has four components: a back-end or database accessible to system administrators, a website accessible to the general public, a portal accessible to end users and supporting documentation including procedures and guidelines as well as user and training manuals, which have already been developed. **Through the portal, end users will be able to track adaptation projects on energy, water, health, wildlife, tourism, infrastructure, business and industry, agriculture and forestry and mitigation projects on energy, industrial processes and product use, agriculture, forestry, waste and transport; GHG emissions and on support including finance, capacity building, and technology transfer.**

The setting up of the MRV system is a good start but **how well it works will largely depend on the technical capacity and the quality of the data in the system. There is, therefore, a need for continuous professional development to thoroughly build the technical capacity of all users of the system including primary data producers**. Zambia, as one of the four African countries piloting the United States Agency for International Development (USAID) supported Comprehensive Africa Climate Change Initiative (CACCI), should take advantage of CACCI and generate the requisite data including baselines on a number of parameters that will help track the implementation, monitoring and reporting of the NDC.

5.3.5 NDC implementation gaps

The following are the emerging NDC implementation gaps that also hinder the uptake of climate finance in Zambia:

- **Institutional coordination structures:** attaining the ambitious targets outlined in Zambia's NDC will require strong institutional coordination. Currently, even if non-state actors are represented in the Technical Committee, the representation is weak as it does not address the varied categories of non-state actors in the broad segments such as the private sector, civil society and academia. Additionally, there is a case for including the non-state actors in the Steering Committee.

- **Technical capacity:** to undertake the climate actions in Zambia's NDC will require technical capacity at various levels, including government line ministries and agencies, the private sector and other non-state actors, to coordinate, streamline and implement the NDC. Further, the government should strengthen its facilitatory role by building the capacity of non-state actors to participate in executing the NDC. For example, the government should point the private sector to the available financing options with respect to climate change and how to access them. While recognising that technical capacity is weak at all levels, it is even weaker at the sub-national level and, therefore, that needs to be prioritised.

- **Mainstreaming of climate change actions and the NDC:** when climate-sensitive sectors such as agriculture, water, energy and forestry implement the respective sector policies, there should be simultaneous execution of Zambia's climate change actions and the NDC. For this to be attained, climate change actions, and the NDC in particular, need to be sufficiently mainstreamed in the climate-sensitive sectors. However, while the key economic sectors have to some degree mainstreamed climate change actions and, by extension, the NDC, in many cases the mainstreaming is still not sufficient. The lack of sector-specific climate change mainstreaming guidelines to act as a step-by-step guide for the various players in the respective sectors on how to mainstream climate change actions should also be addressed.

- **National and Sectoral Adaptation Plans:** Zambia is in the process of formulating a NAP. This is a gap as the NDC is ordinarily supposed to be implemented side by side with a NAP. The NAP is supposed to inform the long-term investments in resilience building, and the NAP formulation process should, therefore, be prioritised. Additionally, key sensitive sectors should formulate the sector-specific adaptation plans to inform adaptation actions and resource mobilisation.

- **NDC Investment Plan:** Zambia has not yet developed an NDC investment plan to act as an entry point for the private sector to "co-own" the NDC with the government. The formulation of an NDC investment plan with detailed required financial and technical requirements should be prioritised.

5.4 Mapping climate financing flows in Zambia

Zambia's NDC states the amount of domestic resources required to achieve the NDC ambition. However, there has been no specific budgetary allocation from the national budget to finance the NDC. Nevertheless, the NDC indicates the need for international financial support. Government should enhance stakeholder engagement with the private sector and cooperating and development partners to mobilise resources for implementing the NDC. More importantly, **the government, working with various stakeholders, should develop a pipeline of projects for presentation to various financiers. In this regard, developing capacity on producing project concept notes and proposals should be a priority.**

Zambia's estimated cost of implementing measures to reduce the emissions to reach the NDC targets by 2030 is US$50 billion. The resources for implementation of the climate-change-related interventions are expected to be met through domestic resources, various climate funds and support commitments under the Paris Agreement and private sector investment. For 2020-2022, the Zambian government has allocated between 0.6% and 1% of the national budget to environmental protection, with specific interventions around climate change adaptation and mitigation. This sum represents a total of 206% of 2021 GDP at constant prices.[145]

In addition, the government has provided several incentives through the national budgets in support of climate change interventions, which are estimated to be US$5.5 million between 2020 and 2022.[146] However, the allocations under environmental protection do not include resources allocated to sectors that have contributed to climate change and mitigation such as agriculture and energy. For instance, in the 2020 budget, US$33.4 million was allocated to environmental protection while US$5.3 million was allocated to agricultural extension services for adoption of climate-smart agricultural practices. This demonstrates the challenges in tracing climate-related financing as the country has no central repository for all such financing.[147]

Despite the foregoing, attempts have been made to estimate the level of climate financing in the country from various sources. **For 2016 to 2018, it is estimated that US$139.7 million was disbursed through the national budget**. The funds disbursed were from external sources of budgetary support to the government. The private sector also contributed to climate financing, with an estimated US$2.1 billion during the same period, particularly with investments in the energy sector.[148]

5.4.1 Financing sources and its uses

The flow of climate finance in Zambia has grown exponentially from less than US$20 million per annum in 2010 to more than US$50 million per annum in 2021, with a corresponding increase in the portfolio of climate investments in the country. This rise has been attributed to the institutional strengthening such as the establishment of the MGEE, which has consolidated all environmental sustainability functions and enhanced coordination including climate finance in the country, and the shifting of the NDA office from the Ministry of Finance and National Planning.

Further, there has been an improvement in the skills required for generating bankable projects for mobilisation of climate financing. However, a lot still needs to be undertaken to reach an optimal level of climate finance and enhance the execution of mitigation and resilience-building actions to the adverse impacts of climate change. The main sources of climate financing include:

a) External funding by bilateral and multilateral institutions, development banks (e.g., World Bank); and

b) Private and open capital markets (carbon trading).

Interviews with stakeholders indicated that **most of the climate finance has been channelled to the energy, agriculture, forestry and water sectors.** It was also observed that the allocation and channelling of climate finance to the highlighted sectors was **consistent with the prioritised sectors in Zambia's national policy documents such as the 8NDP, the NDC and the NPCC**. Most of the funds have been targeted at social sectors of the economy as the majority of the population is vulnerable to the effects of climate change.

The following highlight the sectors where climate financing is targeted in Zambia:

a) Agriculture and food security;

b) Water development, sanitation and environmental protection;

c) Energy sector;

d) Natural resources;

e) Transport sector; and,

f) Tourism sector.

Further, stakeholders observed that the private sector held the best opportunities for Zambia to mobilise climate finance. It was also indicated that **institutional investors such as pension funds had potential to invest in green infrastructure projects.** However, stakeholders emphasised the need for enhanced engagement of the private sector through capacity building and awareness-raising meetings on climate finance. There is also a need to build the business case, particularly for adaptation, to ensure that the private sector participates in climate finance. Further, stakeholders stated that there was a huge potential to mobilise climate finance from bilateral partners, particularly the governments of the USA, the UK, Germany and the EU.

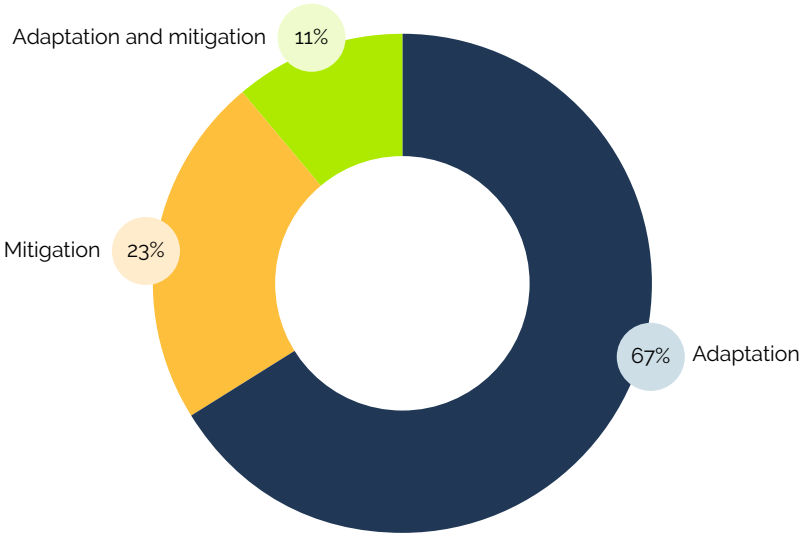
Broad themes (adaptation versus mitigation)

Over the years, Zambia's climate actions have become more orientated towards climate change adaptation, with adaptation interventions accounting for 67% during the period 2016 -2018, as illustrated in Fig 5.3. In the updated NDC 2021, adaptation actions are focused on sectors such as agriculture, wildlife and water including infrastructure, health systems and capacity building, research, technology transfer and finance for adaptation.[149] For instance, in the agriculture sector, climate-smart agriculture practices are being scaled up nationwide.

During the period under review, **there were conceptual differences between an expenditure that aims to help institutions, systems and communities adapt to the realities of a changing climate and expenditure that seeks to reduce the change in the climate itself by mitigating the impacts of human activity,** see Table 5-3 on the classification of expenditure with respect to adaptation and

mitigation. This shift can be explained by the need to implement actions aimed at coping with climatic changes that cannot be avoided as a result of natural causes. This need is consistent with that in other developing countries that focus more on adaptation instead of mitigation, unlike in developed countries where the focus is more on mitigation.[150]

Fig 5.3 Composition of climate-change-related activities in Zambia 2016-2018



Source: Authors' construction based on data from the Ministry of Finance (2022)

Table 5.3 Classification of expenditure, 2016 - 2018

Classification of Expenditure	2016 Actual Expenditure (US$*)	2017 Actual Expenditure (US$*)	2018 Actual Expenditure (US$*)
Adaptation	3,227,318	44,767,196	38,664,382
Mitigation	1,109,685	15,083,743	13,045,060
Adaptation/Mitigation	199,604	210,407	13,584,591
Total	**4,536,606**	**60,061,346**	**65,294,033**

** Based on Bank of Zambia exchange rate (2016: US$1 = ZMW10.29, 2017: US$1 = ZMW9.51, 2018: US$1 =ZMW 10.45)*

Source: Ernst & Young Advisory Services (Pvt) Ltd (constructed using MOFNP data)

It is worth noting that, currently, Zambia does not have a comprehensive integrated system for tracking expenditure with respect to adaptation and mitigation, hence the gaps in the years: 2019, 2020, 2021 and 2022. To this end, efforts are underway to operationalise the MRV system fully, which will ensure comprehensive and integrated tracking and reporting on climate financing and expenditure.

5.5 Stakeholder mapping, alignment and practical realities

Stakeholder mapping[151] was undertaken by all key stakeholders linked to climate finance including institutions that have been recipients of climate finance such as the government line ministries, regulators of financial institutions, financial institutions, the private sector and the academia involved in climate finance. The following approaches were employed to engage stakeholders:

- **Physical and virtual key informant interviews** to obtain in-depth information about climate finance from professionals from the mapped stakeholder institutions and
- **A breakfast meeting:** all the key informants interviewed were invited to a breakfast meeting the purpose of which was to ensure clarification of inputs, brainstorming and agreement on the different submissions made by stakeholders.

5.5.1 National perspectives on climate finance needs

Stakeholders were of the view that **the areas or sectors with the most pressing climate needs are the energy, the agriculture, forestry, water and climate information services** (weather observation sites need upgrading and are few and far between). These were the same sectors prioritised in the 8NDP under the pillar on environmental sustainability, the NPCC and the NDC and are, therefore, aligned to Zambia's national climate priorities.

5.5.2 National and international stakeholders engaged in climate finance

All stakeholders interviewed indicated that the **key players engaged in climate finance in Zambia are multilateral institutions** such as the World Bank, the AfDB, the CIF, the GCF and the GEF. On the other hand, the bilateral partners involved in climate finance are the German government through the German Agency for International Cooperation (GIZ), the Government of the United Kingdom through the Foreign, Commonwealth and Development Office (FCDO), the European Union and the government of the United States of America through USAID. **The stakeholders' submissions were consistent with secondary data analysis on the multilateral and bilateral partners involved in climate finance.**

On the domestic front, the stakeholders stated that climate finance is mostly drawn from the government budget while there was very little involvement of the private sector. For the private sector, particularly the domestic financial system, stakeholders stressed that there was little climate financing being generated from there and that the **climate financing had a business bias with a focus on the energy, commercial agriculture and construction sectors.** It was observed that the financial regulators, namely the Central Bank, the Pensions and Insurance Authority and the Securities and Exchange Commission, are further ahead in the knowledge and appreciation of climate finance than the regulated private sector institutions, although the private sector was slowly increasing its participation. **The few domestic financial intermediaries participating in climate finance utilise loans, especially concessional loans, and blended finance as financial intermediation tools and take out insurance to de-risk projects**. Further, it was indicated that there was wide scope for financial intermediaries to mobilise resources from various sources for implementing clean energy investments in Zambia. Worth noting is that the Zambian government, working with various stakeholders including cooperating and development partners, has prepared a pipeline of bankable projects to attract private stakeholders and development finance institutions to participate in climate

financing. Furthermore, there are some projects that are at concept note and feasibility stages. To enhance the preparation of a pipeline of projects, stakeholders emphasised the need for strengthened coordination by the MGEE.

5.5.3 Strategies for addressing the climate financing constraints (both bottom-up and top-down approaches)

Stakeholders observed that the main barriers to climate finance in Zambia include inadequate capacity to develop bankable projects and nascent and weak institutional capacity for undertaking climate investments. The latter barrier is partly because there is only one NDA to the GCF, which was only accredited in 2021 and has not yet effectively participated in climate finance mobilisation from the GCF, added to which there is also real and perceived corruption, which prevents players from participating in this space. Additionally, **there is no clear understanding, particularly by the private sector, of the available climate finance opportunities and there is inadequate information on the available climate finance opportunities. Financial regulators, the Bank of Zambia, the Pensions and Insurance Authority and the Securities and Exchange Commission, were further ahead in their knowledge and appreciation of climate finance than the regulated private sector institutions, although the private sector was slowly increasing its participation.**

According to stakeholders, the **barriers to accessing climate finance play out in the form of poorly written and poorly structured project concepts and proposals that are not bankable, most prospective financiers withhold their investments due to the identified bottlenecks; delayed funding, which can lead to project failure; bureaucracy; delayed project implementation; uninformed stakeholders, particularly the private sector, on the available opportunities on climate finance and institutions working in silos instead of in an integrated multi-sectoral manner to mobilise climate finance.**

In terms of strategies for addressing the barriers, the stakeholders indicated that the creation of the MGEE was a great step in addressing the governance of climate change interventions including climate finance. Additionally, the government is **finalising the development of the Climate Change Bill, a review of the NPCC and the development of the Green Growth Strategy to provide a supportive and enabling environment for mobilisation of climate finance**. In this regard, the stakeholders stated that t**he Green Growth Strategy would be used as a vehicle for mobilisation of resources for implementation of green growth actions.** The government was also strengthening the institutional and technical capacity through the creation of the MGEE, which had consolidated all environmental sustainability functions, and the dedication of funds towards the building of capacity. Further, the government, through the MGEE and the NDA, was communicating information to the various stakeholders on available climate finance opportunities.

The stakeholders stated that the private sector was addressing the identified barriers to climate finance by **participating in the climate change coordination structures, particularly the Technical Committee on Climate Change,** where opportunities on climate finance are made available to them. This participation, stakeholders indicated, was also true for the civil society organisations. It was stated that there was broader stakeholder collaboration to address the barriers through the Technical Committee and Steering Committee on Climate Change. Stakeholders further observed that the various interventions to address barriers to climate finance had, over time, paid off as there were improved climate finance flows. For example, the establishment of the NDA had facilitated the mobilisation of over US$80 million from the GCF. Additionally, through institutional strengthening

and capacity development, Zambia has managed to acquire more than US$200 million from the World Bank, the AfDB and the CIF.

However, despite the stated strides in addressing climate finance barriers and improvement in climate finance flows, the barriers have not yet been fully addressed. **There is a need for a continuous and systematic approach to addressing the barriers through all the relevant institutions. Institutional and capacity strengthening, awareness-raising and education should be prioritised.**

5.6 Summary

Zambia is pursuing a green growth agenda. However, to attain the NDC mitigation and adaptation targets including the 8NDP as well as to put Zambia on a low carbon and climate-resilient trajectory, the country needs to mobilise the requisite resources for implementing the articulated actions. Zambia, therefore, needs to build the technical, institutional and technological capacity to implement the climate change actions effectively.

Climate finance has been largely mobilised from external sources. In addition, the participation of the private sector remains minimal and skewed towards clean energy investment. It is therefore important to mobilise climate finance domestically, and, even more so at sub-national levels, to complement external sources by triggering green investments in sectors vulnerable to climate shocks. The role of climate finance to inform integration of the climate risks and vulnerabilities in the planning and budgetary processes, particularly at sub-national level, cannot be overemphasised.

Stakeholders observed that the main barriers to climate finance in Zambia include inadequate capacity to develop bankable projects and nascent and weak institutional capacity for undertaking climate investments. There is also little understanding of the available climate finance opportunities, particularly in the private sector.

6 Conclusions: Ensuring alignment of needs and commitments

6.1 Harmonising the disparate international climate financing landscape

During the high-level consultations at COP26, developing countries criticised developed countries for failing to pledge to commit about US$100 billion annually to support climate action in developing countries. International institutions and developed countries must go beyond the promises and fulfil their pledges towards providing adequate financing for climate action to developing countries.

To do this, the widely used UNFCCC definition of climate finance needs to be amended to clear rules on what can be counted as "local, national or trans-national financing" or "public, private and alternative sources of financing" as developed countries operational definitions and interpretations of climate finance differ. In the past, several developing countries (such as India) have refuted claims by wealthy nations on their contributions to the delivering US$100 billion annual budget to support climate action in developing countries. Critiques have ranged from these figures being "overstated" to the methodological basis being "deeply flawed".[152] Recently, an EU Court of Auditors report[153] indicated that the EU had not met its climate spending targets. A reported spending of €216 billion on climate action in the EU's 2014-2020 budget was more likely to be around 13% of the EU budget rather than the reported 20% and thus "not as high as reported".

Lastly, more public and private funding from the international community needs to go towards adaptation efforts in support of a just transition, especially in Africa. As previously highlighted in our findings, most of Africa's GHG emissions at a sectoral level come from land-use change and forestry (LUCF: 36%) and the energy sector (35%). These sectors are followed by agriculture (21%), industrial processes (4%) and waste (4%). To that extent, climate financing coming to and from the continent should not only prioritise low-carbon energy generation sources (mitigation) but must equally prioritise LUCF reductions (in this case, more adaptation-related financing). There is thus a need to look at how to combine the use of adaptation public funds with private funds in new and innovative ways, including at the community level.

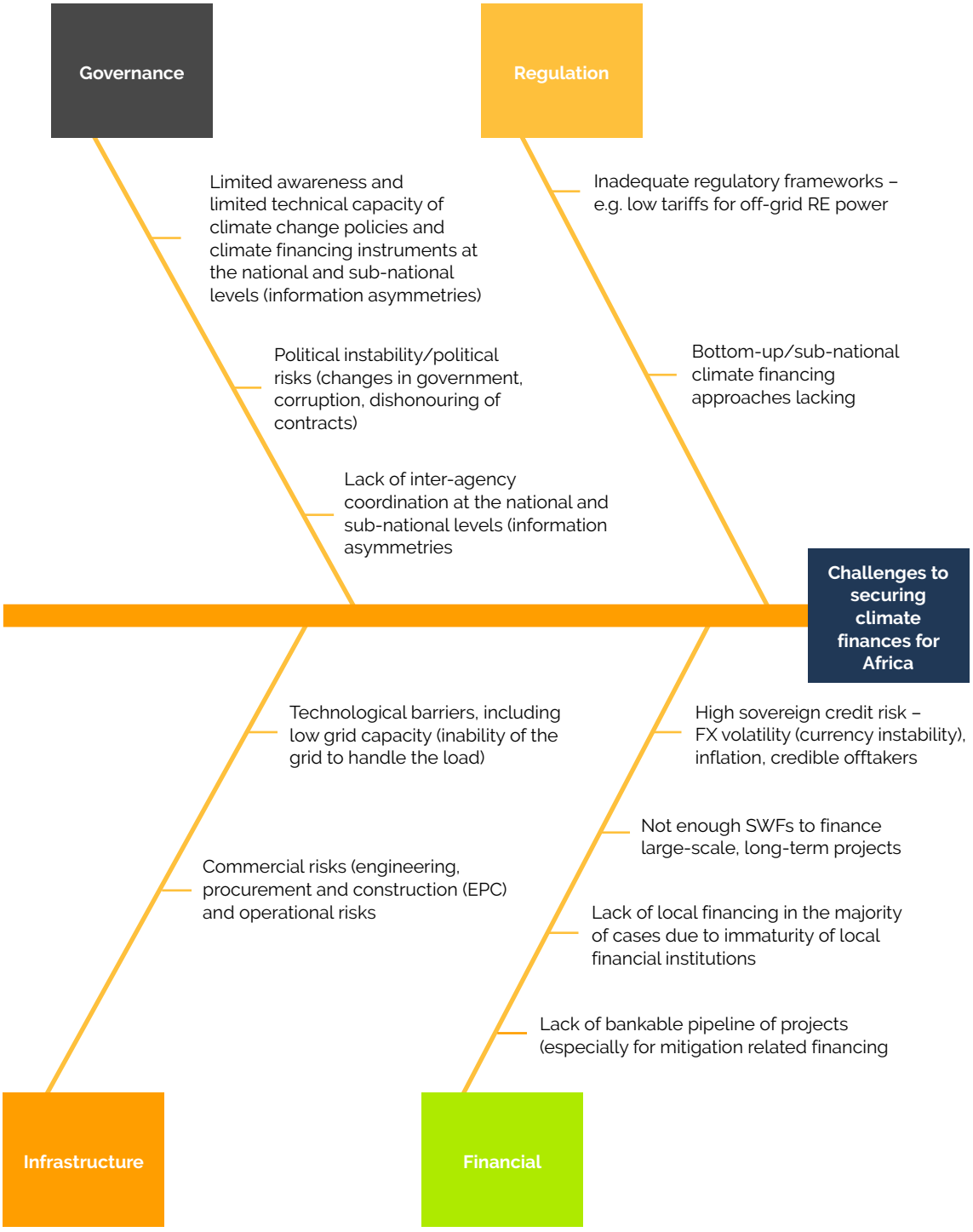
6.2 Addressing the barriers to climate financing in Africa

Given the heavy reliance but significantly low donor climate finance inflows, Africa must look at alternative sources of financing to implement its NDCs to contribute to mitigating climate change while creating sustainable jobs in the process.

Unlocking the massive investment opportunities ultimately comes down to understanding the barriers to such investments at both the national and sub-national levels, and at the global level within the donor institutions themselves (Fig 6.1). For example, it is shown that, even when funding (either from public or

private sources) is not a constraint, sub-national (local) governments are generally ill-equipped to facilitate successful access to and management of these funds or design and prepare 'bankable' projects. This issue is due to the lack of efficient regulatory frameworks, technical competencies and systems for project preparation as well as monitoring and evaluation, among others.

Fig 6.1 Constraints to securing such financing at the national and sub-national levels



Source: Author's construct based on several literature sources and interviews with stakeholders (2022)

Endnotes

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