

Climate Finance Mapping for NDC Implementation in Zambia



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Climate Finance Mapping for NDC Implementation in Zambia



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Abbreviations and Acronyms

AER	Agro-Ecological Region
AF	Adaptation Fund
AFD	Agence Française de Développement
AfDB	African Development Bank
AiIB	Asian Infrastructure Investment Bank
BAU	Business-as-Usual
BDB	Bilateral Development Bank
BMUB	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BMZ	Federal Ministry for Economic Co-operation and Development
BUR	Biennial Update Report
CAEP	Climate Action Enhancement Package
CBD	Convention on Biological Diversity
CCFU	Climate Change Facilitation Unit
CCNRMD	Climate Change and Natural Resource Management Department
CDCS	Country Development Co-operation Strategy
CFU	Climate Funds Update
CIF	Climate Investment Funds
COP	Conference of the Parties
CPEIR	Climate Public Expenditure and Institutional Review
CPI	Climate Policy Initiative
CSA	Climate-Smart Agriculture
CTF	Clean Technology Fund
DAC	Development Assistance Committee
Danida	Danish International Development Agency
DBZ	Development Bank of Zambia
DECC	Department of Energy and Climate Change
DFC	Debt-for-Climate
DFI	Development Finance Institution

DMMU	Disaster Management and Mitigation Unit
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
ESAP	Electricity Service Access Project
EU	European Union
EWS	Early Warning System
FCDO	Foreign, Commonwealth & Development Office
FIP	Forest Investment Programme
FOLU	Forestry and Other Land Uses
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	German Corporation for International Cooperation
IADB	Inter-American Development Bank
ICCS	Interim Climate Change Secretariat
ICF	International Climate Fund
IDC	Industrial Development Corporation
IFC	International Finance Corporation
IKI	International Climate Initiative
INDC	Intended Nationally Determined Contribution
IPPU	Industrial Products and Product Use
ITC	International Trade Centre
JICA	Japan International Co-operation Agency
KfW	German Development Bank
LDCF	Least Developed Countries Fund
LULUCF	Land Use, Land Use Changes and Forestry
MDB	Multilateral Development Bank
MLNR	Ministry of Lands and Natural Resources
MNDP	Ministry of National Development Planning
MoF	Ministry of Finance
MRV	Measurement, Reporting and Verification
MSMEs	Micro, Small and Medium Enterprises
MTENR	Ministry of Tourism, Environment and Natural Resources

MWDSEP	Ministry of Water Development, Sanitation and Environmental Protection
NAMA	Nationally Appropriate Mitigation Actions
NAPA	National Adaptation Programme of Action
NCCRS	National Climate Change Response Strategy
NCRE	Non-Conventional Renewable Energy
NDA	National Designated Authority
NDB	National Development Bank
NDC	Nationally Determined Contribution
NDP	National Development Plan
NFS	National Finance Strategy
NGO	Non-Governmental Organisation
NPCC	National Policy on Climate Change
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OFP	Operational Focal Point
PPCR	Pilot Programme for Climate Resilience
PPP	Public-Private Partnership
RBCF	Results-Based Climate Financing
REA	Rural Electrification Authority
REDD	Reducing Emissions from Deforestation and Forest Degradation
RET	Renewable Energy Technologies
SADC	Southern African Development Community
SCCF	Special Climate Change Fund
SCF	Strategic Climate Fund
SDG	Sustainable Development Goal
SFA	Sustainable Fisheries and Aquaculture
SFM	Sustainable Forestry Management
Sida	Swedish International Development Cooperation Agency
SMEs	Small and Medium Enterprises
SREP	Scaling-up Renewable Energy Programme
SWOT	Strengths, Weaknesses, Opportunities, Threats
TNA	Technology Needs Assessment
TNC	Third National Communication

UK	United Kingdom
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USA	United States of America
USAID	United States Agency for International Development
ZDA	Zambia Development Agency
ZEMA	Zambia Environmental Management Authority

Executive Summary

As Zambia moves from Nationally Determined Contribution (NDC) updating to NDC implementation, financing the actions required to meet its NDC targets becomes central. The full realisation of climate finance is critical to meet these targets. Hence, Zambia will need to tap all sources of climate finance available – international and domestic, public and private.

The total cost of implementing mitigation and adaptation actions in the Updated NDC for 2021–2030 is an overall investment estimated at US\$ 50 billion. This NDC is submitted with a conditional pledge of reducing greenhouse gas (GHG) emissions by 25 per cent (20,000 GgCO₂eq) by 2030 against a base year of 2010 under the business-as-usual (BAU) scenario with levels of international support prevailing in 2015, or by 47 per cent (38,000 GgCO₂eq) with substantial international support. Zambia will require international support in the form finance, investment, technology development and transfer, and capacity-building to fully realise its intended contribution. The unprecedented COVID-19 global pandemic means Zambia must work towards its commitments to the Paris Agreement at the same time as managing the significant economic impacts of the pandemic and its effects on its people, building back better through green recovery measures. The effects of the COVID-19 crisis only increase the need for a more transformative and catalytic climate finance system to build back better.

Climate finance, therefore, remains a critical element for achieving climate change-resilient and low-carbon development (Watson and Schalatek, 2019), as committed to in the Paris Agreement. The Paris Agreement enshrines a commitment to building long-term, in-country capacity to address climate change, particularly for countries with the least capacity and those that are particularly vulnerable to the adverse effects of climate change. Among other things, it aims to make financial flows more compatible with this transition to low-carbon and climate-resilient development pathways (Article 2.1(c)). The aim is to annually mobilise US\$100 billion until 2020 for climate, in favour of developing countries. A new collective quantitative target will be defined before 2025.

According to the latest data available on international climate funds, current volumes of finance are nowhere near the levels needed to support the implementation of NDCs, and much further away from the levels needed to limit global warming to 1.5–2°C (Blocher and Mazza, 2021). Similarly, current estimates of adaptation costs are much higher than the amounts of funding available (even assuming an equal allocation between mitigation and adaptation for the US\$100 billion per year in climate finance) (UNEP, 2016).

Effective implementation of the Updated NDC and the transition to low-carbon and climate-resilient development requires the allocation of resources and the strategic realignment of budgets in both the public and private sectors through the mapping of climate finance. The development of a national climate finance strategy should be among the priority actions; this is planned for Zambia by the United Nations Development Programme in 2021. Core to this climate finance strategy will be the identification of current climate financing in Zambia, enhancement of the understanding of existing investments and the pinpointing of potential opportunities to facilitate the scaling-up of climate finance.

A wide range of national institutions, plans, policies, targets and initiatives related to mitigation and adaptation exist in Zambia to help achieve these goals. Many of these existing efforts are captured in Zambia's NDC, which includes five pillars of action: mitigation, adaptation, capacity-building/strengthening, technology development and transfer, and finance. In Zambia, overarching climate change planning is carried out by the Climate Change and Natural Resource Management Department.

The Zambian government disbursed US\$139,862,864 in climate change-related development expenditure for the period 2016–2018 (Ernst & Young, 2020). This amount included \$132,731,659 (95 per cent) of external resources from international partners channelled into the national budget; \$7,131,204 (5 per cent) was from domestic public resources. For the period under review, there was thus heavy government reliance on funding from donors. This means that any lack of

donor support will have a severe adverse impact on the effectiveness of NDC implementation.

Private actors accounted for an average of US\$ 2.1 billion of the funds tracked per year during 2017 and 2018; 87 per cent of this investment was tracked in climate mitigation sectors (clean energy, energy efficiency and demand-side management). Commercial investors are the largest source of private climate investment, accounting for US\$ 1.1 billion. Corporates, philanthropists/donors, non-governmental organisations (NGOs) and households accounted for the remaining 45 per cent of the tracked private sector investments in this landscape.

This report presents the objectives of and rationale for the NDC climate finance mapping, an overview of the climate finance landscape in Zambia and short-, medium- and long-term actions for climate finance towards NDC implementation. The methodological approach used included a literature review and content analysis of technical, scientific and policy documents related to NDCs, green investment and climate finance and interrogation of data from the Ministries of Finance, National Development Planning, and Lands and Natural Resources. In addition, interviews were conducted with selected experts in climate finance in government, the private sector and NGOs, and data was analysed to understand the challenges and opportunities. A workshop was conducted with climate finance actors with an interest in this field, to validate the report. To overcome some of the basic data deficiencies concerning NDCs, this report uses case studies to explore more concretely what potential financial needs may be in different sectors. Zambia has several opportunities to be a driver of accelerated action in mobilising climate finance to implement its Updated NDC. This mapping will greatly contribute towards this effort.

Key findings

- **NDC-aligned projects and climate finance landscape**

Several NDC-aligned projects are being implemented in different sectors in Zambia by the public and the private sector (small and medium-sized enterprises (SMEs) and start-ups. The major source of climate finance in Zambia is private sector funding while the top sector recipient is agriculture (Ernst & Young, 2020).

The successful mobilisation of climate finance in Zambia is partly attributed to national leadership on climate politics and policy, dedicated agencies that support private sector green investments and the presence of established financial institutions that are capable of directly accessing climate funds.

- **Cross-cutting challenges for public and private sector involvement in NDC implementation**

Insufficient access to international/dedicated climate funds: A vast majority of public and private sector actors in Zambia have had little success in accessing dedicated climate funds and concessional green loans. The procedures and requirements to access these funds and their involvement and financing of NDC implementation remain a big challenge. Banks have developed conservative lending measures, which have made access to credit a major issue. Private firms therefore find it hard to access the much-needed funds to venture into green construction projects.

Overwhelming focus on energy: There are far fewer non-energy-related low-carbon projects in Zambia. While it is justifiable to increase access to energy to run the economy, more attention should be paid to other areas with "low-carbon" potential, especially in sustainable transportation, green cities, waste management and climate-smart agribusinesses and forestry.

Knowledge gap and limited skills on climate change: Public and private business stakeholders support the country's resilience and transition to a low-carbon economy by acquiring an in-depth knowledge of NDC processes and the associated de-risking of smart investment and financial instruments. While there has been an advance in the use of climate models for climate projections, it appears that the country's private sector actors possess inadequate capacity to access data on predicted climate change and to interpret this in a manner that informs their strategies and plans. As a consequence, it is challenging for them to adopt decisions that favour investment in climate actions or climate change projects

Weak business case for green investment in adaptation projects: So far, the business case for mitigation projects in the energy, forestry, transport, green cities and waste sectors has been easy to make. However, it has been difficult to make a good business case for adaptation, which has made it

difficult to attract private investment into such projects. With more banks and investors requiring climate-related disclosures, it may become easier to make a good business case in the future.

Increasing focus on COVID-19 recovery and decreasing focus on green projects: While some NDC and green projects are currently being implemented in Zambia, the negative impact of the COVID-19 pandemic in 2020 on Zambia has obliged the government to temporarily shift its priorities towards the post-COVID recovery with a strong focus on the health sector.

Insufficient policy guidance for the private sector's climate response efforts: Zambia has put in place its NDC, national green strategies and policies, and climate investment plans. The government has made progress in defining its adaptation and mitigation strategies. However, the private sector needs more clarity on specific sectoral laws, regulations and policies to inform investments.

Low culture of collaboration between the private sector and the government: Low levels of engagement between government and private sector actors are common. This weak engagement is exacerbated by poor understandings of green investment concepts and complex national and international procedures and standards for green projects.

- **Cross-cutting opportunities for private sector involvement in NDC implementation**

Climate-smart agriculture and forestry: Zambia holds a vast expanse of uncultivated arable land that can be used to grow food and engage in low-carbon and climate-resilient agribusiness and forestry.

Renewable energy: Zambia is endowed with abundant biomass, hydro, solar and wind renewable energy resources. Investments in these could account for an 85 per cent share of the 6,000 MW predicted energy demand in Zambia by 2030.

Green cities, transport and infrastructure: About 50 per cent of Zambians are expected to live in cities by 2050 and at least three Zambian cities will have more than a million people each. This provides private sector investment opportunities in climate-smart cities, infrastructure and urban transport.

Cross-cutting recommendations

A win-win objective between profit-making by the private sector and combating climate change should be established. It is critical that the Zambian

government recognise that the engagement of the private sector in NDC implementation must be backed by returns on their investments.

- **Access to climate finance** could be improved by developing the capacity of financial institutions in climate change adaptation and mitigation and strengthening their credit risk assessment towards green investments. This will enhance private sector capacities in developing integrated/innovative projects, which have greater potential to succeed than traditional projects.
- **Credit guarantee schemes** for climate change projects may be a way to alleviate collateral constraints while strengthening secured transaction laws and making collateral registries more efficient. This will support green lending to SMEs without putting financial stability at risk.
- **The best available environmental management processes** and low-carbon technologies should be integrated by the private sector within their production units and value chains. Environmental performance contracts, carbon audits and eco-labelling could be used in different provinces.
- **Greening COVID-19 financial stimulus package** could support the transition to a low-carbon and climate-resilient future. These stimulus packages could provide synergies with fiscal reforms and incentives to promote green investments and green jobs.
- **The government** should build on successful green projects. Governments should identify and showcase successfully implemented low-carbon and/or climate-resilient green projects. This will build confidence in the minds of private sector firms and encourage them to step in and invest.
- **Economic incentives** could be provided to private firms. Such incentives could encourage them to switch from business-as-usual to green projects. For example, in the energy sector such incentives could be in the form of feed-in tariff schemes.

Conclusion

The revision and implementation of Zambia's NDC provides a unique opportunity for the government to work closely with large private companies

and SMEs to address cross-cutting and sectoral challenges and boost green investments and green jobs. The process of engagement with the private sector should be co-ordinated, long in term, sector-specific and disaggregated to micro, small, medium and large private sector actors. To strengthen the private sector contribution to NDC implementation, the government should see green investments by the private sector from a business perspective and not only from the environmental and development perspectives.

The identification and mobilisation of (new) sources of finance are critical in the context of moving towards a low-carbon and climate-resilient pathway and achieving and even increasing the ambition of climate change targets as set out in the Updated NDC, including a national NDC finance strategy for climate change by 2022.

There is a need, more than ever in light of the COVID-19 crisis, to support resource mobilisation. Even prior to COVID-19, Zambia was already falling short of the billions required to avoid and adapt to climate change. And now, with such an altered monetary and fiscal space, it is even more crucial to ensure that public and concessional finance are efficiently utilised and that adequate private capital is mobilised to shift and remain on a path to net zero. Greater transparency on financial data by all key stakeholders will support and ramp up efforts in this direction. In this context, we need a more effective national policy response and credible roadmaps for sectors and provinces. We also need more details on how NDCs will be achieved and better metrics on progress, also tracking implementation of green recovery commitments.

1. Introduction

This report represents the output of a year-long project focused on supporting the Government of Zambia in developing a climate finance mapping to set out how the country can fast-track its transition to a low-carbon and climate-resilient economy and effectively implement its Updated Nationally Determined Contribution (NDC). It was undertaken in partnership with the Ministry of Lands and Natural Resources (MLNR), the Ministry of National Development Planning (MNDP) and the Ministry of Finance (MoF) Zambia and funded primarily by the NDC Climate Action Enhancement Package (CAEP).

Zambia submitted its updated national climate change commitment – or Updated NDC – for 2030 on 29 July 2021 – to the United Nations Framework Convention on Climate Change (UNFCCC). The Updated NDC includes financial support as core to the successful implementation of the NDC.

Zambia is at a critical point in its development and needs to attract and redirect a whole range of financial resources to transform its economy. The country faces key challenges related to scarce public funding; economic and social vulnerability related to the impacts of the global recession and falls in commodity prices, especially mineral commodities such as copper, Zambia's main export product; and environmental vulnerability owing to the increasing threat of climate change.¹ It also needs to make efficient use of international resources. This report on the climate finance mapping is aimed at optimising and enhancing greater access to and mobilisation of public and private finance, both domestic and international, for the Updated NDC implementation.

1.1. Background

NDCs are at the heart of the Paris Agreement. They embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. They are national climate plans highlighting climate actions, including climate-related targets,

policies and measures that governments seek to implement in response to climate change, to contribute to global climate action and to fulfil the Paris Agreement. Each country is required to present the national efforts it plans to take as of 2020 to fulfil the Paris Agreement's most ambitious objectives. These include keeping the increase in global temperature to well below 2°C with respect to the pre-industrial era, with the further aim of limiting it to 1.5°C; strengthening the capacity to adapt to the adverse effects of climate change; and increasing resilience.

For developing countries like Zambia, being able to deliver their climate commitments under the Paris Agreement hinges on their ability to access climate finance. However, identifying and accessing the right sources of finance is not always straightforward and countries face several challenges in unlocking funding.

Over the past decade, Zambia has been experiencing successive impacts of climate change resulting in significant socio-economic losses estimated at 3–4 per cent of gross domestic product (GDP) annually and impeding development efforts. The situation is exacerbated by the country's dependence on climate-sensitive natural resources. Despite the country's negligible contribution to global greenhouse gas (GHG) emissions (less than 0.02 per cent in 2018), Zambia has put in place ambitious policies and measures to pursue a low-carbon climate-resilient development pathway to realise Vision 2030 and the Updated NDC.

Drought and floods are the main climate hazards, with negative impacts on lives and livelihoods, and human health increasingly at risk. Extreme climate events cause significant loss of life and adversely affect the national economy and threaten security. In 2020, floods led to the loss of human lives, displaced more than 430,000 people, including 140,000 children, and closed over 400 schools while wiping out billions of kwachas worth of roads and infrastructure and 8,500 ha of crop and drowning over 4,000 head of livestock.²

1 AfDB Zambia Economic Outlook 2021: <https://www.afdb.org/en/countries-southern-africa-zambia/zambia-economic-outlook>

2 <https://reliefweb.int/disaster/ff-2020-000240-zmb>

MLNR spearheaded the NDC update process through the Climate Change and Natural Resource Management Department (CCNRMD), with support from the United Nations Development Programme (UNDP) Climate Promise initiative. This involved comprehensive consultations with various stakeholder groups, such as those representing national, provincial and district governments, the private sector, civil society, gender focal points and economic sectors, including transport. As a consequence of the COVID-19 pandemic, extensive consultations were held virtually. The stakeholder consultations aimed to capture the progress and challenges associated with sector-specific actions outlined in the key documents that support the NDC implementation, such as the National Climate Change Response Strategy (NCCRS) and the National Policy on Climate Change (NPCC). The consultations also intended to establish multi-level governance and stakeholder coordination to execute the outlined actions within the sectors.

The Updated NDC is based on the findings of the analysis carried out during the NDC updating process. The analysis provided evidence that, with substantial support, Zambia can meet and exceed the initial NDC mitigation target of reducing emissions by 47 per cent relative to the business-as-usual (BAU) scenario by 2030. In addition, it examines climate projections and the associated impacts before proposing and identifying priority adaptation actions. It also provides the evidence base and recommendations for ambition enhancements in the Updated NDC.

Zambia's Updated NDC includes mitigation and adaptation components based on its national circumstances and in line with decisions 1/CP.19 and 1/CP.20. The mitigation co-benefits of the adaptation actions are included in the mitigation contribution of the Updated NDC. Zambia will develop domestic legislation and institutional frameworks to govern her engagement in market and non-market mechanisms. Aware that different gender groups have different vulnerabilities to climate change and contribute differently as a result of their respective gender roles, Zambia will implement the outlined adaptation and mitigation priorities in a gender-responsive manner.

Zambia's Updated NDC includes both mitigation and adaptation actions. In terms of mitigation, Zambia seeks to transform into a low-carbon

society and reduce its GHG emissions far beyond 30 per cent by 2030 relative to the BAU scenario of 143 MtCO₂eq outlined in the NDC. Achieving this transformation will require substantial international and domestic support and investment in finance, technology development and capacity-building from the public and private sectors. In terms of adaptation, Zambia plans to ensure enhanced resilience to climate change towards attaining Vision 2030 by mainstreaming climate change into its medium-term plans and implementing adaptation actions. Zambia's priority climate actions fall in the six mitigation sectors set out in the UNFCCC: agriculture, energy, forestry, industry, transport and waste. These actions are expected to support low-carbon sustainable development and lower GHG emissions and help Zambia meet its NDC goal of reducing emissions by 47 per cent by 2030 relative to BAU.

1.2. Justification for climate finance mapping for NDC implementation in Zambia

For Zambia to meet its climate targets and build resilience to climate change, finance will need to be mobilised both domestically and internationally at scale. The finance required to support the government's low-carbon and climate-resilient transition is outlined in Zambia's Updated NDC.

Climate finance is an essential enabling aspect of global efforts to address climate change. The Parties to the UNFCCC set the goal to mobilise US\$100 billion per year by 2020 to support mitigation and adaptation activities in developing countries. Significant financial resources from the public and private sectors are expected to go towards climate action. If Zambia is to take advantage of these opportunities, the existing institutional and financial mechanisms must be strengthened so that resources are directed efficiently towards national climate and development priorities. This is the context in which this climate finance mapping has been developed.

In December 2020, Zambia's First Biennial Update Report (BUR1) highlighted that catalysing the financing and investments required to proceed towards a low-carbon and climate-resilient economy remains an important challenge for the country. The Updated NDC, BUR1 and the

Table 1. Overview of financial needs for NDC implementation for Zambia

Total (US\$ billion)	Total funding (US\$ per capita)	Unconditional share (US\$ billion)	Conditional share (US\$ billion)	Share for mitigation action (US\$ billion)	Share for adaptation action (US\$ billion)
50	4.215	15	35	35	20

Source: Updated Zambia NDC 2021.

Third National Communication (TNC) prioritise the development of resource and investment strategies, capacities, mechanisms or instruments that support and enable the implementation of climate change responses. They also clearly recognise the importance of a combined effort across private, public and blended finance in achieving national climate change response actions and identify the opportunity for the financial sector to mainstream climate change in risk and investment decisions.

Climate finance is one of the key enablers in ensuring climate change adaptation and mitigation. Climate finance covers the entire cycle – from mobilising resources to using, coding, tracking and reporting climate change-related expenditures by government and non-government entities (UNDP, 2019).

From the foregoing, the clear need for and importance of climate finance mapping and planning can be stated as follows:

- Tracking and planning public and private spending and investments and needs at the country level is essential for implementing national climate mitigation and adaptation strategies and achieving the Paris Agreement objectives.

- Various mapping exercises have been instrumental in helping policy-makers understand who finances what and the extent to which finance is aligned with country policy objectives.
- As Zambia embarks on enhancing its NDCs, climate finance mapping can play a key role in identifying new ways governments can step up their climate actions, and finance these bold new goals.
- While mobilising new resources is important, so is ensuring that existing domestic spending structures align with climate objectives. Such coherent domestic spending is essential to build trust with international partners and provide the added value of international support.
- Tracking initiatives also contribute to understanding of how the broader economy contributes to climate investments, both positively and negatively, which can help encourage increased investment.

This mapping is part of the Government of Zambia's strategic intervention to build climate finance capacity to better co-ordinate resource mobilisation and track climate change expenditures. The goal is to equip all state and non-state agencies

Box 1: Finance and the Paris Agreement

"Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention" (Article 9.1).

Finance is primarily covered by Article 9 of the Paris Agreement, which re-establishes the precedent that developed countries should take the lead for mobilising finance (Article 9.3). Details on the finance pledged and provided will be biennially communicated by developed countries (Articles 9.5 and 9.7). Developing countries can also contribute to finance but this obligation is voluntary (Article 9.2). The provision of financial resources should aim to achieve a balance between adaptation and mitigation (Article 9.4). Note that Article 6 of the Paris Agreement covers the use of market mechanisms, which may also provide a source of finance for mitigation and adaptation actions.

with the requisite skills and knowledge to correctly identify climate change elements, plan and budget and mobilise resources, and code and track expenditures towards adaptation and mitigation, both as stand-alone initiatives and projects and within programmes and projects.

1.3. Objectives of the climate financing mapping in Zambia

The overall objective of the climate mapping is to optimise and enhance mobilisation of funding to implement the NDC priority actions, supporting Zambia to achieve its commitment under the Paris Agreement. There are five main strategic objectives:

1. Identify gaps and capacity-building needs for implementing the NDC.
2. Build awareness and understanding on instruments and resources available to support NDC implementation.
3. Enhance mobilisation of funding from public and private finance sources for NDC by developing short-, medium- and long-term action plans for NDC implementation.
4. Obtain a basis for developing a measurement, reporting and verification (MRV) system.
5. Align NDC priorities with financing opportunities.

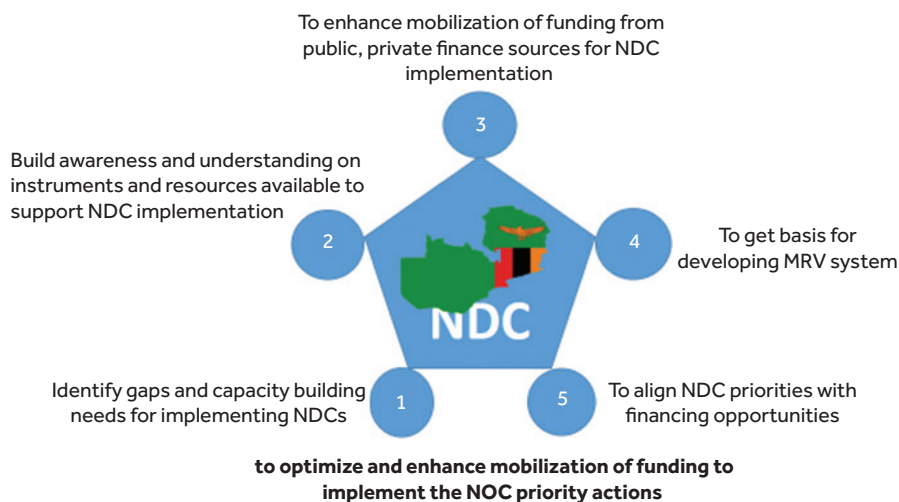
1.4. Method

The approach used in preparing this report includes a literature review and content analysis of technical, scientific and policy documents related to NDCs, green investments, climate finance and interrogation of data from MoF, MNDP and MLNR. In addition, interviews with selected experts in climate finance in government, the private sector and non-governmental organisations (NGOs) were conducted and the data analysed to understand the challenges and opportunities. A workshop with representatives of climate finance actors with an interest in this field was conducted to validate the report. To overcome some of the basic data deficiencies concerning NDCs, this report uses case studies to explore more concretely what potential financial needs may be in different sectors. Zambia has several opportunities to be a driver of accelerated action in mobilising climate finance to implement its Updated NDC. This mapping adds to and contributes greatly towards these optimistic expectations.

1.4.1. Data collection

The data used in the mapping is based on secondary and primary sources. Secondary data collection involved extensive identification and review of different policy, strategic, scientific, technical, project and programme documents and reports. These documents were sourced from the websites of government agencies and

Figure 1. Objectives of the climate finance mapping



Source: Author

Table 2. Summary of sources to finance Updated NDC actions

Source of finance	Description	Benefits to NDC financing
Domestic public finance		
Domestic government responsibility	<ul style="list-style-type: none"> Public sector financial resources, raised and managed by the government by establishing enabling economic and political environment Operationalise climate funds to be used as financing vehicle to channel funds Mainstream climate priority actions in the short-, medium- and long-term plans 	<ul style="list-style-type: none"> Predictable and consistent implementation of NDC climate actions Enhances national ownership of climate actions Enabling environment to leverage other sources of financing for adaptation and mitigation
International public finance		
Bilateral and multilateral finances and climate finance source	<ul style="list-style-type: none"> Public funds provided from developed countries, including: <ul style="list-style-type: none"> Official development assistance (ODA) Finance instruments including grants, loans (concessional and non-concessional), guarantees, insurance and equity Mechanisms including multilateral funds (such as climate funds and sectoral funds) and multilateral development banks (MDBs) Climate funds such as Green Climate Fund (GCF) and Global Environment Facility (GEF); financing instruments may include grants, loans (concessional and non-concessional), insurance, guarantees and equity 	<ul style="list-style-type: none"> Flexible funding source that presents significant opportunities to fund both mitigation and adaptation of NDC climate priority actions: <ul style="list-style-type: none"> Particularly useful for innovation, as well as enabling activities such as capacity development, policy and strengthening of institutions Climate-focused funds to support NDC adaptation and mitigation projects Multilateral sources can finance implementation of climate priority actions Sectoral climate change units in the ministries can attract climate funds to finance implementation of adaptation and mitigation actions Leverage private sector investments
Domestic and international (private sector investments)		
Private sector investment, green bonds, public-private partnerships (PPPs)	<ul style="list-style-type: none"> Includes enterprises (such as companies and private foundations) and financiers (such as commercial banks, insurance companies and investment funds) Effective partnerships focus on areas where private sector and development interests overlap, producing a public good; lasting development impact; benefits to private sector/business; shared risks and rewards; outcomes/benefits to all parties difficult to achieve alone 	<ul style="list-style-type: none"> Financing innovative priority adaptation and mitigation actions Investment in new business opportunities that support both mitigation and adaptation and reduce climate risk For example: Mayfair Insurance provides weather index insurance coverage to smallholder farmers through the Farmer Input Support Programme, Zambia National Farmers' Union and other local farmer organisations

Source: Adapted from Parry et al. (2017).

NGOs, the private sector, and development and technical partners implicated in climate change and development issues in Zambia, among others.³ Google Scholar, Web of Science, the UNFCCC, dedicated climate change funds (such as the GCF, GEF and the Climate Investment Funds (CIF)) and bilateral and multilateral donor agencies (African Development Bank (AfDB), World Bank, International Finance Corporation (IFC)) operating in Zambia. Some of the key national policy documents analysed included the following:

- Updated Nationally Determined Contribution (NDC) 2021
- First Biennial Update Report (BUR1) 2020
- Third National Communication (TNC) 2020
- National Policy on Climate Change (NPCC) 2016
- Technology Needs Assessment (TNA) 2013
- Intended Nationally Determined Contribution (INDC) 2015
- National Climate Change Response Strategy (NCCRS) 2010
- National Adaptation Programme of Action (NAPA) 2007

Primary data collection was conducted mainly through virtual interviews (Zoom, Skype, WhatsApp and Google Meet), e-mail exchanges, and group and focus group discussions, owing to the COVID-19 pandemic situation resulting in the country's lockdown. Some of the stakeholders contacted for this study came from the national government, financial institutions and the private sector. The primary data collection used an open questionnaire to guide interviews and discussions focusing on the project context and objectives

³ The climate finance mapping approach is new and cutting-edge, and as such the literature base is limited. For this reason, the literature search was wider. It included official government policy documents; reports from international agencies including the World Bank, the G20 and New Climate Economy; reports from MDBs; newspaper articles and other media; reports and public information from companies and institutions; and information provided by stakeholder group members including association-commissioned studies, official summary minutes updating project status and activities, workshop presentations and reports and policy document drafts. The reference list presents a comprehensive list of data sources and documents used.

and the key challenges, opportunities and recommendations for public and private sector involvement in NDC implementation and green investment in Zambia. Primary data collection was followed by establishment of a high-level stakeholder group (consisting of the national government, finance actors, the private sector, academics and international experts). Through dialogues with the high-level stakeholder group emerging policy recommendations were developed.

1.4.2. Data analysis

This report used a mix of qualitative and quantitative data analyses to triangulate different perspectives from the primary and secondary data. The analysis also benefited from the author's many years of wide-ranging experience working on mapping and broader climate finance, climate change and sustainable development issues in Southeast Asia, the Pacific and sub-Saharan Africa. Critical methods used in analysing the secondary and primary data are summarised below:

- **Content analysis.** This entailed quantitative and narrative descriptions of the NDC and of green investment and the public and private sector climate finance landscapes in Zambia. Content analysis of individual reports, documents and scientific articles helped capture and summarise trends and findings across the NDC sectors.
- **Interviews.** Data collected through open-ended questions was analysed to bring out challenges, opportunities and recommendations regarding the involvement of the public and private sectors in the implementation of the Updated NDC.
- **Synthesis.** The content of existing external studies on climate change, climate finance, the NDC, green investment and the private sector was aligned with the stated objectives of this study and findings in these studies were summarised. In a few cases, the studies themselves provided a synthesis across studies to draw more general conclusions.

1.4.3. Limitations of the mapping

Several challenges emerged that should be key considerations as the mapping was developed.

Access to quantitative data. There is a lack of access to and availability of granular data on climate finance at a country level, as financial information is often not sub-classified specifically as climate finance. From the government's side, there is no data on NDC financing by the private sector in Zambia, given the absence of a current MRV system or a country registry for private sector climate change actions. This is an issue in other countries studied – and is frequently mentioned in the literature as a challenge in developing an accurate assessment of the climate finance landscape.

Confidentiality with financial institutions.

Access to detailed information from financial institutions is limited because of confidentiality regulations in the finance sector and the market-sensitive nature of information. This is an issue in other countries studied.

Changing landscape of interactions with stakeholders during COVID-19.

The mapping was constrained by COVID-19, which made it impossible to travel to meet all the stakeholders. Interactions were limited to phone calls and video conferences.

Box 2: Zambia's NDC Revision Process

The NDC update process entailed working closely with stakeholders in an inclusive and consultative manner to update and enhance Zambia's INDC. This is in accordance with Paragraph 22-35 of Decision 1/CP.21 and Decision 4/CMA.1 and its annex. In addition, the process was structured to support enhancement of mitigation, adaptation and transparent communication, together with the alignment of the NDC with the Sustainable Development Goals (SDGs). The enhancements targeted not only the mitigation ambitions of the NDC but also the strengthening of the NDC's implementation. The adaptation component of this NDC draws on the NCCP. Throughout the process, clear communication was a major consideration, in order to facilitate stakeholder ownership and effective implementation. Following the guidance provided in "Enhancing NDCs: A Guide to Strengthening National Climate Plans by 2020"¹ a clear and inclusive process for NDC enhancement was established. This entailed the review of relevant national plans, policies and legislation in order to ensure alignment and coherence with the NDC. Working with a defined work plan, the process was led by MLNR while the co-ordination was carried out by CCNRMD under MLNR. Stakeholders were identified from various national, provincial and district government sectors, civil society, academia and the private sector. In-person consultative workshops were held prior to the COVID-19 restrictions; thereafter, virtual workshops were adopted as a means of stakeholder engagement.

1 Published by WRI and UNDP, *Enhancing NDCs: A Guide to Strengthening National Climate Plans* is designed to help practitioners think through how to structure their country's enhanced NDCs across three dimensions:

1. Strengthening targets to reduce emissions (mitigation),
2. Enhancing climate resilience (adaptation) and
3. Clearly communicating their actions to build trust and facilitate effective implementation.

2. National Situational Analysis

2.1. Zambia's vulnerability

Zambia is vulnerable to the adverse impacts of climate change. The average temperature across entire provinces for the past 100 years shows an increasing trend. This is believed to increase the risk of hydro-meteorological disasters, mainly drought and floods, which make up more than 85 per cent of disasters. These vulnerabilities to climate change and the threat this poses to achieving long-term development goals were recognised in terms of the country's reliance on hydropower. As a result, Zambia initiated a concerted national effort to respond to climate change. This began with the development of the NCCRS in 2010. This was the first national planning document dedicated to addressing the threats posed by climate change and that took advantage of potential climate change-related opportunities. The NCCRS identified the need to develop a comprehensive NPCC.

2.2. Greenhouse gas context

Zambia's GHG emissions total 6.72 MtCO₂e, which is only 0.02 per cent of the world's total (45,261 MtCO₂e). Zambia's GHG emissions, excluding Land Use, Land Use Changes and Forestry (LULUCF), increased by 24.07 MtCO₂e between 1990 and 2013. The average annual change in total emissions during this period was 2.5 per cent, with sector-specific average annual changes as follows: agriculture (2.6 per cent), energy (2.6 per cent), industrial processes (6.3 per cent) and waste (2.6 per cent). Zambia's TNC to the UNFCCC, which includes a GHG inventory for the period 1995–2010, shows LULUCF to be a source of emissions rather than a sink. The TNC shows that LULUCF activities released an average of 17.2 MtCO₂ per year from 1990 to 2010, which it notes to be consistent with the observed loss of forest cover in Zambia over the same time. Other government and international sources have also cited deforestation in Zambia. Despite the difference in LULUCF findings, both the TNC and BUR1 show the agriculture sector to be the leading source of GHG emissions in Zambia, followed by energy.

2.3. Policy, legal and institutional frameworks

Implementation of Zambia's Updated NDC builds on and supports existing action that the Government of Zambia is taking on climate change, as well as on other key non-climate-related strategies and plans. Before considering NDC implementation in more depth, it is helpful first to consider how NDC implementation fits with wider government policy. NDC implementation is regarded as a vital component in delivering sustainable and low-carbon growth in Zambia and meeting a wider raft of objectives and priorities, including energy access, economic growth, productivity, poverty reduction and improved quality of life. In this, it links closely to the SDGs.

2.3.1. Policy frameworks

Zambia's Vision 2030, the long-term national development blueprint, encapsulates flagship programmes and projects with adaptation and mitigation aspects. The NCCRS, developed in 2010, was the first national policy document on climate change. It aimed to advance the integration of climate change adaptation and mitigation into all government planning, budgeting and development objectives.

To operationalise the NCCRS, the first NPCC (2016) was prepared in 2015. This gives guidance on how the Zambian economy can grow sustainably, thereby fostering smooth implementation of the Revised 7NDP and the achievement of Vision 2030. The NPCC enables Zambia to realign its climate-sensitive sectors of the economy and its society to meet its development goals through adaptation and mitigation interventions. Its overall objective is to provide a framework for coordinating climate change programmes to ensure climate-resilient and low-carbon development pathways for sustainable development towards attaining Zambia's Vision 2030.

Zambia is also in the process of developing its National Adaptation Plan for long-term adaptation planning and mainstreaming of climate change

Box 3: A Summary of Zambia's NDC

Zambia submitted its INDC to the UNFCCC on 9 December 2016, which consisted of both mitigation and adaptation components based on the country's national circumstances. The objective of Zambia's NDC is to reduce total emissions by 38,000 GgCO₂eq by implementing three programmes driven by Zambia's Climate Response Strategy in the areas of sustainable forest management, sustainable agriculture and renewable energy and energy efficiency.

- **Unconditional NDC:** 25 per cent emission reduction below BAU by 2030
- **Conditional NDC:** 47 per cent emission reduction below BAU by 2030
- **Mitigation sectors:** Energy, forestry, agriculture, water, town and country planning, sanitation, transport
- **Adaptation sectors:** Agriculture, water, forestry, energy, wildlife, infrastructure, health

Zambia's NDC Update:

Zambia has enhanced its NDC by broadening the scope of sectors under mitigation by adding transport, liquid waste and coal (production, transportation and consumption) and by elaborating 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 systems and on adaptation actions. In addition, gender, youth actions and the SDGs are considered.

Meeting the conditional target requires an overall investment estimated at US\$35 billion up to 2030, to be mobilised through new climate finance mechanisms such as the GCF and other climate-related bilateral, multilateral and domestic financing, including the private sector (UNFCCC, 2020).

Zambia's Updated NDC was developed via a High-Level Dialogue involving key government ministries combined with a public consultation process. This has helped mainstream discussion of Zambia's climate change mitigation and adaptation needs in government – and raise awareness of the issues and opportunities more broadly in society. The next step is to build on this momentum, and working towards a strategic approach of identifying financing needs and mobilising diverse sources of finance will empower Zambia to effectively turn these climate commitments into action through creating an effective climate finance mobilisation.

Climate finance mapping will help Zambia meet its Updated NDC and review progress and potentially increase its ambition to 2030. This will be particularly relevant in 2025 when countries have to report their progress. Mapping will also enable Zambia to position itself well to receive international funds from MDBs and from other sources including the GCF.

into the national development planning process. This will provide a climate hazard and vulnerability assessment and set out priority adaptation actions. The development of 8NDP (2022–2026) is also underway, and this will take into account climate change issues.

In addition to Vision 2030 and climate change-related policies, the country has several sectoral policies to support the implementation of climate change adaptation and mitigation actions. The key policies include the National Policy on Environment 2007, the National Forestry Policy 2014, the National Energy Policy 2008, the National Agriculture Policy 2014, the Transport Policy 2002, the National

Strategy for Reducing Emissions from Deforestation and Forest Degradation 2015, the Second National Biodiversity Strategy and Action Plan, the Technology Needs Assessment 2013, Nationally Appropriate Mitigation Actions (NAMAs) 2014, the Second National Communication 2015 and the Third National Communication 2020, among others.

2.3.2. Legal framework

The Zambian government has put in place a comprehensive legal framework for an integrated approach to climate change. The sector ministries regularly review their relevant policies and legislation, in order to ensure these are in line with

the objectives of NPCC and other initiatives meant to tackle climate change. The country is considering formulating a specific act on climate change.

2.3.3. Institutional frameworks

The NPCC supports and facilitates a co-ordinated response to climate change issues. It helps realign climate-sensitive sectors of the economy and society to meet the country's development goals through adaptation and mitigation interventions. The NPCC provides for collaborative efforts by all stakeholders. The same institutional organisation is expected for the Updated NDC. The following are the key stakeholders and their main roles.

The **Council of Ministers** is the supreme decision-making body on climate change interventions. Its composition is identical to the Council of Ministers responsible for disaster management as provided for in the Disaster Management Act No. 13 of 2010, under the minister responsible for development planning. The Council of Ministers is chaired by the Office of the Vice President. The Permanent Secretary of Development Planning acts as Secretary.

The **Steering Committee of Permanent Secretaries** follows the Council of Ministers, as the Council's main advisory body on policies,

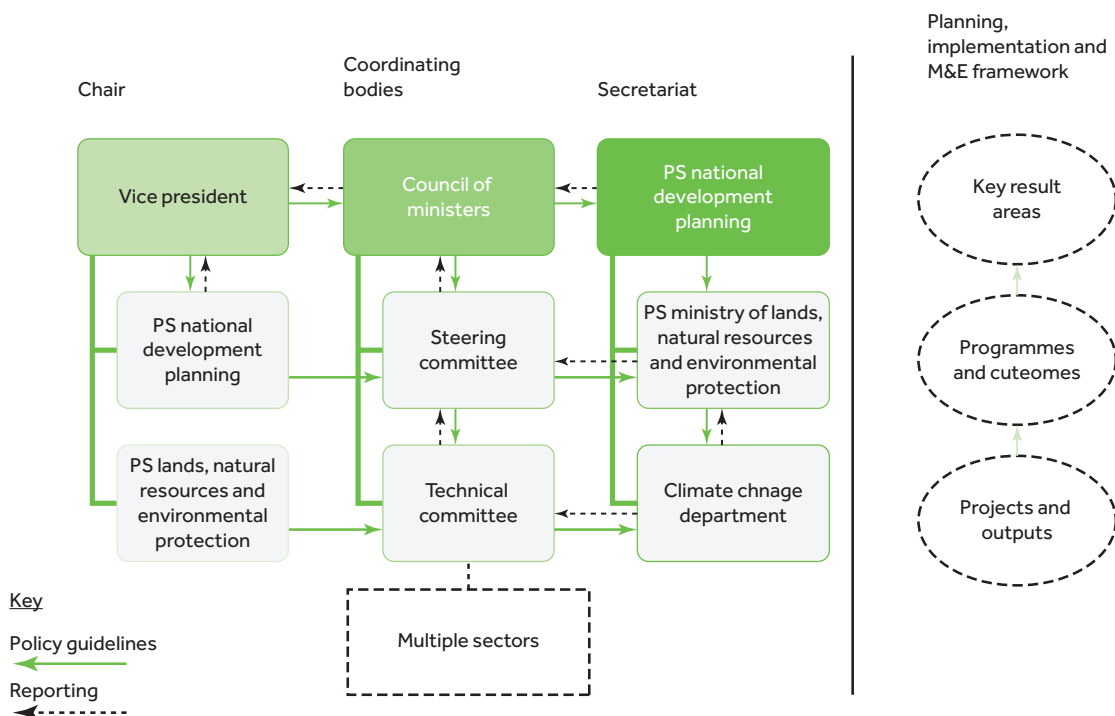
programme co-ordination and implementation. It is chaired by the Permanent Secretary in MNDP. It also comprises Permanent Secretaries responsible for Housing and Infrastructure Development; Lands and Natural Resources; Transport and Communication; Finance; Energy; Water Development, Sanitation and Environmental Protection; Communications; Gender; Mines and Minerals Development; Information and Broadcasting; Works and Supply; Home Affairs; Disaster Management and Mitigation; Agriculture; Local Government; and Health.

The **Technical Committee on Climate Change** comprises representatives of relevant ministries and other key stakeholders representing the private sector, financial institutions, civil society, research and academia. It is chaired by the Permanent Secretary of MLNR. Its reports to the Steering Committee of Permanent Secretaries.

MLNR is the lead institution overseeing implementation of the NPCC and other climate change-related programmes and activities. It reports to the Steering Committee of Permanent Secretaries.

MNDP is responsible for overall co-ordination and oversight, and mainstreaming of climate change in national development planning processes.

Figure 2. Institutional framework for co-ordinating climate change and the updated NDC in Zambia



Source: NCCP.

Box 4: Genesis of Nationally Determined Contributions

The origins of the Paris Agreement date back to the 17th session of the Conference of Parties (COP17), held in Durban, South Africa, in 2011, when a process was established to develop a protocol or other legal instrument under the UNFCCC. Two years later, at COP19 in Warsaw, it became evident that negotiations towards this instrument would deliver a set of mandates, commitments and processes. With a view to complementing this agreement with specific actions by countries and building trust among Parties that all were contributing to global climate goals, the COP invited all Parties to prepare INDCs and to communicate them before the end of the negotiations process.

At the time, the nature, scope and legal status of commitments and actions under the Paris Agreement were not clear. It was up to Parties to decide how they intended to contribute to global efforts to address climate change. By 1 October 2015, 147 Parties had responded to this invitation by communicating, within their INDCs, their plans to reduce emissions and adapt to climate change through a variety of targets and actions.

The concepts of "contribution" and "national determination" are reflected in Articles 3 and 4.2 of the Paris Agreement, which is based on the premise that each government decides, based on its circumstances and capacities, the actions it will take to contribute to achieving the objectives of the agreement. The efforts of individual Parties to reduce national emissions should, in aggregate, set the world on a path to limiting temperature rise to well below 2°C or 1.5°C above pre-industrial levels. To achieve these goals, net global GHG emissions must decline to zero by 2080–90 or 2060–80, respectively.

Source: UNDP, UNEP, UNEP DTU & WRI (2020) Implementing Nationally Determined Contributions (NDCS).

MoF is responsible for resource mobilisation in line with its mandate. It is responsible for managing the national budget process, and is the conduit for all international climate-related financial inflows.

The **Disaster Management and Mitigation Unit** (DMMU) in the Office of the Vice President is responsible for mobilising and managing disaster response and recovery resources. Although charged with responding to all types of disasters, those arising from climate variability make up the bulk of its work.

CCNRMD was set up in MLNR to facilitate the effective implementation of the NPCC and other programmes associated with climate change, becoming fully operational on 1 July 2018. The Department acts as a climate change secretariat, and on co-ordination, overall oversight and mainstreaming of climate change in national development planning processes, in close collaboration with MNDP. In other words, it is central in co-ordinating relationships concerning climate change activities, vertically (with subnational entities and the legislative arms of the government, including

the Presidency) and horizontally (with other ministries, departments and agencies). CCNRMD co-ordinates partnerships and collaboration with development partners, government agencies, NGOs, academia and the private sector (BUR1). Figure 2 presents a diagrammatic summary of the institutional arrangements.

2.4. Overview of Zambia's updated NDC landscape

The Government of Zambia aims to reduce its GHG emissions by 47 per cent, conditional on increased support from the international community. Mitigation actions focus on the thematic areas of sustainable agriculture, sustainable forestry, renewable energy and energy efficiency, transport, liquid waste and coal (production, transportation and consumption). Given the country's high vulnerability to climatic changes, adaptation and resilience-building are priorities.

The Updated NDC outlines measures summarised under three goals/programmes: adaptation of strategic, productive systems (agriculture, wildlife

Table 3. Overview of Zambia's Updated NDC mitigation component

Detail of mitigation policy	Ambition of mitigation contribution (unconditional)	Ambition of mitigation contribution (conditional)	External financial support required per capita	Willingness to engage in market mechanisms	GHG mitigation target
Medium	Low	High	High	Yes, to meet target	Yes

Table 4. Overview of financial approaches of Updated NDC implementation for Zambia

NDC investment plan or strategy	Required investment	Investment needs per activity/sector	Specified allocation of domestic or international funding per activity	Private sector investment focus mentioned	Specific potential financing sources identified
No	Yes	n/a	No	Yes	Yes

and water); adaptation of strategic infrastructure and health systems; and enhanced capacity-building, research, technology transfer and finance for adaptation with indicators that will enable the country track progress on building resilience in both human and physical systems and on adaptation actions. This sets solid foundations for increased climate action. The UNDC is aligned with Vision 2030 and is mainstreamed in 7NDP 2017–2021. Moving forward, the government is working with the NDC Partnership to translate its climate plans into a three-year results-based partnership plan to expedite NDC implementation. The government also aims to enhance its current NDC, improve the regulatory framework for climate action, improve co-ordination and MRV systems, and engage the private sector in climate actions.

The Updated NDC was submitted with a conditional pledge of reducing GHG emissions by 25 per cent (20,000 GgCO₂eq) by 2030 against a base year of 2010 under the BAU scenario with limited international support⁴ or by 47 per cent (38,000 GgCO₂eq) with substantial international support.⁵ Effective NDC implementation will be ensured through the development and strengthening

of existing MRV systems to track the progress of implementation of both the mitigation and adaptation programmes.

Table 5 summarises the NDC climate change mitigation sectors, intervention areas and costs of climate actions for mitigation.

The adaptation measures are extensive and comprise three goals/programmes and 10 priority actions. However, no costing has been assigned for the adaptation measures except for the overall lump sum of US\$20 billion for adaptation.

As mentioned above, Zambia defined a figure for financing the adaptation component of its NDC regarding financial needs. According to interviews, the US\$20 billion was identified through a participatory process, which included government and non-governmental stakeholders. It was estimated considering the past and current losses that the country has suffered. This is typically how some countries conservatively estimate their needs, as they do not often have reliable information about climate scenarios and projections tailored to their national circumstances.

Programme 1: Adaptation of strategic productive systems (agriculture, wildlife, water)

Table 6 shows the actions, activities and co-benefits of adaptation: Programme 1.

Programme 2: Adaptation of strategic infrastructure and health systems

4 Limited international support means the domestic resources the country is able to mobilise including the prevailing international resources (BAU resources) the country was receiving as of 2015, estimated at US\$15 billion.

5 Substantial international support means adequate international resources, both bilateral and multilateral support, estimated at US\$35 billion.

Table 5. Shortlisted mitigation measures for each sector and financing gap for intervention on climate change mitigation

Measure	Description	Sectors impacted	Timeline	GHG reduction potential by 2050 (MtCO ₂ e)	Cost estimates
Stationary energy					
Reactive power factor improvements	Reactive power issues can cause problems for the grid. Improving the load factor between industry and the grid will reduce the energy needed for the same work done. Most large industries have installed capacitor banks (around 2015). Smaller industries adopt similar measures. There is the potential to also improve the energy efficiency of machinery.	Industry	Assumed operational in 2021	0.66	US\$9.53 million (World Bank, 2018)
Efficient cook stoves	Cook stoves in Zambia mainly use charcoal. Traditional cooking devices are inefficient and thus contribute to indoor air pollution. Improved cook stoves meet safety standards and have a "high combustion quality" with minimal smoke emission. Improved cook stoves such as rocket stoves can reduce fuel use up to 60 per cent (Walimwipi, 2021). More efficient design of the stove could be used, to reduce Zambia's reliance on wood as a source of energy.	Residential	Assumed operational in 2022	2.75	US\$380 million (Cook et al., 2020)
"Other" solar	This measure includes solar PV utility and solar homes. Utility-scale solar refers to projects that sell power generated directly into the electric grid. In Zambia specifically, there is high potential for solar PV utility projects in Uganda, with solar farms feeding into the grid. Solar home projects refer to a household that has a rooftop PV array or ground mount solar system installed in order to generate usable electricity from the sun.	All sectors consuming electricity	Assumed operational in 2025	1.74	US\$3 billion (Government of the Republic of Zambia, 2020b)
Transport mobile energy					
Tramway development	The main interventions include a reduction of GHG emissions arising through reduced vehicular traffic in Lusaka and Kitwe by introducing an efficient tramway system as a means of public transport. The measure will also seek to set up public-private sector-based tramway fleet (Lusaka Tramway with four lines; Kitwe Tramway with three). This is captured in Zambia's transport Nationally Appropriate Mitigation Actions (NAMA), which notes that construction has not started.	Mobile	Assumed operational in 2025	0.09	US\$3.5 billion (UNDP/LECB, 2016)

(Continued)

Table 5. Shortlisted mitigation measures for each sector and financing gap for intervention on climate change mitigation (Continued)

Measure	Description	Sectors impacted	Timeline	GHG reduction potential by 2050 (MtCO ₂ e)	Cost estimates
Electrification of railway	The majority of the locomotives currently in use in Zambia are diesel-powered. Adoption of this measure can be expected to reduce locomotive exhaust fume pollutants in the environment resulting in cleaner air. Furthermore, high-speed electric trains will encourage the use of railway transport for both passenger and heavy goods movement, which at the moment is dominated by road and air transport (Lungomasha, 2017).	Railway, electricity generation	Assumed to begin in 2025 and be fully electrified by 2050	3.0 Mt	US\$0.75–1.35 billion (Gattuso et al., 2014)
Railway transport and infrastructure	This measure aims to increase the volume of rail transport traffic by improving the conditions and efficiency of the rail track infrastructure and through investments in assets. The aim of this measure is to encourage a modal shift from road to rail for both commuters and freight travel. Chipata–Petauke–Serenje railway line is planned and is due to begin construction. This has been assumed to be electric powered.	Railway	Construction ⁴	2.18	US\$2 billion (Malunga, 2020)
Industrial Products and Product Use (IPPU)					
Cement production	Reduction of clinker content from 30 to 20 per cent. Clinker is a component of cement, and is essentially a mix of limestone and minerals that has been heated and transformed in a kiln. The use of other constituents (i.e. to replace clinker) in cement means lower emissions and lower energy use.	Industry	Actions starting in 2024	1.96	US\$8.2 million (Cook et al., 2020)
Kigali Amendment (F-gases)	The Kigali Amendment foresees a clear step-wise timeline for reducing the use of fluorinated GHGs replacing ozone-depleting substances up to 80 per cent by 2045 compared with a baseline. A slightly slower implementation than the one foreseen by the Kigali Amendment was foreseen for Zambia.	Industry	Actions starting in 2024 at the latest	0.29	US\$23 million (Cook et al., 2020)

(Continued)

6 Construction due to begin in 2020 and be completed four years later (Construction Review Online, 2020), but has been delayed (Malunga, 2020), so assumed to be partially operational in 2025 and fully operational by 2050.

Table 5. Shortlisted mitigation measures for each sector and financing gap for intervention on climate change mitigation (Continued)

Measure	Description	Sectors impacted	Timeline	GHG reduction potential by 2050 (MtCO ₂ e)	Cost estimates
Forestry and Other Land Uses (FOLU)					
Forestry regeneration	Forest regeneration projects aim to decelerate deforestation rates owing to woodlands being degraded as a result of unsustainable land management and exploitation of natural resources. This measure will promote natural regeneration, afforestation/reforestation and sustainable charcoal production.	Forest land	Assumed operational in 2022	16.66	US\$8.5 million (Cook et al., 2020)
Conservation Tillage	Conservation tillage (falling under the croplands sector of FOLU) can reduce emissions while increasing carbon sequestration, conserving soil by reducing erosion (Utomo, 2014). Additional interventions include protecting the soil from the damaging effects of rain splash, reducing runoff and making the best use of costly fertiliser and seed.	Croplands	Assumed operational in 2022	0.312	US\$5 billion (Cook et al., 2020)
Agriculture					
Manure management	Manure management practices, such as roofing animal housing, having a water-proof floor or covering manure during storage. Without this, large nutrient losses during manure storage can occur, increasing GHG emissions, and reducing the quality of the manure as a fertiliser. Improved management can reduce GHG emissions (Government of the Republic of Zambia, 2020b: 53).	Agriculture	Assumed operational in 2022	0.104	US\$36 million (Cook et al., 2020)
Efficient fertiliser (DMPP)	Nitrous oxide (N ₂ O) is a potent GHG that is released from agricultural ecosystems where nitrogen fertilisers are poorly used and contributes to global climate warming (Liu et al., 2020). DMPP (3,4-Dimethylpyrazole phosphate) is a nitrification inhibitor that has been found to reduce N ₂ O emissions from fertiliser by 44 per cent (Suter et al., 2020), at a relatively low cost compared with other efficient fertilisers (Trinket, 2010).	Agriculture	Full uptake assumed to begin in 2025	0.13	US\$68-137 million (World Bank, 2012)

(Continued)

Table 5. Shortlisted mitigation measures for each sector and financing gap for intervention on climate change mitigation (Continued)

Measure	Description	Sectors impacted	Timeline	GHG reduction potential by 2050 (MtCO ₂ e)	Cost estimates
Waste					
Mechanical biological treatment of food waste	A mechanical biological treatment system is a waste processing facility that combines a sorting facility with a form of biological treatment such as composting or anaerobic digestion. Food waste is diverted from landfill and undergoes mechanical biological treatment, leading to the generation of compost as well as biogas, which is used for power/heat generation.	Waste (energy)	Assumed to start from 2029	0.88	US\$70-175 million per facility (Defray, 2012)
Methane capture in new landfills	Methane is a very potent GHG. In municipal solid waste landfills, methane is generated as a product of the anaerobic degradation of organic waste. Therefore, this measure aims to equip newly constructed landfills with methane capture infrastructure; the methane can then be used for power/heat generation.	Waste (energy)	Assumed to start from 2029	Methane capture in new landfills	US\$30 million (Cook et al., 2020)

Source: Updated Zambia NDC 2021.

Table 6. Programme 1: Actions, Activities and Co-Benefits of Adaptation

Priority actions	Key activities	Co-benefits
1. Guaranteed food security through diversification and promotion of climate-smart agriculture (CSA) practices for crop, livestock and fisheries production including conservation of germplasm for land races and their wild relatives	<ul style="list-style-type: none"> a. Promote CSA practices through conservation agriculture, agroforestry, use of drought-tolerant varieties, water use efficiency management and fertiliser use efficiency management b. Promote crop land races of cassava, maize, sorghum, finger millet, beans, cowpea and their wild relatives c. Promote livestock CSA practices through improved feed management, improved animal health, improved rangeland management and use of drought-tolerant breeds d. Promote sustainable aquaculture practices through improved water management, improved feeding regimes and the use of appropriate stocks e. Develop and implement policy incentives for farm diversification. 	<ul style="list-style-type: none"> – Poverty reduction – Increased food security through improved agricultural production and diversification – Increased rural household incomes from diversified production systems – Increased soil fertility and conservation leading to improved crop productivity – Improved agro-biodiversity conservation – Improved health impacts as a result of food security and nutrition – Increased livestock productivity, system resilience and reduced vulnerability – Increased fisheries productivity, system resilience and reduced vulnerability
2. Develop a National Wildlife Adaptation Strategy and ensure its implementation through supportive policies, local community, civil society and private sector participation	<ul style="list-style-type: none"> a. Develop a National Wildlife Adaptation Strategy b. Map and protect wildlife corridors and refuges c. Promote community/public/private partnerships in the sustainable management of wildlife resources d. Enforce equitable benefit-sharing arrangements among government, communities and the private sector in the management of wildlife resources 	<ul style="list-style-type: none"> – Improved governance of the wildlife estate – Increased wildlife system resilience and reduced vulnerability – Increased income from tourism-related activities
3. Protection and conservation of water catchment areas and enhanced investment in water capture, storage and transfer (linked to agriculture, energy, ecological, industrial and domestic use purposes) in selected watersheds	<ul style="list-style-type: none"> a. Promote the protection of catchment forests in the Zambezi, Kafue and Luangwa watersheds b. Develop management plans for the three focal landscapes above c. Promote rainwater harvesting in the three focal landscapes d. Improve water storage through a network of dams and weirs e. Develop and improve water transfer infrastructure through canals and piped systems f. Adopt and promote integrated water management g. Undertake restoration projects 	<ul style="list-style-type: none"> – Improved water security for ecological, domestic and industrial purposes – Increased hydrological systems resilience and reduced vulnerability to climate change impacts – Improved water quality

Source: Updated Zambia NDC 2021.

Table 7. Programme 2: Adaptation of Strategic Infrastructure and Health Systems

Priority actions	Key activities	Co-benefits
4. Institutionalise integrated land use planning compatible with sustainable management of natural resources and infrastructure development	<ol style="list-style-type: none"> Develop National Land Use Planning Guideline Integrate land use planning into official institutions and structures to facilitate legally binding land use plans Revise and enforce the National Construction Codes and Standards to safeguard infrastructure against climate change impacts Improve monitoring systems for infrastructure at all administrative levels 	<ul style="list-style-type: none"> Harmonised land use plans at sectoral, district, regional and national planning levels resulting in collaboration, efficiency and cost-effectiveness Strategic alignment of resources for implementation Conservation of biodiversity Avoided land use conflicts Reduced GHG emissions and impacts Creation of employment, both high- and low-skilled jobs Reduced human safety hazards through disaster prevention Reduced maintenance costs for infrastructure Increased poverty reduction and more balanced national development
5. Mainstream climate change in the National Health Policy, Environmental Health Policy and Water and Sanitation Policy	<ol style="list-style-type: none"> Identify entry points for mainstreaming climate change adaptation into the three policies (e.g. policy formation and revision, national planning processes, resource allocation processes, etc.) Finalise the Environmental Health Policy Strengthen health surveillance at all levels Conduct mainstreaming awareness programmes 1.1 Capacity-building for health workers on climate resilience Establish an inter-departmental and sectoral coordination mechanism 	<ul style="list-style-type: none"> Co-ordinated/harmonised policies resulting in efficiency and cost-effectiveness at both planning and implementation levels Effective delivery of health services Improved human health Increased health systems resilience and adaptive capacity to climate change impacts
6. Enhance decentralised climate information services for early warning and long-term projections on the effects of climate change to support the sustainable management of the production systems, infrastructure development and public health	<ol style="list-style-type: none"> Provide timely information to the end users and elicit quick emergency responses in face of adverse climate events that impact on the productive systems, infrastructure and health sectors Coordination of early warning system information dissemination Strengthen implementation of the decentralisation policy 	<ul style="list-style-type: none"> Enhanced preparedness to mitigate climate change impacts Local empowerment to make the right decision Local community empowerment to enforce community by laws

Source: Updated Zambia NDC 2021

Table 8. Programme 3: Enhanced Capacity-Building, Research, Technology Transfer and Finance for Adaptation

Priority actions	Key activities	Co-benefits
7. Capacity-building in climate-smart agriculture (CSA), sustainable forest management (SFM), sustainable fisheries and aquaculture (SFA), renewable energy technologies (RET), early warning systems (EWS), change management and climate change planning	<p>a. Conduct training for farmers, extension and technical staff on CSA, SFM, SFA, RET, EWS and climate change planning</p> <p>b. Conduct public awareness campaigns on climate change, CSA, SFM, SFA, RET and EWS</p> <p>c. Conduct training for top and middle management in relevant sectors on change management</p> <p>d. Conduct research on locally specific adaptation scenarios in Zambia's three agro-ecological regions (especially AERs I and II) (e.g. climate downscaling techniques, socio-economic scenarios, decision tools, stakeholder approaches, sector-specific tools, micro-climatic conditions and appropriate locally specific adaptation measures, etc.)</p> <p>e. Disseminate research results widely</p>	<ul style="list-style-type: none"> - Increased adaptation knowledge and skills among target groups - Increased resilience and adaptive capacities among target groups - Increased public awareness on CSA, SFM, SFA, EWS and (assessed) positive action - Improved sectoral management owing to increased understanding of organisational change in face of climate change - Improved decisions by farmers, local communities, extension staff, planners and policy-makers - Improved early warning information systems and appropriate responses specific to certain locations - Reduced GHG emissions and climate change impacts
8. Water technologies for savings, recycling, irrigation and sustainable management for household, agriculture and industrial purposes	<p>a. Conduct water deficit/availability assessments in AERs I and II</p> <p>b. Implement the various water technologies based on the assessment results and potential</p> <p>c. Establish ground and surface water monitoring systems</p>	<ul style="list-style-type: none"> - Employment creation leading to increased poverty reduction - Increased water security - Improved energy security through enhanced hydropower generation - Improved agricultural productivity through enhanced irrigation capacity - Improved health impacts from clean water, easy access and sanitation - Reduced water utility bills for households and industries - Improved local skills in various water technologies

(Continued)

Table 8. Programme 3: Enhanced Capacity-Building, Research, Technology Transfer and Finance for Adaptation (Continued)

Priority actions	Key activities	Co-benefits
9. Development of an insurance market against climate change induced risks related to agriculture and infrastructure	a. Establish appropriate insurance schemes	<ul style="list-style-type: none"> – Reduced loss and damage – Protection of developers (entrepreneurs) and consumers against loss
10. Mainstream climate change adaptation into country development plans and strategies.	<ul style="list-style-type: none"> a. Develop guidelines for mainstreaming climate change in the 8NDP b. Conduct awareness on mainstream climate change in sectoral plans and strategies 	<ul style="list-style-type: none"> – Improved economic resilience – Poverty reduction – Integrated approach to climate change response and development – Employment creation – Ecosystem and biodiversity conservation

Source: Updated Zambia NDC 2021.

Table 7 shows the adaptation of strategic infrastructure and health systems: Programme 2.

Programme 3: Enhanced capacity-building, research, technology transfer and finance for adaptation

Table 8 shows the enhanced capacity-building, research, technology transfer and finance for adaptation: Programme 3.

3. Climate Financing

3.1. Historical background

3.1.1. Introduction

Climate finance is a crucial climate change mitigation and adaptation element that Zambia needs to achieve its development agenda and meet its obligations under the UNFCCC. Over the years, the global community has developed key milestones to define and advance climate change and climate finance through continuous global engagement within UN structures. These developments provide the context and mechanisms to better understand and access climate finance. The world's nations have held several global conferences to address and respond to the challenges and threats that climate change poses. The key highlights, policy recommendations and commitments emanating from these are summarised below.

3.1.2. United Nations Conference on the Human Environment

This conference was held in Stockholm, Sweden, on 5–16 June 1972. The main aim was to examine the problems of the human environment and identify those that could be solved through international co-operation and agreements. The gathering was important because it defined development's impacts on the environment and the trans-boundary nature of these. It identified industrial pollution as one of the main causes of climate change.

3.1.3. Brundtland Commission

The UN established the Brundtland Commission in 1983. Its objectives were to identify ways to save the human environment and natural resources and prevent economic and social development deterioration. The Commission produced a comprehensive policy framework referred to as "Our Common Future," also known as the "Brundtland Report." It includes three main pillars: economic, environmental and social.

3.1.4. United Nations Conference on Environment and Development

In 1992, the United Nations Conference on Environment and Development, also known as the Rio de Janeiro Earth Summit, adopted Agenda 21

and the three Rio Conventions – the UNFCCC, the United Nations Convention on Biological Diversity and the United Nations Convention to Combat Desertification. Although the three conventions are interrelated, the course focuses on UNFCCC.

Agenda 21 provides for a global partnership and strives to reconcile the dual requirements of a high-quality environment and a healthy economy for all people of the world. It identifies key areas of responsibility and offers preliminary cost estimates for success. A key proposal from the Summit was that countries should mobilise their own resources from their public and private sectors to finance Agenda 21. However, new and additional external funds were deemed necessary if developing countries were to adopt sustainable development practices. Of the estimated US\$600 billion required annually by developing countries to implement Agenda 21, the countries were to transfer \$475 billion from their own economic activities.

UNFCCC: Following the scientific findings from research and the first report of the Intergovernmental Panel on Climate Change, climate change became one of the priority areas for the Earth Summit. With its adoption, the UNFCCC thus became the UN's first legally binding agreement to focus on combating the negative impacts of climate change. The mechanisms for implementing the UNFCCC are discussed at the annual COP, the first of which was convened in 1995 in Berlin, Germany. To promote effective implementation of the Convention, the third COP was convened in Kyoto, Japan, in 1997, where the first legal instrument, the Kyoto Protocol, was agreed. The Convention's Common but Differentiated Responsibilities and Respective Capabilities principle significantly influenced the Protocol. Further, it acknowledged that developed countries bore significant responsibility for climate change and their industrial CO₂ emissions. It assigned them the responsibility to mitigate climate change impacts and help least developed and developing countries adapt to climate change negative impacts.

3.1.5. Paris Agreement

The Paris Agreement was adopted by the COP21 in 2015 and came into force in 2016. It strengthens implementation of the Convention

by dealing with GHG emissions, adaptation, building climate resilience and promoting enhanced means of implementation. Zambia ratified the Paris Agreement in December 2016 and submitted a wide range of ambitious adaptation and mitigation actions as its NDC, as required under the Paris Agreement. The NDC is subject to review every five years under the principle of no backsliding. The country will require both international support and domestic efforts to realise the NDC targets.

The climate finance goal under the Paris Agreement is to ensure that financial flows are consistent with a pathway towards low-emission and climate-resilient development within the context of sustainable development. The Agreement reaffirms that financing, both public and private,

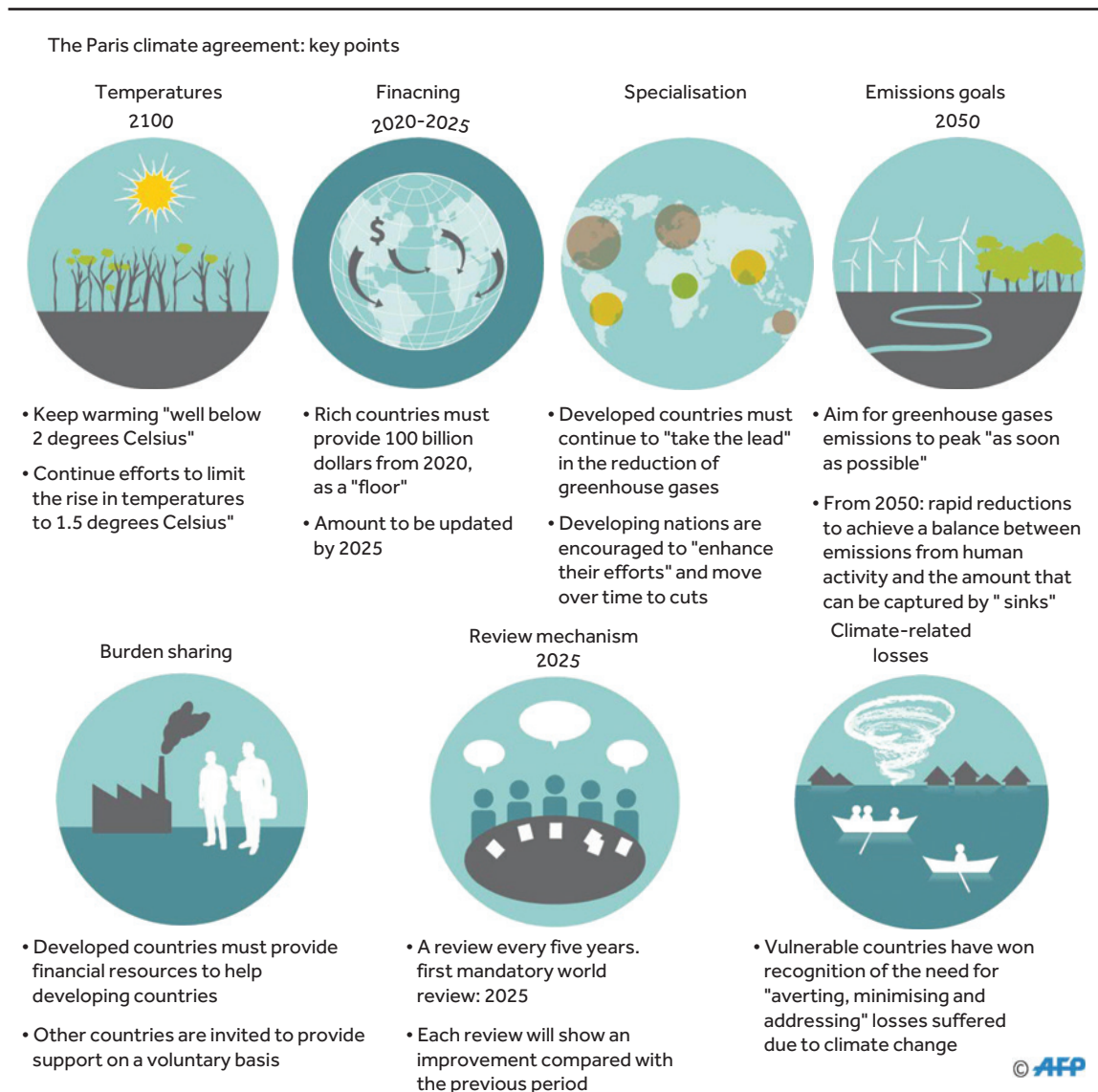
should be directed towards implementing climate actions. Figure 3 presents a summary of the Paris Agreement and the outline of its key provisions.

One of the Agreement's key goals is to ensure that financing is available to respond to climate change. It addresses various aspects of climate finance:

Mobilising climate finance: Developed country Parties shall take the lead in mobilising financial resources to support country climate change strategies. The mobilisation should also take the needs and priorities of developing countries into account.

Provision: Developed countries shall provide scaled-up financial resources to developing countries. The financing should strike a balance between adaptation and mitigation.

Figure 3. The Paris Climate Agreement



Scale: Scaled-up financial resources shall be provided, with the climate finance goal of US\$100 billion per year to be met by 2020. A new and more ambitious finance goal is to be set by 2025 above the floor of \$100 billion.

Transparency: Developed countries shall submit biennial reports. These should communicate transparent, consistent, qualitative and quantitative information on financial support mobilised or provided through “public interventions,” as well as the projected levels of future support.

Balance: A balance shall be reached between adaptation and mitigation to address the greater emphasis historically on mitigation.

Financial mechanism: To facilitate the provision of climate finance, the financial mechanism established by the Convention shall serve the Paris Agreement. The GEF Global and GCF constitute the operating entities of the mechanism that serve the Agreement. Other funds that serve the agreement include the Special Climate Change Fund (SCCF), the Least Developed Countries Fund (LDCF) and the Adaptation Fund (AF).

Progress assessment: A global stocktake process shall be conducted in 2023 and every five years thereafter. This climate finance information review will provide direction on future financing.

3.2. Global climate finance sources and channels

3.2.1. Introduction

A definition of the term “climate finance” has yet to be agreed upon internationally. However, according to the UNFCCC, “climate finance refers to local, national or transnational financing, drawn from public, private and alternative financing sources that seeks to support mitigation and adaptation actions that will address climate change.” Climate finance refers to the financial resources mobilised to finance actions to mitigate and adapt to the effects of climate change (Watson and Schalatek, 2019). In the context of international climate negotiations, the concept refers to financial flows from developed countries to developing countries for climate actions which should be new and additional to existing aid flows. In other words, they may be directed either from developed to developing countries (north-south) or from developing to developing countries (south-south), or be drawn

from domestic financial flows in developing and developed countries (Carvalho and Terpstra, 2015).

Climate finance is critical to addressing climate change and Zambia’s vision for low-carbon, climate-resilient development. This requires significant investments in sectors that emit large quantities of GHG, and adaptation and building resilience. Climate finance is also important to facilitate the capacity development and technology development and transfer needed to support the implementation of climate actions. All areas of climate finance need to be gender-responsive to ensure effectiveness and equity. Gender perspectives, principles and tools should be mainstreamed in all levels of the governance structures, procedures, processes and operations of climate finance mechanisms.

3.2.2. Sources and channels of global climate finance

The sources and channels of climate finance can be categorised broadly as public or private. Public and private sources have been further classified by international and national sources and channels for this report. The sections below provide an overview of each, including some of the challenges surrounding access to their respective financial mechanisms.

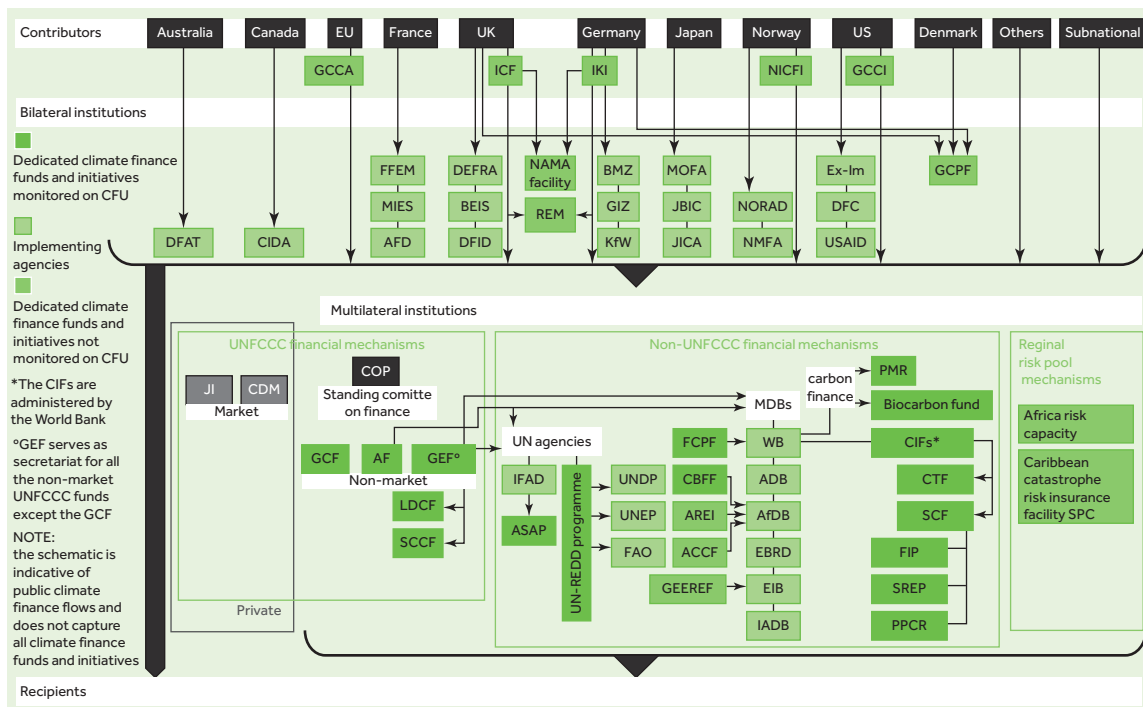
The architecture of global climate finance is complex and constantly evolving. Funds are channelled through multilateral channels (inside and outside UNFCCC and Paris Agreement funding mechanisms), and increasingly through bilateral channels, as well as through regional and national climate funds. Figure 4 summarises the global climate finance architecture.

3.2.3. Public sources and channels

Green Climate Fund

The GCF was established in 2010 under the framework of the UNFCCC with the aim to support low-emission and climate-resilient investments in developing countries. The Fund will help deliver on the commitment by developed countries to mobilise US\$100 billion of public and private finance annually for climate action in developing countries by 2020. It has secured \$10 billion in finance since December 2014. The Fund finances low-emission (mitigation) and climate-resilient (adaptation) projects and

Figure 4. Global finance architecture climate funds



Source: CFU 2019.

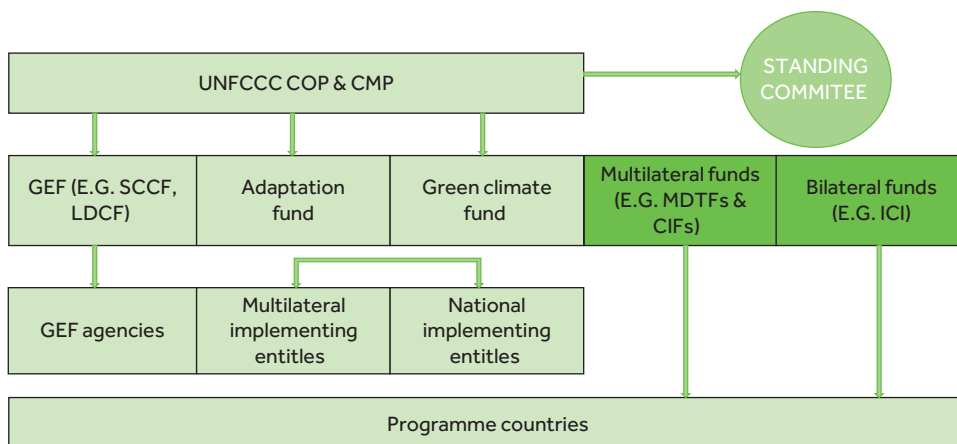
programmes developed by the public and private sector to contribute to the sustainable development goals of countries. The GCF portfolio allocation is divided equally between adaptation and mitigation. The GCF will aim for a floor of 50 per cent of the adaptation allocation for particularly vulnerable countries, including least developed countries, small island developing states and the African states.

The Fund's Private Sector Facility and a specific window for private sector funding are intended to strengthen its engagement and leverage additional funding for climate-related projects

and programmes. The GCF supports country ownership, which means that the projects and programmes it supports should fall within a country's priorities. In addition, the Fund has created a country-level coordination mechanism with a National Designated Authority (NDA)/Focal Point. Zambia's NDA is MNDP.

Zambia currently benefits from increased access to climate financing from the GCF. It has been a benefactor country of several multi-country programmes under the GCF and is implementing a GCF adaptation programme (Table 9). Zambia

Figure 5. Climate finance under the UNFCCC



Source: CFU, 2019.

Table 9. Green Climate Fund-approved projects in Zambia

Project	Accredited entity	Sector	Scope	GCF funding (US\$)	Co-financing (US\$)	Total (US\$)
Participation in Energy Access Relief Facility	Acumen Fund Inc.	Energy	Multi-country Africa: 9 countries	30 million 3,025,300 (Zambia Grant)	30 million	60 million
Strengthening Climate Resilience of Agricultural Livelihoods in AERs I and II in Zambia	UNDP	Agriculture	Zambia	32 million	105,267,000	137,267,000
Zambia Renewable Energy Financing Framework work	AfDB	Energy	Zambia	52.5 million	101.5 million	154 million
Climate Investor	FMO	Energy	Multi-regions Africa and Latin America and Caribbean 18 countries	100 million	781 million	821 million
National Adaptation Planning Readiness	Global Water Partnership Organization	Adaptation	Zambia	2,184,555	0	2,184,555
NDA Strengthening and Country Programming support for Zambia	MoF	Cross-cutting	Zambia	300,000	0	300,000
Total				216,984,555	1,017,767,000	1,234,751,555

Table 10. GEF Funding in Zambia

Trust fund	Project type	Number of projects	Total financing (US\$)	Total co-financing (US\$)
GEF	National	18	65,174,368	367,459,053
	Regional/global	44	297,797,171	2,395,153,175
LDCF	National	7	31,292,200	120,516,397
	Regional/global	0	0	0

Source: <https://www.thegef.org/country/zambia>

also has direct access to the GCF through the Development Bank of Zambia, accredited on 1 July 2021. Climate financing through the GCF offers great potential for NDC implementation. In this context, Zambia should ensure proposals are consistent with the Fund's investment criteria.

Adaptation Fund

The AF was established by parties to the Kyoto Protocol in 2010. It finances concrete projects that help the most vulnerable communities in developing countries adapt and build resilience to the effects of climate change. It also pioneered an innovative Direct Access modality that builds country ownership in adaptation by empowering developing countries to access grants and manage projects directly through accredited national implementing entities.

Over the past 10 years, the fund has dedicated more than US\$830 million to increase climate resilience in 28 countries around the world through over 120 concrete projects, including 271,680 ha of natural habitat and 121,025 m of coastline protected, with 28 million beneficiaries.⁷ Direct Access has empowered countries to access funding and develop projects directly through accredited national implementing entities.

Zambia has a Designated National Authority through MNDP, like for the GCF, but has yet to access AF funding. The Zambia Environmental Management Authority (ZEMA) has expressed interest in accreditation with the AF.

Global Environment Facility

The GEF is an operating entity of the UNFCCC's financial mechanism and has a long track record in environmental funding. Climate change is a focal

area. Resources are allocated based on the impacts of spending on environmental outcomes while ensuring that all developing countries receive a share of the funding.

The GEF provides funding through four modalities: full-sized projects, medium-sized projects, enabling activities and programmatic approaches. The selected modality should be the one that best supports the project objectives. Each modality requires completing different templates.

The GEF Operational Focal Point (OFP) co-ordinates all GEF-related activities within a country. The Ministry of Water Development, Sanitation and Environmental Protection (MWDSEP) is the GEF's OFP for Zambia. The OFP reviews project ideas, checks against eligibility criteria and ensures new project ideas will not duplicate an existing project. All projects to be submitted for approval require a Letter of Endorsement signed by the OFP.

The GEF also administers the LDCF and SCCF under the guidance of the COP. These funds support the development and implementation of national adaptation plans, although largely through smaller-scale projects (with a country funding ceiling of US\$20 million).

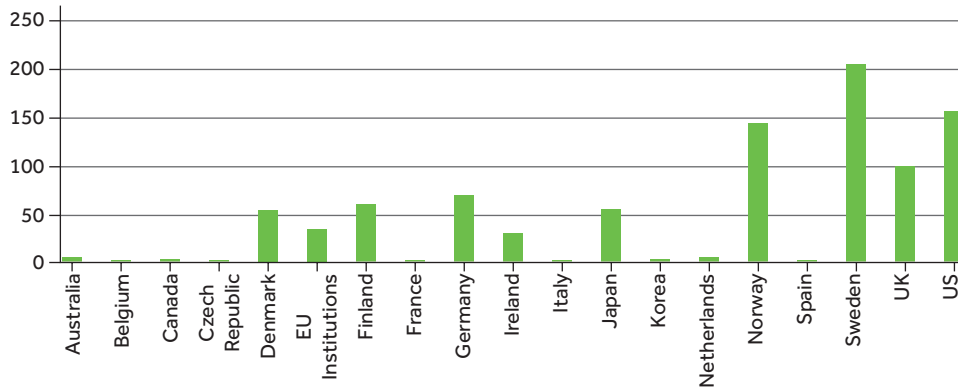
Non-UNFCCC mechanisms: Bilateral funding sources

Climate finance is delivered through various bilateral donor countries and institutions. Some of the key bilateral institutions relevant to Zambia are listed below and level of funding received (Table 6).

European Union

Zambia receives climate finance from the EU as part of its global finance commitment and allocation to climate change. The EU provides funding directly to governments, the private sector and civil society

⁷ <https://www.adaptation-fund.org/adaptation-fund-doubles-the-amount-of-funding-countries-can-access-enhancing-access-to-climate-finance-among-most-vulnerable/>

Figure 6. Bilateral funding to Zambia, 2004–2017 (US\$ millions)

Source: Dupuy et al 2019.

to implement climate change projects. EU public climate finance is provided through the European Commission and member states.

Germany

Germany contributes to climate finance in three main areas: mitigation, forestry protection and climate change adaptation. Most of the funds are channelled through bilateral development projects in the form of grants and loans. The main source of public climate finance is the Federal Ministry for Economic Co-operation and Development (BMZ) and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). Other entities for channelling climate finance include the German Corporation for International Cooperation (GIZ) and the German Development Bank (KfW). Seventeen International Climate Initiative (IKI) projects have been implemented in Zambia beginning from 2008 to date (one bilateral project and 16 transnational projects).

GIZ's work focuses on the following priority areas, based on the National Development Plan adopted in 2011 and revised in 2014:⁸

- Water (drinking water, wastewater, water resources management), including adaptation to climate change;
- Good governance (decentralisation, political participation by civil society, good financial governance).

Outside these priority areas, a country-specific package of measures focusing on improving food

security, building resilience and promoting green innovation centres is being implemented within the framework of BMZ's global One World, No Hunger special initiative. In addition, an HIV/AIDS prevention project is being implemented in Zambia. With support from the Bill and Melinda Gates Foundation, GIZ is advising on the production and marketing of cotton via the regional Competitive African Cotton Initiative.

Thanks to GIZ's widely recognised services, several other donors provide additional co-financing for projects implemented by GIZ in Zambia on behalf of BMZ. For example, agreements on co-financing for the governance sector have been reached with the European Commission, Irish Aid and the UK Foreign, Commonwealth & Development Office (FCDO).⁹

Danish International Development Agency

Danida serves as the development co-operation agency of the Government of Denmark under the Danish Ministry of Foreign Affairs. It is committed to supporting achievement of the SDGs and provides support to Zambia particularly on green growth initiatives.

According to Denmark's strategy for development co-operation and humanitarian action (2027–2030), its development policy will be informed by four strategic aims:¹⁰

1. Security and development: peace, stability and protection

8 <https://www.giz.de/en/worldwide/338.html>

9 Ibid.

10 <https://amg.um.dk/en/policies-and-strategies/strategy-for-danish-development-cooperation/>

2. Migration and development
3. Inclusive, sustainable growth and development: Denmark will invest in inclusive, sustainable growth and development in developing countries, focusing on energy, water, agriculture, food and other areas where Denmark has special knowledge, resources and interests. This will contribute to creating sustainable societies with economic freedom, opportunities and jobs – especially for young people. It will also benefit Danish economy, trade and investments
4. Freedom and development: democracy, human rights and gender equUnited Kingdom

United Kingdom

The UK's new Foreign, Commonwealth & Development Office (FCDO), which emerged through the merger of the Department for International Development and the Foreign Commonwealth Office on 15 June 2020, has climate change programme priorities that include green growth and low-carbon development; climate adaptation; climate risk reduction and risk transfer, including climate risk insurance; sustainable infrastructure development; energy efficiency; renewable energy; and sustainable transportation. The UK provides grants, concessional loans, equity and guarantees and has set up an International Climate Fund (ICF) to drive urgent action to tackle climate change in developing countries.

USAID

The United States Agency for International Development (USAID)/Zambia Country Development Co-operation Strategy (CDCS) 2019–2024 focuses on the same sectors as the 2011–2019 CDCS (democracy and governance, rural economic development, health, education) but with significant differences in strategic approach: a greater emphasis on private sector engagement in all sectors; a shift from direct micro-project assistance – with its limited benefits – to addressing the underlying policy, regulatory and institutional constraints in order to have a more large-scale and sustainable impact on poverty reduction and self-reliance; more emphasis on locally led implementation, particularly in the health sector; highlighting effective, accountable and citizen-responsive governance as the top priority and incorporated into each development objective;

and clear articulation of USAID/Zambia's strategy as an alternative development path that facilitates sustainable solutions and promotes, rather than limits, Zambia's future development capacity and self-reliance.¹¹

USAID funding to climate change mitigation and adaptation activities in Zambia has been in clean energy and low-carbon, climate-resilient development. Through the Power Africa initiative, USAID seeks to increase the generation of, and access to, clean energy sources, particularly in rural and off-grid spaces, to help drive rural economic growth.

Swedish International Development Cooperation Agency

Within the framework of Sida's Strategy for Development Co-operation with Zambia 2018–2022, Sida is contributing to reduced inequality and strengthened resilience, greater respect for human rights, democracy and the rule of law, and economic development that is inclusive and sustainable in terms of the environment and climate. The strategy applies for the period 2018–2022 and encompasses a total of SEK 2,250 million.¹²

Under environments and climate, Sida is funding the following projects:

- The **Beyond the Grid Fund for Zambia** helps provide renewable and affordable clean energy to individuals who lack access to the national grid. This reduces the impact on the climate, creates jobs and improves the lives of people living in rural areas.
- **Climate-smart agricultural methods:** Sida works with SNV to develop climate-smart agricultural methods and to increase the production of biogas and sludge for use both in agriculture and as an alternative to charcoal.
- **Collaboration between small-scale farmers and agricultural companies:** Sida works with Musika, a civil society organisation that facilitates contact between small-scale farmers and companies in the

11 https://www.usaid.gov/sites/default/files/documents/1860/USAIDZambia-2019-2024_CDCS.pdf

12 <https://www.government.se/country-and-regional-strategies/2018/11/strategy-for-swedens-development-cooperation-with-zambia-20182022/>

agriculture sector. This makes it easier for farmers to develop their businesses and sell their products.

Japan International Co-operation Agency

In line with the Government of Zambia's 7NDP strategies, the Japanese government sets its overall goal of "Promoting Sustainable Growth of a Diversified Economy Freed from Overdependence on Mining."¹³

In accordance with this policy, JICA sets two priority areas for its operation:

1. **Vitalisation of industries** through technical co-operation as the axis of its co-operation for the private sector (mainly small and medium enterprises) and the agriculture sector, which are important in promoting economic diversification;
2. **Improvement and enhancement of basic infrastructure for economic activities:** development of infrastructure that forms the foundation of various economic activities and improvements in social services (education and human resource development, health, water supply and sanitation) that are the bases of economic growth in Zambia.

Under these priority areas, JICA mobilises all the assistance schemes to work towards the above-stated development objective, while fully respecting ownership of the Government of Zambia.

Agence Française de Développement

Since 2012, AFD has been operating in three priority sectors in Zambia: energy, water and sanitation, and transport. AFD has been working with the Zambian government to improve road infrastructure, expand access to electricity and water, and support the transition toward a sustainable energy future.¹⁴

Between 2012 and 2017, AFD's portfolio was focused mostly on sovereign lending, but the organisation is now diversifying its lending options to include non-sovereign loans and credit guarantee schemes to both private and public sectors.

3.3. Domestic sources and channels

Domestic climate finance is, and will continue to be, an important source of climate finance. Globally, available climate funds remain at a relatively modest scale compared with the climate change needs of developing countries. Domestic public finance has a catalytic role because it can leverage both climate and development finance through piloting innovative approaches that combine resources to maximise synergies.

To try to establish what countries spend from their national budgets on climate change, UNDP has led a series of studies known as Climate Public Expenditure and Institutional Reviews (CPEIRs). These have shown some interesting results. Accounting for national climate finance remains challenging because of ongoing problems with the definition of what constitutes climate finance. While adaptation and mitigation actions are well defined among climate practitioners (see OECD, 2011), they are much less well defined in public accounting systems, making the classification of climate budget and expenditure a subjective task. To try to address this, the UNDP CPEIR reports make a distinction between pure climate change spending and climate-sensitive spending.

For local governments, domestic public finance presents a significant opportunity, as it can be easier to access than international finance. It does not require complex and lengthy accreditation procedures, and requires only compliance with national laws and standards on issues such as environmental and social safeguards, rather than requiring "dual compliance" – with both national standards and the (often more rigorous) standards of an international financier. Fiscal transfers to local governments can be tailored to address local climate action. Local revenue generation through taxes can also be a potentially powerful tool, especially property tax. It has a direct relationship with land use and the built environment, which is responsible for a large part of cities' GHG emissions. Local governments can also raise domestic climate finance through climate change-related fees and charges. These could be effective instruments in a variety of areas to signal the higher cost of internalising environmental externalities or adaptation action, including in the transport, land development, waste and water sectors.

¹³ <https://www.zm.emb-japan.go.jp/files/000496426.pdf>

¹⁴ <https://www.afd.fr/en/page-region-pays/zambia>

Table 11. Government and donor relevant budgets, 2016–2018

Source	2016	2017	2018	Total
Government of Zambia	6,489,227	576,391	65,586	7,131,204
Donor	–	67,654,357	65,077,302	132,731,659
Total	6,489,227	68,230,748	65,142,888	139,862,864

3.3.1. Budgetary support

The Zambian government is making significant investments in climate change and implementing climate change-relevant projects and programmes. Most of these – around 45 per cent – are in the energy sector. Forestry and land use projects and water and sanitation activities each account for an additional 20 per cent. Some provincial governments have allocated approximately 1–2 per cent of their development budget to climate change.

For the period under review, 95 per cent of funding towards the implementation of climate change adaptation and mitigation activities came from donors, with only 5 per cent coming from the Treasury. This indicates that the government heavily relies on funding from donors such as AfDB, USAID, the GEF, Sida, the EU and the German government, among others. Such heavy reliance on donor funds could be very risky to key sectors of the economy, and the whole country in general. Lack of donor funding support will mean that climate change effects could result in a serious adverse impact on the performance sustainability of Zambia's productive sectors such as agriculture, livestock and fisheries.

3.3.2. Private sources and channels

International private sector investment and capital

This constitutes the largest portion of international climate finance. Sources include private corporations and financial institutions, including both equity and loans for specific projects. The majority of these resources are concessional loans, debt, equity or guarantees.

Multilateral development banks

Overall, MDBs make significant contributions to climate finance. In 2017, they provided US\$35.219 billion. MDBs act as both sources and channels of climate finance. Relevant MDBs in the climate

finance sphere include the World Bank, AfDB, the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB).

MDBs such as ADB and AfDB also act as implementing agencies to the CIF and are accredited to other funds.

Philanthropic sources

These financial contributions from individuals and foundations support climate actions in various parts of the world. They may be made to organisations at all levels (local, national, regional and global) for climate change projects in developing and developed countries.

Climate Investment Funds

The US\$8.5 billion CIF, established in 2008, represents one of the most ambitious efforts to unlock this investment.¹⁵ The CIF accelerates climate action by empowering transformations in clean technology, energy access, climate resilience and sustainable forests in developing and middle-income countries. Its large-scale, low-cost, long-term financing lowers the risk and cost of climate financing. The CIF tests new business models, builds track records in unproven markets and boosts investor confidence to unlock additional sources of finance. It manages a collection of targeted programmes that enable climate-smart development planning and action through 325 projects in 72 developing and middle-income countries.

The CIF includes two trust funds, the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). The SCF includes three programmes: the Pilot Programme for Climate Resilience (PPCR), the Forest Investment Programme (FIP) and the Scaling-up Renewable Energy Programme (SREP) in low-income countries.

¹⁵ <https://www.climateinvestmentfunds.org/about-cif>

Table 12. CIF projects in Zambia

Name	Fund	Funding (US\$ million)	Co-financing (US\$ million)	MDB
Expanded Response to Climate Resilience in Development	PPCR	0.93	0.08	AfDB
Private Sector Support to Climate Resilience in Zambia	PPCR	14.60	100.50	IBRD
Strengthening Climate Resilience in the Kafue Sub-Basin	PPCR	38.00	0.72	AfDBIBRD
Zambia Strengthening Climate Resilience (PPCR Phase II) Project	PPCR	36.00	213.55	IBRD

Source: <https://www.climateinvestmentfunds.org/country/zambia>

The CIF is helping Zambia safeguard hard-won development gains and promote climate resilience for vulnerable sectors and populations. The US\$91 million PPCR is supporting climate-resilient development planning and targeted investments in climate-proofing roads and canal systems, expanding climate information services and building the climate resilience of rural populations along the Kafue and Barotse sub-basins of the Zambezi River.

Zambia's FIP investment plan introduces measures to reduce urban demand for charcoal, support income-generating activities driven by forest conservation and maintenance, and increase the sustainability and efficiency of agricultural practices. Zambia is also developing a SREP investment plan to expand renewable energy.

The NAMA Facility

The NAMA Facility was jointly established by BMUB, the UK Department of Energy and Climate Change (DECC), the Danish government and the EU with the aim of providing financial support to implement transformational country-led NAMAs within the existing global mitigation architecture in the short term.

As of May 2021, the NAMA Facility is on its Eighth Call for Projects. National ministries and/or qualified public benefit legal entities can submit a NAMA Support Project to the NAMA Facility. NAMA Support Projects have no accreditation process but need to nominate a qualified delivery organisation. A sub-national government body cannot directly apply but can be a key implementing partner for a NAMA Support Project endorsed by the national government.

The central decision-making body is the NAMA Facility Board, consisting of representatives from DECC and BMUB. All decisions on strategy, guidelines and selection of NAMA Support Projects for funding are taken on by the NAMA Facility Board.

Domestic private Investment

Zambia's dynamic private sector plays a key role in helping the country realise its low-carbon, climate-resilient objectives and builds on the strong base already established. The key factor determining the private sector's ability to contribute to financing climate actions is a supportive investment environment with clear and transparent regulations and well-designed policy incentives. The private sector also provides climate finance as part of its corporate social responsibility and corporate shared values. The use of public finance to help leverage private sector investment complements this.

Carbon markets

These seek to reduce GHG emissions cost-effectively by setting emissions limits and allowing emission units to be traded. Putting a price on carbon emissions through the market system helps internalise the environmental and social costs associated with pollution, thereby encouraging investors and consumers to choose a lower carbon footprint. They include:

Cap and trade: Under this approach, a cap (or ceiling) is placed on the amount of GHG that countries or companies may emit. Any entity that exceeds the cap must pay a fine, which presents a financial incentive to reduce emissions. If a company or country is unwilling or unable to

reduce its emissions, it may, instead, buy carbon credits from parties that are on track to meet their reduction targets and thus have credits going spare.

Offset markets: By offsetting or compensating, rather than reducing, emissions, a country or company finances a project elsewhere that should help reduce emissions, such as renewable energy or reforestation.

Voluntary carbon markets: This approach is relevant to individuals and companies taking voluntary action to offset GHG emissions. When an individual takes an airplane flight, they can purchase credits from a company to offset the share of the emissions produced by that flight. The amount paid to purchase those credits should be used to finance a project that reduces emissions.

Market mechanisms under the Paris Agreement:

Article 6 of the Paris Agreement establishes two main market mechanisms in which parties may participate voluntarily. Shares of their proceeds will provide funding for adaptation actions in developing countries. These mechanisms include co-operative approaches and a sustainable development mechanism.

To its proponents, Article 6 offers a path to significantly raising climate ambition or lowering costs, while engaging the private sector and spreading finance, technology and expertise in new areas.

To its critics, it risks fatally undermining the ambition of the Paris Agreement at a time when there is clear evidence of the need to go further and faster to avoid the worst effects of climate change.

3.3.3. Emerging climate finance instruments

Debt-for-climate swaps

DFC swaps are a type of debt swap in which the debtor nation, instead of continuing to make external debt payments in a foreign currency, makes payments in the local currency to finance climate projects domestically on agreed-upon terms. DFC swaps can reduce the level of indebtedness as well as free up fiscal resources to be spent on green investments.

Under the Updated NDC and COVID-19 scenario, DFC swaps could represent a creative solution to tackle the sovereign debt crisis and the climate crisis at the same time. However, in order to

do so, debt swaps need to free up resources in governments' budgets. It is therefore key that payments to climate objectives are set lower than original debt service payments. In order to reach a critical mass, DFC swaps would also need to target large-scale programmes and no single projects, allow for a degree of flexibility from the recipient country's perspective and be delivered in a harmonised manner to achieve debt reduction on a large enough scale.

By channelling debt into climate adaptation and mitigation programmes, countries will be using national financial systems to build long-term support and encourage investments in green activities, thereby tackling both the debt and climate crisis all at once.

Green bonds

Green bonds are designated bonds intended to encourage sustainability and support climate-related or other types of special environmental projects. Green bonds come with tax incentives such as tax exemption and tax credits, making them a more attractive investment than a comparable taxable bond. This provides a monetary incentive to tackle prominent social issues, such as climate change and a shift to renewable energy sources. To qualify for green bond status, they are often verified by a third party, such as the Climate Bond Standards Board, which certifies that the bond will fund projects that include benefits to the environment.

Blue bonds

The blue bond is a debt instrument issued by governments, development banks or others to raise capital from impact investors to finance marine and ocean-based projects with positive environmental, economic and climate benefits. They are similar to green bonds but focus on mobilising resources for conservation efforts in oceans and marine resources.

Results-based climate financing

Under this financing modality or approach, an investor disburses funds to a recipient upon performance and achievement of a pre-agreed set of climate mitigation or adaptation results and successful independent verification. Examples of the application of RBCF include Reducing Emissions from Deforestation and Forest Degradation

Box 5: Green bonds

The world's first green bond was issued by the World Bank in 2008. By 2017, total green bond issuance had grown to a record high of US\$155 billion. Green bond issuance is forecast to continue setting records, with issuance set to grow to \$250 billion by the end of 2019, according to the IFC Green Bond Perspective Report 2018. But in the developing world, the market is still emerging.

Zambia plans to record its first green bond issuance, with a target of 30 per cent of the proceeds aimed at financing biodiversity conservation interventions in 2022. Critical at this point is establishment of a technical assistance package to potential issuers. The Securities Exchange Commission (Green Bond) Guidelines were issued in 2019 and the high level of participation from governments and the private sector demonstrates that there is a great deal of interest in learning about green bonds.

(REDD+). Various facilities and institutions, such as the GCF and the World Bank, provide funding for REDD+ under RBCF principles.

Blended financing

This financing package is composed of concessional funding provided by development partners and commercial funding by investors. It represents a strategic use of development finance for enhanced mobilisation of additional

finance. Although it is still an emerging instrument in developing countries, blended finance has been shown to provide financial support to high-impact projects that would not initially attract commercial funding because of the associated high risks but that has the potential to become commercially viable over time. Therefore, it is an important instrument aimed at overcoming hurdles related to private sector investment in climate-related projects or programmes.

4. The Zambian Climate Finance Landscape

Zambia has been through an intensive process of policy- and institution-building in terms of its response to climate change. The NCCRS, NPCC, TNC and Updated NDC, among many others, represent a framework for action. Key institutions in implementing these measures for climate finance mobilisation are MLNR, MoF and MNDP. Financial regulators are also starting to encourage green investment, and there are nascent efforts to engage the private sector to make environmentally and socially beneficial investments. Importantly, there is a recognised opportunity for new climate funds such as the GCF to work in collaboration with the NDA to take a more proactive approach to engage diverse stakeholders and put in place new operational processes that can foster progress in achieving mitigation and adaptation outcomes in the context of national climate and development priorities.

4.1. Climate finance in Zambia

Zambia receives international funding for both adaptation and mitigation from both bilateral and multilateral sources (Figure 7). The country has a relatively long history of efforts to achieve climate finance co-ordination, and a number of actors have been involved. Zambia's experiences thus make for an interesting example of co-ordination among different actors and at different levels, including between and among donors, between donors and government, and between the national and local governments (Dupuy et al., 2019).

To understand the past and current institutional framework of climate finance co-ordination in Zambia, we reviewed a range of government, policy and research documents and interviewed a few key informants in MoF and MLNR.

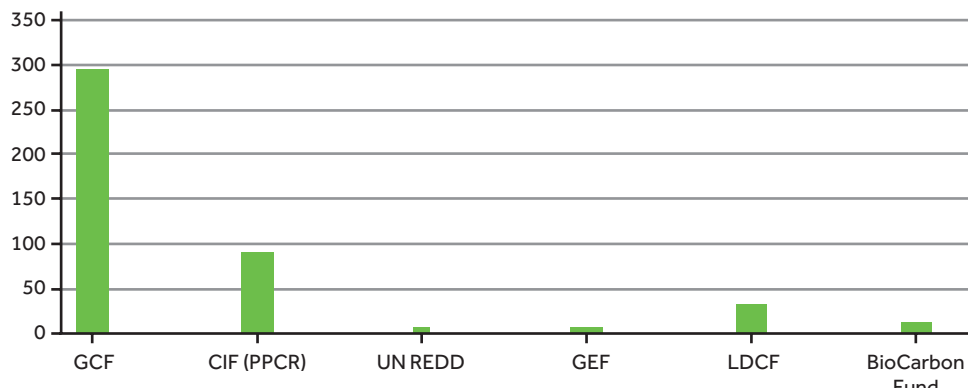
4.1.1. The history of Zambia's climate finance co-ordination architecture

Earlier approaches to development aid co-ordination and co-ordination within the country's environment sector have influenced climate finance co-ordination in Zambia (Dupuy, et al., 2019). In 2009, climate change came into

its own as a separate and distinct policy issue with the Climate Change Facilitation Unit (CCFU) institutionalisation, housed within the then Ministry of Tourism, Environment and Natural Resources (MTENR). The CCFU was established to undertake studies on climate change issues to ensure informed policy decisions were made. Many studies were produced, including Zambia's NAPA (2007), the draft of the NCCRS (2010), an Information Needs Assessment and Identification of Gaps in Climate Change (2010) and a report on the Economics of Climate Change in Zambia (2011). The establishment of the Interim Climate Change Secretariat (ICCS) led the CCFU to cease to operate in 2012.

The NCCRS recommended options for government co-ordination of climate finance in Zambia, including the idea of a co-ordinating climate change secretariat. But there was little consensus among the bilateral and multilateral climate finance donors on whether such a secretariat should remain embedded in the MTENR and continue to be supported by UNDP, or whether it should instead be moved to the then Ministry of Finance and National Planning. The World Bank argued for the secretariat's placement in the Ministry of Finance and National Planning, as this had convening power and high-level budgetary control. Doing this offered the added benefit of providing better leverage for donor funding and more direct and efficient donor-government interaction. This move went ahead in 2012 with the establishment of the ICCS. As a compromise, the new entity included staff seconded from the MTENR. In particular, the ICCS assumed the mandate for the co-ordination of the World Bank's CIF PPCR projects in Zambia.

The ICCS has, however, been unable to assume unilateral authority over climate finance co-ordination in Zambia. UNDP simultaneously supported the development of a climate change unit as the climate Change department with the MTENR. The MTENR was split into two ministries in 2012: (MWDSEP) and MNLNR. The MoF further consolidated its leadership in climate finance co-ordination by hosting the NDA for the GCF starting in 2015.

Figure 7. Multilateral climate funds for Zambia, 2004–2017 (US\$ million)

Source: Dupuy et al., 2019.

Another major national development in Zambia's climate finance co-ordination landscape occurred in 2015 when MNDP was formed after delinking the national planning component from the Ministry of Finance. MNDP then assumed primary authority for climate finance. Reflecting this, the PPCR Secretariat moved from the ICCS to MNDP.

In 2016, the NPCC was approved (and its development supported by UNDP). The NPCC mandated MNDP to take the lead on climate finance co-ordination. As a result, the ICCS ceased to be staffed – but it has never been officially closed down. Despite the empowerment of MNDP, a climate finance co-ordination unit has continued to be developed within MNLR to act as a future focal point for climate finance – and today it is the location of the GCF's NDA.

4.1.2. Current climate finance co-ordination

MNDP currently holds the political authority for climate finance co-ordination in Zambia. However, within the country's co-ordinating framework, there are several other international actors and government ministries and institutions that play active roles in the co-ordination of climate finance.

Donors co-ordinate with each other on climate finance through co-ordination committees. These committees are divided into technical experts who meet within topic-specific development clusters. As of June 2019, the relevant technical donor co-ordination committee on climate change was in the process of being merged in with its appropriate counterpart government co-ordination

committees, in order to improve contact between the government and donors.

The two most active multilateral donors – the World Bank and UNDP – primarily co-ordinate with the government via the two authorities placed within MNDP and MNLR: the PPCR Secretariat and the GCF NDA.

National-level government co-ordination of climate finance is officially chaired by the Office of the Vice President and advised by the Council of Ministers. The actual practices of government co-ordination occur via a secretariat based at MNDP. The Council of Ministers brings together ministers and technical advisors from relevant ministries, including Agriculture, Lands and Natural Resources, Water, Finance and Fisheries. Representatives of other government agencies, such as the ZEMA and the DMMU (located within the Office of the Vice President), are also represented.

At the local government level, climate finance co-ordination is not structured uniformly across all districts. Typically, however, three authorities are involved. The first is the District Commissioner, who heads the de-concentrated government agencies at the district level. The second is the District Development Coordinating Committee, which co-ordinates development efforts at the district level. In some districts, such as Mumbwa, the District Council serves as a Secretariat to the District Development Coordinating Committee, co-ordinating local government efforts on issues related to climate change. Finally, in some districts, the PPCR has created Project Implementation Teams at the district level, headed by and embedded within the District Administration.

4.2. Key sources of climate finance tracked

The availability and level of climate finance (both public and private sector) is likely to significantly affect the ability of Zambia to deliver on its NDC promise. Large levels of financing from various sources must be mobilised and leveraged for Zambia's NDC commitments. Concessional, non-concessional and private sector financing are therefore needed to deliver targets set for 2030. So far, many actors are involved in directing climate finance to Zambia to support low-carbon development and help the country adapt to the severe impacts of climate change that are already being felt. As indicated in Figure 7, the GCF is the biggest cumulative multilateral climate fund active in the country, followed by the GEF-administered LDCF, the World Bank-administered CTF and the GEF among others. For those funds tracked, Climate Funds Update (CFU) (2018) data indicates that US\$238 million has been approved for 19 projects and programmes throughout Zambia since 2016–2018. Almost half of the approved funding from these multilateral climate funds has been provided for adaptation measures. Grant financing continues to play a crucial role, especially for adaptation actions, in ensuring that climate actions secure multiple gender-responsive benefits for the most vulnerable countries and population groups.

4.2.1. Public sector climate finance

National public resources sit at the centre of Zambia's climate finance landscape. In 2018, the Government of Zambia contributed by far the largest share, disbursing at least US\$6,489,227 through budget transfer instruments (Ernst & Young, 2020).

Public finance includes funds provided by governments and their agencies, climate funds and development finance institutions (DFIs). Climate

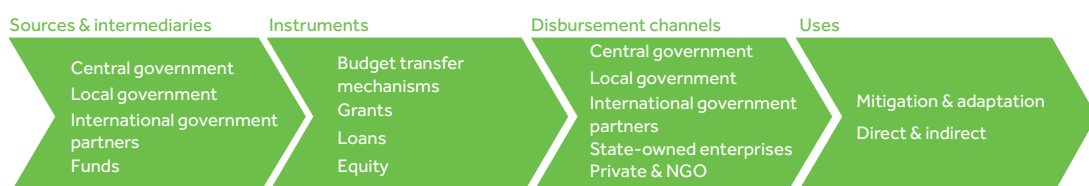
finance from public sources accounts for 35 per cent of the total tracked climate investments for 2016–2018. Investments were tracked in all 10 climate-related sectors, with clean energy (generation), general eco-system support and cross-sector investments accounting for 75 per cent of the tracked public climate finance. A strong domestic preference continues to exist, with 79 per cent of public finance being raised and spent domestically in 2016–2018 (Ernst & Young, 2020).

Based on figures obtained from the budget tracking tool developed from MoF, Zambia saw a significant increase in the national budget allocation for climate change-relevant activities since 2016, in both absolute and relative terms, over the three-year studied (Table 12). Zambia's budgeted amount for such activities grew from ZMW 133 million in 2016 to ZMW 931 million in 2018. This represents significant growth of 599 per cent over the three years.

In Table 12, total spending on climate change-relevant activities is estimated at 0.25–1.30 per cent of government expenditure, and this has increased steadily since 2016 on account of increased donor funding for such activities, as shown in Table 13. The budgeting on climate change activities is consistent with the 2016 NPCC and the Revised 7NDP 2017–2021, aimed at allocating more funding resources towards climate change adaptation and mitigation interventions, and this is evidenced by an upward trend over the three years (2016–2018) under review (Ernst & Young, 2020).

As already noted earlier, 95 per cent of funding for climate change adaptation and mitigation activities in the period under review came from donors, with only 5 per cent coming from the Treasury. This heavy reliance on donor funds could be very risky, with serious adverse impacts on the sustainability of Zambia's productive sectors.

Figure 8. Conceptual overview of the landscape of public climate finance in Zambia



Source: NCCP, 2016.

Table 12. Total budget for climate change-relevant activities and national budget

	2016 ZMW	2017 ZMW	2018 ZMW
Total budget for climate change-relevant activities	133,291,811	478,949,711	931,684,760
Total government budget	53,135,825,364	64,675,302,308	71,662,385,976
Share of total budget (%)	0.25	0.74	1.30

Source: Ernst & Young (2020).

Table 13. Government and donor relevant budgets, 2016–2018

Source	2016 US\$	2017 US\$	2018 US\$	Total US\$
Government of Zambia	6,489,227	576,391	65,586	7,131,204
Donor	–	67 654 357	65 077 302	132 731 659

Source: Ernst & Young (2020).

Zambia has successfully accessed some of the dedicated climate finance available from the public and private portfolio. However, tracking climate finance inflows is very difficult, given fragmented policies and procedures on climate change management, general knowledge issues and oversights in the national budget process. In addition, given that climate finance addresses development issues that are simultaneously being dealt with under ODA, public records do not at differentiate between these two types of resources. Tracking is even harder for private inflows, given the multiplicity of entry points and the general lack of willingness and incentives for private sector stakeholders to disclose financial statements (Savage et al., 2015). Key stakeholders confirmed the difficulties in tracking climate finance as a result of the lack of a clear cut between adaptation and general development funds, and the complexity of disbursement chains, from example from donor to MoF and then to implementers.

Focusing on international resources, CFU and Organisation for Economic Co-operation and Development (OECD) project-level data indicated that only US\$238.2 million was approved between 2016 and 2018. As shown in Figure 14, of the total funds approved to date, the majority is being targeted to adaptation activities (89 per cent, or \$93 million), followed by REDD+ (7 per cent, or \$8 million) and mitigation (4 per cent, or \$5 million) (UNDP, 2018).

Based on the conducted strengths, weaknesses, opportunities and threats (SWOT) analysis, Table 15 presents some of the factors involved in public sector engagement in UNDC implementation.

Despite the key role public institutions will play in mobilising climate finance, it is clear that the public sector alone will not be able to mobilise the financial flows required to achieve mitigation and adaptation objectives. A UNDP study in 2018 estimated losses owing to climate change/ climate variability of US\$4.3–5.4 billion per year for Zambia. Other estimates for investments to provide a robust system of social protection range between 5 and 8 per cent of GDP. Though national development banks are emerging as leaders in climate finance mobilisation, equal attention must be directed to facilitating and incentivising private sector finance flows for mitigation and adaptation efforts. Non-government sources are most likely to contribute an increasing share of both sustainable development and climate finance.

Domestic capital may be mobilised from different sources, such as private investors, commercial banks and public capital markets. The actual

Table 14. Overview of climate finance information in Zambia

Finance	OECD	CFU
Climate finance flows	\$206.6 million	\$238.2 million
Adaptation finance	\$40.7 million	\$99.9 million
Mitigation finance	\$165.9 million	\$22.7 million

Source: UNDP (2018).

Table 15. SWOT analysis for Zambia's public sector green investments

Strengths	Weaknesses
<ul style="list-style-type: none"> • Most direct way of implementing the climate policy agenda with high-impact potential for national governments • Alignment with climate change and policy mainstreaming in sectors, if done properly and in parallel 	<ul style="list-style-type: none"> • The development and integration of clear tracking and MRV frameworks and processes for climate finance allocations into public financial management systems and procedures at the national and local levels are usually challenging tasks - taking years until full implementation
Opportunities	Threats
<ul style="list-style-type: none"> • Leveraging of (much more) national and international public and private co-finance 	<ul style="list-style-type: none"> • Despite promises and signed agreements at the national and international levels a clear commitment by the highest government level is required • The required "backing" by legal mandates can take years of "in the making" before materialisation of such laws and regulations, and they are subject to threats from changing governments

capacity of capital markets is largely determined by the level of economic development progress in Zambia, and the national institutional and policy incentives that direct investments towards climate change mitigation and adaptation projects. The main challenge to be addressed in this sector is to shift these investments to low-carbon alternatives. There is also a growing need for governments to provide incentives and mitigate risks for private equity funds to invest more robustly in climate-friendly low-carbon development initiatives. Barriers specific to green investments have been identified by stakeholders and include market, institutional and policy failures that make green investments unattractive (price gap); high risk perceptions on green markets that have a long payback period, mainly because of uncertainties and lack of information (time gap); absence of policy and/or regulatory measures to internalise climate change-related externalities (knowledge gap); low access to finance; and the instability of the financial systems. Addressing the "time gap," "price gap," "knowledge gap" and other challenges between short-term costs and long-term benefits of green investments requires collaborative action between governments and the private sector to overcome the present financial barriers and risks that restrict capital flows into green projects for climate change, thereby leading to increased investment.

While international donors and multilateral climate funds play a key role in bridging the infrastructure

finance gap, the Government of Zambia has a wide range of other opportunities and instruments to engage external finance in financing their climate adaptation and mitigation projects. Available throughout the entire process of preparation to investment, these can be used to augment low public expenditure.

Leveraging public financing for NDC implementation requires political will, but political will needs to be induced with information and studies that facilitate decision-making. The vstakeholder interviews identified the following actions that governments may consider when developing a funding strategy:

- Elaborate a mapping of the financial landscape. A menu of different alternatives is important, given that national resources are usually limited. Sources may include new taxes, budget reallocation, international finance, etc.
- Identify those successful experiences that have been financed with public funds, and take measures to replicate them.
- Integrate central banks and national assemblies in climate change discussions, as they have decision-making power on resource allocation.
- Identify unexpended funds by the end of the fiscal year (such as flood response) and reallocate them for climate action.

- Cost out climate change measures and determine the finance gap.
- Identify (and demonstrate, if possible) co-benefits and potential savings; integrate the cost of negative externalities and explore other incentives such as public recognition.
- Identify ways to integrate climate risk need into the national financial strategy.
- Integrate NDC targets and proposed actions into national development planning and strategies.
- Raise awareness among decision-makers and integrate a climate perspective into public investment seeking to achieve budgetary synergies across investments. For example, an infrastructure investment programme may be able to ensure the climate resilience of given infrastructures.
- Revisit existing portfolios with relevant financial institutions, such as regional banks, to analyse any adjustments that may be required to support new priorities.
- Consider carbon markets and carbon pricing, including positive and negative incentives.

4.2.2. Private sector climate finance

Private sector climate finance includes the financial outflow of resources implemented by private individuals and companies and is not state controlled. In the Zambian climate finance landscape, we have considered two broad categories of private sector actors:

- Commercial entities: Non-state-controlled financial players, including banks, institutional investors, fund managers and venture capital investors;
- Other private entities: Corporates, philanthropists/donors, NGOs and households’.

Commercial actors are the largest source of private climate investment. Of the tracked commercial investments, 100 per cent were made in the clean energy sector. Corporates, philanthropists/donors, NGOs and households accounted for the remaining 45 per cent of the tracked private sector investments in this landscape.

The private sector in Zambia is made up of micro, small and medium enterprises (MSMEs)

and larger enterprises. Small and medium-sized enterprises (SMEs) in Zambia play an important role in production, employment and income. They represent 97 per cent of all businesses in the country, 70 per cent of GDP and 88 per cent of employment (ITC, 2019).

Transforming NDCs into tangible actions that lead to long-term zero-carbon and climate-resilient development requires financing. Access to finance is fundamental to realise the objectives set by the NDC. However, countries continue to face challenges in securing the financial resources needed to achieve their NDC targets. A significant share of the financing required is expected to be provided by the private sector.

To support the transition to low-emission and climate-resilient development, private sector resources must be mobilised to fill the gap caused by a lack of public investment. The adoption of the Paris Agreement provided a strong policy signal for private sector investment in climate finance. The development of NDCs has also provided numerous investment opportunities for the private sector. In 2015, private sector investments reached US\$299 billion before dropping to \$242 billion in 2016 owing to the combination of falling technology costs and lower capacity additions in some countries. Project developers are by far the largest provider of climate finance, investing \$126 billion in 2018 (CPI, 2017).

A suitable enabling environment, including related legislation, laws, programmes and plans, is crucial to achieving the sustainable development targets in any country. Zambia has developed a wide range of policies related to climate change and the energy sector, emphasising the need to involve the private sector in the process.

Vision 2030 is the country’s economic development driver for 2013–2040. It aims to transform Zambian society from a predominantly low-income country into a competitive, upper-middle-income one by 2030. The NDP is a five-year development plan aimed at achieving Vision 2030. These documents highlight the importance of the private sector to achieve the country’s development goals.

The source of private finance is the savings of individuals and corporations (natural and legal entities).¹⁶ These savings are generally managed,

¹⁶ The savings of governments are, in contrast, not considered a source of private finance even though these funds are often provided through private sector channels and directed towards activities in the private sector.

pooled and invested through intermediaries such as banks, portfolio management firms and/or pension funds.

As discussed earlier, the private financial landscape is complex and diverse. Private finance is provided by a wide range of actors and through a variety of channels. It features different levels of risk and returns expectations and varying levels of liquidity. It involves different actors ranging from small angel investors to very large banks and institutional investors. It can be short, medium or long term. Individual private transactions can be described and differentiated by reference to the following six dimensions:

1. The **legal nature** of the financial transaction;
2. The **seniority** of the transaction and the associated **risk profile**;
3. The **channel** and the **intermediary actors** through which the flow of finance is arranged;
4. The **term or tenure** of the financial arrangement. This is closely linked to the liquidity of the financial asset;
5. The ultimate source of the financial resource and its origin;
6. The **knowledge of use of proceeds** related to the transaction.

At the heart of most, if not all, forms of private finance, however, is the need to provide appropriate risk-adjusted returns for the providers of these funds. Within this, it is particularly important that policy-makers understand that the greater the risk that investment is exposed to (or the greater the perception of that risk), the greater the returns expected from it by the capital providers.

The language of risk and returns suggests that financial and investment decisions are primarily balancing financial costs and financial returns. However, in practice, a much wider variety of factors – some of which can be readily described in financial terms, others of which are more difficult to describe in these terms – affect financial decision-making and, ultimately, the nature and direction of financial flows.

Addressing the barriers to private climate finance

Certain barriers to mobilising private finance for climate change-related mitigation and adaptation in developing countries are relatively generic. They

often are the same as those encountered when attempting to secure any private finance in the country in question. Depending on the particular country, barriers may include instability of legal, economic and regulatory frameworks within which private sector activity unfolds, shortcomings in the reliability and longevity of regulatory schemes that the project's viability depends on, and the commercial viability, bankability and/or creditworthiness of the project or venture.

However, a closer look at specific types of climate change-related projects reveals that each presents different issues and faces different challenges when attracting private finance. Not all climate change mitigation and adaptation projects are financed equally. Different project types require different forms of private finance to succeed. Furthermore, each project type is likely to confront obstacles that are specific to its special financing needs. It therefore follows that different forms of public intervention are needed to move different types of climate change-related projects forward to succeed.

Challenges for the private sector to implement NDC targets

Cross-cutting challenges

Knowledge gap and limited skills on climate change: Zambian private sector stakeholders do not have in-depth knowledge of NDC processes as well as on associated de-risking smart investment and financial instruments to support the country's resilience and transition to a low-carbon economy.

Insufficient access to climate funds: While the implementation of some green projects is ongoing, a vast majority of Zambian private sector actors have had little success in accessing dedicated climate funds and concessional green loans. The procedures and requirements to access these funds remain a big challenge for the private sector. This in turn makes it difficult for the government to meet its NDC conditional contributions to fight climate change, considering its partial dependence on private sector involvement and financing.

The need to further improve clarity on policies and enabling regulations: Potential private sector investors need more clarity on the laws, regulations and policies put forward by the government, as a way of encouraging private companies to venture

into investments. Investment opportunities should be made available through open communication with the private sector, which needs to better understand its role in NDC implementation and the green economy in general.

Increasing focus on COVID-19 and decreasing focus on green projects: While some NDC and green projects are currently being implemented in Zambia, the negative impacts of the COVID-19 global pandemic are hitting the country very

Table 16. SWOT analysis for Zambia's private sector in NDC implementation

Strengths	Weaknesses
<ul style="list-style-type: none"> • Many private sector actors (large companies and SMEs) already implementing green projects • In some provinces and districts, the private sector is represented in climate change dialogue and governance at national and international levels • Existence of many and emerging vibrant financial industries and capital-raising ecosystem that boasts of impact investors, private equity, fund managers, accounting advisory firms, pension funds, insurance companies and law firms, sovereign wealth funds and exchange commissions • Recent advances in digital technology offer innovative approaches to overcoming some of the physical and geographic barriers to inclusion for under-served populations bolstering resilience • Many industrial associations and the chamber of commerce have a track record in accessing funds for private investment in several sectors • Private sector has a growing manufacturing facilities • Many emerging digital and business ecosystem hubs exist and promote green entrepreneurship 	<ul style="list-style-type: none"> • Limited and mismatched labour force and skills in relation to the needs of the private sector • Limited tracking of private sector investments in climate change actions • Limited private sector communication on green investment success stories • Insufficient training in developing climate change bankable "green" projects in the private sector • Insufficient understanding of adaptation measures as business case is often not obvious • Limited knowledge of private sector on climate finance opportunities and access mechanisms • Limited private sector knowledge on NDC and green investment opportunities in Zambia • Insufficient financial resources to invest in NDC - with a few large firms dominating the market • SMEs have very limited capacity and qualification to access green finance for investment in Zambia • Business interest profit-making overriding environmental focus of NDC implementation • Inability to de-risk agriculture dominated by small farm lots/holdings starves agriculture of credit and sustainable finance-led investment • Private sector engagement with governments on green projects presents bureaucratic bottlenecks • In Doing Business ranking, many businesses rank very low. Private investors are finding obstacles particularly in areas related to access to credit, enforcing contracts and trading across borders • Constant inflation, growing exchange rates, high rates for loans and lack of hard currency resulting in challenges associated with investor capital repatriation and interest in investing large sums

(Continued)

Table 16. SWOT analysis for Zambia's private sector in NDC implementation (*Continued*)

Strengths	Weaknesses
<p>Opportunities</p> <ul style="list-style-type: none"> • Strong political will and increasing interest by Zambian government to develop green projects • The private sector is identified as a key player for NDC implementation • Increasing green investments using green bonds • Improving legal and institutional frameworks to encourage green investments particularly in the clean energy sector • The government already has experiences in NDC and UNFCCC processes, which can facilitate collaboration with the private sector • Growing and emerging diversified financial and capital markets • Zambia has trade agreements within the continent and outside Africa • Many dedicated climate change funds can be used to partly fund private sector NDC projects (with concessional finance) • Increasing favourable, climate-related laws and regulations (laws on energy service companies, energy audit requirements, feed-in-tariffs, etc.) • Recent accreditation of the Development Bank of Zambia to GCF • Many energy and infrastructure projects by government to attract private sector investment in NDC implementation (often through PPPs) • Government and international financing and sustained support to green post-COVID recovery • Many initiatives to improve provision of human capital and address skill shortages for green investments • Existing trade blocks and agreements: regional economic communities and African Continental Free Trade Area 	<p>Threats</p> <ul style="list-style-type: none"> • Political and security risks remain key issues in during election year • Bureaucratic red tape • Insufficient information, policy and regulatory framework to promote green private sector projects • Institutional and policy frameworks mostly target the big firms to the detriment of MSMEs, including the development of PPPs relevant for NDC implementation • Perception that climate change actions are expensive for business interests • Crumbling infrastructure that registers slowly in the World Bank's Logistics Performance Index causes delays, higher costs for haulage and mounting losses for importers and exporters • Currency volatility arising from foreign exchange scarcity leading to rationing and capital controls • Lack of understanding of climate investment opportunities resulting in low rate of investment • Governance-related challenges, poor infrastructure and difficulties exporting profits • Unclear private sector roles in many NDC implementation frameworks • Lack of adaptation investment roadmaps and targets from the government • Massive budgetary subsidies for fossil fuels deprive critical mass transportation and renewable energy sectors of badly needed investment in Zambia • NDC action plans and frameworks for the effective implementation of the Paris Agreement not yet developed • COVID-19 pandemic economic downturn in the country

hard. The government have given priorities to the post-COVID recovery of the economy with a strong focus on the health sector. The pandemic is expected to hinder growth through its effects on production and exports. Key sectors, such as tourism and natural gas, are expected to witness a

slowdown, affected by the restricted international travel and the collapse in oil prices (World Bank, 2020). This has reduced the willingness of the government, donors, the private sector and international financial institutions to invest in many green activities and projects.

Weak business case for green investment in adaptation projects: Zambia, like other developing countries, faces challenges making a good business case for adaptation, which makes it difficult to attract private investment in adaptation projects. On the other hand, a good number of mitigation projects in Zambia have strong involvement of the private sector, especially in the domain of energy, transport, waste management and green cities.

Unfamiliarity with new green technologies: While Zambia has conducted a climate TNA and also elaborated a climate technology action plan, implementation and adoption by the private sector remain very limited. This is because of the high cost of acquisition, weak intellectual property protection by national government and unfamiliarity of many private sector actors with new green technologies.

Weak start-up culture: Between 2010 and 2019, most of the start-up founders in Southern Africa who had raised at least US\$1 million came from South Africa. Specifically, out of 111 founders, 80 were South Africans; 11 were from Zambia (Statista, 2021). This means that youth from Zambia need to be able to do more to build successful start-ups that will create green jobs and support NDC implementation.

Lack of internal knowledge and capacity within private companies: Many companies lack capacity and internal knowledge to evaluate climate science and often require short- to medium-term projections of local impacts of climate change commensurate with the scale of their business activity. The private sector actors in the sub-region lack awareness of both the risks and opportunities that climate change poses to their businesses (AfDB, 2021). While there have been advances in the use of climate models for climate projections, private sector actors possess inadequate capacity to access data on predicted climate change and to interpret the information in a manner that informs their strategies and plans. As a consequence, it is challenging for actors in the private sector to make decisions that favour investment in climate actions or climate change projects.

Inadequate access to finance: Access to finance remains a key impediment to private sector investment in climate change in Zambia. Based on a study conducted in four Southern African countries (Botswana, Lesotho, Namibia and Zimbabwe), the private sector is not engaged in climate investments as a result of the difficulty

associated with accessing finance to undertake such investments (Southern Africa Climate Finance Partnership, 2019). The difficulty in accessing finance in the sub-region is particularly observed for CSA investment, although it is noted as a substantial broader challenge in Botswana and Lesotho, while the macro-economic conditions in Zimbabwe are seen as a major obstacle for private sector actors in accessing financing for climate investments.

Lack of enabling conditions for investment in some sectors: Countries in the Southern Africa sub-region have made little progress in creating an enabling environment for private sector investment in CSA, energy efficiency, and adaptation (Southern Africa Climate Finance Partnership, 2019). This is problematic given the multiple benefits that could emanate from private sector investment in energy efficiency and given that adaptation, especially in the agriculture sector, is a priority for Zambia like other developing countries.

Sectoral challenges

Climate-smart agribusiness and forestry: Most investments in CSA and forestry in Zambia are from large companies. SMEs still face the greatest investment barriers, since they often lack collateral in the form of land titles and fixed asset investments to qualify for loans. In Zambia, like in many Southern African countries, bank lending to SMEs in the forestry sector is lower than 10 per cent (Mhlanga, 2010) and interest rates are relatively high. Physical access to rural banking facilities is still very limited, few banking staff are familiar with forestry and CSA investment requirements, and therefore transaction costs related to small individual loans are prohibitive and are major investment barriers (Branca et al., 2012). Under the Basel III regulations, banks are required to hold additional capital to cover investments in longer-term and riskier initiatives.

Transport: The transport sector is one in which the private sector is expected to step in as a service provider as the sector requires technological capacity and know-how, as well as a labour force. However, certain challenges across the Southern African region hinder private sector investment. These include but are not limited to:

The need for an enabling environment and skillset: Without strong institutions with the right capacity in place and clearly defined roles in the transportation

sector, private firms may not be willing to engage in transforming the system. Though this sector employs a relatively high number of people, it is hard to find skilled personnel.

Access to finance: Private sector firms that are interested in investing in the transportation sector in Zambia usually face difficulty accessing the relevant green finance that they need.

Green building and smart cities: Like in most sectors in the region, inadequate regulatory and institutional capacity hinder the private sector from engaging in the construction of green buildings and smart cities. There is little trust and accountability on the side of the government, and thus the investment climate is filled with uncertainty and little trust.

Construction costs, which have always been high, are becoming exorbitant, especially with low-emission options being considered in this sector, with the emergence of green buildings and smart cities to mitigate the effects of climate change. Construction projects in Africa often cost far more than estimated, and this prevents investors from undertaking huge projects such as green buildings (Construction Review, 2015).

Inadequate technological and institutional capacity makes the construction sector in the Southern African region unattractive to private sector investors, worsened by unavailability of skilled labour in a labour-intensive industry. This usually implies higher hiring costs as skilled workers need to come from abroad.

Access to finance is challenging. Banks have developed conservative lending measures, which have made access to credits a major issue. Private firms therefore find it hard to access the much-needed funds to venture into green construction projects.

Water and irrigation: Ineffective water resource management presents challenges to some of countries at regional and national levels. Mozambique, for instance, is located at the downstream of all international rivers crossing the country. At regional level, floods and droughts must be properly dealt through the existing transnational rivers management committees. Domestically, the lack of appropriate infrastructure to secure river flow management is an issue. However, neither of the two will work if the other is not secured.

Drought and poor water service delivery are already constraining economic growth and hampering livelihoods in many parts of Zambia. The challenges facing the water sector include deteriorating infrastructure, high levels of non-revenue water, declining water quality and water infrastructure designed to support a considerably smaller population than it currently serves.

Financial sector: In the Southern African region, there is generally limited understanding among financial experts of climate change risks to the economy and the financial system, especially related to insurance, economic and financial losses caused by climate-related events such as floods, droughts and other extreme weather events. Moreover, some financial experts do not understand how to carry out an appropriate assessment of climate exposure to financial activities, assets and the carbon footprint of their institutions.

Other barriers in the financial sector are linked to the high cost of capital for low-carbon investment compared with returns; lack of understanding of climate investment opportunities; inadequate technical capacity on climate change adaptation and mitigation issues during the preparation, review and monitoring of green projects; low awareness and capacity to perform the operational steps involved in green lending investments; high upfront cost of developing business lines in green lending; inadequate risk management mechanisms and standards including credit ratings and risk transfer and pooling instruments; difficulty in accessing longer-term financing; credibility of off-takers; high transaction costs for smaller projects; and difficulty in raising financing for technologies that have not been proven locally (Shishlove et al., 2017).

Opportunities for the private sector to implement the NDC

Several opportunities exist in Zambia across different sectors. These include the following:

Climate-smart agribusiness and forestry:

Zambia's CSA roadmap as well as its CSA investment plan provide guidance for private sector investment and facilitate improved private and public engagement and investment in agricultural value chains.

The presence of forests for REDD+

implementation: Zambia is endowed with forests. This offers an opportunity for private sector

companies to invest in REDD+ and engage in carbon trading as seen already in countries like Madagascar and Zimbabwe. This is an opportunity that the private sector in Zambia can take to invest in green initiatives in the forestry sector.

Renewable energy and energy efficiency: The enabling environment for private sector actors to invest in renewable energy is improving. In Zambia, the government is making good progress towards the provision of robust planning, clear targets and a legal framework for renewable energy production expansion. The goal is to increase the share of renewables in the national electricity mix, which will give room for private sector investments (AfDB, 2021).

Untapped renewable energy potential: Electricity demand is expected to double in Zambia by 2030. To meet this demand, there is a need to invest in the huge untapped renewable energy potential in the country. This offers an ideal opportunity for the private sector in Zambia to develop projects in the renewable energy sector from biomass-generated electricity based on agricultural waste alone.

Waste management: Waste in Zambia is already being used by some private sector actors and investors as a valuable raw material to produce new products including solid waste organics, biogas solutions, recycles and e-waste and builders' rubble. The opportunities in waste management in the country remain under-exploited. To promote investment, Southern African Development Community (SADC) countries have put in place a regional indicative strategic development plan that identifies waste management as one of the priority issues to be addressed. This is complemented by a national waste management policy, strategies, legislations and plans.

Infrastructure: Zambia has in place an Action Plan for the Industrialisation Strategy and Roadmap. A key focus of this is to elaborate targeted and selected industrial policies that provide conditions that will promote higher rates of investment by the private and public sectors in economic infrastructure, in turn providing the enabling conditions needed for the growth of other sectors of the economy, such as value-adding manufacturing (SADC, 2017). The governance body of the Action Plan is composed of four interdependent parties, of which the private sector is one. This therefore provides an avenue for

private sector actors to invest in climate-smart infrastructure as an important pillar of SADC's industrialisation and regional integration.

Green buildings and smart cities: Despite the challenges within the green buildings and smart cities sector, there are some opportunities open to the private sector in Zambia. The private sector, which is known for having a higher level of technical capacity, could engage in training construction workers, as well as providing the know-how for the implementation of projects in the development of smart cities in Zambia. Developing smart cities involves making transport, energy, water resources, waste management and infrastructure climate-resilient, low in GHG emissions and efficient in the use of resources. This gives the private sector the chance to be a service provider in either a single sector or multiple sectors involved in the construction of green buildings and smart cities. This means the private sector has the chance to be a project funder, to work in a partnership with public institutions (PPPs) or to provide services in making one of the relevant sectors climate-smart.

Water and irrigation: Water harvesting and multipurpose reuse, including for irrigation, wastewater treatment, groundwater and conventional water treatment and non-revenue water represent the major PPP opportunities in Southern Africa. Bigger cities and metropolitan municipalities in Zambia that are often well resourced and have a considerable revenue base and strong levels of institutional capacity are the most suitable partners for PPP. The vast arable land in Zambia is constantly hit by drought and changing rainfall patterns, which in turn presents private sector opportunities to invest in irrigation projects and technologies as one way to solve the water-related challenge in agriculture.

Financial sector

Existence of a regional climate finance partnership: The Southern Africa Climate Finance Partnership, a multi-country capacity enhancement and knowledge-sharing platform facilitated since 2016, has a climate finance community of practice comprising public and private sector institutions in several Southern African countries. These communities are focused on improving access to and implementation of climate finance as

well as attracting and boosting investments that tackle national climate change priorities (SouthSouthNorth, 2020).

Institutions with direct access to climate funds: DFIs such as the Development Bank of Zambia have the capacity to directly access dedicated climate funds and funds from bilateral and multilateral development partners and other international finance institutions, so as to provide loans and line of credits to both private and public sector actors investing in and implementing green projects across sectors.

Unlocking climate/green bonds: Zambia is using climate/green bonds to unlock private finance that is currently unavailable to address climate change adaptation and mitigation. These bonds are an increasingly attractive asset class for institutional investors in the region.

Key messages on opportunities to invest in NDC implementation

- Blended finance has a potentially significant role to play in crowding in private sector finance at scale, especially with respect to low-carbon infrastructure projects (such as

water infrastructure) or nascent green-tech industries where there is a need to support the development of new markets or technologies.

- Green bonds offer a significant opportunity (especially at provincial and municipal level) to mobilise large amounts of private capital earmarked for low-carbon, climate-resilient investments. The global green bond market is expected to grow exponentially as governments, cities, municipalities and large corporates seek funding to meet climate change commitments and the SDGs.
- Green performance-based grant funds (outcomes-based grant funds) could offer private sector institutional investors the opportunity to increase investment in green MSMEs, by paying for pre-agreed green outcomes, such as (among others) green job creation, climate change mitigation and improved water and waste management, subject to matching private sector funding from these private sector institutional investors. An evolution of this performance-based model could see grants being replaced by concessional or blended finance instruments.

5. Overview of the Finance Sector and Resources in Zambia

In understanding how to finance Zambia's Updated NDC it is important to be able to identify where the various potential sources of finance are. Zambia has a wide range of options available to it – including public and private finance and national and international sources. This section sets out where that capital is. In order to be able to effectively mobilise financial resources, it is important to consider the different finance providers to actively deploy funds to the projects/infrastructure activities that need to be financed to deliver the NDC. Figure 9 summarises these interactions.

A major pillar of the Paris Agreement lies in ensuring that financial flows are made adequate and more consistent to help countries reach their collectively agreed global climate mitigation and adaptation targets. While national climate policies, strategies and action plans typically translate these targets into more specific objectives and the measures required to achieve them, these plans often lack well-defined, comprehensive integration into the domestic budget process and rarely include realistic costing and financing elements.

This section focuses on the pivotal role of budgeting and financing for achieving NDCs, recognising that, as part of an NDC action plan, it will be critical to address financing as a cross-cutting, systematic issue. Given the transformational nature of the challenge to sustainably scale up both the levels and the growth rates of financial flows required under the Paris Agreement, this section acknowledges the risk of developing parallel, fragmented approaches. It describes how to develop comprehensive financing strategies, drawing on a diversity of financial instruments and sources, including domestic public finance, domestic and international private investments, and international public support. An integrated approach that transcends project-based and short-term time horizons is required to effectively align financial resourcing with NDC priority activities.

5.1. The role of the private sector

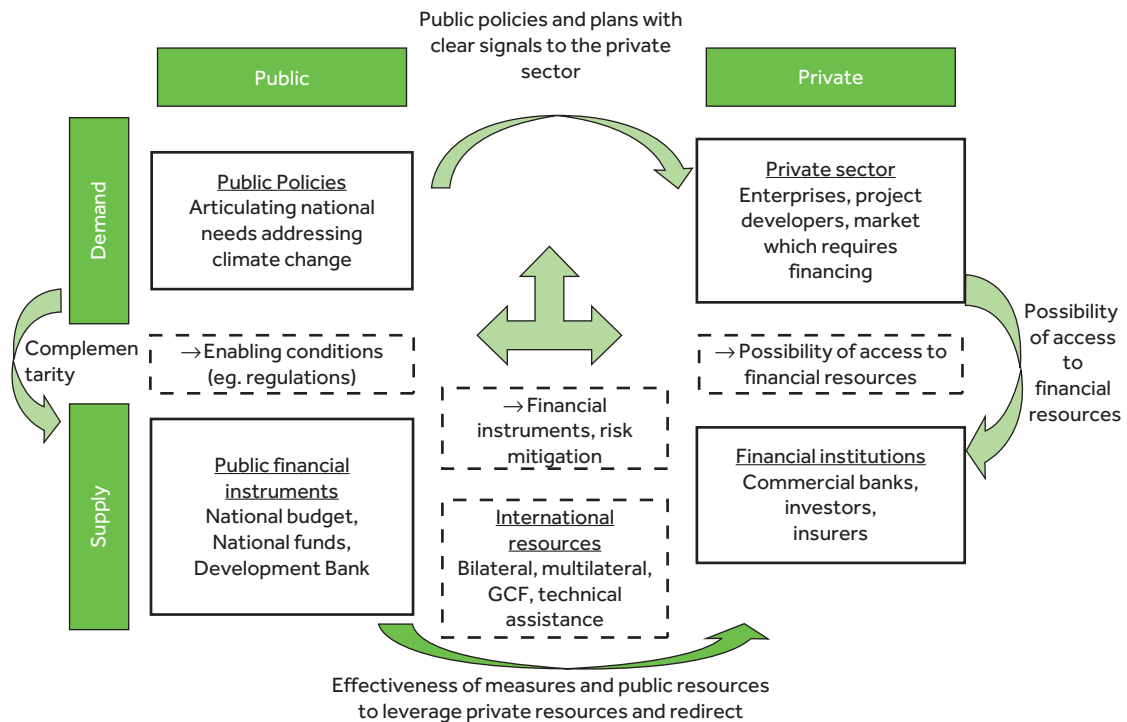
Developing and financing low-carbon and climate-resilient infrastructure can be challenging as finance

sources traditionally invested in fuel-based infrastructure needs to be redirected. This is especially the case for energy. While International Energy Agency modelling of global energy investment has previously shown that capital spending in the fossil fuel extraction and transportation sectors will reduce proportionately, reducing the need for fossil fuels imports from abroad, in the short term significant upfront investment must be secured (Holmes et al., 2016). A sharp "pulse" of investment is required over the next 15–20 years. Current analysis suggests that this level of investment cannot be supported on the balance sheets of existing energy companies and utilities. It is also beyond the reach of public budgets. Therefore, private investors will be crucial in financing NDCs.

Understanding and mapping where capital sits within the finance system as well as the risk appetite and return on investment needed by the institutions that deploy that capital is key to understanding how to develop effective NDC implementation. Zambia's financial sector can be classified into the following main categories: banking, pensions and insurance and non-bank financial institutions.¹⁷ The Zambian financial services sector comprises 19 registered commercial banks, 24 registered life and general insurance providers, 242 registered pension schemes and 36 microfinance institutions (PwC, 2018). In recognition of the strategic importance of the development of the financial sector, the government devised and formulated policy mechanisms to address the identified obstacles within the framework of the Poverty Reduction Strategy Paper, whose implementation started in 2002. In June 2004, the Financial Sector Development Plan covering the period 2004–2009 was approved. This section sets out an overview of where capital is held in Zambia – with a focus on the banking system and institutional investors, notably pension funds.

17 <https://www.pwc.com/zm/en/industries/financial-services.html>

Figure 9. Public and private ecosystem for NDC finance



Source: Holmes et al, 2016.

5.1.1. The Zambian banking system

The number of licensed commercial banks in Zambia in 2020 was 18. Nine of these banks are subsidiaries of foreign banks, five were locally owned private banks and four are partially owned by the Government of Zambia. Subsidiaries of foreign banks continued to dominate the sector in terms of total assets, loans and deposits (Table 17).

The overall financial performance and condition of the banking sector at end-December 2020

remained satisfactory despite the adverse macro-economic environment compounded by the negative effects of the COVID-19 pandemic (Bank of Zambia, 2021). This was largely on account of adequate capital and satisfactory earnings performance and liquidity conditions. Asset quality was, however, adversely rated, as the level of non-performing loans remained high, largely because of the deterioration in business conditions, which impaired the cash flows of most businesses and households. In addition, profitability reduced, largely

Table 17. Assets, loans and deposits and profit before tax by ownership type, 2018–2020 (share of industry, %)

	Asset	Loan	Dep.	PBT	Asset	Loan	Dep.	PBT	Asset	Loan	Dep.	PBT
Subsidiaries of foreign banks	73.1	67.9	72.2	68.3	74.9	71.1	74.0	74.4	73.8	68.2	74.6	42.1
Banks with government stake	18.2	21.8	19.7	28.1	20.6	22.8	22.1	24.1	23.1	27.1	22.6	48.1
Local private banks	8.7	10.3	8.1	3.6	4.5	6.1	4.0	1.6	3.1	4.7	2.8	9.7
Total	100	100	100	100	100	100	100	100	100	100	100	100

Note: Dep. = deposit; PBT = profit before tax.
Source: Bank of Zambia (2021).

on account of International Financial Reporting Standard 9 impairment losses on government securities following the sovereign credit rating downgrade to default status. Further, a few banks recorded unfavourable performance and were under close surveillance.

Banks, along with private equity, have traditionally been the “first movers” on clean energy financing – notably through project finance. The ability of banks to price and manage risk – which is critical in the construction phase of new projects – and to blend different sources of finance (public and private, for example) means they are and will be important financial players in the implementation of NDCs. Banks can also help establish networks that can be used to identify and work with project developers to grow investment in green jobs, which is relevant to NDC implementation. Zambia’s banking sector comprises 19 registered commercial banks (Bank of Zambia, 2021).

Zambia’s economic growth is projected to contract 4.2 per cent for 2020 owing to the COVID-19 pandemic and ongoing electricity shortages, putting the economy into recession for the first time in 22 years. This is in sharp contrast with the 3 per cent growth targeted in the 2020 budget. Target growth for FY 2021 has been set at 1.8 per cent. With the exception of FY 2017, over the past five years actual GDP growth rates have been lower than the set targets. The economy is expected to contract by 4.2 per cent in 2020 and this will invariably affect the performance of the financial services industry. In response to the prevailing challenges due to COVID-19 in August 2020 (PwC, 2021).

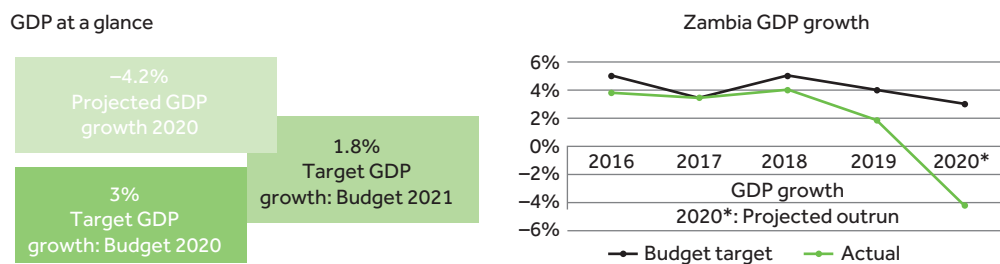
As mentioned above, collectively, the banking sector remains resilient, as evidenced by the strong capital position of K11.9 billion as at June 2020

(December 2019 K11.3 billion). This was against a minimum requirement of K7.5 billion, leaving an excess of K4.4 billion. The banks are positioned to withstand the impact of the current economic downturn. The majority of the foreign banks are adequately capitalised while the capital position for local banks also remained relatively stable.

It is worth noting that around half of all banks operating in Zambia are financing renewable energy projects – including wind, solar and small hydro, accounting for US\$314 million of total investment in 2013. Local bank involvement has grown since 2008, when the Non-Conventional Renewable Energy (NCRE) Loan Programme was launched. This aimed to kick-start renewable energy financing in Zambia by providing “wholesale” financing to local commercial banks, which in turn could act as intermediaries, providing concessional loans to renewable projects. Since then, appetite appears to have increased but bank participation in the sector appears much lower than in other African countries – and with a narrower project focus. For example, bank financing seems to be concentrated in large-scale projects. Looking at international growth in clean energy deployment, in 2014 much of the new installed capacity was distributed energy: \$73.5 billion – an increase of 34 per cent compared to 2013. As such there is a case to be made for government to work to widen the focus of the banks to look at smaller-scale investments as part of its National Finance Strategy (Zambia Energy Sector 2021).

Furthermore, much of the concessional finance offered to private banks comes through direct relationships with DFIs. While this makes sense in terms of getting the market established, looking towards the long-term a more strategic approach is needed. As part of moves to develop an NFS,

Figure 10. Zambia’s GDP growth



Source: Zambia Statistics Agency (2021).

consideration should be given to how DFIs can be involved in a more strategic discussion about targeted public finance offerings to the highest-value areas.

5.1.2. The pensions sector

Zambia has a growing portfolio of pension assets, representing 3.48 per cent of GDP by 2015.¹⁸ Pension fund assets rose in 2020 despite the shock of COVID-19. By 2050, assets under management could reach significant percentage of GDP.

As Zambia moves forward to scale up investment in NCRE (and, more widely, builds climate-resilient infrastructure to meet its climate goals and development needs), pension fund assets will be a key source of finance to access. These institutional investors – pension funds but also insurance companies – which have long-term liabilities and a low-risk appetite are well suited to invest in such assets. Such investments are attractive because they act to reduce some of the exposure to variables such as foreign exchange rates, while also offering protection against inflation, for example, with inflation-indexed rates.

Given the large upfront costs of financing a climate-resilient economy in Zambia, pension funds offer a key source of capital to close the finance gap. They can alleviate the pressure on public balance sheets – and it is generally agreed that the involvement of private sector actors in financing projects improves the quality of infrastructure projects by bringing private sector rigour to financing decisions.

5.2. Public sources of finance

5.2.1. Zambia's national development banks

NDBs, often referred to as national development finance institutions, public banks, policy banks or promotional banks, are "any type of financial institution that a national government fully or partially owns or controls and has been given an explicit legal mandate to reach socioeconomic goals in a region, sector, or market segment (Holmes et al., 2016)." Their operations are traditionally focused on those sectors of the economy associated with a higher degree of risk: infrastructure, rural sector and SMEs. Climate change-related investment is a steadily growing

investment theme for these banks. By 2014, NDBs globally had contributed more than half of total climate finance flows, mostly through concessional loans.

NDB have a key role to play in overcoming the investment gap – in terms of both building confidence in stable policy regimes through the alignment of public and private financial interests – but also building capacity in low-carbon investment. Their dual role is focused on complementing and catalysing private sector players through their insights into local opportunities and risks and also their relationship with the local private finance sector. These insights and relationships as well as their longer-term perspective and access to donor "risk" finance enable them to tolerate more risk compared with private sector actors. Furthermore, government guarantees (explicit or implicit) and the public policy focus of such institutions means they tend to have a lowered required return on capital – as achievement of public policy-relevant goals such as market development and social or environmental objectives constitutes part of the return on investment.

As NDB for Zambia, the Development Bank of Zambia (DBZ) has played an important role in promoting and shaping economic growth and increasing social financial inclusion. DBZ's strategic focus is to develop capabilities and mobilise resources that position it as a preferred development finance partner. Since its establishment, DBZ has been the most significant provider of long-term finance for fixed assets to medium- and large-scale enterprises in Zambia. In recent years, it has taken the lead in financing infrastructure projects.

DBZ's shareholder structure appears to be somewhat more aligned with international capitalisation, given that its shareholder base includes foreign bilateral and multilateral institutions (AfDB, 2021: 38). Furthermore, it has worked with large-scale programmes such as the renewable project financed in collaboration with the United Nations Industrial Development Organization and the Rural Electrification Authority (REA).

DBZ is also working closely with the World Bank through its Electricity Service Access Project (ESAP) to map the potential for small solar home systems and mini-grids. The amount of any future credit line to be provided by the World Bank to fund this is currently undetermined, but figures range from

18 https://www.theglobaleconomy.com/Zambia/pension_funds_assets/

US\$2.5 million as a pilot with the potential to ramp up to \$26.5 million. Of this total, \$5.9 million is intended to specifically target rural electrification projects, whereby \$3.4 million will be used for technical assistance and the remaining \$2.5 million will fund direct loans to solar equipment companies and mini-grid developers. This component of the programme is known as the Off-Grid Loan Facility (ibid.). It is recommended that collaboration be sought with the World Bank or DBZ in preliminary Green Bank design stages to leverage any progress and results that may transpire from the Off-Grid Loan Facility, especially if a Green Bank could be complementary to this programme.

One of the other favourable aspects of DBZ as a potential partner institution is that it secured accreditation with GCF on 1 July 2021. Achieving accreditation would facilitate funding from the GCF and other potential climate funds to NDC projects in the country.

Given that DBZ has been critical in promoting renewable energy investment and climate-proofing key sectors of the economy (including agriculture), there is a strong case to be made for putting it at the centre of the NDC of implementation.

5.2.2. Industrial Development Corporation

IDC is a strong potential partner for any grid-connected renewable energy projects. The institution has an existing mandate that includes renewable energy and is focused on projects larger than 50 MW. This mandate forms a unique complement to the DBZ target market segment. The greatest challenge cited by the IDC lies in identifying equity capital providers in project finance transactions; for grid-connected projects, the IDC has continued to play an active role as an equity investor but seeks financing partners that have an appetite for minority equity stakes.

Similar to the DBZ, the IDC has experience collaborating with multilateral development organisations, such as its support to an 88M W new solar power plant generation capacity project in 2017 through the World Bank's Scaling Solar Program. Following the end of the latter, the IDC successfully launched the Alternative Renewable Energy Investment Programme, which to date has supported 400 MW of new solar power generation capacity and a 130 MW new wind turbine farm. The IDC has also taken action that leverages

the Electricity Act of 2019 and curbs the historic ZESCO monopoly as the sole power off-taker in Zambia via an initiative with Africa GreenCo.

5.2.3. The Rural Electrification Authority (REA)

The REA is a strong potential agency to NDC implementation, given the organisation's history of project facilitation and implementation in the rural electrification sub-sector. As mentioned earlier, REA's funding is generated from a mix of sources but is generally reliant on grant funding to conduct its work. With this dependency, it is not surprising to see slower than hoped progress in rural electrification. However, the agency has critical experience already, which includes relationships that have been cultivated with leaders in rural areas since the REA's establishment in 1994 (AfDB, 2021).

Furthermore, the REA has recently added to its track record of renewable energy project development with the successful completion of a mini-hydro power station in 2019. Known as the Kasanjiku project, the mini-hydro power station is located in the North-West province of Zambia and is the first to be constructed in Mwinilunga. An estimated 12,000 people will benefit, including local public service providers. This recent project highlights existing experience with mini-hydro power, which is crucial for the development of future projects.

Given the REA's in-house capacity and experience with project assessment and development, the entity was identified as a partner for the World Bank's ESAP, for which DBZ is serving as the financial intermediary. The REA is involved specifically in the Off-Grid Smart Subsidy component. There is opportunity for a national climate change fund within the existing scope of the programme to provide further complementary support and to scale positive results. Five sites for projects have been selected thus far, with both hydro and solar projects already identified. However, wind projects have not commenced feasibility studies as they will require additional funding.

Although the REA, DBZ and IDC have some internal project preparation capacity, there is a shortage of funding for the development of rural electrification projects. Potential existing approaches to filling this need include the model highlighted by the Ministry of Energy for a Project Preparation Grant, which

is one component of a programme presented to SREP, with co-financing from the CIF and AfDB (ibid.: 39). In interviews, stakeholders noted that, given REA's funding model, additional grant funding that targets feasibility and project preparation activities is very much needed, especially if the funding is inclusive of training for staff and local counterparties.

5.2.4. Zambia Development Agency

ZDA is Zambia's premier economic development agency with a multifaceted mandate of promoting and facilitating trade, investment and enterprise development in the country. It is also responsible for building and enhancing the country's investment profile for increased capital inflows, capital formation, employment creation and growth of the MSME sector.

A quasi-government institution under the Ministry of Commerce, Trade and Industry, ZDA was established under the ZDA Act No. 11 of 2006. It became operational in 2007, after the amalgamation of five statutory bodies – Zambia Investment Centre, the Zambia Privatisation Agency, the Export Board of Zambia, the Small Enterprise Development Board and the Zambia Export Processing Zones Authority.

5.3. International finance

5.3.1. Multilateral development banks and bilateral development banks

Climate financing by eight of the world's largest MDBs accounted for US\$66 billion in 2020, of which 58 per cent was committed in low- and middle-income economies (AfDB et al., 2021).

Like NDBs, MDBs and BDBs are important as finance providers but also for their technical capacity and expertise. They are important in helping build the capacity of NDBs and local banks to mainstream climate-resilient financing. In 2014, approximately US\$28.3 billion in climate finance was provided by MDBs, including own and donor resources. Many MDBs have targets for lending to climate action – and these targets were increased in 2021 in view of COVID-19. As well as direct lending, the MDBs are implementing agencies of the international climate funds.

In Zambia, the following institutions are the most active: the World Bank, AfDB, the International Monetary Fund and the IFC. AfDB is one of the

largest MDBs contributing to climate finance. It is estimated that the Bank has committed more than US\$1 billion to public sector infrastructure projects in agriculture, industry, water and sanitation, energy, the social sector (education and health), transport and multi-sector support (primarily general budget support).¹⁹

AfDB along with the World Bank Group and KfW has focused operations on financing NCRE feasibility studies with local private banks and public development banks and blending donor funds with public finance to provide low-cost concessional finance and technical assistance.

MDBs will also be important players in the development of updated NDC implementation for Zambia. In addition to being a source of expertise and finance, key roles could include:

- Providing knowledge on policy, technology and financial risks and solutions to overcome barriers to investment;
- Acting as an honest broker in dialogue between governments and private sector investors in the development of new approaches to financing climate resilience;
- Helping develop new innovative risk-sharing finance instruments to blend public and private finance to target high public value investment.

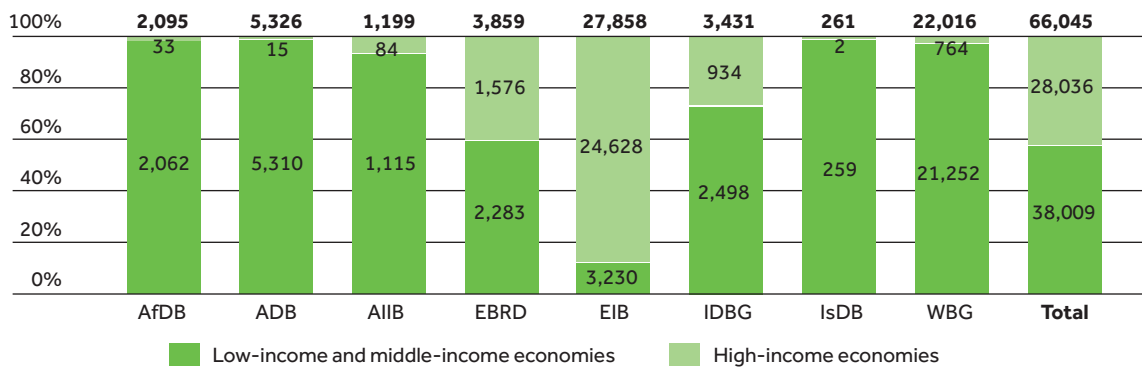
AfDB's Climate Change and Green Growth Department has established the Africa NDC Hub to serve as a resource pool for regional member countries and to co-ordinate various sector activities with a view to fulfilling obligations related to the Paris Agreement.

The Hub particularly focuses on three key support areas:

1. Fostering long-term climate action: This entails analytical work to align country-NDCs with national development agendas and voluntary contributions, and to explore options to raise the ambition necessary for low-carbon and climate-resilient growth on a long-term trajectory.
2. Mobilising means for implementation – finance, capacity-building, technology development and transfer: These are critical

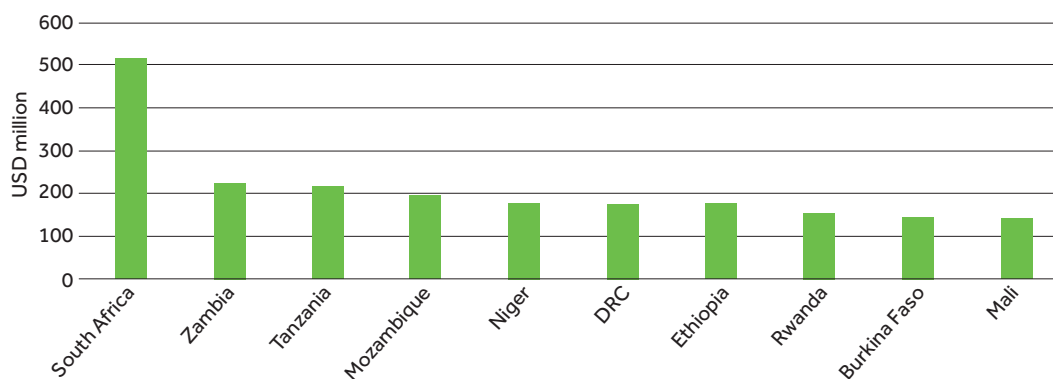
19 <https://www.afdb.org/en/countries/southern-africa/zambia/zambia-and-the-afdb>

Figure 11. Total MDB climate finance commitments for all economies where MDBs operate, 2020 (US\$ million)



Source: 2020 Joint Report on Multilateral Development Banks' Climate Finance <https://bit.ly/3dxJ6pf>

Figure 12. Top 10 recipient countries of climate finance by amount approved, 2003–2018



Source: ODI, CFU, 2019.

enablers to achieve the objectives of the Paris Agreement within the context of African sustainable development. The Hub will engage global climate funds and the private sector to cater for both conditional and unconditional pledges of African NDCs.

3. Co-ordination, advocacy and partnerships: The Hub will provide a platform for the co-ordination of NDC support activities on the continent for the efficient use of limited resources.

5.3.2. International climate funds

The international climate funds tend to have a specific sectoral focus, such as mitigation, REDD+ and adaptation. Most of them were created in the mid-2000s. The exception is the GEF, which was created in 1991 as an association of international co-operation between 183 countries working in partnership with international institutions, civil

society and the private sector to address global environmental problems. These funds are multi-donor, and some of these sources are linked to ODA. Zambia is the second-largest recipient of international climate funding in Africa after South Africa by amount approved (over the past five years, the most active funds in Zambia have been the GEF, CIF and GCF).

The total amount approved for Zambia is approximately US\$238 million between 2013 and 2018 (excluding projects completed).²⁰ The relevance of the funds in absolute terms is small compared with the total need to address climate change challenges. Despite their relatively small size compared with the total amounts invested in Zambia, the climate funds are strategically important for a number of reasons, including for:

²⁰ <https://climatefundsupdates.org/wp-content/uploads/2019/03/CF6-2018-ENG.pdf>

- Attracting private investment through enabling NDBs and MDBs to develop risk-sharing instruments;
- Fostering learning and develop the technical capacity to deliver climate-resilient investment.

However, given the complexity of the institutional architecture and the requirements of the funds,

they have not been fully utilised, especially in Zambia, where there is no adequate institutional capacity or skill sets to be able to access them.

International climate funds can be leveraged to support NDC implementation in Zambia. However, international co-operation must be aligned with country policies.

6. Mapping the Governance and Co-ordination of Climate Finance for NDC Implementation in Zambia

6.1. Institutional arrangements for NDC implementation

Key to successful NDC implementation is good governance and co-ordination among sectors, different stakeholders and government and civil society, so that activities at the local level are appropriately aligned with the NDC, the NCCP, the NCCRS and the NDPs.

Implementation of the Updated NDC is anchored within the framework provided for by the NPCC, co-ordinated by MLNR. This Ministry, together with MNDP, also manages a mechanism (dashboard) to track support received and actions taken in the country. Actual implementation of climate change activities is undertaken by a cross-section of players (Table 18).

6.2. Stakeholder engagement

Stakeholder engagement will be important throughout the NDC implementation process. It will be necessary to obtain broad buy-in for NDC implementation and the actions that it will entail, but also to help shape the process, by taking advantage of the creativity and technical expertise on offer from a range of stakeholders. Engagement on NDC implementation will be co-ordinated by the NDC Co-ordination Committee, with sectoral focal points co-ordinating specific sector-focused stakeholder engagement. Stakeholder engagement can take on many forms with different objectives (Table 19).

6.3. Building institutional capacity

A range of capacities and skills will be needed to ensure effective governance and co-ordination of the NDC implementation process. A good deal of capacity already exists in the central NDC Coordination Team in CCNRMD, and these staff will play a key role in identifying capacity needs in other ministries and

supporting them to build this capacity (e.g. through discrete technical assistance projects). There may also be a need for specific capacity-building within CCNRMD to help it fulfil its co-ordination function on NDC implementation as effectively and efficiently as possible. This could include:

- Expertise in bankable project development and management especially, for the GCF, the LDCF, the AF, the GEF and other bilateral and multilateral agencies;
- Capacity-building on MRV, including on GHG emission assessment in different sectors, such as in data generation systems and management;
- Capacity enhancement in climate change negotiations to strengthen government positions within international negotiations;
- Expertise in using appropriate tools for project management, for example Gant charts, critical path tools and risk registers;
- Expertise in and understanding of good governance structures and processes, for example well-managed committees and working groups. For example, useful lessons can be learnt from other countries that have previously set up such institutional structures;
- Understanding of wider government policy, for example economic and development plans, and sectoral master plans.

More widely across the government, other capacities that may need further development include:

- Experience and expertise in reporting on policy implementation to senior officials;
- Capacity-building on developing gender-responsive funding proposals for ministries, departments and agencies;

Table 18. Roles at institutional and stakeholder level

Institution	Main responsibility
Ministry of National Development Planning	Overall coordination and oversight of climate actions in Zambia National Designated Authority for Green Climate Fund and Adaptation Fund
Ministry of Lands and Natural Resources	Oversee implementation of climate actions in Zambia Focal Point for United Nations Framework Convention on Climate Change
Ministry of Finance	Resource mobilization National Implementing Entity (Aspiring) for the Green Climate Fund
Other Ministries	Executing entities Receive, deploy and report use of funds to Accredited Entities
Development Bank of Zambia	National Implementing Entity (Aspiring) for the Green Climate Fund
Zanaco PLC Bank	National Implementing Entity (Aspiring) for the Green Climate Fund
National Savings and Credit Bank	National Implementing Entity (Aspiring) for the Green Climate Fund
Private sector	Executing entities Financiers Policy advocacy
Civil Society Organisation	Advocacy Participate in planning, implementation and monitoring
Vulnerable groups	Participate in planning, implementation and monitoring

Source: NCCP, 2016.

- Basic knowledge of climate and sustainable development policy across key ministries, in particular an understanding of how their core work areas link with the climate agenda and the SDGs.

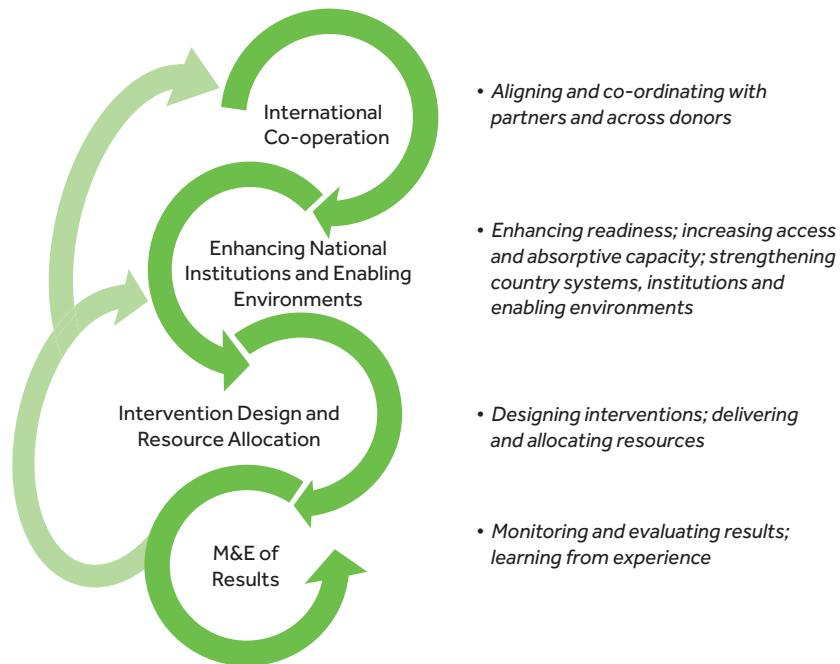
6.4. Climate finance effectiveness at different stages in Zambia

As Figure 13 illustrates, effectiveness can be considered at different stages of climate finance planning, delivery and/or use. For example, at

Table 19. Key objectives of stakeholder engagement in implementation of the NDC

Stakeholder engagement	Objective
Sharing information on the Paris Agreement and on NDC implementation	Broaden buy-in and public support for climate action and for NDC implementation, and build knowledge capital in key institutions
Consultations on specific interventions and policies	Seek technical expertise to help shape and improve draft policies
Sharing of experience and lessons learnt with international partners	Increase awareness and appreciation of action carried out in Zambia and transfer knowledge and best practice (in both directions –from and to Zambia)
Sharing of NDC implementation progress reports	Improve understanding of progress made and or areas where further work is needed, increase buy-in for action in new areas or increasing efforts in existing areas

Figure 13. Considering effectiveness at different stages



Source: Ellis et al 2013

the international level, greater discussions and co-ordination between development donors and partners can help align different actors behind common objectives. Similarly, enhancing national and sub-national institutions and enabling environments can help improve the ability of the country and organisations to allocate and absorb climate finance in an effective manner. Further, designing interventions and assessing results during the monitoring and evaluating stage can help improve the effectiveness with which climate finance is allocated.

According to Ellis et al 2012, stakeholders within different communities have focused on what effectiveness means during one or more of these stages. Some organizations focus on institutional and process-oriented issues such as delivery (e.g. Bird et al., 2013), access (Sierra et al, 2013) absorptive capacity or “readiness” (TNC, 2012; UNDP, 2012) during more upstream stages. On the other hand, some look at multiple criteria, e.g.

institutions, governance, learning (Sierra et al., 2013; Brown et al., 2011).

In terms of assessing effectiveness, some financial institutions (e.g. AFD and EIB) focus on their climate finance interventions’ results on the ground in terms of mitigation and adaptation, while others look at broader development or local environmental co-benefits (AfDB, 2021). Increasingly, DFIs (e.g. AfDB, Inter-American Development Bank (IADB), Islamic Development Bank, EBRD) are converging towards results frameworks that track operational, management and project performance results under single, institution-wide systems (AfDB, 2021).

Institutions are also beginning to integrate evaluation (e.g. AFD, 2021) and establish independent external evaluations of their projects and programmes (e.g. ICF, 2013). The OECD Development Assistance Committee (DAC) Evaluation Resource Centre provides a compendium of relevant evaluations from key institutions and DAC members.

7. Financing NDC Implementation for Zambia

Country capacity is an imperative aspect in accessing climate finance in an effective and efficient manner. The current climate finance landscape assessment suggests that Zambia is relying heavily on international organisations and partners to access climate finance, including in proposal development. It is important to reduce this reliance gradually by developing national capacities in accessing climate finance and more specifically for NDC implementation.

Enhancing overall knowledge levels on climate change across sectors is an important aspect in mainstreaming climate change and a more integrated approach towards addressing climate change challenges. Apart from knowledge and local expertise, appropriate institutional mechanisms are also important. As NDCs provide an opportunity to countries to consider climate change in a more holistic manner, establishing and strengthening appropriate institutional mechanisms is vital to accessing climate finance.

In the current context, specific climate finance support is being sought under GCF Readiness for the private sector. Zambia can capitalise on this opportunity but can also think of going beyond this and integrating capacity-building investments into projects in a more coherent and strategic manner for the private sector.

Critical funding gaps exist despite national commitments and private sector innovation. Thus, the state has an important catalytic role through clear and trusted policy, public finance and market-based mechanisms to funnel private sector finance into the needed economic sectors. Blended finance will play an extremely important role in catalysing private sector finance to close this gap.

To optimise and enhance the mobilisation of funding to implement NDC priority actions, this section now provides thoughts on how to move forward with a focus on both short-term actions and more strategic medium- and long-term considerations.

7.1. Short-term actions to optimise and enhance mobilisation of funds for NDC implementation

The government can consider the following steps as short-term actions to towards NDC implementation.

Step 1: Identify sectoral priorities and facilitate institutional co-ordination

Zambia has developed a comprehensive set of plans, initiatives and targets setting out how it will address climate change. It has also created an extensive institutional framework for developing and delivering on these plans; as such, the integration of policy efforts to ensure coherence should be a core theme of the process of developing any strategy to enhance the mobilisation of funding to implement NDC priorities. This will form a sound basis for starting to move from planning to implementation. Development of a new National Adaptation Plan also marks a strong focus on the delivery of policy outcomes. In addition, growing engagement of and with the private sector points to the government's awareness of the importance of mobilising finance for climate change actions to shift flows towards low-carbon and resilient development.

Step 2: Identify and set up working groups for priority areas

Complex problems can best be addressed by bringing key experts and stakeholders together to develop effective solutions. Working groups are a well-tested method for bringing such individuals and organisations together. Dialogue and consensus-building between government, institutions and core stakeholders can ensure a broad understanding of national climate objectives so that financing solutions can be developed. Data gaps requiring further research to inform decision-making can also be identified through this route. Dialogue should include a wide range of stakeholders (targeted as appropriate to the issue at hand) from key

government departments, business, investment and commercial institutions, long-term investors, and microfinance and national and international development institutions. An inclusive approach offers a number of benefits, including capacity-building to understand issues and opportunities and dynamism in solving problems.

7.2. Medium- and long-term actions for climate finance towards NDC implementation in Zambia

Medium- and long-term actions should focus on implementing propositions so that the overall NDC implementation goals can be delivered by 2030. In this way, Zambia's obligation to deliver on its NDC goals can be fulfilled. Table 19 sets out short-, medium- and long-term actions for Zambia towards its NDC implementations.

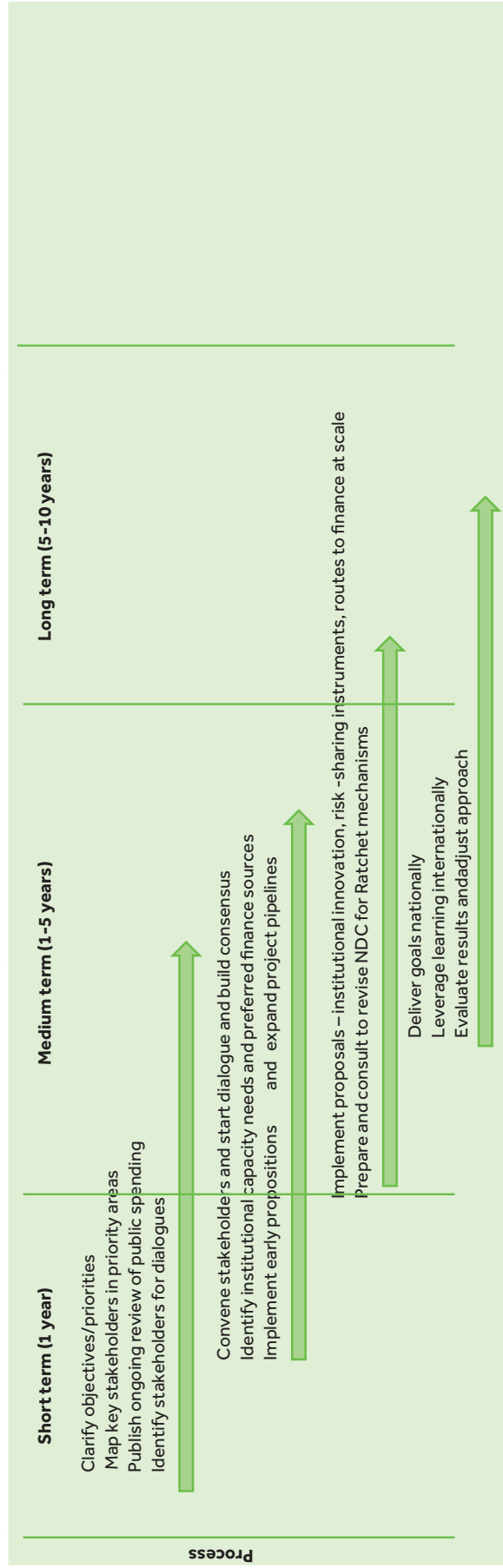
7.3. Summary of key actions for Zambia to strengthen financing of its Updated NDC

Finance is critical for implementing the mitigation and adaptation actions set out in Zambia's NDC. International public financing sources, such as the GCF, will not be able to provide the large-scale investment needed alone; financing sources such as the private sector and domestic fiscal budgets will therefore be needed. Key activities actions that Zambia can undertake to strengthen financing of its Updated NDC include the following.

1. Review the climate finance landscape
 - a Review the NDC
 - b Review the current status of climate finance strategies
2. Establish institutional arrangements for the oversight and co-ordination of climate finance activities
 - a Identify and delineate key roles on climate finance within the country
 - b Identify a team within government to lead on national climate finance co-ordination
 - c Mainstream climate change into national budgeting processes
3. Compile an overall costing for the NDC
 - a Undertake a desk review to identify and cost the main sub-actions within each mitigation and adaptation action
 - b Check desk-based estimates with relevant national experts and stakeholders
4. Identify funding gaps and needs
 - a Scope and prioritise the actions to be undertaken during NDC implementation
 - b Assess the funding status of each priority NDC action
 - c Identify the level and type of support needed to address each funding gap
5. Assess public and private financing options
 - a Assess the potential for further domestic fiscal support for each action
 - b Assess the eligibility of each action against bilateral and multilateral funding sources
 - c Assess options for private sector investment for each action
6. Identify funding gaps and needs
 - a Scope and prioritise the actions to be undertaken during NDC implementation
 - b Assess the funding status of each priority NDC action
 - c Identify the level and type of support needed to address each funding gap
7. Assess public and private financing options
 - a Assess the potential for further domestic fiscal support for each action
 - b Assess the eligibility of each action against bilateral and multilateral funding sources
 - c Assess options for private sector investment for each action
8. Develop a country climate investment plan
9. Secure direct access to international climate funds for national and sub-national institutions
10. Develop a project pipeline and financing propositions that can be put forward to different financing sources

- a Build technical and relational capacities within government ministries to develop a project pipeline
 - b Develop funding proposals that can be shared with bilateral and multilateral funders
 - c Develop funding proposals that can be shared with potential private sector financing sources
11. Increase private sector engagement and overcome barriers to investment
- a Assess and enhance the domestic investment environment
 - b Strengthen the capacity of relevant departments to identify and develop financially viable opportunities for the private sector
- c Increase private sector engagement in national climate policies, strategies, co-ordinating committees and national financing bodies
12. Design and implement a climate finance MRV system
- a Identify climate-related spending across all relevant finance flows
 - b Track and report climate-related spending across all relevant finance flows
 - c Expand and improve the MRV of climate finance

Table 19. Short, medium- and long-term actions towards Climate Finance Mapping



Actions		
<ul style="list-style-type: none"> • Set up institutional arrangements on climate finance with an Integrated Project Development Unit to co-ordinate and facilitate climate change-related climate finance • Establish a local portal with information on climate finance opportunities • Development of more accurate costing for NDC measures • Map NDC needs and priorities such as by tracking public and private climate expenditures and investments to align expenditures to determine costs of NDC actions (upfront capital, ongoing maintenance, capacity-building and human resources for implementation) • Seek avenues to scale up collaboration with and regulation of the private sector to encourage investment and mobilise new resources • Develop financing strategies for specific priority interventions, such as financial mechanisms at the project level, to better align public and private capital with NDC goals • Assess institutional coherence • Quantify financial flows and identify sectorial financing needs • Develop energy efficiency standards • Set up regulations to quantify CO₂ emissions • Develop catastrophe insurance • Explore needs/barriers to investment in other key sectors, e.g. forestry 	<ul style="list-style-type: none"> • Carry out detailed review of funding options • Conduct regular climate finance knowledge-sharing for key stakeholders with participation by development partners and international NGOs • Carry out a comprehensive capacity needs analysis and develop a country-wide capacity-building for use as a strategic framework to integrate capacity-building aspects into climate actions • Build capacity of institutional mechanisms including systems, processes and procedures • Identify and support local entities to enhance capacities to access climate finance, including capacity-building on integrating climate change aspects • Create awareness across sectors on options and context of climate finance, train local experts and integrate capacity-building aspects into projects and programmes • Set up standards and a methodology to consider resilience in infrastructure • Develop insurance products for medium-scale farmers • Develop a central tracking system for climate finance, with standard methodologies with a robust MRV framework • Develop mechanisms to aggregate energy efficiency investment • Consider central bank delivery of a climate resilience regulation 	<ul style="list-style-type: none"> • Gap analysis of current finance tracking systems and institutions • Central bank and regulators to increase institutional investor financing of resilient infrastructure • Climate change financing and integrated into planning and budgeting legislation • Central bank to consider 2C stress-testing for financial sector

8. Conclusion and Recommendations

8.1. Conclusion

Zambia has a huge opportunity to develop a robust climate system and become a regional leader in climate financing. So far, the country has made good progress in terms of setting up policies and institutional arrangements to help mobilise, allocate and monitor climate finance. The various policy instruments set out by the government to enhance processes of climate financing paint a picture of a progressive future. The climate finance mapping seeks to position the country to better access climate finance through a variety of well-thought-out strategies and action plans to be implemented through PPPs for effective implementation of the Updated NDC.

While this institutional set-up provides a framework for tapping into diverse funding sources, enabling increased flows from the global to national, internal mechanisms and flow of funds could be enhanced through stronger synergy between various policies and institutions so as to build and integrate a financial mechanism that is technically, financially and politically sound. There is also a need to enhance linkages with broader non-state actors including civil society, NGOs and other stakeholders, to tap into various opportunities including through learning and best practices. Open and transparent dialogue between national, provincial and district governments, business, long-term investors, and microfinance, banking and development institutions will be important.

Despite its relatively well-established national systems, the country still faces some challenges in managing diverse sources of climate finance. More specifically, monitoring, evaluation and implementation of climate change interventions remain weak. Mechanisms to identify the sources of finance and track how it has been used have still not been put in place, yet these are international standards required in climate finance and this may prevent the country from accessing some funds. Several national consultations have sets out mechanisms to be developed but this is still a long way off and requires sufficient political funding.

Enhanced political will is needed to ensure these goals are not pushed to the next climate action plan. Improved tracking of climate change-related inflows and expenditures, including identification and coding of climate change expenditure, should be integrated into national budgetary processes.

Furthermore, despite a robust national institutional framework, there is a need for key institutions, such as the Office of the Auditor General, the Ethics and Anti-Corruption Commission, etc., to engage in clear communication on progress and give regular updates for accountability purposes. The national and provincial governments, the private sector, academia and civil society have large enough reach to channel climate finance initiatives. However, potential implementing and executing entities have limited capacity to deal with eligibility criteria and modalities of various funds.

The public and private sectors in Zambia will remain key players in the implementation of its NDCs across the country. And Zambia is full of endless green investment opportunities, especially in the implementation of NDC under the Paris Agreement. Its vast uncultivated arable land and other natural resources; the huge potential, interest and demand with regard to clean energy; the need to upgrade and build infrastructure in the transport, energy, water, agriculture and waste sectors; and the growing population and GDP as well as the steady flow of foreign direct investment are reasons for the private sector to increase its investment in green projects in Zambia, helping the country leapfrog over high-carbon and/or non-climate-resilient technologies and business models.

Access to private capital flows, which account for a significant proportion of international and domestic climate finance flows, is crucial for Zambia. The private sector is risk-averse and the country requires an enabling environment that minimises any real or perceived risks. In addition, Zambia needs policies and programmes that use public climate funds to leverage large investment from the private sector, and sound institutional processes and investor promotion activities need to play a

central role in successfully attracting funding. MoF and line ministries have a tremendous role to play to ensure the capacities of responsible institutions and stakeholders are developed to ensure the country benefits from private investment. Most importantly, financial markets and instruments, and organisations that interface local communities with these, can provide an important source of investment in devolved systems. However, this needs to be undertaken in tandem with safeguards to protect local communities from the risks inherent in such markets and instruments, and by enhancing the capacity of local communities to effectively engage in these partnerships.

The following aspects were identified in a collaborative deliberation with stakeholder engagements as the way ahead to increase the effectiveness of the climate finance mapping.

8.2. Recommendations

Establish Zambia's vision for access to and use of external climate finance. Key aspects that should be improved on the path towards achieving this vision that stakeholders both public and private should consider as a priority going forward include:

- **Boost country ownership and local capacities.** These elements are considered crucial to promote the long-term mobilisation of climate finance. MNDP, MLNR and MoF must craft a specific approach to strategically target optimised mobilisation. As institutions laded with responsibility for climate finance mobilisation, they should be more proactive on sharing how climate funds can best utilized.
- **Strengthen strategic alignment and use of the programmatic approach.** MNDP, MLNR and MoF need to more strongly evaluate if climate finance proposals relate to an existing or planned stream of investment in the same sector market/province/district; if not, proposals should at least have clear potential synergies with external stakeholders.

Set a knowledge agenda. Insights that can help the knowledge agenda on climate finance mobilisation move forward include:

- **Organise webinars.** These will be particularly useful if they are focused on specific sectors and share the experiences of various countries working with the same fund.

- **Create an information repository that enables easy access to relevant, synthetic data on projects.** Infographics to sell a particular fund or previously applied mechanism/model are instrumental in ramping up country interest.
- **Increase internal capacity at MNDP, MLNR and MoF to structure innovative financial mechanisms** (e.g. strengthen the legal department) and provide necessary training to sector specialists on key principles for financial structuring, so they can identify opportunities when exploring projects with potential beneficiaries.
- **Modify Project Completion Reports** so they do not focus only on performance but also include assessments of aspects that did not work well and of lessons learnt – motivating a culture that accepts failure to learn from it.
- **Ease interaction between sector specialists and Climate Change Department staff who are most knowledgeable about accessing the funds.** Consider a "hotline" or an online chat.
- **Do not wait until the termination of projects to share lessons.** Discuss strengths and weaknesses continuously, to increase the potential for feedback and replication.

Plan for the long term. Climate finance should be programmed according to long-term strategies for the low-carbon, resilient development of each recipient country. By identifying interim steps to achieve full-scale transformation, decision-makers can avoid finance allocations that deliver short-term results inconsistent with a long-term strategy. In the same vein, results frameworks need to be revised for long-term transformative impact indicators.

Use a wider variety of financial instruments. Instruments such as policy-based finance, results-based finance, equity finance and guarantees are under-used in current climate finance provision, which relies almost entirely on grants and loans for project-level interventions. Expanding their use where appropriate will enhance the impact of climate finance deployed.

Enhance leverage on a wider, systemic basis. Given the stark difference between available climate finance and needs for full decarbonisation and

resilience, public climate finance should be allocated to projects that have the greatest leverage of additional funds from other sources. The scope and impact of this leveraging should go beyond project boundaries to consider impacts across the economy. This requires the development of new methodologies and indicators to measure leverage.

Complement project-based financing with policy-based financing and strengthening of enabling environments. The impact of climate finance can be enhanced by complementing project-based financing with more finance for activities that drive systemic change, primarily through enabling policy and environments to address barriers to transformation. A co-ordinated approach that uses multiple levers is the most effective.

Invest in climate intelligence products. Climate intelligence products come at low cost but can have a powerful leveraging effect by demonstrating the benefits of climate action and providing the knowledge to implement it. They include physical climate impact and vulnerability maps; early warning technologies; MRV methodologies and technologies to measure emission reductions; models and tools for long-term scenario simulation and planning; and physical and transitional risk assessment tools.

Understand and manage the political economy to ensure a just transition. Any transition from BAU to a clean development trajectory will involve localised negative impacts on certain industries, workforces and regions. Welfare gains resulting from cleaner development must be used to compensate for these losses. Use of climate finance to support this process, even when not directly achieving climate results, is essential for successful clean development.

Differentiate support by income level and climate vulnerability. The poorest countries are both most vulnerable to and least responsible for global climate change. While this extends to many middle-income countries, they have a different climate change profile. More can be done to refine the differentiation of climate finance to match countries' specific needs and circumstances. This includes applying tiered conditionality for more advanced countries depending on their own efforts and orientation towards long-term strategies. Paired with enhanced donor co-ordination, such approaches can increase the impact of climate

finance, in particular for mitigation. Use of climate finance to support this process, even when not directly achieving climate results, is essential for successful clean development.

Treat the private sector as a partner. The Zambian government and communities must recognise the private sector's contributions not only towards the achievement of national development and NDC objectives but also for their profit-making objectives and returns on their investments, which lead to job and wealth creation. A major step will be to constantly involve private sector representatives from small, medium and large companies across different sectors in national climate processes and initiatives.

Governments and development partners foster the development of the green economy by the private sector through tailored programmes and investment in infrastructure and services to strengthen regional integration and competitiveness in different green sectors at the country, provincial and district levels.

Improve firms' access to finance by **developing the capacity of banks** to have good understanding of climate change adaptation and mitigation and strengthen their credit risk assessment towards NDC-linked, green investments and facilitate accreditation to the GCF.

Investigate credit guarantee schemes for mitigation and adaptation projects as a way to alleviate collateral constraints, while strengthening secured transaction laws and making collateral registry more efficient. This would support green lending to SMEs, without putting financial stability at risk.

Green the financial stimulus package proposed for COVID-19 to support the transition to low-carbon, climate-resilient pathways for optimal long-term outcomes. These stimulus packages could provide synergies of policy reform with climate-friendly actions that will include fiscal reforms, institutional capacity-building and incentives to promote clean technologies, green investments and green jobs.

Put in place dedicated standards and regulations to incentivise private sector investment. Zambia needs to work on and emphasise accountability. Transparency and accountability between government institutions should be encouraged through regulations that ensure that defaulters are prosecuted accordingly. Governments

should identify some small-scale green projects and implement them successfully. This will build confidence in the minds of the private sector firms and encourage them to step in and invest.

Improve PPPs by using past experiences and lessons to inform decision-making, including on the design, funding and implementation of future partnerships. In this way, PPPs can realise mega climate-resilient and low-carbon infrastructure projects in the transport, smart cities, agriculture, energy and waste sectors. Activities that ensure a level playing field and appropriate regulation throughout the partnership should be mainstreamed into all projects by the government to protect and assure private companies and investors.

Provide economic incentives to private firms. These could encourage them to switch from BAU to green projects. Such incentives in the energy sector could include, for example, a price incentive in the form of a feed-in tariff scheme, where the firm or independent power producer can produce energy using renewables and obtain a rebate or above-market prices, respectively, for doing so.

Revise and update policies to reflect the current situation with climate change impacts and trends, with the aim of creating an enabling environment in different sectors that will favour private sector green investment aimed at contributing to the NDC.

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Annex 1: Definition of Terms

Accredited entity: An entity that is accredited by the GCF Board in accordance with the Governing Instrument and relevant Board Decisions. The role relates to project implementation management and oversight, which includes originating and preparing a funding proposal and, subsequently, managing the necessary stages of the implementation process until its conclusion (project management) on behalf of the provider of funds, and reporting obligations.

Adaptation: The adjustment in natural or human systems in response to actual, expected climatic stimuli or their effects, which moderates harm, or exploits beneficial opportunities.

Climate change resilience: The capability to maintain competent function and return to some normal range of function even when faced with adverse impacts of climate change.

Climate change: A change in the climate system caused by significant changes in the concentration of GHGs as a consequence of human activities and that is in addition to natural climate change that has been observed during a considerable period.

Climate finance: Monies available for or mobilised by government or non-government entities to finance climate change mitigation and adaptation actions and interventions.

Climate-relevant expenditure: Costs invested (capital, labour and related) in programmes and sub-programmes, where actual and specific climate change activities may or may not be budgeted exclusively as climate-related.

Concessional financing: Resources extended on terms and/or conditions that are more favourable than those available in the market, achieved through (i) interest rates below those available on the market; (ii) maturity, grace period, security, rank or back-weighted repayment profile that would not be accepted/extended by a commercial financial institution; and (iii) provision of financing to borrowers/recipients not otherwise served by commercial financing.

Conference of the Parties: The formal meeting of the UNFCCC Parties to assess progress in dealing with climate change and to negotiate to establish legally binding obligations for developed countries to reduce their GHG emissions.

Cost-effectiveness: Comparison between the net present value of an intervention and the emissions avoided directly attributed to it. If available, includes the monetised value of the benefits from adaptation and further development co-benefits.

Effective: A condition where programme or project outcomes are commensurate with expected outcomes.

Emissions: In relation to a GHG, emissions of that gas into the atmosphere where the emissions are attributable to human activity.

Environmental and social risk: A combination of the probability of certain hazard occurrences and the severity of impacts resulting from such an occurrence.

Executing entity: Any entity through which climate finances is channelled or used for a funded activity and/or any entity that executes, carries out or implements a funded activity.

Greenhouse gases: Substances able to trap heat in the atmosphere and thus keep the earth's surface warmer than it would otherwise be. The main GHGs are carbon dioxide, methane and nitrous oxide. Others include hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and indirect gases. The resultant effect is global warming – the increase in the average surface temperature and in the temperature of the atmosphere and oceans.

Leverage: Finance that is used to encourage private investors to back the same programme/project; also, how core contributions can be invested in capital markets to create an internal multiplier effect.

Mainstreaming: The integration of climate change actions into decision-making and implementation of functions by ministries, state corporations and county governments.

Mitigation: Efforts that seek to prevent or slow the increase of atmospheric GHG concentrations by limiting current or future emissions and enhancing potential sinks.

Paradigm shift: As defined by the GCF, the degree to which a proposed activity can catalyse impact beyond a one-off project or programme investment under GCF funding. It is defined by

criteria on innovation, the potential for scale-up and replication, potential for knowledge and learning, contribution to an enabling environment, and regulatory framework and policies.

Recipient institution: The institution receiving funds from the channelling institution.

REDD+: A global initiative comprising a series of activities that developing countries could take to reduce emissions and increase carbon stocks by slowing, halting and reversing forest loss and degradation as well as the related global mechanism for recognising and supporting them.

Rio markers: Standardised global reporting codes that can be used to compare climate-related expenditures from different countries. Used to flag the relevance of expenditure in relation to climate to facilitate budgeting and tracking of funds channelled to a fund or programmes/projects.

Stakeholders: Individuals or groups, communities or governments that (i) are affected or likely to be affected by the activities and (ii) may have an interest in the activities (other interested parties). The stakeholders of an activity will vary depending on the details of the activity and may include local communities, national and local authorities,

including neighbouring governments, neighbouring projects and NGOs.

Standard Chart of Accounts coding structure: A system by which national budgets and government financial transactions are coded for recording in IFMIS.

Synergistic: Co-operation among one or more agents that produces a combined effect that is greater than the sum of separate efforts, allowing for economies of scale, reinforcing positive dynamics, etc.

Tracking: A systematic way to trace and link budgetary allocations to their respective expenditures and outputs in climate-relevant activities within the IFMIS.

Transformational change: Strategic changes in targeted markets and other systems with large-scale, sustainable impacts that accelerate or shift the trajectory towards low-carbon and climate-resilient development. It is defined by the four dimensions of relevance, systemic change, scale and sustainability. These changes are durable and lasting in ways that lessen the likelihood of reverting to past practices, and persist over time.

Annex 2: Guide to Climate Finance Sources for NDC Implementation

This guide aims to provide an initial orientation on the available funds that may be relevant for financing NDC-related programmes and projects of public institutions, the private sector, faith-based organisation, NGOs and civil society in Zambia.

For this purpose, a wide range of possible donors of climate finance has been screened, covering various windows of the global climate finance architecture.

The first window includes multilateral institutions – such as UNFCCC-related financial institutions like the AF and the GCF and non-UNFCCC-related funds like those established by MDBs or UN programmes. Many of these funds are relatively large, and well known, but are not necessarily easily accessible by non-state actors. This is particularly true for the GCF, the “flagship fund” of climate finance.

A second important funding window is bilateral climate finance, with various budget lines from bilateral donors, mainly from developed countries, including the UK, Germany, Sweden and Japan. Other donors, including the Abu Dhabi Fund and the Nordic Funds, might be particularly relevant thanks to their strong focus on civil society as a recipient of funds.

A third window, which may be the most attractive for many, consists of a broad variety of non-governmental grants, including private foundations and donor agencies. These funds, unlike many bilateral or multilateral funds, usually have a strong preference for civil society.

The fourth window includes various national and regional funds from developing countries themselves. This guide uses a broad definition for climate finance, building on the UNFCCC understanding that “climate finance refers to local, national or transnational financing, which may be drawn from public, private and alternative sources of financing. Climate finance is critical to addressing climate change because large-scale investments are required to significantly reduce emissions, notably in sectors that emit large quantities of

greenhouse gases. Climate finance is equally important for adaptation, for which significant financial resources will be similarly required to allow countries to adapt to the adverse effects and reduce the impacts of climate change.

Accordingly, this guide aims to explore the practical questions related to climate finance, such as background and volume of funds, deadlines for calls (where known), eligibility criteria, sectoral and regional focus, contact details and a brief assessment of the relevance of certain funds for grant-seekers. Where appropriate, specific funding windows for civil society are highlighted and further information can be accessed through the links provided.

This guide covers 25 multilateral, 16 bilateral, 13 private, 10 faith-based and 1 regional grant providers that may be accessible by organisations and sectors in Zambia. There is a substantial pool of accessible climate finance sources, and it is worth taking the time to identify the most suitable funds, particularly if an organisation or government agency seeks funding for a specific purpose. Only targeted applications, in line with the general approach, funding priorities and eligibility criteria of grant providers, have a chance of being considered. The competition between applicants is usually very high.

The NDC Partnership Climate Finance Explorer is a searchable database of funds and financial assistance programmes available for implementing NDCs. It aggregates information on existing sources of assistance to help users identify and access relevant funding opportunities for planning and implementing NDCs under the Paris Agreement. Countries that provide support can also benefit, as the Navigator displays existing efforts, which can assist in identifying areas for improved co-ordination.

For easy access to the information on each of the funding windows, click on the link to the Climate Finance Explorer: <https://ndcpartnership.org/climate-finance-explorer#nav>

Multilateral climate finance: UNFCCC climate funds	
Adaptation Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/adaptation-fund
Least Developed Countries Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/least-developed-countries-fund-ldcf
Special Climate Change Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/special-climate-change-fund-sccf
Green Climate Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/green-climate-fund-gcf
Multilateral climate finance: Non-UNFCCC financial institutions	
Africa Climate Change Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/africa-climate-change-fund-accf
African Renewable Energy Initiative	https://ndcpartnership.org/funding-and-initiatives-navigator/africa-renewable-energy-initiative-arei
Adaptation for Smallholder Agriculture	https://ndcpartnership.org/funding-and-initiatives-navigator/adaptation-smallholder-agriculture-program-asap
African Water Facility	
BioCarbon Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/biocarbon-fund-initiative-sustainable-forest-landscapes-isfl
Climate Investment Funds	https://ndcpartnership.org/toolbox/climate-investment-funds-knowledge-center
Clean Technology Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/climate-investment-funds-cif-clean-technology-fund-ctf
Energy Sector Management Assistance Program	https://ndcpartnership.org/funding-and-initiatives-navigator/energy-sector-management-assistance-program-esmap
Forest Carbon Partnership Facility	https://ndcpartnership.org/funding-and-initiatives-navigator/forest-carbon-partnership-facility-fcpf-readiness-fund
Access to Energy Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/access-energy-fund
Danish Cooperation Fund for Renewable Energy and Energy Efficiency in Rural Areas	https://ndcpartnership.org/funding-and-initiatives-navigator/2nd-danish-cooperation-fund-renewable-energy-and-energy-efficiency
Forest Investment Program (implemented through World Bank, ADB, AfDB, EBRD and IADB)	https://ndcpartnership.org/funding-and-initiatives-navigator/climate-investment-funds-cif-forest-investment-program-fip
Green Bond Program	https://ndcpartnership.org/funding-and-initiatives-navigator/green-bonds-program
Global Environmental Facility (GEF)	https://ndcpartnership.org/funding-and-initiatives-navigator/global-environment-facility-gef-trust-fund
Least Developed Countries Fund (hosted by GEF)	https://ndcpartnership.org/funding-and-initiatives-navigator/least-developed-countries-fund-ldcf
Partnership for Market Readiness	https://ndcpartnership.org/funding-and-initiatives-navigator/partnership-market-readiness-pmr
Special Climate Change Fund (hosted by GEF)	https://ndcpartnership.org/funding-and-initiatives-navigator/special-climate-change-fund-sccf
Energy and Environment Partnership in Southern and East Africa	https://ndcpartnership.org/funding-and-initiatives-navigator/energy-and-environment-partnership-southern-and-east-africa-eeep

Small Grant Program of GEF	https://ndcpartnership.org/funding-and-initiatives-navigator/global-environment-facility-gef-small-grants-program
South-South Cooperation Trust Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/south-south-cooperation-trust-fund
Sustainable Energy Fund for Africa	https://ndcpartnership.org/funding-and-initiatives-navigator/sustainable-energy-fund-africa
Scaling-Up Renewable Energy Program for Low Income Countries	https://ndcpartnership.org/funding-and-initiatives-navigator/climate-investment-funds-cif-scaling-renewable-energy-low-income
Urban Climate Change Resilience Trust Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/urban-climate-change-resilience-trust-fund-ucrtf
Urban Environmental Infrastructure Fund	https://ndcpartnership.org/funding-and-initiatives-navigator/urban-environmental-infrastructure-fund-ueif
Pilot Program for Climate Resilience	https://ndcpartnership.org/funding-and-initiatives-navigator/climate-investment-funds-cif-pilot-program-climate-resilience-ppcr
Global Climate Change Alliance+	https://ndcpartnership.org/funding-and-initiatives-navigator/global-climate-change-alliance-gcca
Abu Dhabi Fund for Development – IRENA-ADFD Supporting Energy Transition	https://ndcpartnership.org/funding-and-initiatives-navigator/irenaadfd-project-facility
Nordic Climate Facility	https://ndcpartnership.org/funding-and-initiatives-navigator/nordic-climate-facility
Bilateral climate finance	
Internationale Klimaschutzinitiative (International Climate Initiative) (Germany)	https://ndcpartnership.org/funding-and-initiatives-navigator/international-climate-initiative-iki
Nationally Appropriate Mitigation Action Facility	https://ndcpartnership.org/funding-and-initiatives-navigator/nama-facility
Global Climate Partnership Fund (Germany, UK, Denmark)	https://ndcpartnership.org/funding-and-initiatives-navigator/global-climate-partnership-fund-gcpf
International Climate Forest Initiative (Norway)	https://ndcpartnership.org/funding-and-initiatives-navigator/norways-international-climate-and-forest-initiative-nicfi
Seed Capital Assistance Facility	https://ndcpartnership.org/funding-and-initiatives-navigator/seed-capital-assistance-facility-scaf

Bilateral

1. German Corporation for International Cooperation
2. Japan International Cooperation Agency
3. Danish International Development Agency
4. Norwegian Agency for Development Cooperation
5. Swedish International Development Agency
6. Swiss Agency for Development and Cooperation

7. Foreign, Commonwealth and Development Office
8. International Climate Fund
9. United States Agency for International Development
10. Global Climate Resilience Partnership

Non-governmental climate finance: foundations

1. Bloomberg Philanthropies
2. ClimateWorks Foundation

3. European Climate Foundation
4. Ford Foundation
5. Hewlett Foundation
6. KR Foundation
7. MacArthur Foundation
8. Mercator Foundation
9. Minor Foundation
10. Oak Foundation
11. Packard Foundation
12. Rockefeller Foundation
13. Shakti Sustainable Energy Foundation (Shakti Foundation)

Faith-based donor agencies

14. Bread for the World (Brot für die Welt) and Diaconia Emergency Aid (Diakonie Katastrophenhilfe)
15. Bread for all (Brot für alle)
16. Christian Aid
17. Church of Sweden
18. DanChurchAid
19. Diakonia Sweden
20. Norwegian Church Aid

Regional and national funds in developing countries

21. Southern Africa Trust

Annex 3: GEF-funded Projects in Zambia

ID	Title	Focal areas	Agency	Type	GEF grant (US\$)	Co-financing (US\$)	Status
10412	Sustainable Luangwa: Securing Luangwa's water resources for shared socioeconomic and environmental benefits through integrated catchment management	Biodiversity, Land Degradation	World Wildlife Fund - US Chapter	Full-size project	2,889,155	21,448,276	Concept approved
10192	Ecosystem conservation and community livelihood enhancement in North-Western Zambia	Land Degradation, Biodiversity	United Nations Environment Programme	Full-size Project	5,338,585	20,380,000	Project approved
10186	Climate Change Adaptation in Forest and Agricultural Mosaic Landscapes	Climate Change	Food and Agriculture Organization	Full-size Project	7,019,700	33,021,000	Concept approved
9852	Africa Environmental Health and Pollution Management Project – Zambia	Chemicals and Waste	World Bank	Full-size Project	8,256,881	60,300,000	Project approved
9213	Zambia Integrated Forest Land Project	Biodiversity, Land Degradation, Climate Change	World Bank	Full-size Project	8,050,458	55,200,000	Project approved
8034	Building the Resilience of Local Communities in Zambia through the Introduction of Ecosystem-Based Adaptation into Priority Ecosystems, Including Wetlands and Forests	Climate Change	United Nations Environment Programme	Full-size Project	6,185,000	15,389,400	Project approved
8021	Zambia Lake Tanganyika Basin Sustainable Development Project	Climate Change, Land Degradation, Biodiversity	African Development Bank	Full-size Project	7,334,247	22,490,000	Project approved
5435	Promoting Climate-Resilient Community-Based Regeneration of Indigenous Forests in Zambia's Central Province	Climate Change	United Nations Development Programme	Full-size Project	3,885,000	29,030,090	Project approved
5394	Climate Resilient Livestock Management Project	Climate Change	African Development Bank	Full-size Project	6,210,000	20,708,000	Project approved

ID	Title	Focal areas	Agency	Type	GEF grant (US\$)	Co-financing (US\$)	Status
5158	Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants	Persistent Organic Pollutants	United Nations Industrial Development Organization	Enabling Activity	170,000	235,000	Completed
4995	Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa for Climate Resilient Development and Adaptation to Climate Change – Zambia	Climate Change	United Nations Development Programme	Full-size Project	4,000,000	12,563,907	Completed
4639	Strengthening Management Effectiveness and Generating Multiple Environmental Benefits within and around the Greater Kafue National Park in Zambia	Biodiversity, Land Degradation, Climate Change	United Nations Development Programme	Full-size Project	13,148,864	46,936,777	Project approved
3689	Adaptation to the Effects of Drought and Climate Change in Agro-Ecological Zone 1 and 2 in Zambia	Climate Change	United Nations Development Programme	Full-size Project	3,795,000	9,804,000	Completed
3668	Extension of Kasanka Management System to Lavushi Manda National Park	Biodiversity	World Bank	Medium-size Project	835,000	992,000	Completed
3048	Development of a National Plan for Implementation of the Stockholm Convention on Persistent Organic Pollutants in Zambia (POPs Enabling Activities add on)	Persistent Organic Pollutants	United Nations Environment Programme	Enabling Activity	58,738	0	Completed
2852	Zambia Biological Diversity Enabling Activity (add on)	Biodiversity	United Nations Development Programme	Enabling Activity	150,000	0	Project approved
2413	Preparation of the National Adaptation Programme of Action	Climate Change	United Nations Development Programme	Enabling Activity	197,500	0	Completed

ID	Title	Focal areas	Agency	Type	GEF grant (US\$)	Co-financing (US\$)	Status
2155	National Capacity Self-Assessment for Global Environmental Management		United Nations Development Programme	Enabling Activity	200,000	0	Completed
1607	Increased Access to Electricity Services	Climate Change	The World Bank	Full-size Project	4,500,000	71,000,000	Completed
1358	Renewable Energy-Based Electricity Generation for Isolated Mini-Grids	Climate Change	United Nations Environment Programme	Full-size Project	2,950,000	4,556,000	Completed
1330	Sustainable Land Management in the Zambian Miombo Woodland Ecosystem		World Bank	Medium-size Project	747,000	603,000	Completed
1268	Effective Management of the National Protected Areas System	Biodiversity	United Nations Development Programme	Full-size Project	6,000,000	35,168,000	Completed
969	Securing the Environment for Economic Development	Biodiversity	World Bank	Full-size Project	4,000,000	28,150,000	Completed
233	National Biodiversity Strategies, Action Plan, and Country Report to the COP	Biodiversity	United Nations Development Programme	Enabling Activity	289,440	0	Completed
171	Enabling Activities for the Preparation of Initial Communication	Climate Change	United Nations Environment Programme	Enabling Activity	256,000	0	Completed

Annex 4: IKI-funded Projects in Zambia

Country/countries	Project title	Description	Focus	Running time	Funding amount
Argentina, Botswana, Dominican Republic, Ecuador, Ghana, Guyana, Liberia, Malawi, Namibia, Nigeria, Zambia , Suriname, South Africa, Tanzania	Development of national systems for creation of GHG inventories - capacity development for national GHG inventories in non-Annex I countries	With workshops and trainings at international, regional and national level as well as an online training course, the project (...)	REDD+ MRV/REL/ Register Negotiation support, with a focus on REDD +	10/2009 to 10/2014	€3,110,940
Argentina, Belize, Bhutan, Botswana, Brazil, Chile, China, Costa Rica, Ecuador, Fiji, Georgia, Guatemala, India, Indonesia, Cambodia, Kazakhstan, Kyrgyzstan, Colombia, Cuba, Madagascar, Malawi, Malaysia, Mexico, Mongolia, Mozambique, Nepal, Peru, Philippines, Rwanda, Zambia , Seychelles, Sri Lanka, South Africa, Tanzania, Thailand, Uganda, Vietnam	Biodiversity Finance Initiative II	The financing of biodiversity protection is a central issue in the implementation of the Convention on Biological Diversity (CBD).	Mobilisation of financial resources	1/2018 to 12/2025	€40,000,000
Belize, Bhutan, Botswana, Brazil, Chile, Costa Rica, Ecuador, Fiji, Georgia, Guatemala, India, Indonesia, Kazakhstan, Colombia, Cuba, Malaysia, Mexico, Mongolia, Mozambique, Peru, Philippines, Rwanda, Zambia , Seychelles, Sri Lanka, South Africa, Thailand, Uganda, Vietnam	Biodiversity Finance Initiative	The financing of biodiversity protection is a central issue in the implementation of the CBD.	Mobilisation of financial resources; acquiring knowledge and improving the knowledge base	12/2012 to 12/2017	€17,300,000
Botswana, Malawi, Mozambique, Zambia	Development of integrated monitoring systems for REDD+ in SADC	The project has an integrated monitoring system for forest areas, carbon stocks and emissions from deforestation and the degradation of (...)	REDD+ MRV/REL/ Register Negotiation support, with a focus on REDD +	10/2011 to 2/2015	€3,764,260

Country/countries	Project title	Description	Focus	Running time	Funding amount
Zambia	Preservation of Miombo dry forest by enlarging and managing existing protected areas	The project supported the establishment of the West Lunga National Park in Zambia as well as neighbouring new protected areas. Thus (...)	REDD+	12/2008 to 12/2010	€2,005,566
Angola, Bolivia, Botswana, Ecuador, Malawi, Malaysia, Mozambique, Namibia, Papua New Guinea, Peru, Philippines, Zambia , Zimbabwe, South Africa, Tanzania, Uganda, Venezuela	Global Forest Survey	The Global Forest Survey project developed a global network of permanent control points, which provides information for a (...)	REDD+ MRV/REL/ Register Negotiation support	10/2014 to 9/2017	€3,500,000
Gambia, Guatemala, Kenya, Colombia, Nepal, Philippines, Zambia , Thailand, Uganda, Uruguay, Vietnam	Integration of agriculture sector in national adaptation planning processes	Climate change brings with it temperature rises, changed precipitation patterns and more frequent extreme weather events. In countries whose (...)	Adaptation strategies/ NAP	12/2014 to 12/2020	€15,000,000
Colombia, Zambia , Tanzania, Vietnam	Integrated planning to implement CBD Strategic Plan and increase resilience of ecosystems to effects of climate change	The project strengthened capacities in order to optimise land use planning and thus objectives of biodiversity protection and adaptation to (...)	Acquiring knowledge and improving the knowledge base; terrestrial protected areas	1/2014 to 12/2018	€3,094,111
Argentina, Bhutan, Chile, China, Costa Rica, Democratic Republic of the Congo, Ecuador, Ghana, Indonesia, Kenya, Colombia, Lebanon, Malaysia, Morocco, Mexico, Peru, Philippines, Republic of Moldova, Zambia , Tanzania, Thailand, Trinidad and Tobago, Uganda, Vietnam, Egypt	Low Emission Capacity Building Programme	The programme promoted the development and expansion of capacities in partner countries in order to promote climate protection. With this objective (...)	Overarching and cross-cutting issues LCDSS, MRV, NAMA, sustainable energy supply/renewable energies/energy efficiency, negotiation support, overarching and cross-cutting issues	1/2011 to 12/2018	€10,000,000

Country/countries	Project title	Description	Focus	Running time	Funding amount
Algeria, Argentina, Bhutan, Brazil, Chile, Ghana, Kyrgyzstan, Colombia, Laos, Morocco, Mozambique, Peru, Philippines, Zambia , South Africa, Tajikistan, Thailand, Tunisia, Uruguay	National forest observation systems for a transparent and truthful REDD +	The international co-operation project supported the process of reducing emissions from deforestation and forest degradation in 19 (...)	REDD+ MRV/REL/ Register Negotiation support, with a focus on REDD +	6/2013 to 12/2016	€3,999,997
Algeria, Argentina, Bhutan, Chile, Ghana, Honduras, Indonesia, Kenya, Kyrgyzstan, Cuba, Morocco, Nepal, Niger, Philippines, Rwanda, Zambia , Senegal, South Africa, Tajikistan, Thailand, Tunisia, Uruguay	National land observation and information system for transparent NDC reporting	For meaningful reporting on the reduction of GHG emissions caused by deforestation, suitable data (...)	REDD+ MRV/REL/ Register, negotiation support, with a focus on REDD +, overarching and cross-cutting issues	5/2018 to 4/2021	€3,150,000
Argentina, Bhutan, Chile, Costa Rica, Côte d'Ivoire, Democratic Republic of Congo, Ecuador, El Salvador, Ghana, Guatemala, Indonesia, Kazakhstan, Kenya, Colombia, Laos, Lebanon, Mali, Morocco, Marshall Islands, Mongolia, Nepal, Nigeria, Pakistan, Panama, Peru, Philippines, Rwanda, Zambia , São Tomé and Príncipe, Thailand, Togo, Trinidad and Tobago, Tunisia, Uganda, Vanuatu, Vietnam, Ethiopia	NDC support programme	The project helps countries meet the Paris Agreement on Climate Change, and in doing so, technically and financially, institutional and (...)	Overarching and cross-cutting issues LCDSS, MRV, NAMA, negotiation support	1/2017 to 12/2023	€44,000,000
Ghana, Indonesia, Zambia	Operationalisation of the landscape approach for biodiversity benefits: politics, practice and people	Landscape approaches offer solutions to reduce competition in use and conflicting goals and to enhance synergy potential. The implementation (...)	Sustainable use of ecosystems/areas	6/2018 to 5/2023	€4,995,604

Country/countries	Project title	Description	Focus	Running time	Funding amount
Namibia, Zambia , Tanzania	Southern African Renewable Investment and Growth Programme	The countries of Southern Africa need additional private funds to finance climate protection. This is especially true for the (...)	Financial sector/ mobilising private sector investment	6/2019 to 10/2022	€3,299,199
Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Côte d'Ivoire, Congo DRC, Djibouti, Eritrea, Eswatini, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Cameroon, Cape Verde, Kenya, Comoros, Congo, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Morocco, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Zambia , Senegal, Seychelles, Sierra Leone, Zimbabwe, Somalia, Sudan, São Tomé and Príncipe, South Sudan, South Africa, Tanzania, Togo, Chad, Tunisia, Uganda, Central African Republic, Egypt, Equatorial Guinea, Ethiopia	Strengthening the climate change competencies of the African Group of Negotiators on Climate Change to represent member states in climate negotiations and to contribute to well-founded decisions of the African Conference of Environment Ministers	The project aims to strengthen climate change capacities in order to ensure effective and active implementation of the Paris (...)	Negotiation support	8/2016 to 6/2021	€4,907,723
Algeria, Argentina, Bosnia and Herzegovina, Georgia, India, Indonesia, Iran, Jordan, Kazakhstan, Colombia, Cuba, Mexico, Pakistan, Peru, Zambia , Serbia, Zimbabwe, Thailand, Tunisia, Turkmenistan, Turkey, Uzbekistan, Vietnam, Egypt	Support of the Nitric Acid Climate Action Group	GlZ and the World Bank were commissioned to implement the Nitric Acid Climate Action Group initiative. GlZ is responsible for (...)	Carbon market (CDM/JI)/emissions trading financial sector/ mobilising private sector investment	11/2016 to 9/2021	€50,679,809
Ghana, Nigeria, Rwanda, Zambia , Tanzania, Uganda	Currency Risk Hedging Facility for Renewable Energy and Energy Efficiency in Africa	The risk of fluctuating exchange rates, and thus the potential loss of funds, inhibits investments in renewable energies and (...)	Financial sector/ mobilising private sector investment, sustainable energy supply/renewable energies/energy efficiency	11/2015 to 1/2038	€50,000,000

Annex 5: Key Actions to Strengthen NDC Implementation

Step 1: Review current climate finance landscape

1a. Review the updated NDC

- Identify any international support requirements that may have been specified in the NDC, including financial, capacity-building, technology transfer or other types of international support.

1b. Review the current status of climate finance strategies

- Climate finance strategies could include any existing climate investment plans or policies that may be in place, whether at the national, sub-national or sectoral level; work programmes established with any specific bilateral or multilateral funders; Clean Development Mechanism project pipelines; and NAMA project pipelines or work programmes.

Step 2: Establish institutional arrangements for the oversight and co-ordination of climate finance activities

2a. Identify and delineate key roles on climate finance within the country

- Consider internal government focal points with important bilateral and multilateral funders for adaptation and mitigation projects.
- Consider establishing a cross-ministerial working group to enhance co-ordination on climate finance issues between these parties.

2b. Identify a team within government to lead on national climate finance co-ordination

- This could be within the ministries of finance or environment, planning commissions or the prime minister's office. It should ideally be a gender-balanced team and have the mandate to:

- Strategically plan and co-ordinate the access, mobilisation, disbursement and tracking of climate finance across the country;
- Establish and maintain communication with government focal points and with bilateral and multilateral funders;
- Ensure co-ordinated engagement with funders via these government focal points;
- Disseminate information to country stakeholders regarding funding criteria and the operational requirements and procedures of major funders.

2c. Mainstream climate change into national budgeting processes

- This will ensure NDC implementation priorities are reflected in budgets, helping existing policies, programmes and project pipelines to be "green."
- This can potentially increase domestic, as well as international, fiscal support for climate change initiatives.

Step 3: Compile an overall costing for the NDC

3a. Undertake a desk review to identify and cost the main sub-actions within each mitigation and adaptation action

- Costing each action involves identifying the cost for sub-actions, including upfront capital costs (e.g. infrastructure), ongoing maintenance costs, capacity-building or training, and the human resources needed to implement the action.
- A desk review could include an assessment of similar actions previously completed within the country, at national and/or sub-national levels, as well as reviewing how similar countries may have costed such actions.

- Note that costs for some actions may change over time; it may be necessary to reconsider cost estimates as new information comes to light. For example, costs may decrease over time owing to falling technology costs or barriers being removed by relevant policies.

3b. Check these desk-based estimates with relevant national experts and stakeholders

- Checking the results of the desk-based review with relevant experts can provide additional confidence that the costings are roughly correct and that no important elements have been overlooked.
- Relevant national experts could include government ministries, departments and agencies that are expected to lead the implementation of the actions, have been involved in implementing similar actions or have experience in costing similar actions (e.g. planning or finance departments). They could also be private sector investors or academics.

Step 4: Identify funding gaps and needs

4a. Scope and prioritise the actions to be undertaken during NDC implementation

- Identifying the range of actions that could be undertaken to implement the mitigation and adaptation components of the NDC;
- Prioritising these actions, in close consultation with key country stakeholders;
- Undertaking a broad barriers analysis, and other analyses, to assess the enabling environment for each action (e.g. domestic policy support frameworks, institutional barriers) and understand the mix of financial and non-financial measures required to successfully implement each action.

4b. Assess the funding status of each priority NDC action

- Identify existing and projected domestic budgetary support for each priority NDC action, for example through the development of CPEIRs or other frameworks.
- Consider available domestic budgetary support, as well as any expected bilateral and/or multilateral support and private sector finance.

- Identify which actions and sub-actions have yet to be fully funded.

4c. Identify the level and type of support needed to address each funding gap

- Assess the amount and type of support required to close each funding gap (e.g. capacity-building, technical assistance, finance) and the likely type of funding source (e.g. government, bilateral and multilateral funders and private sector).

Step 5: Assess public and private financing options

5a. Assess the potential for further domestic fiscal support for each action

- Review existing development policies, programmes and infrastructure project pipelines to assess the potential for “greening” these activities, for example extending or amending these to include NDC priorities, and screening the climate risks or mitigation potential associated with these projects.
- Identify opportunities to mainstream climate change priorities into the national budgetary and infrastructure planning process. This can indirectly increase domestic and international fiscal support for climate change initiatives. See the governance module for more details regarding integrating NDC implementation across government.
- Additional engagement with key departments may be required, including planning, finance and sectors involved with NDC implementation, at both the national and the sub-national levels.
- Consider what information on the co-benefits of climate action might be useful to these departments, to obtain buy-in and support.

5b. Assess the eligibility of each action against bilateral and multilateral funding sources

- Consider the country’s history of accessing funds from bilateral and multilateral sources to identify potential funders with whom the country already has a relationship. These could potentially be approached in the short to medium term regarding financing for priority NDC activities.

- Identify any new sources of multilateral and bilateral finance that could potentially support the actions.
- Assess the eligibility of each action against the funding criteria for existing and potential new bilateral and multilateral funding sources.
- Identify the best method for Zambia to access each funding source, for example direct access (this is relevant for a limited number of funds, indirect access or NAMA development).
- When developing the climate investment plan, it may be useful to review how peer countries deliver and finance similar projects and what lessons can be learnt.
- The country climate investment plan should build on and strengthen any existing climate investment plans in place, as well as drawing on Clean Development Mechanism or NAMA project pipelines and country programmes that have been developed for specific bilateral or multilateral funders.

5c. Assess options for private sector investment for each action

- Assess the suitability and potential attractiveness of each action to the private sector. This can be done by determining if the action is likely to generate a predictable future revenue stream that can cover the costs and generate profit (e.g. electricity sales to consumers where there is large unmet energy demand), or if the government may consider directly paying private sector investors (e.g. a PPP where assets are built and the government pays investors for delivering services).
- If the annual net cash flows will be insufficient, a range of financial and non-financial interventions can be considered.
- If investors are hesitant to make significant investments in climate-related projects, consider whether smaller, more manageable projects can be financed initially (e.g. demonstration or pilot projects), thereby improving the financial track record for the sector or technology, which should increase market interest.

Step 6: Develop a country climate investment plan

- A country climate investment plan sets out the programme of investments required to implement each priority action in the NDC, as well as a strategy for meeting those financing needs. Examples of sector-specific climate investment plans can be found on the CIF website.
- Developing the country investment plan will involve consolidating the analysis undertaken across activities 3, 4 and 5 within this module, and making decisions regarding which funding options are most appropriate for each action.

Step 7: Secure direct access to international climate funds for national and sub-national institutions

- A limited number of international funds allow direct access, including the GCF, the AF, the GEF and the European Commission Directorate-General for International Cooperation and Development.
- Direct access involves national or sub-national institutions directly receiving finance from funding sources and disbursing them to relevant projects, i.e. without an international agency managing and overseeing the funds as an intermediary.
- Each fund has different accreditation requirements for institutions seeking direct access, including demonstrating capacities such as financial and administrative management, monitoring and evaluation, project management, gender mainstreaming and equity, and environmental and social management.
- Countries that are interested in direct access may find it useful to initially screen a selection of national and sub-national institutions against the accreditation requirements for the relevant fund or funds, to identify potential eligible institutions and the resources required to fully meet the accreditation requirements.
- For countries with institutions that are already accredited (depending on the funding source, these may be referred to as "accredited entities," "implementing entities" or similar), the next step may be to develop a project pipeline and put forward funding proposals so that finance can be accessed. Note that

the institutions that will be seeking to access financing sources may not necessarily be the same as those leading the implementation of the actions.

Step 8: Develop a project pipeline and financing propositions that can be put forward to different financing sources

8a. Build technical and relational capacities within government ministries to develop a project pipeline

- Capacities that can support the development of a project pipeline include:
 - The ability to undertake financial and technology needs assessments across the country's priority sectors, to assess where efforts need to be focused and ensure projects are robust;
 - Technical understanding of available technologies to ensure the most suitable and effective technology is being used;
 - Co-ordination with relevant ministries to develop joint project proposals and navigate ministerial priorities;
 - Financial modelling and cost-benefit analysis expertise to determine the financial feasibility of the proposed projects and ensure projects stay within the country's budget;
 - Writing skills to develop business cases and project concept notes, to ensure the most effective outcomes for implemented projects;
 - The capability to design and select climate change projects and programmes.
- Any climate change-related capacity-building could potentially include the integration of SDG principles into project concepts, especially gender equity.
- Implementing the NDC will require a strong pipeline of climate change projects, as well as integrating climate-related activities into existing and proposed infrastructure

programmes. This is likely to involve initiatives led not only by a country's ministry of environment, but also ministries of planning, transport, energy and others. To support the integration of climate-related activities into infrastructure projects and programmes, it may be helpful to build capacity across all government departments involved in NDC implementation.

- In addition, there may be non-government stakeholders who have key roles to play in the design and selection of climate change projects. It may be useful to include them in any capacity-building programmes.

8b. Develop funding proposals that can be shared with bilateral and multilateral funders

- Many bilateral and multilateral financing sources allow for the submission of project concept notes, so that initial feedback can be received on the eligibility and viability of the project, before preparing a full funding proposal.
- Requirements for full funding proposals will vary between funders, with typical requirements including information about financing requirements (e.g. co-financing to be provided by the country), as well as a detailed description of project activities and the anticipated results.
- When preparing funding proposals, be mindful of any concept note or proposal templates provided by the funder, as well as the eligibility criteria.
- Some funders may provide support for the development of project concepts and proposals.
- It may be useful to meet with the funder to receive early feedback on project ideas, and how they fit with the funder's selection criteria.

8c. Develop funding proposals that can be shared with potential private sector financing sources

- It may be useful to meet private sector investors to receive early feedback on project ideas, for example through roundtable discussions and consultations.

- The private sector will typically seek funding proposals that address the following concerns:
 - Is the technical solution well thought through?
 - Does the technology have a track record?
 - Are there the skills available within or outside the country to develop the project?
 - What remedies are available if projects are poorly built or operating costs are higher than expected (e.g. enforceable performance bonds from construction companies)?
 - Where will revenues to pay financiers come from (e.g. sales to customers, government support, concessions)?
 - What reassurance can be given that the revenues will be achieved (e.g. additional government support, government-backed guarantees and credit ratings, minimum price agreements and realistic demand forecasts)?

Step 9: Increase private sector engagement and overcome barriers to investment

9a. Assess and enhance the domestic investment environment

- Identify the barriers to private sector investment across relevant priority actions for NDC implementation. These can include perceived or actual risks (e.g. credit risks, policy or political risks, technology risks), the scale of investment opportunity available (e.g. transaction costs are too high in relation to the size of the opportunity) or returns are too low (e.g. owing to interest rates and taxes).
- Identify the range of financial and non-financial interventions needed to address barriers to private sector investment across relevant priority actions for NDC implementation.
 - Financial interventions include risk mitigation instruments (e.g. policy risk insurance, government- or donor-backed partial guarantees); concessionary loans (e.g. to improve

the financial viability of projects); grants (e.g. to improve financial viability of projects or climate risk assessments and energy efficiency audits); aggregation instruments (e.g. to increase the scale of investment opportunity); tax breaks (e.g. for low-carbon or climate-resilient technologies); feed-in tariffs (e.g. to incentivise renewable energy); and PPPs.

- Non-financial interventions include strengthening the rule of law (e.g. so that investors can seek compensation if energy companies do not honour off take agreements); developing "matchmaking" services (e.g. between project developers and financiers); capacity-building for the financial sector (e.g. to address perceived risks associated with low-carbon or climate-resilient technologies); and knowledge transfer (e.g. writing step-by-step guides for developing projects, preparing legal templates for power purchase agreements, rental agreements and loan agreements).

- Develop public-private financing structures and launch pilot projects to showcase viable business models and attract further climate investment.
- Review the approaches used by peer countries for public-private financing and consider whether they could be applicable.

9b. Strengthen the capacity of relevant departments to identify and develop financially viable opportunities for the private sector

- Capacities that can support government officials to identify and develop financially viable opportunities for the private sector include:
 - Understanding how projects similar to the actions being considered are normally financed in the country, to help build financial models for individual projects; this includes understanding: what loan sizes are common in the country? How long do most loans last for? In which currency are most loans? What interest rates are normally

charged? Is there a bond market or an active equity market? Do banks from outside a country lend to a project?

- Knowledge of financial and investment terminology (e.g. payback periods, internal rates of return, equity returns, pre-tax and pre-finance project returns);
- Understanding of the constraints and requirements of investors (e.g. banks typically need to see sufficient net cash flows to comfortably pay loans);
- Knowledge of the range of financial and non-financial mechanisms available to increase the financial viability of projects for the private sector, and to reduce risks (e.g. the risk of cost overruns, revenue streams being lower than anticipated), as well as different ways to call for private sector involvement in projects (e.g. funding competitions, bidding for projects);
- Skills and experience in conducting commercial negotiations with the private sector.

9c. Increase private sector engagement in national climate policies, strategies, co-ordinating committees and national financing bodies

- Promote greater public–private dialogue on climate finance through regular forums and institutions. These can include sectoral associations, investor platforms and public consultations.
- Increasing public–private dialogue can lead to increased understanding of climate change opportunities within the private sector, as well as an increased appreciation of investment barriers and how these can be addressed.
- Involve the private sector in the design and implementation of national climate change policies and projects, to better understand investment barriers and jointly explore opportunities.

Step 10: Design and implement a climate finance MRV system

10a. Identify climate-related spending across all relevant finance flows

- Building on any finance MRV systems that are in place (e.g. for BURs), develop standard methodologies and key performance indicators for a climate finance MRV system, including agreeing a definition – with all relevant stakeholders – of what constitutes climate change-related activities.
- Identify all the relevant departments and institutions that are likely to receive climate finance, and put in place data-sharing agreements (e.g. memoranda of understanding) between relevant departments and institutions, and the climate finance tracking team.

10b. Track and report climate-related spending across all relevant finance flows

- Introduce regular reporting on climate activities for government ministries and implementing entities, using standard key performance indicators to ensure data comparability.
- Develop a central tracking system that allows users to input data using standard templates.
- Process and analyse data on a regular basis, delivering findings in a report that can be used to guide the strategic thinking of the team leading national climate finance co-ordination.

10c. Expand and improve the MRV of climate finance

- Refine the MRV system based on the lessons learnt, and extend the scope of funding tracked to all donors and all relevant institutions over a number of years.
- If BURs have presented data on international climate finance received, assess and revise definitions to ensure they match the NDC targets and ensure the list of institutions involved is complete.
- Assess gaps and close them, step by step, over a longer timeframe.

Annex 6: List of People Consulted

Name	Designation	Affiliation
David Kaluba	In-Country NDC Coordinator	MLNR
Hartley Walimpipi	UNDP NDC Partnership	MLNR
Carol Mwape	Commonwealth National Climate Finance Adviser – Namibia	Commonwealth Secretariat
Praveen Parmar	Zambia Chamber of Commerce and Industry	Private Sector
Philippa Hamakasu	Climate Change Officer – Adaptation	Security Exchange Commission
Hedges Tembo	Assistant Director	MNDP
Ephraim Shitima	Director, Climate Change and Natural Resources Management Department	MLNR
Kasanda Bunda	Principal Climate Change Officer Adaptation	MLNR
Aurelius Nkonde	Senior Climate Change Officer – Mitigation & ACE National Focal Point	MLNR
Dalitso Tembo	Climate Change Officer – Mitigation	MLNR
Praveen Parmar	Member Steering Committee	Zambia Chamber of Commerce of Industry
Ireen Fwalanga		MoF
Nkumbu Zyambo	Principal Economist	MoF
Rebecca L. Ndowa	Principal Planner	MNDP
Beausic Chongo	Principal Climate Change Officer Mitigation	MLNR
Herrick Mwewa	Senior Climate Change Officer-Adaptation	MLNR
Bruno N Mweemba		Biodiversity Finance
Biston Mbewe	Project Officer	UNDP
Annel M Phiri	Manager – NRM and Climate Change	ZEMA
Mutumboi Mundia	Director – Market Supervision and Development	Security Exchange Commission

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