



The South African Climate Finance Landscape 2023

A technical report prepared for the Presidential Climate Commission



ABOUT THIS REPORT

The South African Climate Finance Landscape 2023 report seeks to map climate finance investment in South Africa by way of tracking project-level investments thereby identifying sources and intermediaries of climate finance; financial instruments used; uses of climate finance; and ultimately which sectors benefit from climate finance flows in South Africa. The report aims to provide clear and consistent information on current climate finance investments in South Africa to help highlight existing gaps, spotlight opportunities, and provide a foundation to mobilise and scale climate finance in South Africa.

The data informing the report was sourced from both international and domestic sources and falls within calendar years 2019, 2020 and 2021. The data tracks primary capital investment directed toward low-carbon and climate-resilient development interventions with direct or indirect greenhouse gas mitigation or adaptation benefits.

ABOUT THE PRESIDENTIAL CLIMATE COMMISSION

The Presidential Climate Commission (PCC) is an independent, statutory, multistakeholder body established by President Cyril Ramaphosa with the purpose of overseeing and facilitating a just and equitable transition towards a low-emissions and climate-resilient economy in South Africa. The Commission brings together government, business, labour, academia, youth, traditional leadership, and civil society.

ABOUT CLIMATE POLICY INITIATIVE

Climate Policy Initiative (CPI) is an analysis and advisory organisation with deep expertise in finance and policy. Their mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has six offices around the world in Brazil, India, Indonesia, the United Kingdom, and the United States.

ABOUT GREENCAPE

GreenCape is a non-profit organisation registered in South Africa that looks to drive the widespread adoption of economically viable green economy solutions. They work with businesses, investors, academia, and government to help unlock the investment and employment potential of green technologies and services, and to support a transition to a resilient green economy. Their sector experts specialise in energy, circular economy, water, smart agriculture, alternative service delivery and climate finance.

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FOREWORD

Climate change presents significant challenges to sustainable and inclusive growth. Extreme weather events, driven by climate change, threaten people, particularly those in poverty who are already feeling the brunt of South Africa's hardships.

Responding to climate impacts requires significant financial resources – from both public and private sources, domestic and international. At the Presidential Climate Commission, climate finance is one of our key areas of work. We aim to ensure that sufficient resources are available to support climate change and that the green economy remains appealing for investors to support the necessary transition in the years ahead.

We are also focused on understanding the climate finance landscape – to identify where progress is being made, and where action falls short. This includes a particular focus on obstacles in policy progress, capital distribution, and market deficiencies that hinder financial flows. To date, there has been limited data that presents the full scope of investments made to address climate change.

In this context, this study offers the first evidence-based overview of South Africa's climate finance sector and its capital markets. The study aligns with other climate finance tracking systems in the country, including the National Treasury's work on a Green Taxonomy and the Department of Forestry, Fisheries and Environment's work on reporting on financial flows that support the achievement of South Africa's international climate commitments.

The study aims to support decision-makers in capital and financial markets to recalibrate their endeavours, finding suitable solutions to harness international and domestic capital markets, as well as debt markets, using this report as an evidence base for action. The study also aims to support policymakers and regulators to understand the barriers to financial flows and address regulatory obstacles.

This report would not have been possible without a responsive industry who participated in the research, as well as the dedicated work of Green Cape and the Climate Policy Initiative who conducted the research and provided data and insights. We thank you for your support.

As this study shows, the road ahead is steep and requires targeted, collaborative work to secure the necessary finance to meet the aspirations set out in our national Just Transition Framework and associated climate commitments. I call on all stakeholders to remain committed to finding the institutional consensus, individual action, and science-based planning that is needed to map, structure and harness the financial capital needed for this challenging transformation.



*Valli Moosa
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RELATED PRESIDENTIAL CLIMATE COMMISSION DOCUMENTS

[South Africa's NDC Targets for 2025 and 2030](#) (2021)

[A Framework for a Just Transition in South Africa](#) (2022)

[Recommendations from the PCC on South Africa's Electricity System](#) (2023)

[Technical report supporting the recommendations for South Africa's Electricity System](#) (2023)

[A Critical Appraisal of South Africa's Just Energy Transition Investment Plan](#) (2023)

LIST OF ACRONYMS

AFOLU	Agriculture, Forestry and Other Land Use
CBT	Climate Budget Tagging
CO²	Carbon dioxide
COP26	26th Conference of the Parties
CPI	Climate Policy Initiative
DFI	Development finance institution
DSM	Demand Side Management
EAF	Energy Availability Factor
ESG	Environmental, social and governance
GDP	Gross domestic product
GHGs	Greenhouse Gasses
GW	Gigawatt
GWp	Gigawatt peak
FI	Financial Institution
IRP	Integrated Resource Plan
JETP	Just Energy Transition Partnership
JET-IP	Just Energy Transition Investment Plan
MTCO_{2e}	Metric tons of carbon dioxide equivalent
MW	Megawatt
NBI	National Business Initiative
NDC	Nationally Determined Contribution
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
PA	Per annum
PCC	Presidential Climate Commission
PE	Private equity
SOE	State-owned enterprise
USD	United States Dollar
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WWTW	Waste Water Treatment Works
ZAR	South African Rand

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EXECUTIVE SUMMARY

South Africa is deeply committed to sustainable development and the principles of the United Nations 2030 Agenda. This is evident in South Africa's National Development Plan 2030 which aims to eliminate poverty and reduce inequality by 2030 (South African National Planning Commission, 2012). These principles encompass Sustainable Development Goal 8 (SDG 8) on inclusive and sustainable economic growth, employment, and decent work for all. The country is committed to the Paris Agreement objective of limiting global temperature rise to 1.5°C, through its Nationally Determined Contribution (NDC). In addition, the adoption of the National Climate Change Adaptation Strategy in 2020 brought climate change adaptation planning to the fore in South Africa.

Over the past two decades, South Africa has integrated sustainability, climate mitigation and climate-resilience into its overall policy and development framework, including various national and sectoral policies, strategies and plans. The country aims to transition to a low carbon economy, in recognition that this makes for a more sustainable, resilient and globally competitive economy, thereby supporting broader development goals. Despite these policy commitments and increases in climate finance in recent years, financial flows still fall far short of estimated needs.

Tracked annual climate finance reached R131 billion p.a. on average in 2019 – 2021, an all-time high, but still far from the average annual estimated needs of R334 – R535 billion p.a.

To achieve its goals and to avoid the worst impacts of climate change, South Africa requires baseline climate finance data and analysis to guide national climate policy, foster public-private partnerships, engage in targeted capacity building, and promote resilient economic growth. This report aims to provide a comprehensive breakdown of project-level climate finance, by mapping its sources and intermediaries, financial instruments, and target sectors (as shown in Figure 1). These insights can provide both public and private stakeholders with information to refine and align their sectoral strategies, expertise and policies in relation to climate finance.

METHODOLOGY

In the context of this study, climate finance encompasses funding from local, national, or transnational sources, whether public or private sources of financing. These financial resources are intended to fund the transition to a low-carbon economy and build resilience against present and future climate change. Five sectors at the forefront of climate finance in South Africa are clean energy, low-carbon transport, smart water (supply and demand), circular economy, and sustainable agriculture.

While this report presents the most comprehensive information available, methodological and data limitations remain. Climate finance tracking faces challenges related to the

availability, quality, and robustness of data pertaining to both public and private investment. This study is based on publicly available and proprietary data, sourced on a best-effort basis, to map South Africa's current climate finance landscape. It also includes insights from extensive interviews with market experts and stakeholders within the climate finance ecosystem (see Annexure A: Methodology for details).

This is the second iteration of the South African Climate Finance Landscape, following an initial publication released in 2021 (Cassim, Radmore, Dinham, & McCallum, 2021). The initial study established a first-of-its kind baseline of finance mobilised for the country's low-carbon and climate-resilient economy. The previous report tracked climate finance for the years 2017 and 2018, while this report covers 2019, 2020 and 2021.

The report uses Climate Policy Initiative's (CPI's) robust climate finance accounting methodology and adapts it to the South African context. Some notable improvements for this report include:

- Alignment of sectoral classifications with the South African Green Finance Taxonomy (GFT), published in 2022.
- Increased number and quality of datasets used, including newly tracked finance from private and public sector stakeholders that are actively tracking their investments using the GFT.
- Increased granularity of our dataset, with more than 92% of data at the project level.

We also note that this report does not track just transition finance as a separate category. The years covered (2019-21) predate the South African Just Transition Framework (2022) and the published Just Energy Transition Investment Plan (2022). The Presidential Climate Commission (PCC) is working on a Just Transition Financing Mechanism to define and categorise just transition finance and mobilise and channel funds towards the just transition. Just transition finance as a separate category, or reported specifically where it might be embedded in mitigation, adaptation and dual benefit flows, will be considered in future iterations of the mapping of climate finance in South Africa.

KEY INSIGHTS

Climate finance in South Africa needs to increase by at least three to fivefold from the current annual average of R131 billion. Estimates suggest that South Africa requires on average R334 billion per year to meet its net zero goal by 2050, and R535 billion per year to meet its NDC target by 2030.

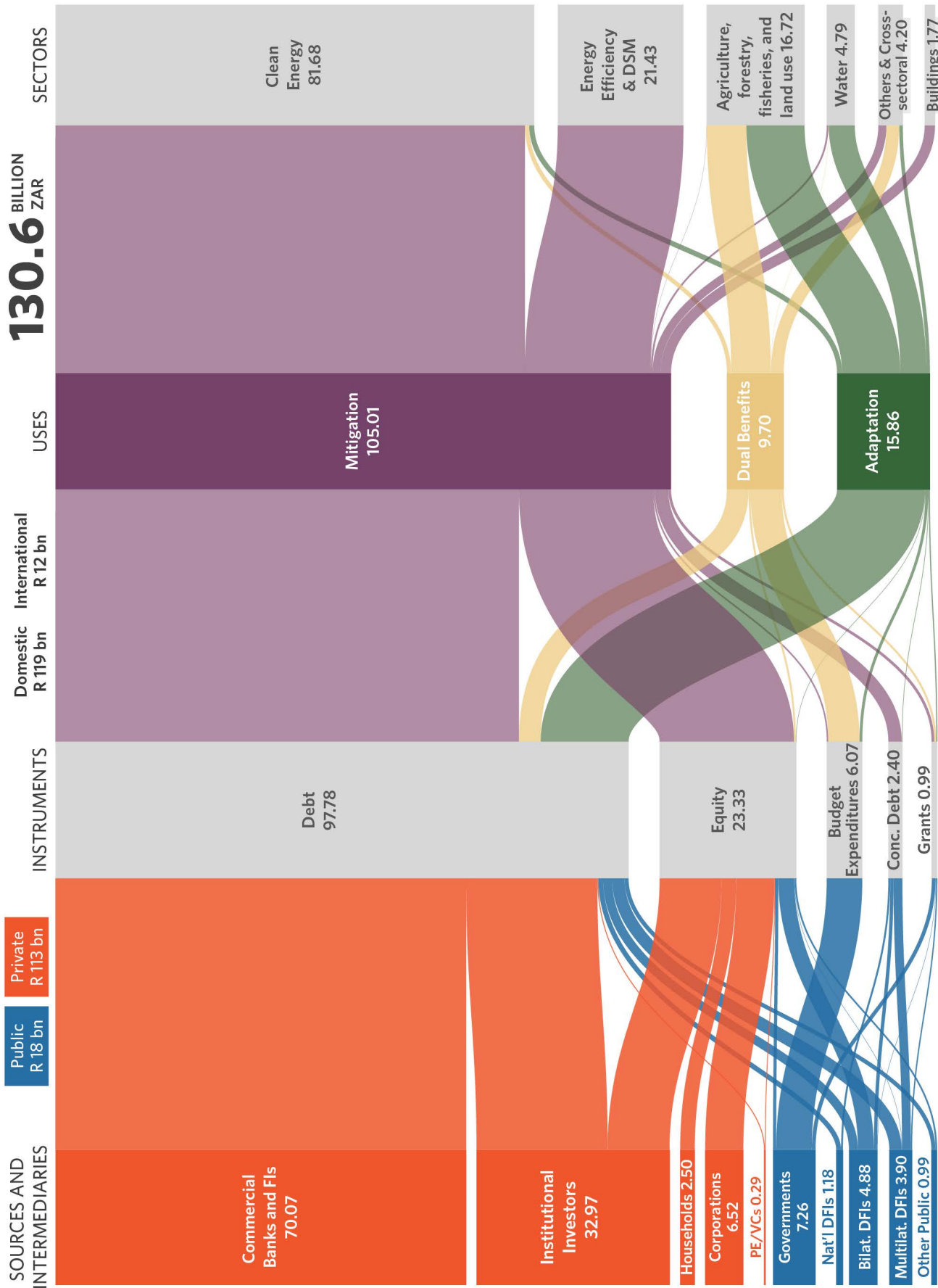
Domestic sources accounted for 91% of tracked climate finance, while international sources accounted for 9%. Further details on the sources, financial instruments and uses, of this finance are summarised below.

PRIVATE SECTOR CLIMATE FINANCE

Private actors accounted for 86% (R113 billion p.a.) of annual investments tracked.

Commercial sources made up 92% (R103 billion p.a.) of private flows, with the remaining 8% (R9 billion p.a.) under the "other" category, comprising corporates, philanthropists/donors, NGOs, and households. Almost all of the private finance (98%) was sourced from domestic actors.

Figure 1: The landscape of climate finance in South Africa 2023 (R billion)



Buildings = Buildings and the built environment; DSM = Demand Side Management; Water = Water conservation, supply & demand; 'Others and cross sectoral' includes sectors Circular Economy (R 245 million), General eco-system support (R 665 million), Low carbon transport (R 88 million) PE/VCs = Private equity and venture capital; 'Other Public' includes State owned enterprises and financial institutions (R 535 million), Export Credit Agency (R 159 million)

Debt financing comprised 82% (R93 billion p.a.) of private flows, while equity finance constituted 18% (R20 billion p.a.). Clean energy secured the largest portion of private sector investment, accounting for 64% (R72 billion p.a.).

PUBLIC SECTOR CLIMATE FINANCE

Public actors contributed an annual average of R18 billion (14%) of tracked climate finance, with the key providers being DFIs 55% (R10 billion p.a.) and the South African government R6 billion p.a. (33%). International governments provided R2 billion p.a. of public flows. The clean energy sector and agriculture, forestry, fisheries and land use received a collective 79% of annual public finance, or 53% (R10 billion p.a.) and 26% (R5 billion p.a.) respectively. Public finance was split between domestic and international actors, comprising 41% and 59% respectively.

FINANCIAL MECHANISMS AND INSTRUMENTS FOR CLIMATE FINANCE

The majority of climate finance flows are facilitated through market-rate debt instruments, with an average cost of capital of between 10% and 12%. Debt financing accounted for 75% of climate finance annually (R98 billion p.a.). Of the total debt, 59% went to the clean energy sector, accounting for an annual average of R58 billion p.a.

Tracked equity financing averaged 18% (R23 billion p.a.), of which 92% went to clean energy. The remaining climate finance was delivered via government budget expenditure (5%), concessional debt (2%), and grants (1%).

USES AND SECTOR FOR CLIMATE FINANCE

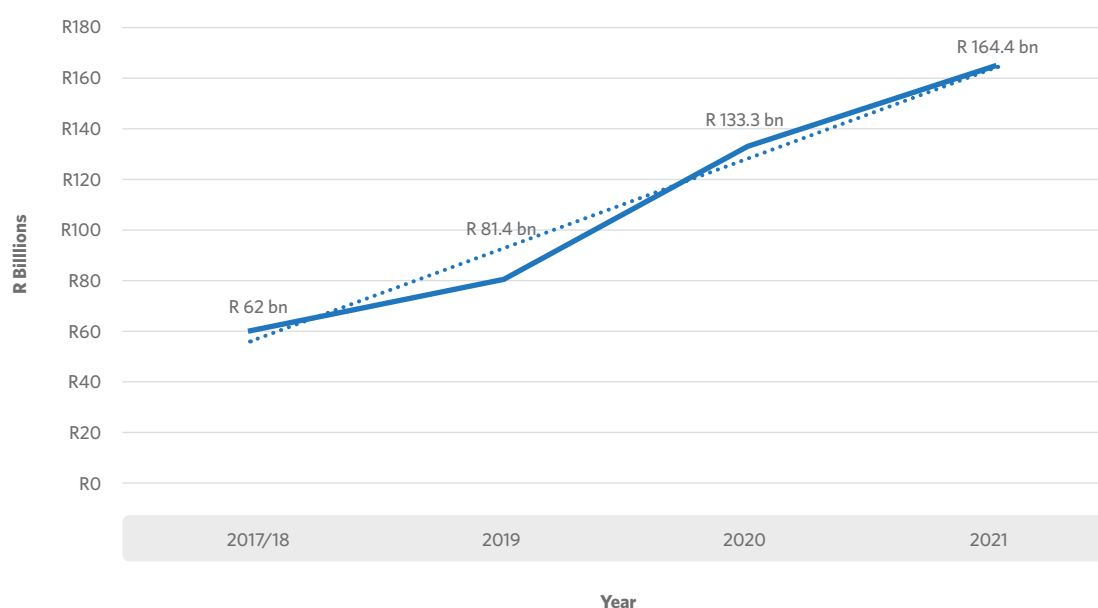
Mitigation finance represented 81% (R105 billion p.a.) of total finance tracked, with adaptation finance making up just 12% (R16 billion p.a.). Dual benefits financing accounted for 7% (R10 billion p.a.). Across Africa as a continent, adaptation efforts receive 39% of total annual average climate finance (CPI, 2022).

Continued loadshedding in South Africa, falling technology costs and increasing grid electricity prices have resulted in clean energy remaining the dominant destination sector for investment, receiving more than 63% of the total tracked climate finance flows.

TREND COMPARISON FROM 2017/18 TO 2019-21

Average annual tracked climate finance in South Africa saw a more than twofold increase in 2019-21 on 2017/18, to R131 billion from R62 billion (Cassim, Radmore, Dinham, & McCallum, 2021).

The data shows a R52 billion increase in annual average climate finance from 2019-20, at the start and peak of the South African COVID-19 lockdown. This is more than double the increase in the annual average between 2018-19 and 2020-21. The increases in both public and private investment indicate that the pandemic had no negative effect on climate finance during this period.

Figure 2: Tracked annual South African Climate Finance flows 2017-2021 (R billion)

KEY TRENDS AND DIFFERENCES

Since the previous report, the following general observations remain true:

- Climate finance from private actors, mainly commercial banks and institutional investors, continue to account for the majority of investment. These have increased threefold, from an annual average of R35 billion reported in 2017/18 to an annual average of R113 billion in 2019-21.
- Climate finance from public actors showed a minor decrease from an annual average of R22 billion in 2017/18 to an annual average of R18 billion in 2019-2021. This is likely due to more accurate tagging, rather than a decrease in actual flows.
- Clean energy generation and efficiency continue to dominate investments accounting for more than 79% of total finance.
- The majority of climate finance flows continue to be facilitated through market-rate debt instruments.
- Flows to adaptation projects continue to lag behind those to mitigation, making up 12% of total finance in 2019-21 and 7% in 2017/18.

Our current tracking also revealed the following differences:

- Grant financing decreased from an annual average of R3.5 billion (5%) in 2017/18 to an annual average of R993 million (1%) per year in 2019-21.
- There was an overall decrease in concessional debt, and also a reduction in the blending ratio for that debt in 2019-21. Concessional debt tracked in 2019-21 averaged R2.4 billion per year, accounting for 2% of climate finance tracked. This is likely linked to the reduction in tracked blended finance, which accounted for 62% of this concessional debt in the previous landscape.

- Climate finance for agriculture, forestry, fisheries and land use, referenced in the previous report as agriculture, forestry and other land use (AFOLU), continued to expand over the last two years, going from annual average of R1.6 billion in 2017/18 to an annual average of R16.7 billion in 2019-21. Significantly, this sector received annual average private investments of R11.9 billion in 2019-21.
- There was a marked increase in water sector investment, including from private actors, with a focus on the development of wastewater and water treatment projects. These received an average annual of R1.9 billion in 2017/18, rising to an average annual of R4.8 billion in 2019-21.
- There was a reduction in tracked climate finance for low-carbon transport over the two periods tracked, dropping to an average annual of R87 million in 2019-21 from R2.2 billion p.a. in 2017/18.

KEY RECOMMENDATIONS

1. **Scale the pipeline of investment-ready low-carbon and climate-resilient projects.** The current lack of bankable projects is exacerbated by a lack of project readiness support, with minimal venture capital and early-stage funding in the market. Project development is challenged by limited capacity and experience of developers, coupled with low risk tolerance of investors. Early-stage capacity building, project preparation and project development facilities that make use of blended finance structures can help.
2. **Prioritise and scale concessional finance to target less mature technologies and hard-to-abate sectors.** Concessional finance providers have played a key role in stimulating the clean energy market. As this has matured, these intermediaries can move away from investing in such assets and take more development risk by funding underserved sectors like industry and urban infrastructure, transport etc.
3. **Scale international risk-sharing mechanisms and innovative finance solutions to stimulate investment.** South African low-carbon and climate-resilient markets are perceived as riskier by investors, and de-risking instruments such as partial guarantees and first loss facilities can be deployed to make them more attractive for private investment. The South Africa market is slowly responding with emerging opportunities and incentives for climate-related financial instruments internationally like green bonds, carbon credits, as well as the Green Outcomes Fund (GOF), and the Sustainable Infrastructure Development and Financing Facility (SIDAFF).
4. **Enhance and strengthen government budget tracking, measurement, reporting, and verification systems.** The South African National Treasury has implemented a local process that has created the needed foundation to track climate finance. Work is needed to build on this foundation and capacitate users at different government levels to implement the framework, and also consider more granular tracking of climate finance needs. Consideration must be given to tracking gender, equity and social considerations as these are explicit in the just transition.
5. **Awareness, capacity building and alignment must be the centre points of a coordinated effort from all stakeholders.** The success of policies, regulations and frameworks is dependent on capacity to implement them at all levels – institutional, systemic and at

the individual level. Identifying capacity gaps and needs and addressing them through awareness raising, knowledge- and information-sharing and training sessions would be critical to mobilize finance for the country climate's objectives.

- 6. Public and private sector investors can take steps to price climate risk into investment decisions.** To enhance climate finance, it is crucial to integrate environmental impact and just transition criteria into public and private sector investment policies, procedures, and targets. This can be reinforced by creating guidelines, transparent and standardized taxonomies and providing tools for effective reporting, monitoring, and evaluation.

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1. INTRODUCTION

1.1. THE SOUTH AFRICAN CONTEXT

South Africa has the highest per-capita emissions in Africa, contributing 40% of the continent's total emissions, and ranking as 14th globally in 2021.¹ The country is heavily reliant on fossil fuel-based energy and has high emissions from its transport sector. Environmental challenges are exacerbated by South Africa's deep-seated societal disparities, as reflected by a Gini coefficient of 0.63, an unemployment rate of 33% (Quarterly Labour Force Survey, 2023), and 55% of the population living below the poverty line.

As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, South Africa has committed to accelerating its transition to a low-carbon and climate-resilient society. The country updated its Nationally Determined Contribution (NDC) in 2021 with more ambitious emissions reduction targets; established the Presidential Climate Commission (PCC) in 2020; and approved its National Climate Change Adaptation Strategy in 2020. South Africa increased its carbon tax, among various other sector-specific policies and regulations.

The intersection of climate change and socioeconomic issues presents a formidable challenge as the impacts of climate change are disproportionately distributed. A just low-carbon transition presents an opportunity to address many existing social issues by increasing investment, upskilling workers and creating new jobs.

South Africa's climate change realities and entrenched socio-economic disparities call for prioritization of a just transition. This is already underway.

1.2. REPORT OBJECTIVES AND STRUCTURE

This report applies CPI's widely applied tracking methodology to better understand the current state of climate finance in South Africa. These efforts aim to inform the South African government, DFIs, and other investors and stakeholders on how climate finance are flowing through the economy; and what could be done to improve the effectiveness and scale of such funds going forward. This is achieved by mapping the lifecycle of finance flows across sources, intermediaries, instruments, and final uses.

Its key objectives are to:

- Establish comprehensive data on public and private climate finance flows in South Africa, mapped by volume, source, use, and sector.

¹ 5th Biennial Update Report: First-order draft

- Identify and propose solutions to methodological challenges and data gaps for future tracking.
- Identify financing gaps, and opportunities to help scale up climate finance.
- Build understanding and alignment between international and domestic stakeholders to facilitate the scaling up of climate finance.

This report is a follow-up to an initial mapping report, the South African Climate Finance Landscape 2020 (Cassim, Radmore, Dinham, & McCallum, 2021), which collated data for years 2017 and 2018. While this report presents the most comprehensive information available, challenges persist related to the availability, quality, and robustness of data on both public and private investment. This study sources both publicly available and proprietary data.

The report is structured as follows.

- **Section 1:** Introduction and context to the landscape of climate finance in South Africa.
- **Section 2:** Overview of South Africa's climate policy landscape.
- **Section 3:** Climate finance investment opportunities and needs in South Africa.
- **Section 4:** Summary of the methodology used for this report.
- **Section 5:** Description of South Africa's climate finance landscape.
- **Section 6:** Overview of barriers faced in financing South Africa's transition.
- **Section 7:** Recommendations for developing South Africa's climate finance ecosystem.

2. SOUTH AFRICA'S CLIMATE POLICY LANDSCAPE

The United Nations (UN) 2030 Agenda for Sustainable Development highlights the importance of inclusive and sustainable economic growth, employment, and decent work for all (Sustainable Development Goal 8). Sustainable development is considered an important tool to achieve the goals of the Paris Agreement, alongside South Africa's Nationally Determined Contribution (NDC), in order to reach the goal of limiting warming by 1.5°C. These principles are further supported by South Africa's National Development Plan 2030 which aims to eliminate poverty and reduce inequality by 2030 (South African National Planning Commission, 2012).

South Africa's updated NDC, submitted in 2021², covers the country's mitigation and adaptation goals, its support requirements under the UNFCCC and Paris Agreement, and the need for equitable access to sustainable development. This reflects the impacts of climate change already experienced by the country and the dire outlook in the face of rising global emissions. South Africa is identified as a global climate change hotspot; the national average temperature has risen at a rate of more than twice that of global temperature increases since 1990, and more frequent extreme weather events have been observed (Scholes and Engelbrecht, 2021).

South Africa's expected annual GHG emissions will be in a range of 398-510 million metric tons of carbon dioxide equivalent (MTCO_{2e}) for the period 2021-25 and 350-420 MTCO_{2e} for the period 2025-30. The updated NDC increases the ambition of the country's GHG emissions reduction targets up to 2030. Compared to the previous first NDC this presents significant progression. The upper ends of the target ranges have been reduced by 17% by 2025 and 32% by 2030, with the lower range also reduced by 12%.

For the period 2020 - 2030 the NDC prioritises decarbonisation of South Africa's fossil-fuel dependent energy sector, which accounts for about 80% of the country's GHG emissions. From 2030, the NDC anticipates deeper decarbonisation, coupled with a transition in the transport sector towards low emission vehicles. Hard-to-mitigate sectors like industry and building will be the focus during the 2040s and beyond.

South Africa's just transition imperatives are highlighted in its NDC. A just transition away from fossil fuels will require strong and sustained agreements between government, labour, business, and civil society. The government must plan for workforce reskilling and job absorption, social protection and livelihood creation, diversification of coal-dependent regional economies and incentivisation of new green sectors, and development of dedicated labour and social plans for when ageing coal-fired power plants are decommissioned (see PCC report A Framework for a Just Transition in South Africa, 2022).

The government has committed to reviewing primary energy sector policies by way of the Integrated Resource Plan (IRP) 2019, and the Integrated Energy Plan. There have also been improvements to agriculture, forestry, fisheries and land use policy, as well as those pertaining to afforestation and reforestation activities. The National Forests Amendment

² South African Government, 2021. South Africa's Intended Nationally Determined Contribution <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/South%20Africa%20First/South%20Africa.pdf>

Act 1 of 2022 provides clear definitions of natural forests and woodlands; supporting public trusteeship of forestry resources, as well as the promotion and enforcement of sustainable forest management. The Master Plan for the Commercial Forestry Sector in South Africa 2020-25 provides a short to medium term action plan for economic revitalisation of the commercial forestry sector.

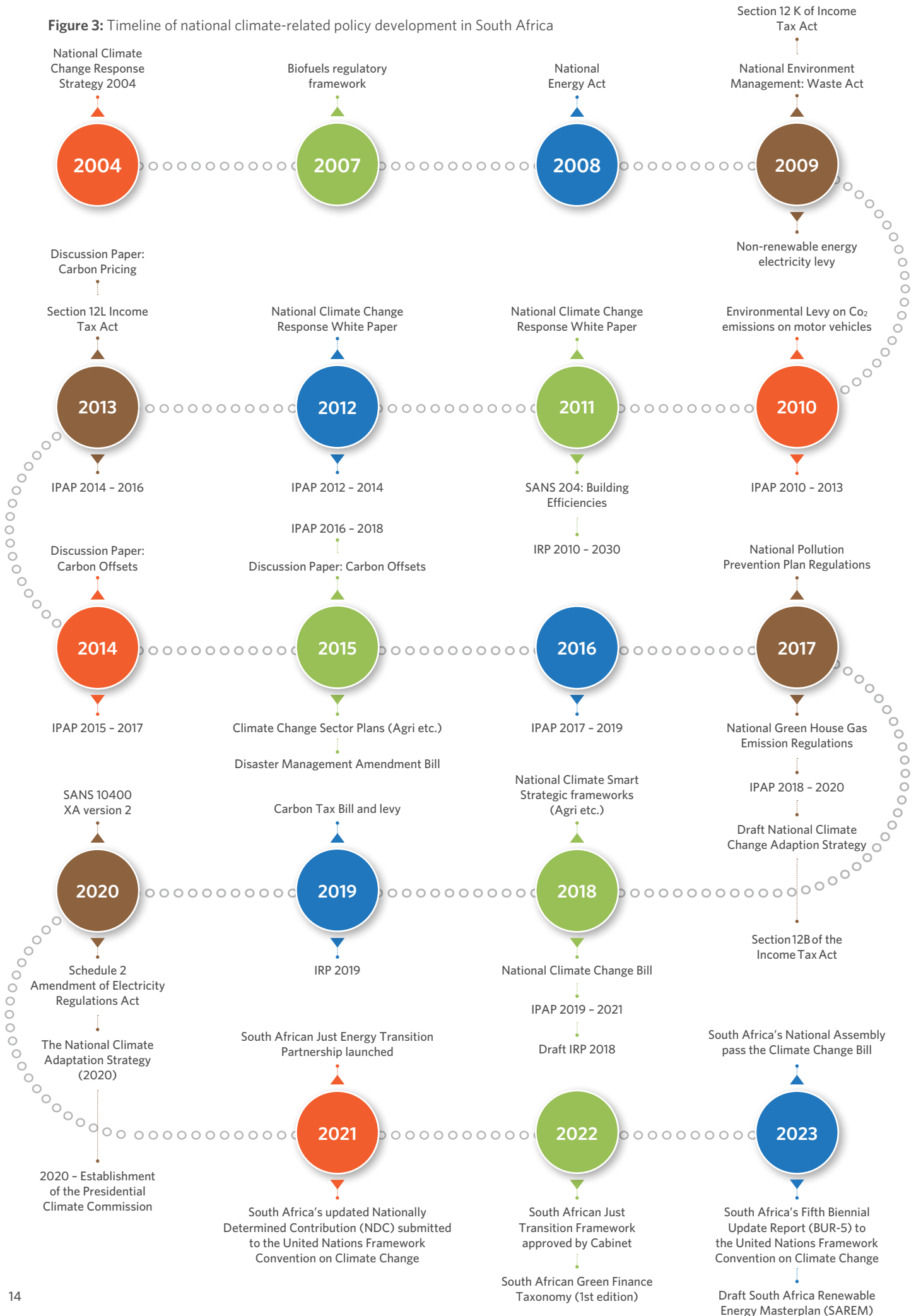
Addressing the threat of climate change requires the restructuring of energy- and resource-intensive sectors to **reduce emissions, sharp increases in energy efficiency, shifts in production and consumption, as well as the adaptation** of all sectors. While climate action is an objective of just transition finance, it expands upon existing definitions of climate finance, due to its additional focus on addressing the social and economic consequences of decarbonisation efforts. The South African just transition has the ambition of ensuring an equitable transition that can benefit all South Africans and create the jobs and investments needed to stimulate economic growth.

Box 1: Just Transition Framework

The PCC's Just Transition Framework is a planning tool that sets out the actions that the government and its social partners will take to achieve a just transition, and the outcomes to be realised in the short, medium, and long term. In 2021, the PCC commissioned several studies and undertook public consultations to inform the development of the Just Transition Framework in order to make sure that it is practical, timely, and actionable, and meets the needs of all stakeholders. The framework sets out the policy measures and undertakings by different partners to minimise the social and economic impacts of the climate transition, and to improve the livelihoods of those most vulnerable to climate change. More information is available here: [A Framework for a Just Transition in South Africa, 2022](#).

The national government, provincial entities, municipalities, civil society organisations, private sector and the research community in South Africa are actively contributing to the shift to a low-carbon and climate-resilient society in South Africa. Over the past two decades, South Africa has adopted a range of national and sectoral policies, plans and strategies as detailed in Figure 3.

Figure 3: Timeline of national climate-related policy development in South Africa



Box 2: Just Energy Transition Partnership (JETP)

Just Energy Transition Partnerships (JETPs) are efforts by advanced economies to support the accelerated decarbonisation of large emissions-intensive middle-income countries. The South African JETP was forged at COP 26 in 2021 between South Africa and an International Partner Group consisting of the UK, France, Germany, the US, and the EU.

The JETP's Political Declaration states the South African government's aim to "establish an ambitious long-term partnership to support South Africa's pathway to low-emissions and climate-resilient development, to accelerate the just transition and the decarbonisation of the electricity system, and to develop new economic opportunities such as green hydrogen and electric vehicles amongst other interventions to support South Africa's shift towards a low-carbon future". The international partners have pledged to mobilise an initial US\$8.5 billion for the JETP between 2023 and 2027, subject to agreement on an investment framework. This financing is intended to leverage much greater resources from private and public sources.

The JETP identifies three priority areas to support the economy of the future: the electricity sector, new energy vehicles, and green hydrogen. More information is available on the [South Africa's Just Energy Transition Investment Plan \(JET-IP\)](#)

3. CLIMATE FINANCE INVESTMENT OPPORTUNITIES AND NEEDS

3.1. SOUTH AFRICA'S CLIMATE FINANCE INVESTMENT OPPORTUNITIES

There are currently five low-carbon sectors which are attracting the majority of climate finance investment in South Africa. As per the South African Green Finance Taxonomy they are clean energy, low-carbon transport, smart water (supply and demand), circular economy and sustainable agriculture.

This section provides market overviews of these five sectors, and indicates possible related investments that could help to reduce the gap between tracked climate finance and funding needs.

An indicative market size or investment opportunity is provided for each sector, alongside its corresponding growth drivers. We note that the methodological approach to sizing the investment opportunity differs within each sector, and should be considered a proxy for the market size and investment potential. For more details, see the [GreenCape market intelligence reports](#).

The untapped potential of these five key climate-related sectors is estimated at between R1.5 trillion and R2.5 trillion by 2035.

Box 3: Snapshot of large-scale renewable energy market

South Africa supplies 80% of its electricity using coal-fired power plants, which represent 73% of the country's installed capacity. Renewable energy supply is growing through public procurement programmes and private off-taker agreements. At the time of writing, 500 MW of concentrated solar-thermal power capacity; 2,287 MW of photovoltaic (PV); and 3,442 MW of wind power had been connected to the grid, with additional capacity under construction (Eskom, 2023).

South Africa's IRP 2019 sets the country's preferred energy mix up until 2030, including allocations for additional renewable energy generation of 20,400 MW (in addition to distributed generation of at least 4 GW); coal-fired plants of 1,500 MW; and gas-fired power plants of 3,100 MW.

Growth drivers

- Changes in electricity sector regulation, including the establishment of an independent transmission operator, and amended grid queuing rules.
- Removal of the licensing threshold for new generation capacity.
- Development of wheeling and trading frameworks.
- Decreasing costs of renewable energy technology (wind and solar).

Box 4: Snapshot of energy services market

The energy service market consists of small-scale embedded generation, energy storage, and energy efficiency.

The small-scale embedded generation sector has been identified as a pivotal contributor to the country's immediate energy security efforts. In 2022, South Africa's total rooftop solar PV market sat at 2.3 GWp of installed capacity, compared to 1.5 GWp in 2021. Assuming a growth rate of 600-900 Megawatt peak, it is forecast to reach ~10GW of installed capacity by 2035, at an estimated market value of R100 billion (GreenCape, 2023).

Due to loadshedding,³ the South African energy storage sector is currently driven by behind-the-meter storage applications, with 500 MWh of installed battery capacity valued at R4 billion.⁴ It is forecasted to reach 6.5 GWh in 2035, with an estimated market value of R32.5 billion.

Commercial and industrial sectors are considered the most attractive within the energy services market, with potential energy savings in these sectors worth a potential R226 billion. Energy savings in the agriculture and public sectors present opportunities of R67 billion and R33 billion, respectively. Investment opportunities are in rooftop solar PV installations, behind-the-meter storage and smart meters.

Growth drivers

- Regulatory and legislative amendments.
- Above-inflation electricity price rises and loadshedding.
- Decreasing technology costs.

³ Interruption of an electricity supply to avoid excessive load on the electricity grid.

⁴ Assuming that 5% of the current installed 2.3 GWp rooftop solar PV market has installed behind-the-meter energy storage and at a cost of R8/Wh (GreenCape, 2023).

Box 5: Snapshot of low-carbon transport market

The low-carbon transport sector in South Africa is dominated by the electric vehicle industry and its associated value chains. The market remains relatively nascent, with a lack of government incentives and supporting policy. GreenCape (2023) has identified opportunities for investment in the following areas: local manufacturing and electrification of public transport (minibus taxi and bus industry); electric micro-mobility for last-mile delivery (two- and three-wheelers); local manufacturing of electric private passenger vehicles; and local lithium-ion cell manufacturing. The combined estimated market value of these opportunities is approximately R1 trillion.

Growth drivers

- Ratified Green Transport Strategy for South Africa.
- The EU ban on the sale of new internal combustion engine vehicles.
- Decreasing lithium-ion battery prices.
- Abundance and ease of access of key raw materials for batteries.

Box 6: Snapshot of sustainable agriculture market

South Africa is a resource scarce country, with ~11% of land considered arable, of which ~3% is truly fertile soil; and 1% of land containing the right climate and soil combination for rain-fed crops (GreenCape, 2022). Increases in temperature volatility, environmental disasters, natural resource scarcity, population growth, production costs, changing consumer preferences, and the country’s commitment to transitioning to a low-carbon economy have prompted the uptake of sustainable and climate-resilient agricultural practices. GreenCape (2023) has identified the following investment opportunities: (1) Regenerative, circular, and organic agriculture; (2) renewable energy applications; (3) smart farming practices; (4) hemp production; and (5) energy and niche crop production.

Investment opportunity	Related technologies	Estimated market size to 2030
Regenerative, circular, and organic agriculture (opportunities for soil remediation)	No-till tractors	R5.9 trillion
	Bio stimulants	R433.9 – R867.8 million ⁵
	Waste-to-soil production via anaerobic digestion	R37.3 billion ⁶
Renewable energy applications	Solar drying technology	R1 billion

⁵ Assuming a 10% conversion of 74,665 tractors in South Africa and assuming R800 000 cost of single No-till tractor (GreenCape, 2023) and assuming a 50% conversion 3,855,987 of planted hectares and sprays within foliar application at 2-4 L/ha with a cost of R135/L.

⁶ According to SABIA, there is 933MW of energy potential in the crop production, dairy, piggery, and poultry sector and assuming a R40million/MW cost of capital (GreenCape, 2023).

Smart farming	Farm management application technologies	R2.3 million/annum ⁷
	Precision spraying via drones	R19.5 million ⁸
	Drip irrigation	R7.2-R36.1 billion ⁹
Agricultural production	Hemp	R1.2 billion*
	Niche agricultural products	R250 million*
	Energy crops	R186 million*

*The market size estimations for agricultural production relate to opportunities for South Africa's Mpumalanga region, which requires diversifications given the planned decommission of coal mines.

Growth drivers

- Sugarcane Master plan.
- Sustainable Aviation Fuel demand.
- National decarbonisation commitments.
- Changes in consumer preferences.
- Temperature volatility.
- Production costs.

Box 7: Snapshot of circular economy market

The concept of circular economy is often equated solely with waste management, but encompasses far more. It aims at redesigning our current linear take-make-use-waste model into a circular production and consumption cycle through processes such as reduce, redesign, reuse, refurbishing, remanufacture, recycling for inorganic materials, as well as waste beneficiation for organic materials. GreenCape (2022) has identified the following circularity-related investment opportunities in organics and plastics.

The diversion of organic waste from methane-producing landfill sites provides an opportunity for solutions such as composting and biogas, as well as more innovative solutions like black soldier fly. A lack of up-to-date and accessible national data on organic waste makes estimating the market size difficult.

There are also opportunities to manufacture plastic packaging with greater circularity, increasing the recycled content of other plastic products, creating circular business models, and for the recycling of plastic. Assuming between 78,000 and 103,000 tonnes is recycled p.a.,¹⁰ the potential market value for the recycling of plastic is estimated at between R117 and R927 million¹¹ by the end of 2025.

⁷ Assuming a 10% conversion rate of 4,643 horticulture farming units in South Africa and a cost/annum = R5000/farm unit based on 299 €/farm unit subscription cost and €/ZAR R17 exchange rate (GreenCape, 2023).

⁸ Assuming a 10% conversion rates of 509,800 ha of wheat (2022) and 94 683 ha of fruit trees (2020/21 season) and unit/season of R300/ha and R450/ha for wheat and fruit trees respectively (GreenCape, 2023).

⁹ Assuming a 10% conversion rate of 3,618,098 ha of dryland in South Africa at a drip irrigation costs range of R20 000 to R100 000/ha (GreenCape, 2023).

Statistics have been taken from the 'Census of commercial agriculture, 2017' released by Statistics South Africa (StatsSA). The census provides the most accurate data for South Africa's agricultural sector

¹⁰ Extended producer responsibility targets

¹¹ Assuming value range based on the price recyclers are paying: R1.50/kg of dirty low-density polyethylene - R9/kg of clean bailed high-density polyethylene. (GreenCape, 2022)

Growth drivers

Organic waste:

- National and provincial landfill restrictions.
- Rising cost of waste disposal.
- Long-term landfill airspace security.
- Private sector commitments.

Plastics industry:

- Extended producer responsibility legislation.
- Growing demand for more recyclable packaging with increased recycled content, driven by the South African Plastics Pact members.

Box 8: Snapshot of water sector market

Heightened water insecurity, a widening water and sanitation access gap, stricter environmental and health regulations, ageing and/or degrading infrastructure, and municipal financial instability is increasing the need for investment in the water sector. The South Africa National Water and Sanitation Master Plan (2019) estimated a funding gap of R333 billion between 2019 and 2029 for capital investment in water and sanitation infrastructure.

GreenCape (2023) has identified the following opportunities: 1) refurbishment and upgrades of Wastewater Treatment Works (WWTWs); 2) wastewater sludge beneficiation; and 3) energy efficiency interventions and renewable energy deployment in WWTWs.

The estimated market sizes for the refurbishment and upgrades at WWTWs is R8.14 billion.¹² Sludge beneficiation has been identified as an opportunity for bio-fertilizer generation and renewable energy through anaerobic digestion at WWTWs. Assuming WWTWs would be able to beneficiate all estimated 693,500 tonnes of sludge a year,¹³ the potential market value range for each opportunity is approximately R52 and R185 billion,¹⁴ and R33.2 and R68 million.¹⁵ The market size for energy efficiency interventions was estimated at R1.1 billion in 2020 for the eight metropolitan municipalities (GreenCape 2020). These municipalities make-up ~80% of the total WWTWs capacity in South Africa.

Growth drivers

- Reinstated Green Drop report.
- Liquid waste to landfill ban (2019)
- National Water Resource Infrastructure Agency Draft Bill

¹² Very Rough Order of Measurement (VROOM) estimates for the capital costs to return each WWTW across the country to a functional condition

¹³ 693 500 estimate yearly sludge production based on GreenCape analysis

¹⁴ Assuming a value add potential range of R75 – R1980 (R/tonne sludge)

¹⁵ Assuming a value add potential range of R48 – R726 (R/tonne sludge)

- The development of a Water Partnerships Office by the Development Bank of South Africa
- Carbon Tax Act
- Increasing concerns about security of supply in the face of increasingly uncertain water resources

3.2. SOUTH AFRICA'S CLIMATE FINANCING NEEDS

Studies have been undertaken by several organisations to better understand the costs associated for South Africa to transition to a low carbon society, deliver on South Africa's net zero ambitions and reach energy security. **Estimates of South Africa's annual climate finance needs vary depending on studies' timeframe, sectoral focus and methodological approach, demonstrating the need for more comprehensive and granular analysis.** Estimates discussed in this section should be viewed as an approximate range to assist in identifying the climate finance gaps. It is not within the scope of this report to estimate needs or comment on their accuracy; however, the authors do recognize that enhancing the quality of data in tandem with detailed estimates for economic sectors and sub-sectors is crucial to bolster the development of financing roadmaps. Table 1 below identifies the studies reviewed in this report.

Table 1: Studies on investment need estimates in reaching South Africa's NDC, net zero and energy security

Study name:	Author (date):	Estimated needs:	Methodology and coverage:
South Africa's Just Energy Transition Investment Plan (JET IP) for the initial period 2023-2027	The Presidency of South Africa (2022)	R1.48 trillion between 2023-2027: <ul style="list-style-type: none"> ▪ Infrastructure: R1.374 trillion ▪ Planning and implementation capacity: R9.9 billion ▪ Economic diversification and innovation: R83.4 billion ▪ Social investment and inclusion: R9.6 billion ▪ Skills development: R2.7 billion 	Priority sectors identified include: electricity, new energy vehicle (NEV), green hydrogen, and cross-cutting investments.
Making Climate Capital work: Unlocking \$8.5bn for South Africa's Just Energy Transition	Blended Finance Taskforce and the Centre for Sustainability Transitions (CST) (2022)	Spending required to transition to a low-carbon and more equitable energy system: <ul style="list-style-type: none"> ▪ \$250 billion (R3.8 trillion) between 2022 -2050¹⁶: ▪ Investment: \$215 billion (R3.268 trillion) ▪ Costs: \$35 billion (R532 billion) 	Based on ambitious decarbonisation scenario of coal off by 2040, with the following categories requiring investment and funding: renewable energy, flexibility (electricity, storage & gas), transmissions and distribution, green industrialisation, early retirement of coal plants, and climate justice outcomes.
Financing South Africa's Just Transition	National Business Initiative & Boston Consulting Group (2022)	Total capital expenditure of: <ul style="list-style-type: none"> ▪ R1 trillion between 2020-30 to achieve NDC ▪ R5.9 trillion between 2020-50 for net zero 	Sectors analysed: energy (generation and grid expansion); mining; green hydrogen; petrochemical and chemical; heavy manufacturing; transport; agriculture, forestry, and other land use (AFOLU); and building and construction.

¹⁶ Exchange rate of 15.2 USD/ZAR

<p>South Africa: Country Climate and Development Report</p>	<p>World Bank Group (2022)</p>	<p>Net-present-value amounts:</p> <ul style="list-style-type: none"> ▪ R1.8 trillion between 2022-30 to achieve NDC ▪ Mitigation: R940 billion ▪ Adaptation: R866 billion ▪ Just transition: R574 billion ▪ R6.6 trillion between 2022-50 to achieve net zero ▪ Mitigation: R4.2 trillion ▪ Adaptation: R2.4 trillion ▪ Just transition: R1.9 trillion 	<p>Based on sectoral analysis of the power, transport, industries, and waste sectors.</p> <p>The report took a top-down approach to analyse country-specific scenarios building on South Africa's priorities and commitments, and considering what is considered technically, economically, and politically feasible.</p>
<p>Climate Investment Opportunities in Emerging Markets: An International Finance Corporation Analysis</p>	<p>International Finance Corporation (2016)</p>	<p>Total investment potential for climate-smart needs:</p> <ul style="list-style-type: none"> ▪ \$588 billion (R8.65 trillion) between 2016-30 to achieve NDC¹⁷ 	<p>Based on analysis of key sectors: buildings, renewables, transport, and waste, due to the availability of reliable, transparent data that is publicly available and measurable. The climate-smart investment potential was determined by how South Africa's target would affect the market size and by applying country-specific investment costs for the respective technologies.</p> <p>Overall, this is a conservative approach with only investments expected to materialize as a result of the country's ambitions during the 2030 NDC timeframe were considered.</p>
<p>Just in Time: Financing a just transition to net zero</p>	<p>Standard Chartered Bank (2022)</p>	<p>Total Transition finance requirements:</p> <ul style="list-style-type: none"> ▪ \$ 1.988 trillion (R29.3 trillion) between 2021-60 to achieve net zero¹⁸ 	<p>Utilising the Energy-Environment-Economy Macro-Econometric (E3ME) model.</p>
<p>South Africa's Nationally Determined Contribution</p>	<p>(NDC, 2021)</p>	<p>Adaptation needs between 2021-30 are estimated between USD 16–267 billion, with a median of USD 141.5 billion (-R2 trillion)¹⁹</p>	<p>South Africa utilised a “goal-based estimation method” to determine the total cost of implementing their NDC, considering different (low and moderate high) mitigation scenarios.</p>
<p>Climate Finance Needs of African Countries</p>	<p>CPI (2022)</p>	<p>\$107.1 billion (R17.7 trillion) climate finance needs between 2020-30 to achieve NDC²⁰:</p> <ul style="list-style-type: none"> ▪ Mitigation: R13.4 trillion ▪ Adaptation: R4.2 trillion 	<p>Based on South Africa's submitted NDC, national communication, national adaptation plans, long-term strategies and adaptation communications published since 2016.</p>

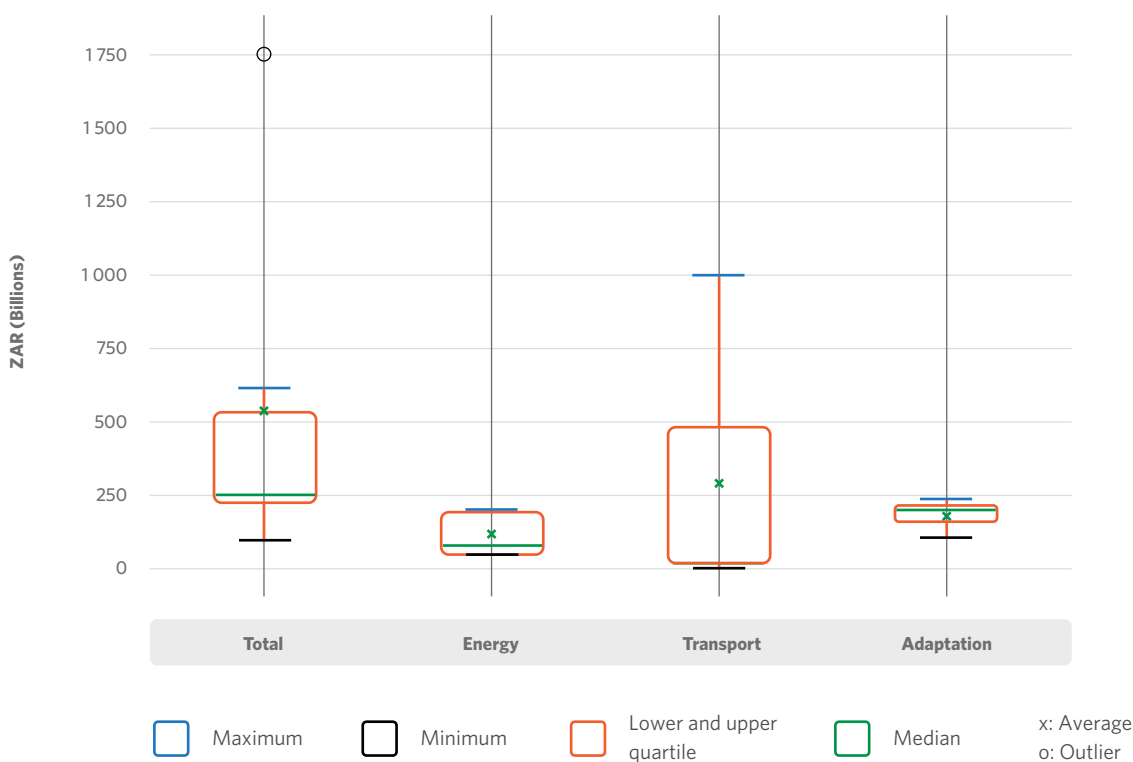
According to the estimates South Africa will require, on average, R334 billion and R535 billion annually to achieve its net zero goal by 2050 and NDCs by 2030, respectively.

17 USD/ZAR 14.7 from the World Bank period average exchange rate for 2016.
 18 USD/ZAR 14.78 from the World Bank period average exchange rate for 2021.
 19 USD/ZAR 14.78 from the World Bank period average exchange rate for 2021
 20 USD/ZAR 16.46 from the World Bank period average exchange rate for 2020.

Despite the high variance in sectoral needs the energy, transport, and energy efficiency sectors make up the majority of mitigation finance needs across the studied reports. The focus on the energy sector can be attributed to South Africa's heavy reliance on coal-based generation; and as a result, there are additional estimates focused solely on the transition of South Africa's energy sector and energy security. The transport sector needs reflect investments required to implement the country's Green Transport Strategy (2018) including scaling of electric and hybrid vehicles, bus rapid transit, road to rail, mode shifting and the enhanced provision of safe and affordable public transport (NDC, 2021).

Figure 4 below presents a box plot, a graphical method of displaying the distribution of data points creating minimum, maximum, quartile and median reference points among multiple data sets. This particular box plot displays annual investment requirements by sectors to achieve NDC by 2030. The sectors selected, namely energy, transport and adaptation, have been chosen due to their commonality across the various studies mentioned in Table 1. To note the numbers used herein exclude investment requirements attributable to social, skills, planning, and capacity building; to create comparability to the methodological approach used in the South African Climate Finance Landscape report (see Methodology summary).

Figure 4: Annual investment requirements by sectors to achieve NDC by 2030



Estimated investment requirements to achieve South Africa's NDC by 2030 vary widely, with a minimum of R99 billion p.a., a maximum of R618 billion p.a., and an average of R535 billion p.a. The lower and upper quartile of total investment needs in Figure 4 have an approximate value of R227 billion p.a. and R532 billion p.a. respectively. There is an outlier in the total box plot of R1.76 trillion p.a. which is attributable to the CPI (2022) study.

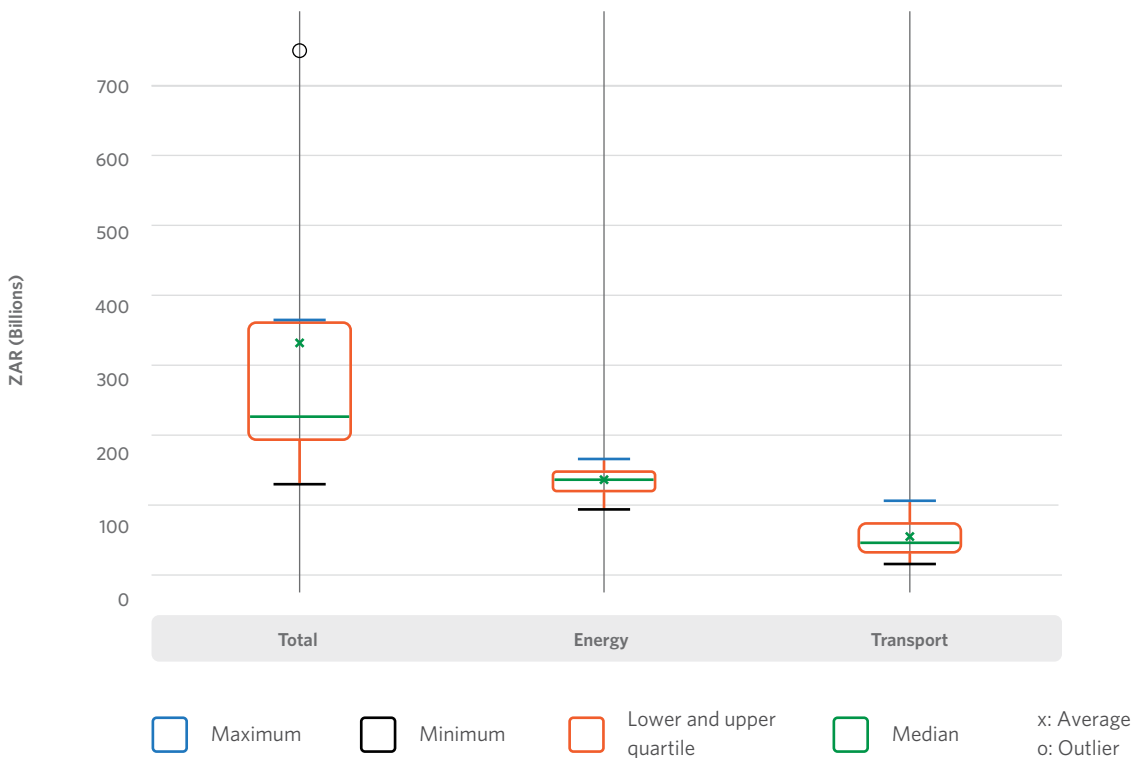
The energy sector box plot displays the distribution of investment needs for the energy sector, as estimated by the various studies depicted in Table 1. Within the energy sector, investment requirement estimates range from a minimum of R42 billion p.a. to a maximum of R198 billion p.a., with an average investment need of R111 billion p.a.

The transport sector box plot in Figure 4 displays the distribution of investment needs for the transport sector from Table 1 to achieve NDC by 2030. The transport sector estimates vary from a minimum of R1 billion p.a. to a maximum of R1 trillion p.a., with an average of R306 billion p.a.²¹.

The adaptation sector box plot estimates in Figure 4 found a minimum of R108 billion p.a., a maximum of R232 billion p.a., and an average of R184 billion p.a. to achieve NDC by 2030.

Figure 5 below presents box plots displaying annual investment requirements necessary for South Africa to achieve net zero by 2050. The total box plot indicates the estimated annual investment requirement for South Africa to achieve net zero by 2050 using studies sourced from Table 1, and making use of the energy and transport sector for comparability.

Figure 5: Annual investment requirements by sectors to achieve net zero by 2050



²¹ Transport needs estimates exceeding that of energy needs can be attributed to CPI (2022) assuming the transition of the transport sector occurring pre-2023; whereas the remaining estimates assume post 2023.

Estimated investment requirements to achieve net zero vary widely, with a minimum of R129 billion p.a., a maximum of R365 billion p.a., and an average of R334 billion p.a. The lower and upper quartile of total investment needs to achieve net zero by 2050 have an approximate value of R197 billion p.a. and R365 billion p.a. respectively. There is an outlier of R753 billion p.a. and can be identified in the Standard Chartered Bank (2022) report.

The energy sector box plot in Figure 5 displays the distribution of investment needs for the energy sector to meet its net zero by 2050 with investment requirements ranging from a minimum of R95 billion p.a., a maximum of R169 billion p.a., and an average of R134 billion p.a.

The transport sector box plot in Figure 5 illustrates the distribution of investment requirements for the transport sector, ranging from a minimum of R18 billion p.a. to a maximum of R107 billion p.a., with an average of R57 billion p.a.

The wide-ranging estimates reflect the uncertainty and lack of consensus on how much investment is required and which sectors should be prioritized as South Africa transitions to a low-carbon and climate-resilient economy. Nevertheless, it is clear that substantial financing will be required to meet South Africa's NDC and net zero goal and further robust analysis is needed to identify the specific needs.

4. METHODOLOGY SUMMARY

4.1. DEFINITIONS AND SCOPE

This report builds on the previous work of the [South African Climate Finance Landscape 2020](#) (Cassim, Radmore, Dinham, & McCallum, 2021) to capture climate finance flows in the years 2019, 2020 and 2021. It leverages Climate Policy Initiative's climate finance accounting methodology (CPI 2022a, CPI 2022), and follows the South African Green Finance Taxonomy for the definitions and sectoral classification (see Annexure A for details). The data collection and analysis was supplemented by interviews with over 75 public and private climate finance stakeholders. The report aims to track primary capital flows directed toward activities providing mitigation or adaptation benefits and excludes any secondary market transactions.

We note that several key data providers, such as DFIs and the OECD Development Assistance Committee, use their own definitions, methodologies, and reporting processes. To the fullest extent possible, data is compiled in alignment with our adopted definitions and taxonomies as follows:

- **Climate finance**²²: Local, national or transnational financing, which may be drawn from public, private and alternative sources of financing. These financial resources are intended to cover the costs of transitioning to a low-carbon global economy and to adapt to, or build resilience against, current and future climate change impact.
- **Mitigation finance**²³: An economic activity that contributes to the reduction or stabilisation of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system by avoiding or reducing greenhouse gas emissions or enhancing greenhouse gas removals.
- **Adaptation finance**: An economic activity that either substantially reduces the risk of adverse impact or substantially reduces the adverse impact of the current and expected future climate on that economic activity itself without increasing the risk of an adverse impact on other people, nature and assets; or where an economic activity that prevents or reduces the risk of adverse impact or substantially reduces the adverse impact of the current and expected future climate on other people, nature or assets, without increasing the risk of an adverse impact on other people, nature and assets.
- **Dual-benefit finance**: Economic activity supporting both climate change mitigation and adaptation, meeting the respective criteria for each category.

²² As per the South African National Treasury report Financing a Sustainable Economy | Technical Paper 2021.

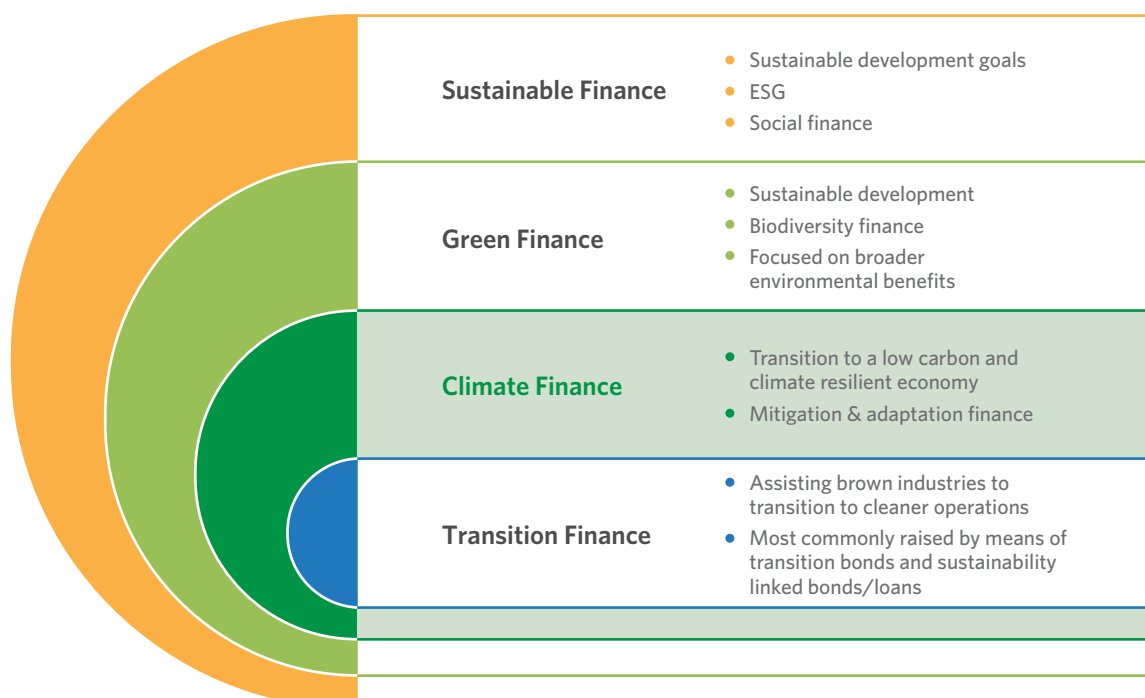
²³ These sub-definitions are utilised in the technical screening criteria as per the South African Green Finance Taxonomy (1st edition, March 2022).

Monitoring of just transition investments will become increasingly important as South Africa progresses with its JET-IP and the just transition more broadly. However, this report does not track just transition finance as a separate category because the years it covers (2019-21) predate South Africa's Just Transition Framework and JET-IP. Several South African institutions are working to define and align on just transition finance and future iterations of this landscape will make reference to any nationally-agreed methodological approach. At time of writing the PCC proposals for a just transition tagging mechanism are in the process of being finalised and are expected to be published in the near future.

Box 9: Sustainable, green, climate and transition finance definitions

The terms sustainable, green and climate finance are frequently used interchangeably, causing confusion on their intended purpose. A literature review of the various definitions has been conducted, focusing on the commonalities and differences within various iterations of these definitions (see Annexure A, Box 16: Defining sustainable, green, climate and transition finance for more details).

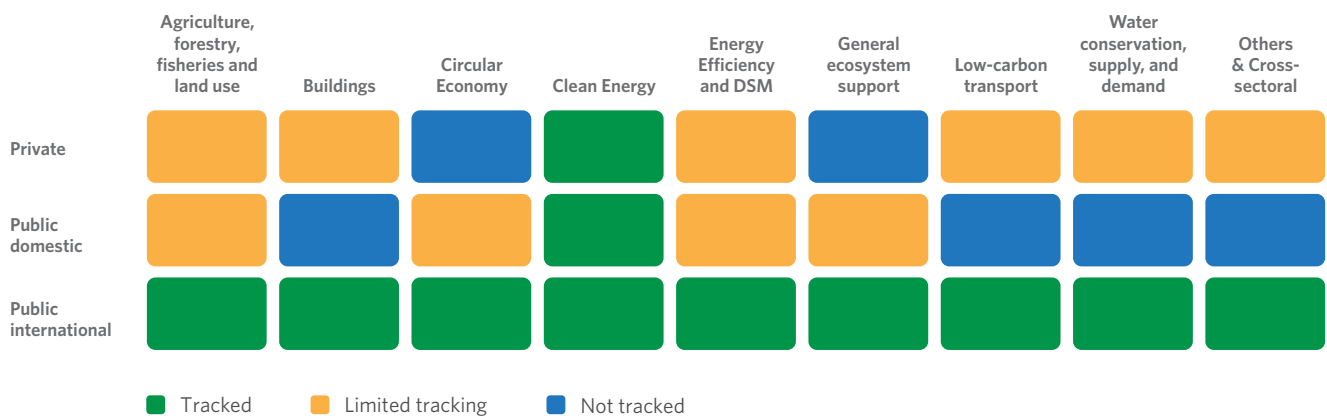
Figure 6: Defining sustainable, green, climate and transition finance



4.2. DATA LIMITATIONS

While this report aims to present the most comprehensive information available, methodological issues and data limitations remain. Climate finance tracking encounters multiple challenges related to the availability, quality, and robustness of investment data from both the public and private sectors. The figure below illustrates which sectors were tracked, and which had limited or no tracking, for each funding source (see Annexure A for details). These data gaps will be further addressed in future iterations of this report.

Figure 7: Tracked and untracked climate finance by source and sectors



Note: Other & cross-sectoral flows include general ecosystem support and financing for policy support at a national level, disaster risk management and financial inclusion.

5. LANDSCAPE OF CLIMATE FINANCE IN SOUTH AFRICA

- Climate finance in South Africa needs to increase by at least three to fivefold from the tracked annual average of R131 billion in 2019-21.
- Domestic sources accounted for 91% of tracked climate finance, while international sources accounted for 9%.
- The private sector provided 86% of all climate finance (R113 billion p.a.), while public actors provided the remaining 14% (R18 billion p.a.).
- Commercial banks and institutional investors accounted for 78% of all climate finance (R102 billion p.a.).
- 75% of climate finance was provided in the form of debt finance (R98 billion p.a.) followed by equity (18%), concessional finance (2%), and grants (1%).
- Mitigation finance accounted for 81% (R105 billion p.a.), predominantly going to clean energy while adaptation finance lagged with only 12% (R16 billion p.a.).

5.1. OVERALL CLIMATE FINANCE

Tracked average annual climate finance in South Africa more than doubled to reach R131 billion in 2019-21 compared to 2017/18 (R62 billion p.a.), the period tracked in the previous report.

The 2017/18 numbers from the South African Climate Finance Landscape 2020 (2021) established a baseline for finance mobilized for a low-carbon and climate-resilient economy in South Africa. Our tracking methodology has evolved since then, and the numbers are not strictly comparable. Additionally, increasing numbers of private and public actors are tracking and reporting investments using the South African Green Finance Taxonomy, providing new data sources and comprehensive coverage.

South Africa's climate finance needs to increase by three to five times to achieve the country's climate objectives.

Based on the estimated needs presented in Section 3.2, South Africa requires an average of R334 billion and R535 billion per year to meet its net zero goals by 2050 and NDC by 2030, respectively. However, annual average climate finance of R131 billion for 2019-21 presents a funding gap of R203 billion to R404 billion per year to meet these goals.

Box 10: COVID-19 Impact on climate finance

The years tracked in this report coincided with the global COVID-19 pandemic. The first case was confirmed in South Africa in early March 2020, and a national lockdown was instituted by the end of that month. The country had five official waves of the pandemic, and all related health regulations lifted by end of June 2022.

The green agenda and environmental policymaking was a relatively consistent companion to recovery planning during the pandemic. Internationally, lessons were drawn from the successful deployment of green stimulus measures after the 2008-10 financial crisis. Successful interventions focused on scalable, modular technologies by expanding existing investment frameworks and addressing the financial weakness of key actors. Limited success was seen in funding large infrastructure projects.

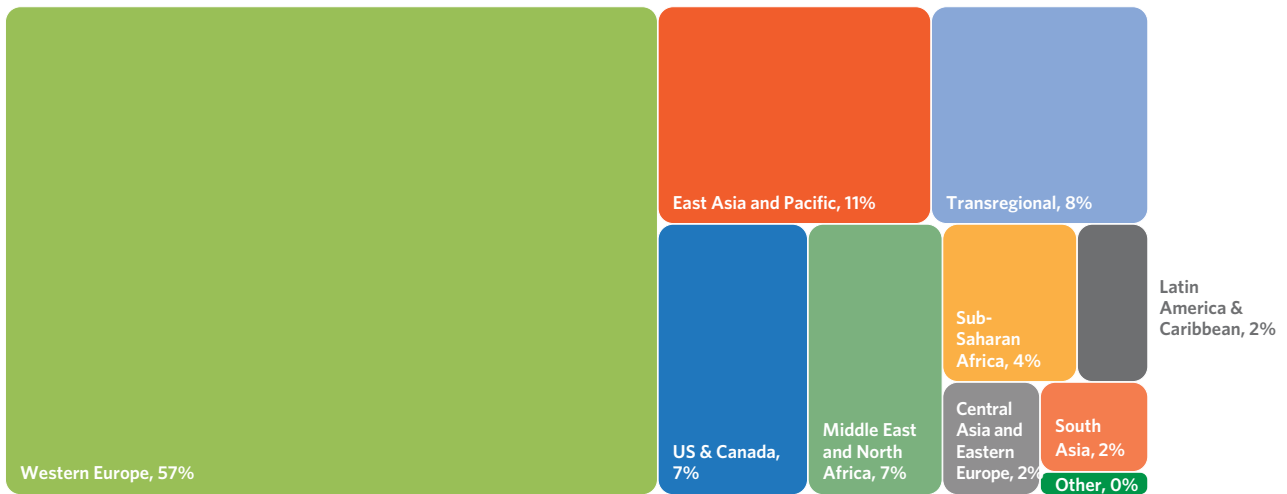
It is not possible to show a direct correlation between the increase in spend from 2019 to 2020 and the COVID-19 pandemic; however, the data clearly shows a R52 billion increase in annual climate finance at the start and peak of South Africa's COVID-19 lockdown. This is more than double the increase between 2018 and 2019 and between 2020 and 2021. This suggests that the COVID-19 pandemic had no negative effect on climate finance availability, with both public and private investments increasing.

5.2. SOURCES AND INTERMEDIARIES OF CLIMATE FINANCE

Domestic sources accounted for 91% of South Africa's tracked climate finance, and international sources for 9%.

Western Europe accounted for 57% of international flows to South Africa, followed by East Asia and the Pacific at 11%. The US and Canada, and the Middle East and North Africa were the third and fourth largest contributors each providing 7%. This is reflective of South Africa's significant partnerships with regions and nations around the world, including via the historic JETP with France, Germany, the UK, US, and EU, which formed the International Partners Group in 2021.

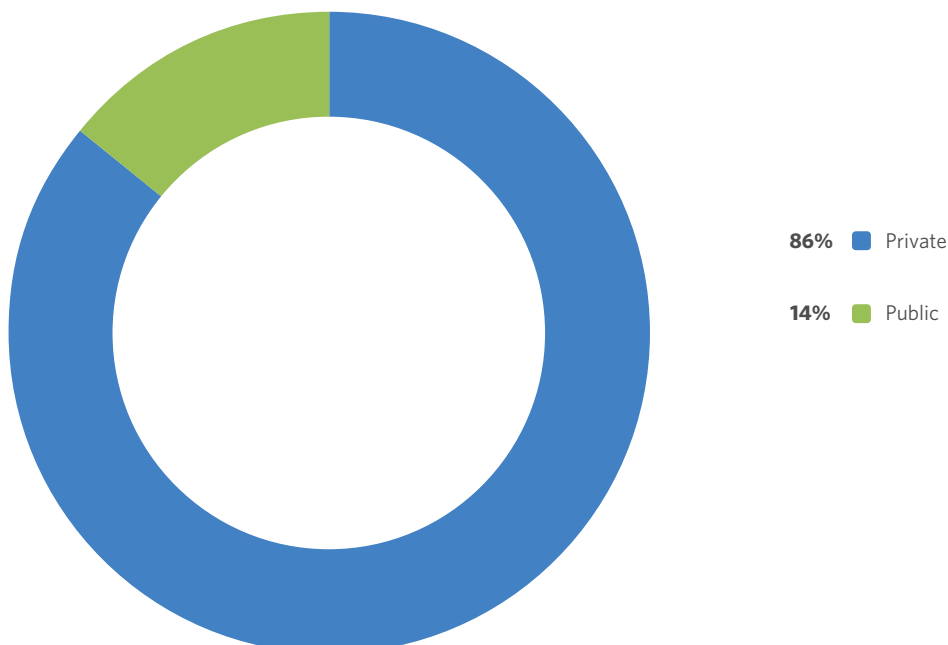
Figure 8: Breakdown of the international climate flows 2019-21



Private actors were the predominant source of climate finance in South Africa (86%) with the public sector accounting for 14%.

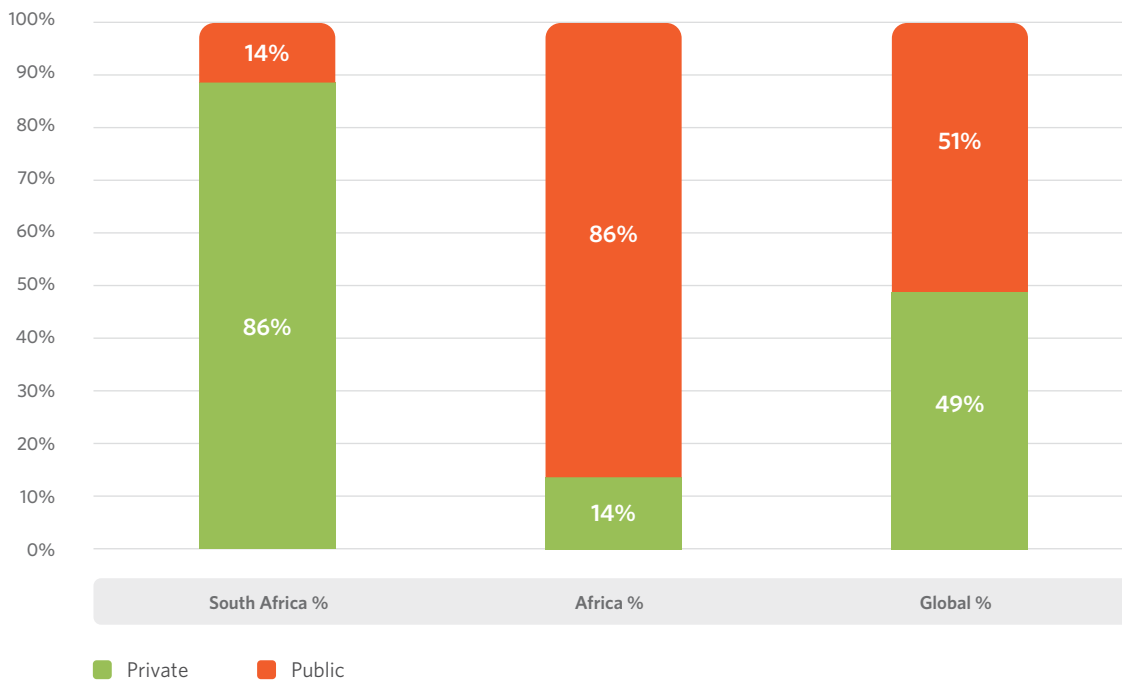
The private sector provided 86% of all climate finance to South Africa (R113 billion p.a.), while public actors provided the remaining 14% (R18 billion p.a.), as shown in Figure 9. Finance is typically channelled through financial intermediaries, using various financial instruments.

Figure 9: Total climate finance tracked per public and private sources



To create context Figure 10 below considers CPI’s published studies [Landscape of Climate Finance in Africa](#) (2022) and [Global Landscape of Climate Finance: A Decade of Data](#) (2022) and utilises data for years 2019 and 2020 to draw a comparison between South Africa’s average annual climate finance flows in relation to Africa and the global annual average, as per source. The below illustrates that private funding significantly dominates public funding in the South African context. South Africa has the highest per-capita emissions in Africa, contributing 40% of the continent's total emissions.²⁴ It should therefore be expected that there would be more funds flowing into mitigation to address this.

Figure 10: Total climate finance tracked per public and private sectors for South Africa, Africa and global perspective expressed as a %



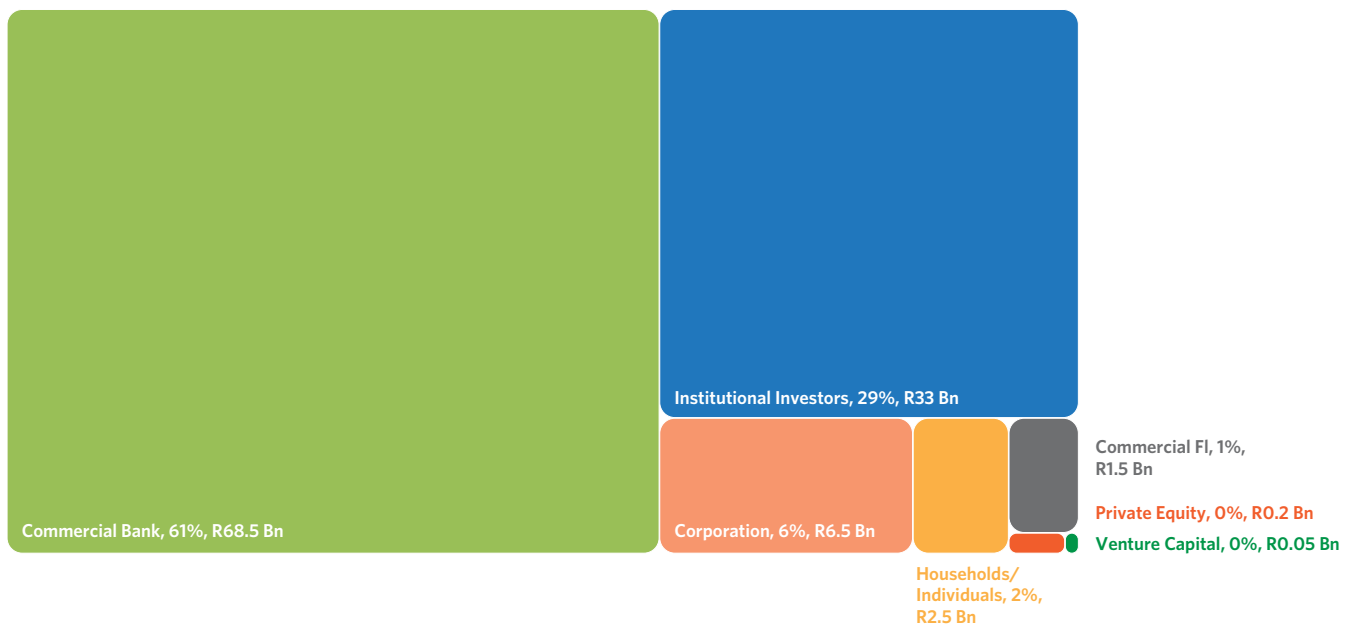
5.2.1. PRIVATE SECTOR CLIMATE FINANCE

Private sector climate finance is implemented by private individuals and companies. This report considers two broad categories of private actors (or intermediaries):

- 1. Commercial entities:** Non-state financial players, including banks, institutional investors, fund managers and venture capital investors.
- 2. Other private entities:** Corporates, philanthropies/donors, non-governmental organisations (NGOs) and households.

Figure 11 provides a breakdown of private climate finance by actor.

²⁴ 5th Biennial Update Report: First-order draft

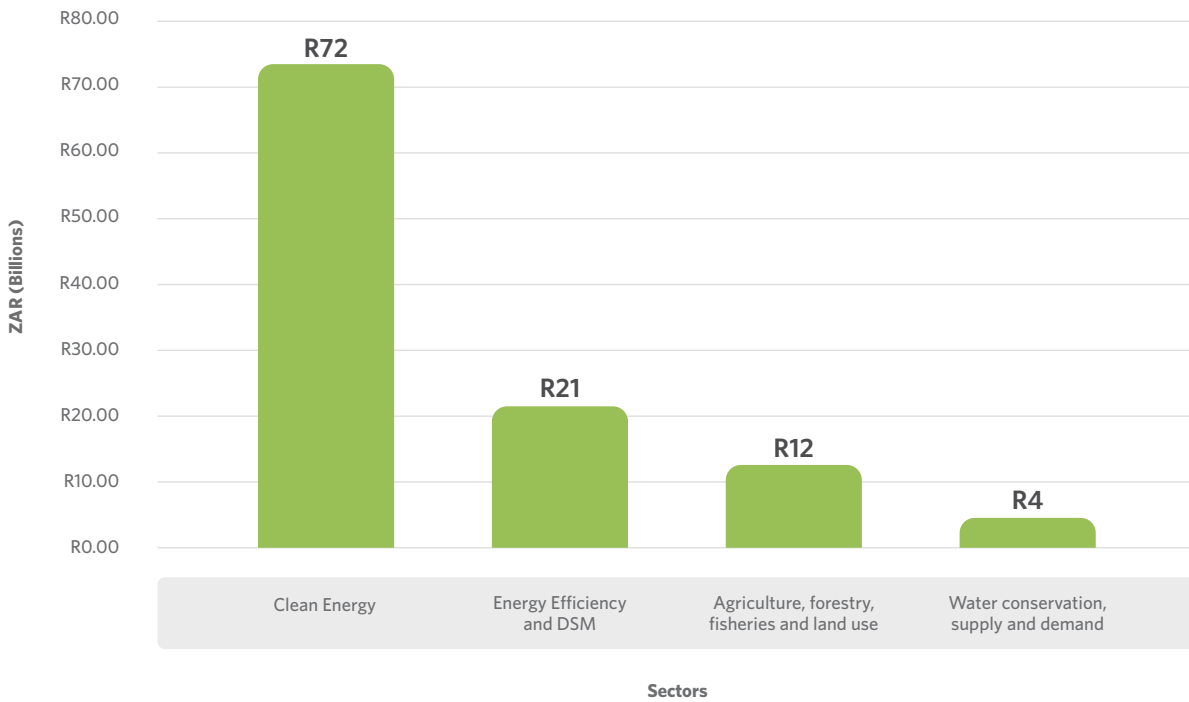
Figure 11: Private finance intermediaries illustrating percentage share

Commercial banks represented 61% of all private finance (R69 billion p.a.), followed by institutional investors with 29% (R33 billion p.a.). Private finance was deployed in the form of debt (82%, or R93 billion p.a.) and equity (18%, or R20 billion p.a.). Almost all of the private finance (99%) was sourced from domestic actors.

Clean energy secured the largest portion at 64% (R72 billion p.a.), followed by energy efficiency and demand side management (DSM) which received 19% (R21 billion p.a.). These investments are outlined in Figure 12 below. Continued loadshedding and increased electricity tariffs are the driving force behind this private sector clean energy investment, see Box 3 and Box 4 for detail.

Agriculture, forestry, fisheries and land use recorded private climate investment, showcasing their commercial viability. Agriculture, forestry, fisheries and land use captured 11% of tracked private sector investments, averaging R12 billion annually. From an economic growth perspective the South African agriculture sector experienced continued expansion over the last two years (increasing by 15% year-on-year in 2020 and by 9% in 2021) with agricultural producers investing increasingly in sustainable agricultural production methods. See Box 6 for details on the economic opportunities that this presents.

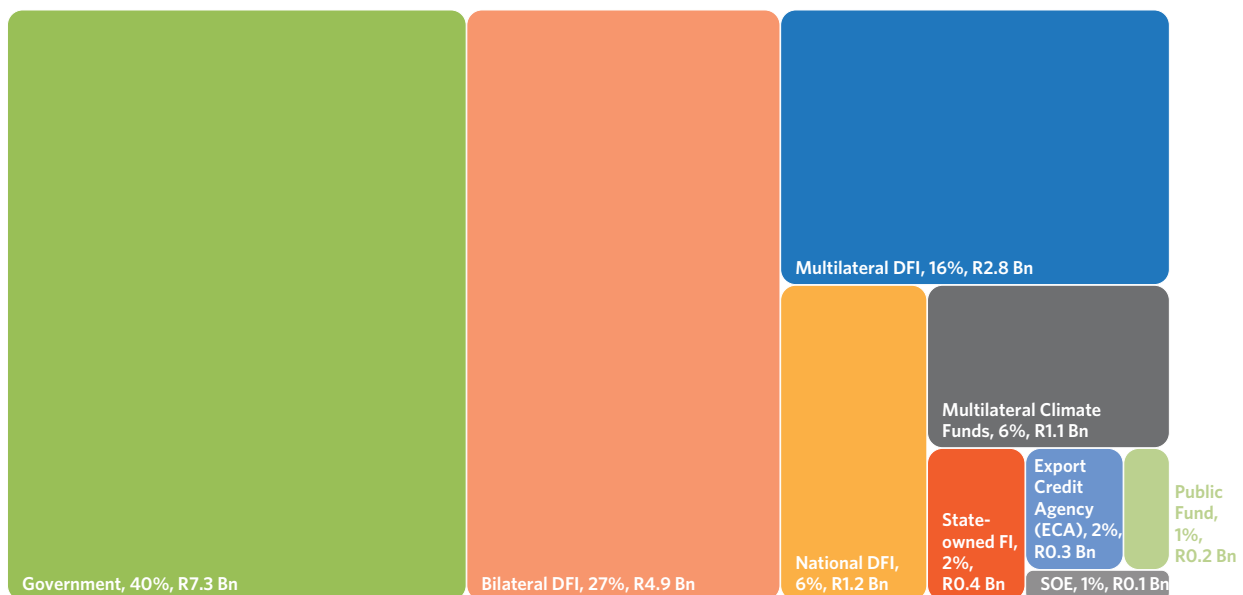
Figure 12: Climate finance committed by private sector per sector



5.2.2. PUBLIC SECTOR CLIMATE FINANCE

Public finance includes domestic and international financing provided by governments and their agencies, climate funds, and DFIs. Public sources accounted for 14% of total tracked climate investments, or R18 billion average per year. It was split between domestic and international actors, comprising 41% and 59% respectively.

Figure 13: Public finance intermediaries illustrating percentage share



Bilateral, multilateral, and national DFIs combined with multilateral climate funds provided the largest portion of public finance at R10 billion p.a. (55%). This was mostly directed to clean energy (71%, or R6 billion p.a.). Given that this sector is also well invested by the private sector, there is an opportunity for DFIs to diversify into less mature markets as concessional financiers, in order to allow commercial players to follow them into higher-risk projects. This could include adaptation sectors, circular economy, and low-carbon transport. These efforts should be complemented by government policies and regulations aimed at reducing barriers, mitigating risk and addressing potential market failures, all with the explicit aim of attracting private sector investment.

Government funding, including both national and international sources, accounted for 40% of tracked public climate finance. Of this South African government expenditure amounted to R6 billion p.a. (33%). As set out in South Africa's National Development Plan 2030, the government has committed to investing 10% of GDP within three key areas: transport, energy, and water, until 2030. South Africa's GDP for 2019 was R5,614 billion²⁵, R5,557 billion²⁶ for 2020; and R6,193 billion²⁷ for 2021; which would suggest an annual spend of R561 billion, R556 billion and R619 billion, respectively. Although the tracked amount is significantly less than 10% of South Africa's GDP, it is expected that there are significant amounts of finance to these three areas that is not tagged as climate finance.

The South African National Treasury has started to tag climate-related government expenditure to enable estimation, monitoring and tracking. This is a useful starting point for understanding whether spending is aligned with the needs arising from various climate risks and vulnerabilities facing different sectors and parts of society. Tagging will be rolled out in a phased approach, as some sectors are affected more than others. Direct investments into adaptation, mitigation and dual benefit projects are being tracked. No recurring administrative, policy development or human resources expenses have been included.

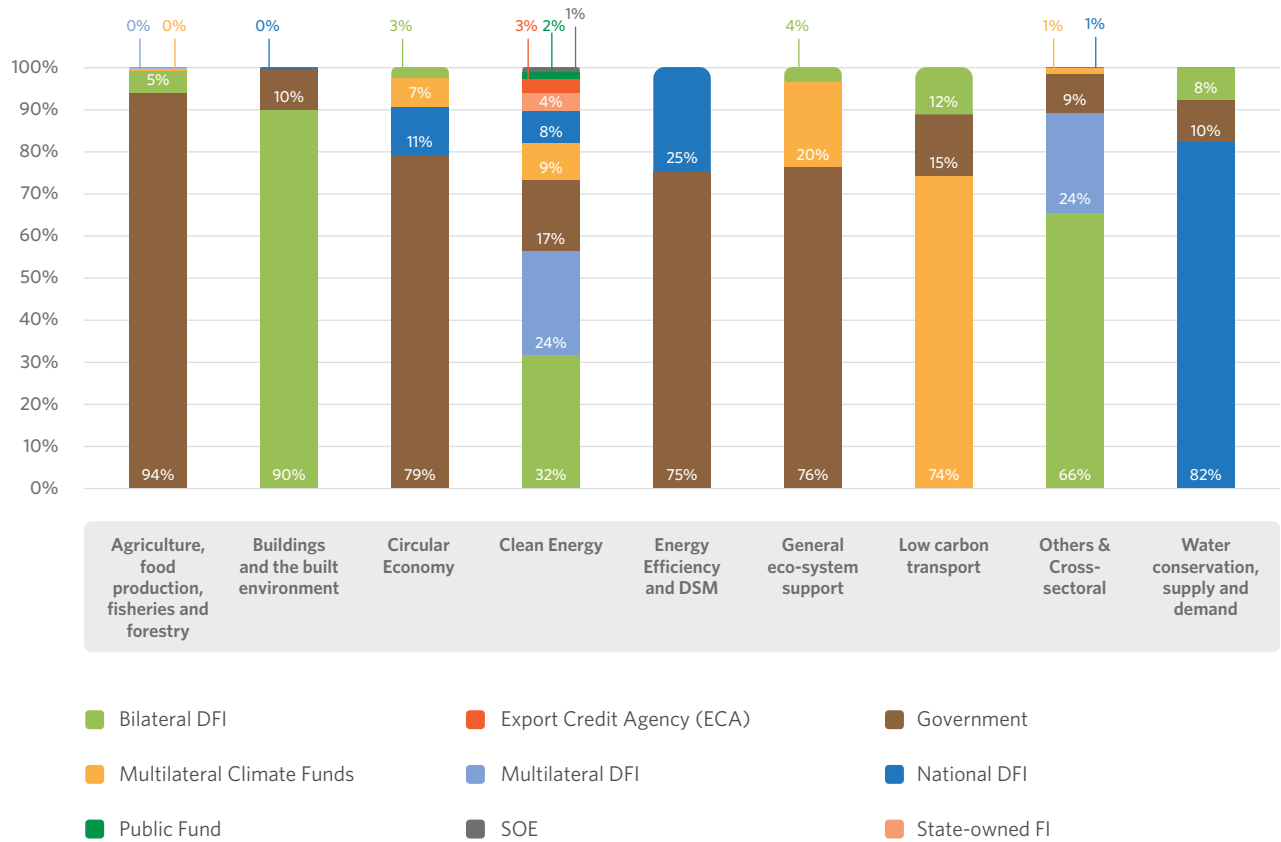
Public finance was tracked in eight climate-related sectors with clean energy (53%) and agriculture, forestry, fisheries and land use (26%) accounting for 79% of the total. Figure 14 provides a breakdown of the public sector tracked investments per financial actor. With widespread loadshedding, there was a large portion of public spending directed into the energy sector. As this stabilises, there is a need to reprioritise and scale development and concessional finance.

²⁵ Exchange rate of 14.45 USD/ZAR

²⁶ Exchange rate of 16.46 USD/ZAR

²⁷ Exchange rate of 14.78 USD/ZAR

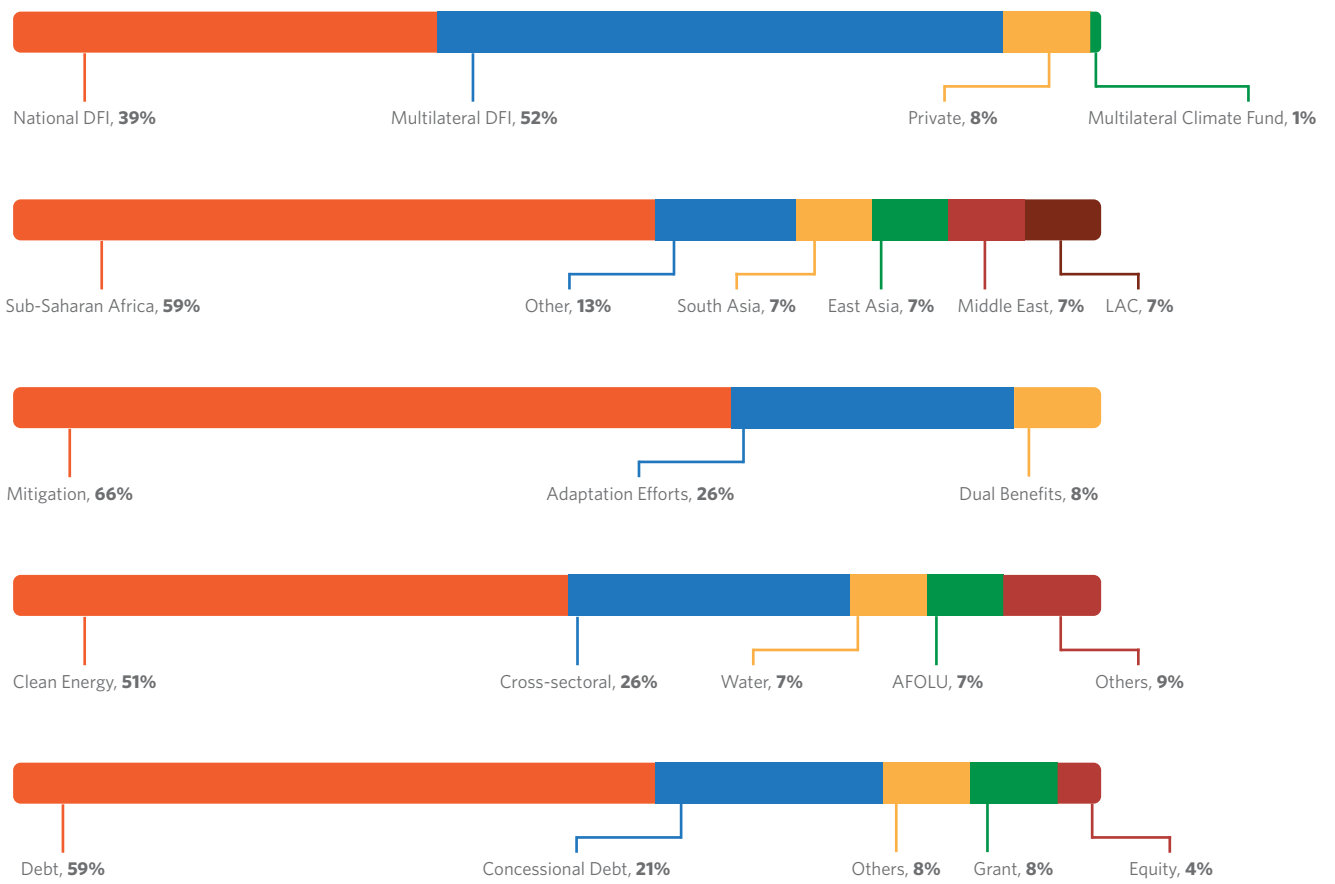
Figure 14: Climate finance committed by public investment per sector



Box 11: South Africa climate finance outflows to other countries

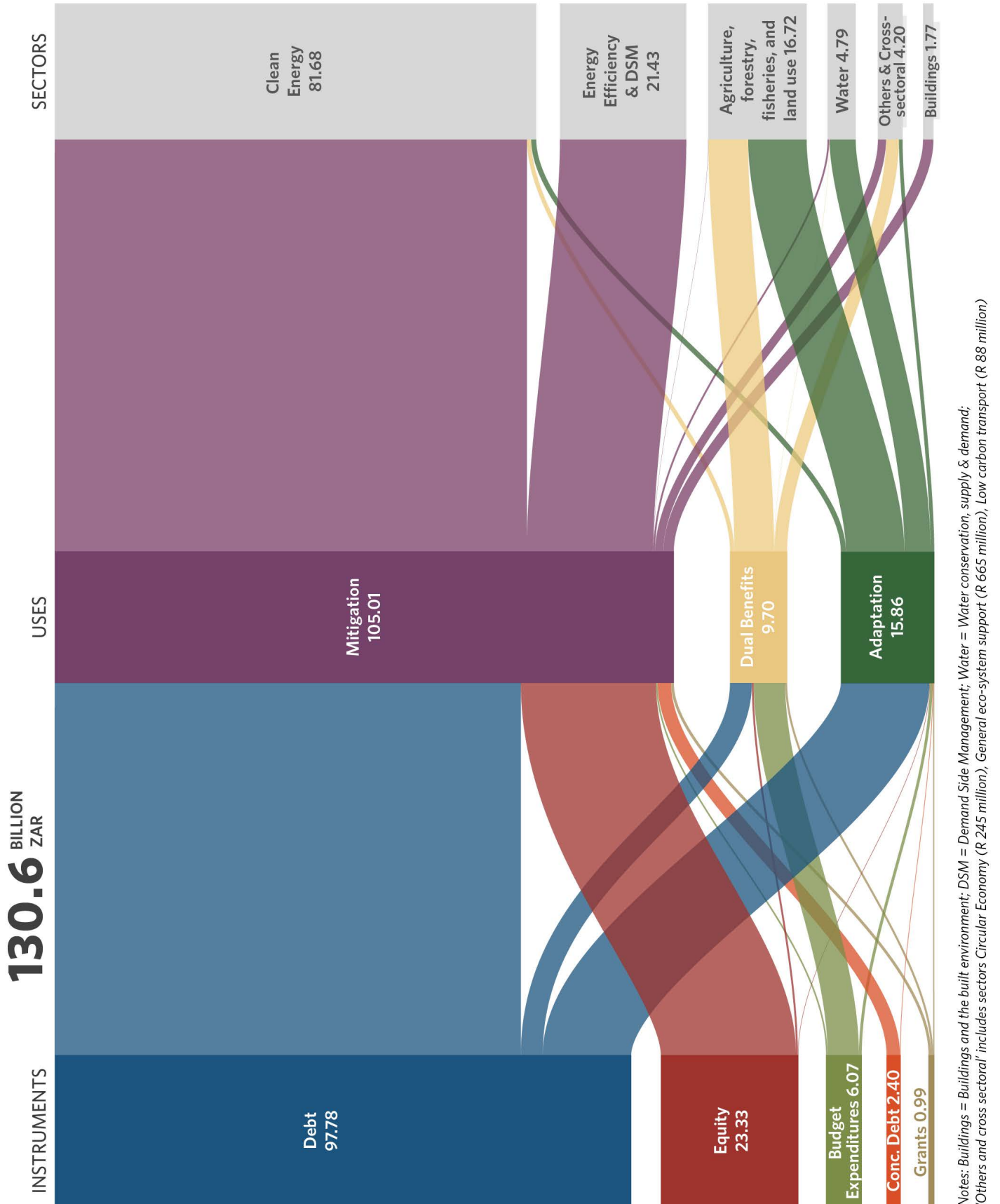
In addition to being a recipient of international climate finance, South Africa also provides financial and technical support to other countries and regions, reflective of its ‘fair share’ contribution to global climate efforts. In 2019, 2020 and 2021 South Africa committed an average of USD 222 million in international climate finance annually, either directly or through its contributions to multilateral climate funds and financial institutions (see Figure 15). Of these, nearly two-thirds went to other African countries, predominantly in the form of debt (concessional ~ 21%, non-concessional ~ 59%) and grants (8%). Almost 66% of these investments went to mitigation projects, with adaptation efforts accounting for the remaining 26% and dual benefits for 8% (CPI, Landscape of Climate Finance in Africa, 2022).

Figure 15: South Africa climate finance outflows by channel, region of destination, use, sector, and instrument (2019/2020 averages)



5.3. FINANCIAL MECHANISMS AND INSTRUMENTS FOR CLIMATE FINANCE

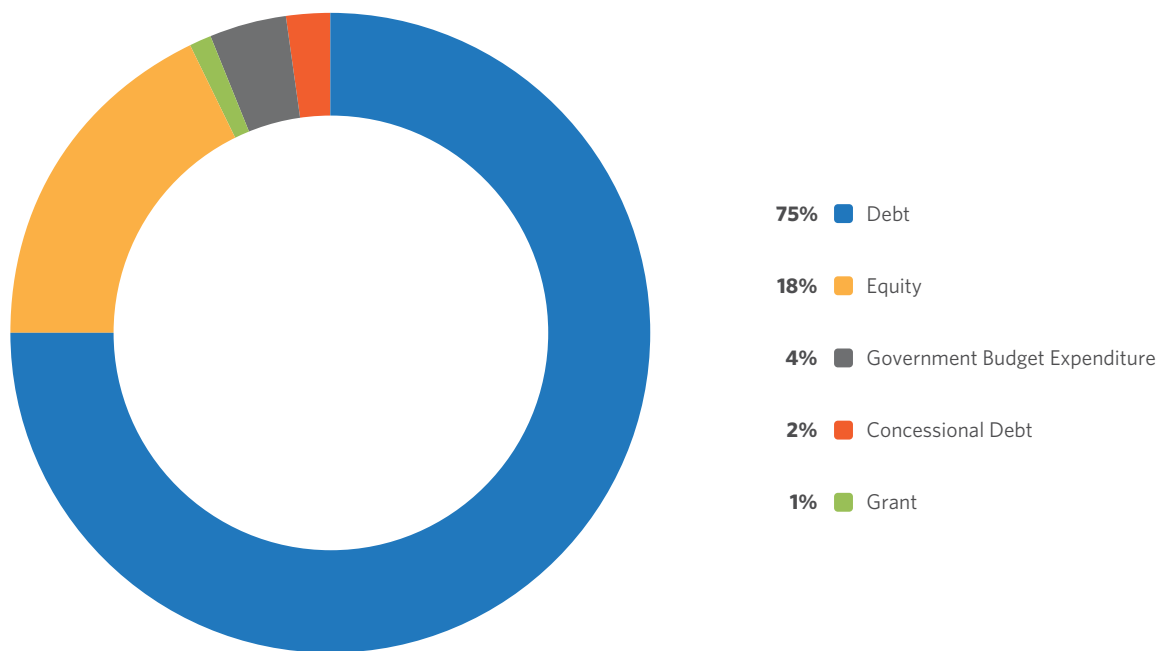
Figure 16: Sankey for instruments, uses and sectors for climate finance in South Africa showing annual average for periods 2019 – 2021 (R billion)



Debt emerged as the predominant financial instrument for climate finance (R98 billion p.a. or 75%); with grants and concessional finance accounting for approximately 3% combined.

The report divides financial instruments for disbursing climate finance into five categories: debt, equity, grants, concessional debt, and government budget expenditure. The tracked South African climate finance investments per instrument is detailed in Figure 17.

Figure 17: Climate finance tracked in South Africa per financing instruments



Debt financing averaged R98 billion per year, accounting for 75% of all climate finance.

Commercial banks provided 70% of debt, with an additional 22% stemming from institutional investors. Average cost of debt ranged between 10% and 12% p.a. Commercial financial institutions, bilateral and multilateral DFIs each contributed 2% of total debt finance, while national DFIs contributed 1%, and the remaining tracked intermediaries each provided less than 1%.

Of the total debt, 59% went to clean energy (R58 billion p.a.), followed by energy efficiency and DSM (22%, or R21 billion p.a.) and agriculture, forestry, fisheries and land use (12%, or R12 billion p.a.).

Equity financing accounted for 18% of climate finance (R23 billion p.a.), coming from institutional investors (R11 billion p.a.), corporates (R7 billion p.a.) and households and individuals (R3 billion p.a.), amongst others. The majority of equity (92%, or R22 billion p.a.) went to clean energy projects, with the remainder going to buildings and the built environment (R1 billion p.a.), and agriculture, forestry, fisheries and land use (R324 million p.a.).

Grant finance made up less than 1% of total tracked finance, totalling R993 million p.a. This was allocated mainly to clean energy (R353 million p.a.), general ecosystem support (R169

million p.a.) and agriculture, forestry, fisheries and land use (R91 million p.a.). Concessional debt averaged R2 billion p.a., and was targeted to clean energy (R1.4 billion p.a.); other and cross sectoral projects (R807 million p.a.); water conservation, demand, and supply (R58 million p.a.); and buildings and the built environment (R46 million p.a.).

South African government expenditure played the role of “seeding” the adaptation market.

National governments support and stimulate private sector investment in areas that are yet to reach commercial scale and are considered a public good (e.g. water infrastructure, flood protection, social safety nets, and disaster management). More than 95% of the South African government budget expenditure was tracked in the adaptation and dual benefit sectors. Furthermore, 73% of total government budgetary expenditure went to agriculture, forestry, fisheries and land use (R4 billion p.a.), followed by clean energy (13%, or R769 million p.a.), general ecosystem support (8%, or R478 million p.a.), energy efficiency and DSM (4%, or R222 million p.a.) and circular economy (R186 million p.a.).

A comparative breakdown is presented in Figure 18 below to contextualise South Africa’s use of financing mechanisms in climate finance. These percentage breakdowns of financing mechanisms used in Africa and the global landscape are pulled from the CPI reports [Landscape of Climate Finance in Africa](#) (2022) and [Global Landscape of Climate Finance: A Decade of Data](#) (2022), and considers years 2019/2020. South Africa’s high allocation to debt (75%) in relation to Africa (28%) and global figures (53%), suggests climate finance in South Africa, at an average cost of debt between 10% and 12% p.a., is comparatively expensive.

Figure 18: A comparison of Africa and global climate finance landscape per financing instruments

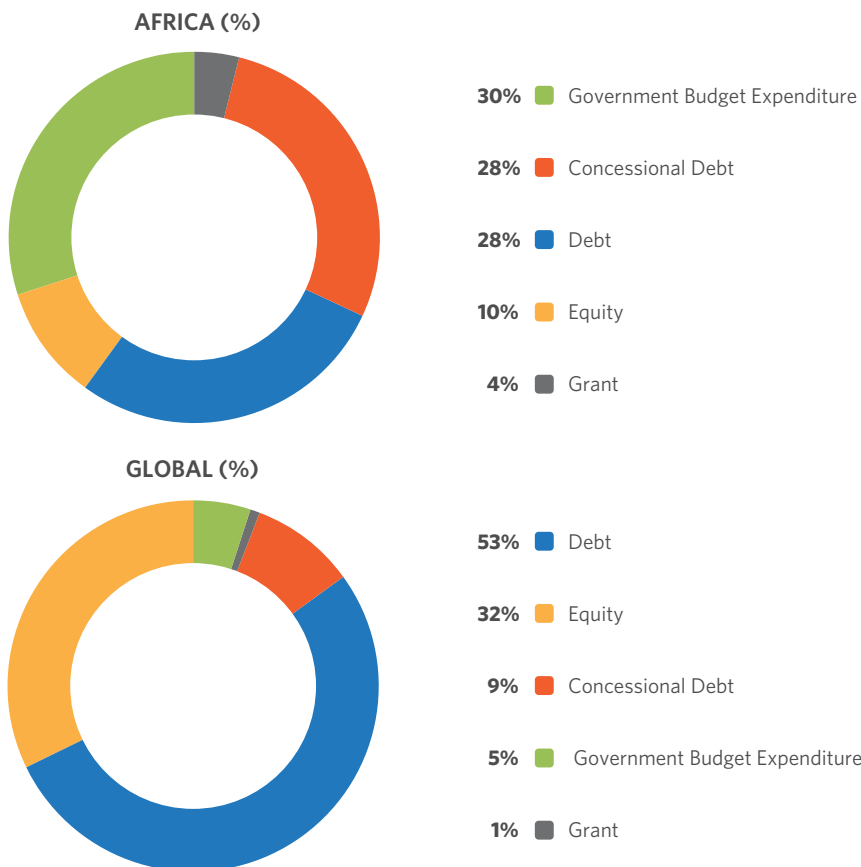
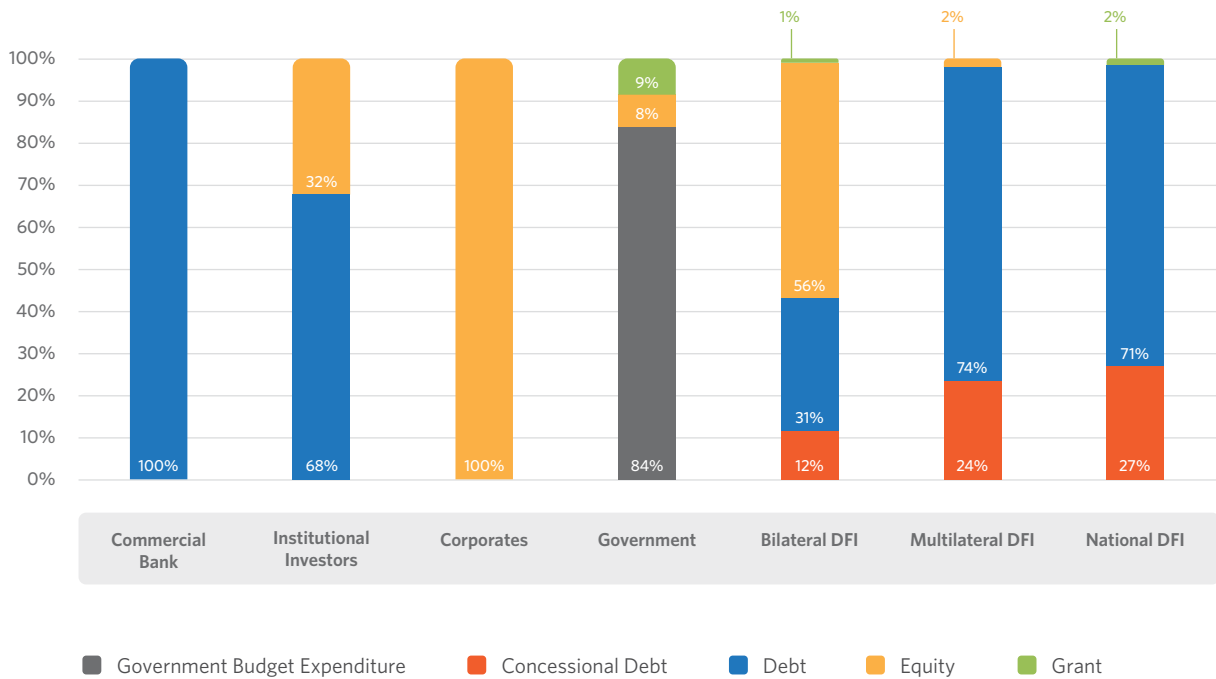


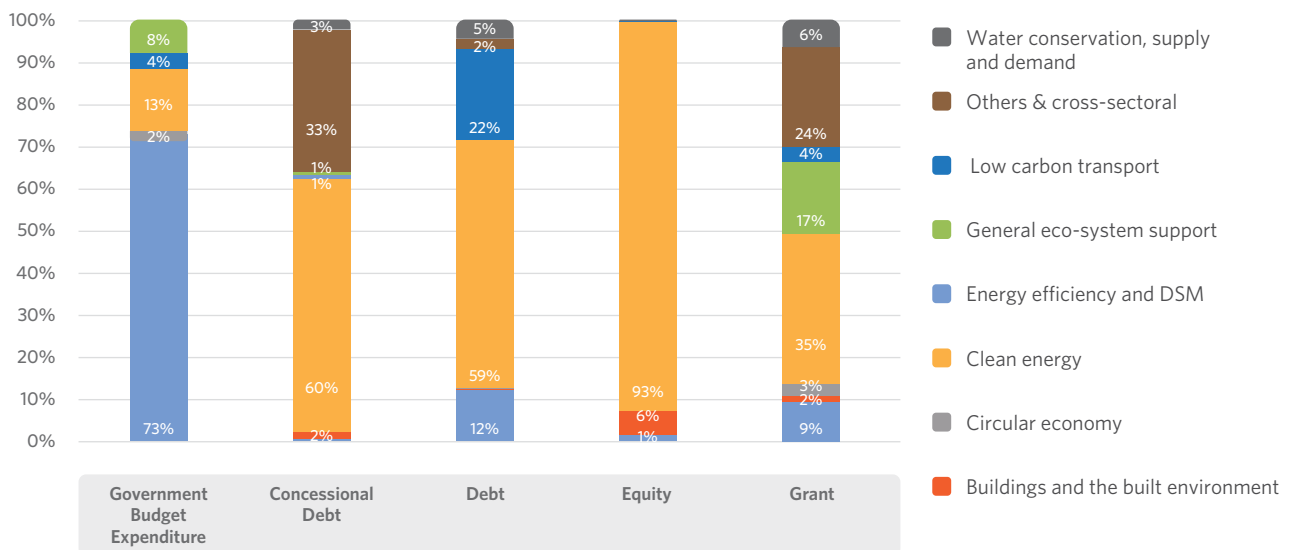
Figure 19 below provides further context on the preferred financing instruments utilised in South African climate finance by financial intermediaries.

Figure 19: Tracked financial instruments by financial intermediaries



These climate finance flows are allocated to various sectors, as outlined in the Figure 20.

Figure 20: Tracked sector investment by financial instruments



Box 12: Carbon market in South Africa

Carbon pricing is a resource-efficient means of reducing emissions in hard-to-abate sectors, by allowing them to fund deeper emission reductions in sectors with better mitigation potential. This therefore helps to achieve overall emissions reductions across the economy at least cost.

The carbon market is a potential vehicle to channel new climate investment into South Africa's growing low-carbon economy, but this does not come without challenges. South Africa's carbon market was established in early 2005, but has failed to grow as fast as expected. [South Africa's Carbon Tax Act](#) was signed into law in May 2019 with the resultant growth of the carbon trading market still underwhelming.

South Africa's carbon price of R134/tCO₂e, places it below the existing median global carbon price of R192/tCO₂e and global average of R351.39/tCO₂e. Environmental campaigners argue that to meaningfully drive down emissions and stimulate the carbon market, a higher carbon price is needed.

The local carbon market is currently supply-led with an abundance of local carbon credits but limited demand due to verification challenges on the international market.

With the third phase of the carbon tax due to begin in 2023/24, the market remains optimistic about the role carbon trading can play in channelling new climate investment into South Africa's developing low-carbon economy.

Box 13: Climate finance tagging and gender-responsive budgeting in South Africa

Incorporating gender considerations in climate budgeting is essential to address diverse gender perspectives and ensure equal access to resources for climate action. Given the growing trend of international development institutions, climate funds and other stakeholders prioritising gender considerations in funding allocations, South Africa stands to gain a competitive advantage with a robust gender-responsive climate tagging process in place ([CABRI et al, 2021](#)).

However, less than 3% of tracked climate finance was tagged for gender responsiveness. This may be due to the independent development of climate budget tagging and gender-responsive budgeting efforts in South Africa, like in most other countries. The National Treasury has piloted climate budget tagging in 11 sites across national, provincial and local governments. Once finalised and approved, this will serve as the indicative climate budget tagging framework for larger implementation.

The National Treasury has collaborated with the International Monetary Fund (IMF) to apply a gender-responsive budgeting framework and develop a roadmap to advance gender responsiveness of the budget (IMF, 2023). There is strong evidence of the interconnections between gender equality and initiatives to both adapt to and mitigate climate change, including addressing issues related to loss and damage (CABRI et al, 2021). While a comprehensive assessment is beyond the scope of this study, a few key considerations are discussed below:

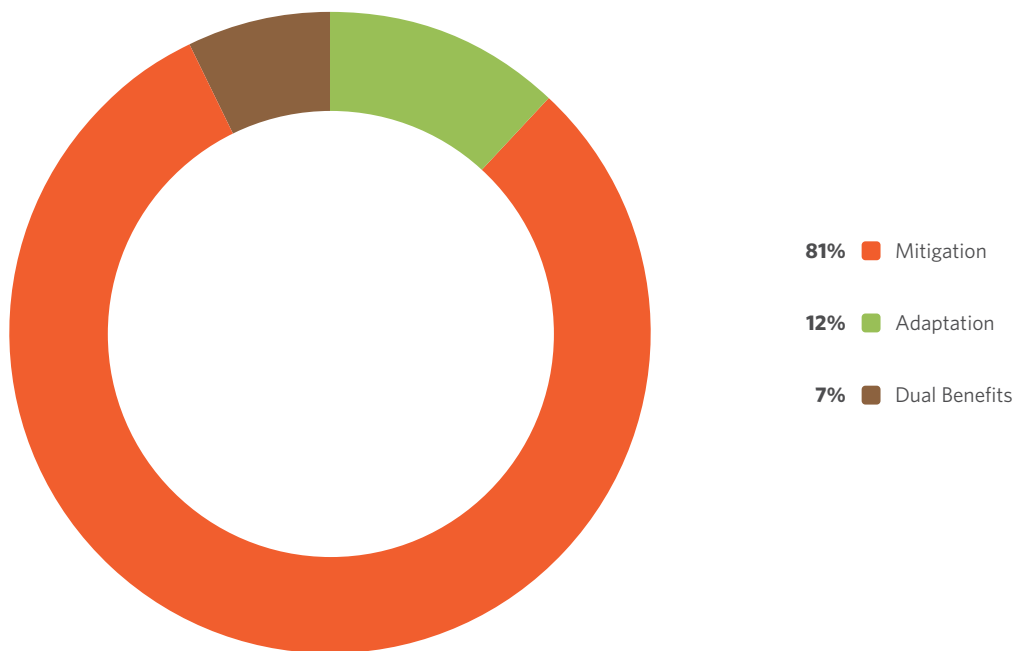
- **Gender integration into taxonomies and policies:** Establish standardized guidelines for identifying and prioritizing gender-responsive activities within climate projects in the South African taxonomy is a good starting point. These can then be integrated into national and local policies related to climate change and budgeting processes, ensuring a coherent approach across all levels of governance. A case in point is Mexico’s Sustainable Taxonomy which, for the first time, integrates both socio-economic and environmental objectives using the Paris Agreement and the 2030 Sustainable Development Agenda as benchmarks. Gender equality is a social objective within the taxonomy, including categories such as decent work, wellbeing and social inclusion (Natixis, 2023).
- **Conduct gender-disaggregated data collection** to understand the specific impacts of climate change, through ex-ante and ex-post gender impact assessments. Standardized and consistent reporting of such data, especially in “hard to understand” sectors like infrastructure will help to inform budget allocations (OECD, 2023). Regular assessments will help to identify best practices, challenges, and areas for improvement to facilitate a mutual reinforcement of climate budget tagging and gender-responsive budgeting.
- **Prioritize gender-responsive climate initiatives:** Allocate a portion of climate budgets explicitly for gender-responsive projects. These may relate to sustainable agriculture, clean energy access, or enhancing resilience to climate-induced disasters. Gender considerations should be integrated throughout the life cycle of the project from design and planning to implementation and evaluation.
- **Capacity building and training initiatives:** Providing training and developing manuals and guidelines for stakeholders involved in climate budgeting to build their capacity in integrating gender considerations is critical. Given the cross-cutting nature of gender, strong coordination mechanisms among stakeholders, including various government agencies, NGOs, and communities is valuable for facilitating a common approach and exchange of good practices.
- **Improved dissemination of the positive outcomes of gender-responsive projects, programmes, and strategies.** In order to stimulate investor interest, there is a pressing need for in-depth analysis and improved communication regarding definitions, the positive financial returns and impact outcomes of gender-responsive investing.

5.4. END-USE SECTORS OF CLIMATE FINANCE

Climate finance is structured into three distinct end-uses: mitigation, adaptation, and dual benefits (see Methodology section for details). Climate mitigation is the primary end-use sector representing 81% of all tracked climate financing. Over the three-year tracking period, climate mitigation accrued a total of R315 billion, with an annual average investment of R105 billion. Adaptation accounted for 12% of tracked investments, reaching a total of R48 billion over the three years with an annual average investment of R16 billion. Dual benefits accounted for 7% of tracked investments amounting to R29 billion over the three years, averaging an annual investment of R10 billion.

Adaptation finance accounts for 12% of tracked climate finance.

Figure 21: Climate finance tracked per end-use sector



5.4.1. MITIGATION FINANCE

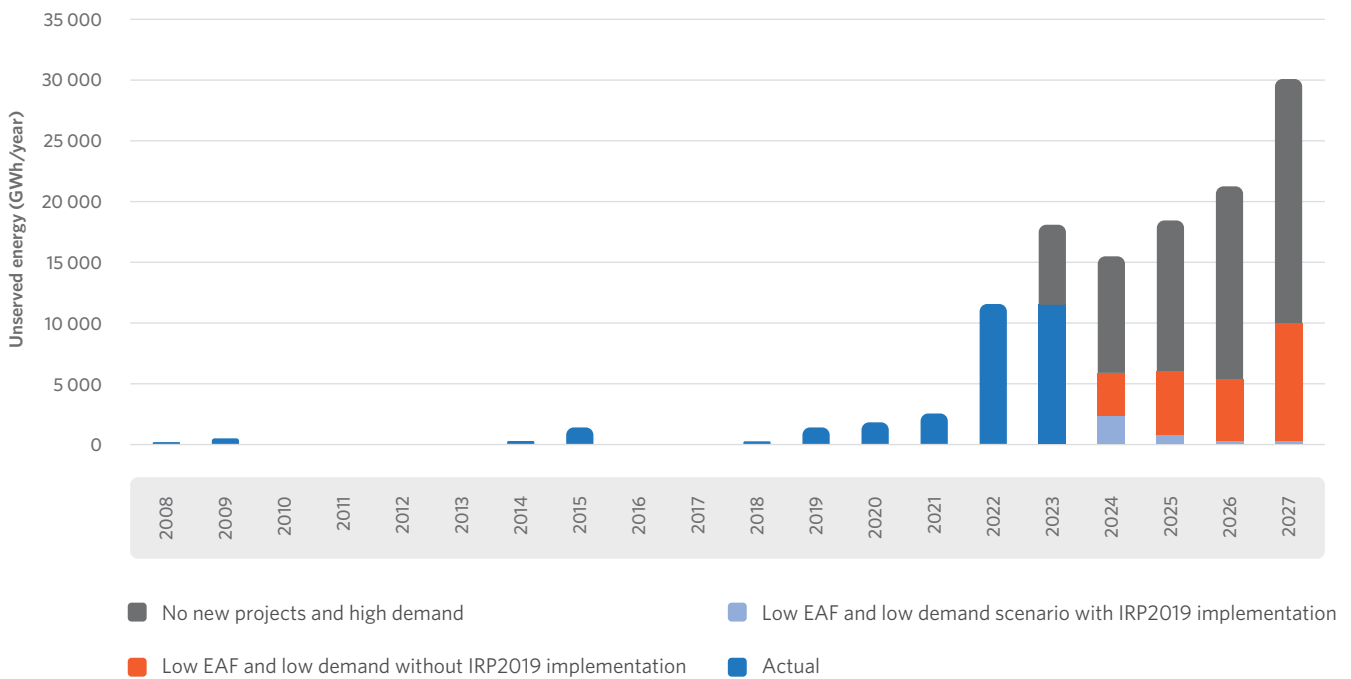
Mitigation emerges as the primary end-use sector representing 81% of all tracked climate financing (R105 billion p.a.). Clean energy generation, received 76% of mitigation finance (R80 billion p.a.). This was largely dominated by solar photovoltaic and energy storage investment. An additional 20% went to energy efficiency and DSM. Buildings and the built environment, and other and cross-sectoral projects followed at 2% and 1%, respectively. No other category received more than 1% of the total.

Reflecting the strong business case for renewable energy investment, the private sector contributed 90% of mitigation finance, with the remaining 10% derived from public investments in areas such as clean energy, energy efficiency, DSM, and water conservation, supply, and demand.

Increased loadshedding and high tariffs are likely to stimulate further clean energy investment, as private actors seek alternative electricity sources to protect price and energy security. The energy availability factor (EAF) of South African public energy provider Eskom’s coal-heavy fleet has steadily fallen from 72% in 2018 to 62% in 2021. Figure 22 demonstrates the resurgence and evolution of loadshedding in 2019; and the significant surge in private sector capital tracked into the energy sector. The figure also provides some projections for continued loadshedding, considering a low EAF and different electricity demand scenarios, along with the rollout of new generation. The scenarios present different permutations of the EAF, demand and overall implementation of the IRP 2019, which sets the country’s preferred energy mix (see Box 3).

Figure 22: Loadshedding data & scenario analysis

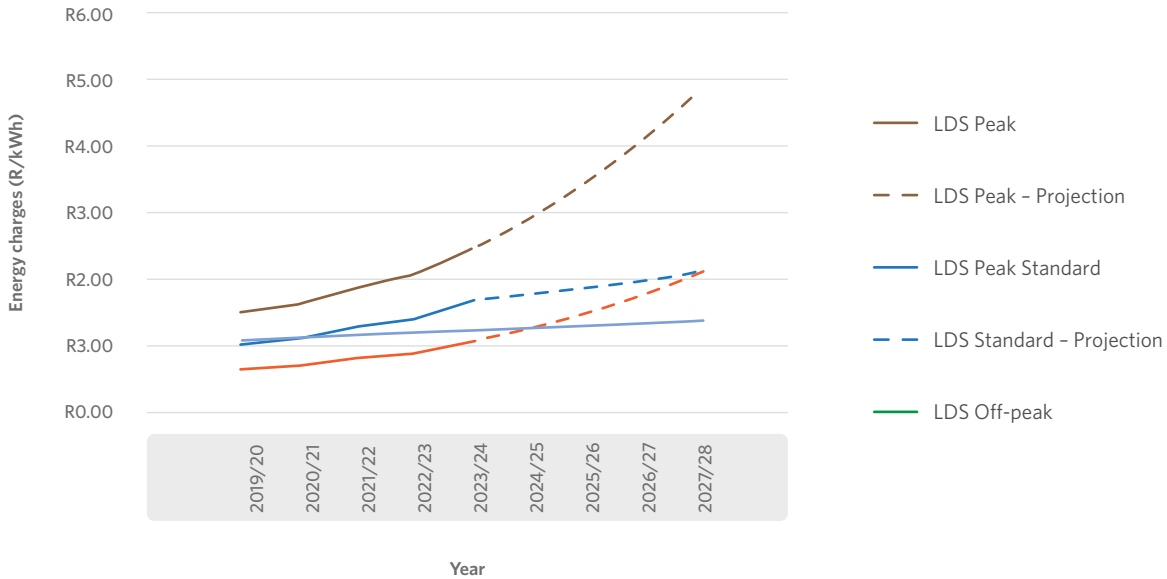
Source: GreenCape 2023



Furthermore, between 2007 to 2022, electricity tariffs increased by 653%, surpassing general inflation over this period of 129%, and this trend is expected to continue. Figure 23 shows possible increases to the average peak, standard time and off-peak tariffs in a low demand scenario.

Figure 23: Increasing cost of electricity

Source: GreenCape 2023

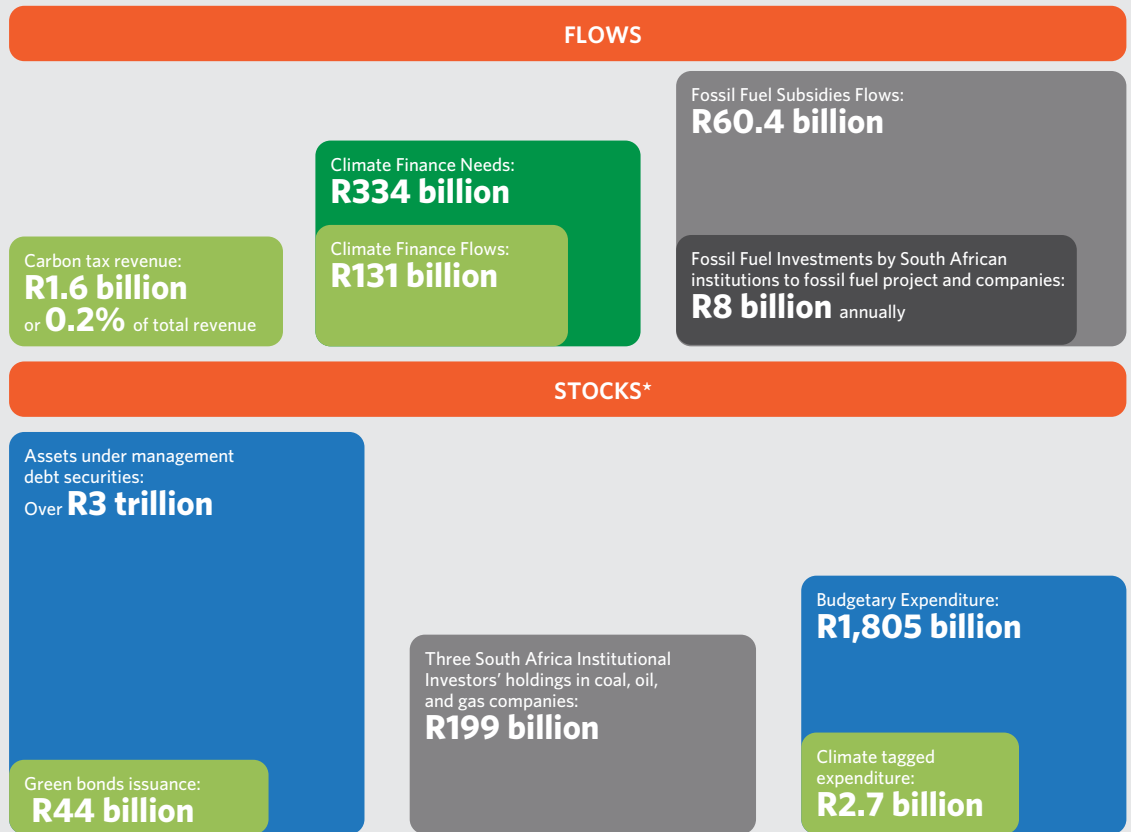


Box 14: Comparison of climate finance with high-carbon flows in South Africa

Climate finance flows cannot be viewed in isolation. Focusing solely on increasing investments with positive climate impacts is insufficient, given the magnitude and urgency of efforts required to achieve South Africa's ambitious climate goals. It is important to consider climate finance flows and capital stocks in a broader context to achieve the long-term goals of the Paris Agreement. There is significant misalignment between climate finance needs and financial flows, globally as well as for South Africa. For example, South Africa spent an average of USD 3.9 billion annually on fossil fuel subsidies between 2019 and 2021. Just three South African institutional investors possess a staggering USD 13.5 billion in shares and bonds in coal, oil, and gas companies. Country's budgetary expenditure averaged R1.8 trillion between 2019 and 2021 while only R2.7 billion in 2020/2021 from the National Treasury was tagged as green (see the figure below).

While not all financial flows are expected to directly benefit climate or environmental objectives, it is important that a sustainable finance architecture is adopted. This encompasses a range of measures, including the implementation of climate risk disclosure practices by all financial stakeholders, rigorous evaluation, and prioritization of climate risks, particularly in relation to investments in fossil fuels.

Additionally, it involves the adoption of multifaceted, well-informed investment strategies that consider the broader economic consequences of maintaining the status quo, as well as appraising the economic value of transitioning towards decarbonisation and climate resilience.



Notes: This figure is adapted from UNFCCC 2021; The presented data points serve to contextualize climate finance and do not constitute a comprehensive or systematic overview of all stocks, debt and flows in South Africa. Stock refers to amount of available capital in the economy including debt securities, equities, bank debt, and budgetary expenditure.*

Sources: Carbon tax for 2022 (Deloitte); Fossil fuel subsidies averaged for 2019, 2020 and 2021 (Fossil Fuel Subsidy Tracker); Fossil fuel investments averaged for 2016 and June 2021 (Banktrack); Green bonds issuances between 2012 and 2021 (CBI); Outstanding rand-denominated debt securities in Jul 2022 (RezBank); Institutional investors' holdings in coal, oil and gas companies as on January 2023 (Investing in Climate Chaos); Budgetary expenditure average for 2019/20 and 2020/21 (National Treasury, Budgetary Review 2022); Climate-tagged budget expenditure for 2020/21 (BUR 5, forthcoming); Transition risk (CPI, 2019).

Despite contributing more than 10% of South African carbon emissions²⁸, finance for the low-carbon transport sector is lacking. There was investment of R87 million in low-carbon transport during the tracked period. This poses a challenge to meet South Africa's NDC and net zero goal.

The emerging electric vehicle market currently takes a small share of South Africa's automotive industry but presents substantial opportunities for businesses and investors. Four key attractive investment opportunities in the country's electric vehicle industry are:

- Local manufacturing and electrification of public transport.
- Electric micro-mobility for last-mile delivery.
- Local manufacturing of electric private passenger vehicles.
- Local lithium-ion cell manufacturing.

Innovative finance support from DFIs and other concessional lenders is needed to unlock this sector, specifically for public transport, which remains a largely subsidised sector and services most of the population.

5.4.2. ADAPTATION FINANCE

Adaptation activities tracked in 2019-21 averaged R16 billion per year, accounting for 12% of climate finance tracked. Of this amount, 90% came from private sources, and the remaining 10% from public.

Agriculture, forestry, fisheries and land use was the primary destination of adaptation climate finance, receiving an annual average of R10 billion, or 63%. Water conservation, supply and demand followed, receiving an annual average of R4 billion, accounting for 28% of that tracked.

Most of these investments went towards the development of wastewater and water treatment and recovery projects in South Africa. This was on the back of the [Green Drop](#) and [Blue Drop](#) reports. Support was also tracked for new water sources, water distribution and reticulation in response to the most recent national drought from 2018 to 2021.

5.4.3. DUAL-BENEFIT FINANCE

Dual-benefit activities, which yield both mitigation and adaptation benefits, received 7% of climate finance (R10 billion p.a.). Of this, 33% was sourced privately, and 67% publicly. Agriculture, forestry, fisheries and land use was the primary beneficiary for dual-benefit climate finance with R7 billion p.a. followed by other & cross-sectoral (R2 billion p.a.).

²⁸ The Boston Consulting Group estimate that the transport sector is the third largest emitter in South Africa, with almost 55 Mt CO2 emissions contributing more than 10% to South Africa's national gross emission per annum.

Box 15: A comparison of climate finance in South Africa vs. the African region vs. the global landscape

In 2022, CPI conducted a first-of-its-kind assessment of climate finance flowing into and within African countries called [Landscape of Climate Finance in Africa](#) (2022). It covered the years 2019 and 2020 and tracking annual flows of USD 29.5 billion. Although the Africa landscape study and our current South African landscape study are not directly comparable, due to different tracking periods, sectoral classifications and new data sources and methodology, some overall trends are provided below.

- Private finance accounted for 14% of the total tracked climate finance in Africa and was concentrated in a handful of countries with relatively developed financial markets. South Africa, Nigeria, Kenya, Morocco, and Egypt accounted for 50% of total tracked private finance in Africa. This could be attributed to these bigger African economies offering larger investment opportunities, with political stability, more conducive regulatory environments, and higher capacity local project developers. Meanwhile in South Africa private actors were the predominant source of climate finance (86%).
- Africa reported a better balance between adaptation and mitigation than other regions. Mitigation accounted for 49% of climate finance flows in Africa, followed by 39% for adaptation, and 12% for dual benefits. This is different than what was observed in South Africa where 12% went into adaptation and 7% into dual-benefit activities.
- Grants (30%), concessional debt (28%) and non-concessional debt (27%) were the preferred instruments for climate finance in Africa, though this varied by country, sector, and project type. The current report found that in South Africa, non-concessional debt was the predominant financial instrument (75%) with grants and concessional finance accounting for approximately 3% combined.
- Energy projects attracted the largest share (31%) in Africa as a whole. Meanwhile, the current report found clean energy and energy efficiency to receive 79% of investments in South Africa.

Further to the above referenced report CPI published the [Global Landscape of Climate Finance: A Decade of Data](#) (2022) which monitors 10 years (2011 – 2021) of global primary investment by public and private actors in activities that reduce emissions and improve adaptation and resilience to climate change. This report tracked an annual average climate finance flow of USD 653 billion for the 2019/2020 period. Table 2 below references the average annual percentage share for 2019/2020 in climate finance per source, instrument and end use; and provides an indication of how South Africa differs from Africa and on a global perspective.

Table 2: A comparison of South Africa’s average annual climate finance flows in relation to Africa and the global annual average as per source, instrument and end use

Category	South Africa (%)	Africa (%)	Global (%)
Source			
Private	86%	14%	49%
Public	14%	86%	51%
Instrument			
Budget Expenditure	5%		
Concessional Debt	2%	28%	9%
Debt	75%	28%	53%
Equity	18%	10%	32%
Grant	1%	30%	5%
Unknown		4%	1%
Use			
Adaptation	12%	39%	7%
Mitigation	80%	49%	30%
Dual Benefits	7%	12%	3%

6. BARRIERS TO SCALING CLIMATE FINANCE

This section provides an assessment of barriers and challenges in mobilizing climate finance in South Africa, informed by interviews with different public and private actors.

6.1. MAPPING OF INVESTMENT BARRIERS BY SECTOR

Five sectors are currently the focus for climate-resilient development in South Africa. These are clean energy, low-carbon transport, water resilience (supply and demand), circular economy and sustainable agriculture. Table 3 provides insight into the barriers and investment risks associated with each of these sectors. The following barriers were assessed:

- **Economic:** Indicates the ease of building an economic case for investment.
- **Policy:** Indicates whether there is a conducive policy and legislative environment for investment.
- **Skills:** The availability and applicability of the relevant skills needed in the sector.

A project pipeline assessment, based on the availability of investment-ready projects, is also provided.

Each barrier was rated high, medium, or low, based on its impact on climate finance investments.

In order to assess the financial barriers within each sector, the following assessments are presented for each:

- **Climate finance availability assessment:** An assessment of the availability of climate finance in the sector – an indication of investor interest in the sector.
- **Sector level investment risk assessment:** An assessment of the perceived investment risk present in the sector.

Table 3: Mapping of investment barriers and investment sentiment by sector

Sector	Barrier			Project pipeline	Climate finance availability assessment	Investment sentiment	Investment risk assessment	Comment
	Economic	Policy	Skills					
Clean Energy	Low	Medium	Medium	High	Mature	Low	Low	<ul style="list-style-type: none"> South Africa's renewable energy market is developed and competitive, with low tariffs relative to other regions. Market shifting from public to private off-take. Work is needed to match skills supply to growing demand. Loadshedding is expected until 2026. Market growth limited in South Africa due to loadshedding shifting focus to generation.
Energy efficiency and DSM	High	Low	Low	Low	Emerging	Low	Low	<ul style="list-style-type: none"> Emerging sector, with growth expected in the 2030s. Lack of enabling finance terms. High cost of EVs. Lack of policy and incentives supporting EVs. Lack of local skills to facilitate market growth. Technical risk remains high. Limited charging infrastructure.
Low-carbon transport	Medium	High	Medium	Low	Nascent	Medium	Medium	<ul style="list-style-type: none"> Adaptation risk assessment needed to increase data on successful projects. The Public Finance Management Act and Municipal Finance Management Act and supply chain procurement makes private investment in public infrastructure difficult. Low public water tariffs make it hard for private providers to compete.
Water conservation, supply, and demand.	High	Medium	Medium	Low	Nascent	High	High	<ul style="list-style-type: none"> Adaptation risk assessment needed to increase data on successful projects. No innovative financing mechanism or incentives to allow new tech to come online. High capital costs for new tech and a lack of understanding surrounding agricultural projects. Climate and governance-linked infrastructure risk (road, water, energy etc.). Land tenure and policy uncertainty results in hesitancy for long-term investments.
Agriculture, forestry, fisheries and land use	Medium	Medium	High	Low	Nascent	High	High	<ul style="list-style-type: none"> Access to feedstock. Lack of available data on successful projects. High barriers for investment in public infrastructure and access to public waste streams, apart from WWTWs.
Circular Economy	Medium	Low	Medium	Medium	Mature	High	Medium	<ul style="list-style-type: none"> Limited uptake outside of energy interventions. Green certification value is still linked to customer perception.
Buildings and the built environment	High	Medium	Low	Medium	Nascent	Medium	Medium	<ul style="list-style-type: none"> An evolutionary process that requires material research, market knowledge and time, and may face resistance.
Material substitution	Medium	Medium	Medium	Medium	Emerging	Medium	Low	<ul style="list-style-type: none"> Investments are often grant-based or public-sector led as the economic case is limited.
General ecosystem support	High	Medium	Low	Medium	Emerging	Low	Low	

Using a rating system, the barriers for each sector as detailed above can be rated to indicate the overall impact of the barriers on the investment case (40 indicating high barriers; and 0 low). These ratings, shown in Table 4, are aligned with the level of finance sectors received according to the tracked data. The three sectors with the lowest barriers (clean energy, energy efficiency and DSM, and general ecosystem support) together accounted for 86% of the tracked annual investment.

Table 4: Barrier rating per sector

Sector	Barrier rating	Average annual tracked investment
Water conservation, supply and demand	40	R5 billion
Agriculture, forestry, fisheries and land use	40	R17 billion
Low-carbon transport	40	R87 million
Buildings and the built environment	30	R2 billion
Circular economy	20	R244 million
General ecosystem support	20	R665 million
Energy efficiency and DSM	15	R21 billion
Clean energy	10	R82 billion

6.2. CLIMATE FINANCE BARRIERS

Despite South Africa's considerable progress in creating enablers for the transition to a low-carbon economy, significant barriers persist in accessing and mobilising climate finance, with a lack of funding for small to mid-sized projects, especially those that are viewed as high risk or are seeking to move from early development to commercialization.

South Africa has a small and nascent venture capital industry. Policy interventions and public spending are needed to stimulate private capital towards strategic low-carbon sectors.

There remains a mismatch between available climate finance and low-carbon projects. Despite the availability and applicability of climate linked funds, it is difficult to source investment-ready projects that have both a climate impact and acceptable financial returns.

Data limitations are holding back investments in adaptation and nature-based projects. The return on investment on adaptation-based solutions is not yet evident, as such projects require long investment timelines and involve high risks. Quantifying and disseminating results is complex and further increases the perception of risk. In addition, there is no common framework of guidelines and metrics to assess performance.

A return before impact approach is limiting climate-linked impact investing in the South African market.

- Funders do not necessarily distinguish between low-carbon projects and business-as-usual projects, prioritising financial returns over impact.
- High transaction costs for commercial finance for low-carbon projects results in reduced finance flow.
- Emerging climate sectors require upfront grants or concessional funding to reach bankability and offset perceived risks. Furthermore, there is currently limited alignment between concessional and commercial finance.

Forex risk remains a challenge for funders sourcing in foreign currency but lending in ZAR.

Work is needed to design and implement international forex risk-sharing mechanisms to stimulate investment.

Uptake and embedding of climate-related disclosure frameworks is hindered by a lack of institutional capacity. There is a need for skills and support for developing frameworks to aid organisational-level tracking of climate and ESG investments.

7. CONCLUSION AND RECOMMENDATIONS

Adoption of multifaceted, well-informed, investment strategies that account for the broader economic consequences of maintaining the status quo, as well as the economic opportunities of transitioning to decarbonisation and climate resilience, is needed.

Climate finance cannot be viewed in isolation. Focusing solely on increasing such investments will be insufficient to achieve South Africa's ambitious climate goals, given the magnitude and urgency of the required efforts. It is imperative to consider climate finance flows in a broader context to achieve the goals of the Paris Agreement. There is a significant misalignment between climate finance needs and financial flows, both globally and in South Africa.

While not all financial flows are expected to directly benefit climate or environmental objectives, it is important to adopt a sustainable finance architecture encompassing a range of measures, including:

- Scale the pipeline of investment-ready low-carbon and climate-resilient projects.
- Prioritize and scale concessional finance to target less mature technologies and hard-to-abate sectors.
- Scale international risk-sharing mechanisms and innovative finance solutions to stimulate investment.
- Enhance and strengthen government budget tracking, measurement, reporting, and verification systems.
- Awareness, capacity building and alignment must be the centre points of a coordinated effort from all stakeholders.
- Implementation of climate risk disclosure practices by all financial stakeholders.
- Rigorous evaluation and prioritisation of climate risks particularly in relation to fossil fuel investment.

Furthermore, just transition considerations are not yet integrated into the financial ecosystem, with a lack of suitable investment models and instruments to make its goals a reality. Given the nascent stage of just transition finance, there is limited proof of concept and track record for related projects. Without established models to evaluate the potential and scalability of such projects, the financial ecosystem tends to adopt a wait-and-see approach.

7.1. ACTOR-SPECIFIC RECOMMENDATIONS FOR SCALING CLIMATE FINANCE

All stakeholders have a role to play in the urgent task of scaling and distributing climate finance more effectively. Table 5 below provides a breakdown of these recommendations.

The South African climate finance landscape is a complex adaptive system in which many independent elements or agents interact, leading to emergent outcomes.

Although the above recommendations are targeted to separate stakeholder groups, it is important to recognise the South African climate finance landscape as a complex adaptive system in which many independent elements or agents interact, leading to emergent outcomes that can be difficult to predict simply by examining individual components. If we ignore the institutional segmentation, the finance sector is a web of deeply interlocked, inter-dependent and enmeshed balance sheets. Accepting its adaptive nature allows for improved decision making within a constantly changing environment.

All financial actors can assess and report climate risk, and the impact of their own as well as clients’ portfolios. They can also set and report publicly, against their climate investment net zero goals in order to turn these into tangible targets and flows.

Table 5: Recommendations for climate finance mobilisation in South Africa per relevant actor

Stakeholders	Actions
South African government	<ul style="list-style-type: none"> • Ecosystem development by setting consistent low-carbon priorities and effective implementation to provide a predictable and enabling environment for public and private investors. • Alignment of fiscal policies and spending to national low-carbon priorities. • Deployment of financial instruments that reduce barriers, share and mitigate risks, with the aim of crowding-in private investment. • Develop guidelines and tools to enable reporting, monitoring, and evaluation of climate finance. In conjunction with the establishment of an agreed definition of climate finance, a monitoring and reporting toolkit can be developed to help practitioners effectively tag, track and report on their climate finance commitments and disbursements.
Development partners and impact investors	<ul style="list-style-type: none"> • Target concessional finance to sectors where private capital is not yet active (clean transport, water, and sustainable agriculture); deploy risk-sharing instruments; and invest for impact through increased grants and concessional loans; once de-risked and the project is operational to exit, thus allowing commercial players to enter. • Develop and deploy project development and early-stage support to grow the pipeline of investment-ready projects. • Adapt strategies and financing to current and future vulnerabilities of the South African economy by considering future climate risk in current investment decisions.
Local and international development finance institutions	<ul style="list-style-type: none"> • Capacity building and coordination in the public and private sector to help practitioners effectively tag, track and report on their climate finance commitments and disbursements. • Collaborate with multilateral institutions or accreditation agencies to provide a conduit for international climate finance.

Private sector investors

- Incorporate climate impact criteria into private sector investment policies, procedures, and targets to increase climate-linked impact investing.
- The sustainability of each investment and the duty to consider all risks (financial, operational, competitive, technology, environmental, social impact, governance) to be included in the assessment of each investment's sustainability.
- Leverage innovative financing vehicles to better match investment opportunities to risk-return profiles.
- Redirect financing from carbon-intensive projects, technologies, and businesses to climate-friendly projects.
- Build long-term resilience to climate shocks; thereby assisting and coordinating with clients, borrowers, and other stakeholders to build a carbon-resilient portfolio.
- Improve coordination with the insurance industry; insurers can help businesses and governments make informed decisions on what resilience initiatives to pursue by incorporating climate risk modelling into these projections.

Institutional investors (Pension funds, hedge funds, insurance companies, etc.)

- Incorporate physical and transition risks assessments in their investment decision making.
- Mandate reporting on climate-related disclosures but also carbon footprints to assess the true impact of climate change risk on their portfolios and activities.
- Set targets to allocate a portion of the portfolio to investments that directly contribute to climate solutions.

7.2. RECOMMENDATIONS RELATED TO DATA TRACKING

Data is crucial to inform the conversion of South Africa's low-carbon economy and climate reduction commitments into pragmatic strategies and solutions, as well as for transparency. However, significant data gaps persist across actors and sectors. There are a number of improvements that can be explored:

Enhancement and better adoption of the South African Green Finance Taxonomy. More stakeholders can align their climate finance tagging and reporting with the South African Green Finance Taxonomy as a standardized approach. Just transition considerations (gender equality and social inclusion) should also be incorporated into the taxonomy. In addition existing leading frameworks and standards (of the UK, Europe, and Asia) can be adopted to further enhance the taxonomy and increase the likelihood of international finance flow.

Improve tagging of domestic public and private climate finance, by implementing tracking, measurement, reporting, and verification systems and frameworks. This can support the deployment of existing budgets towards climate-friendly activities and redirect them away from carbon-intensive ones.

Local and international DFIs can work towards greater alignment and transparency, partnered with more detailed reporting, on impact outcomes, which can help to avoid multiple funders all pushing support into one sector.

Develop a working definition of just transition finance along with a methodological approach and metrics to tracking just transition investments, while capacitating private and public sector players to identify and define their investments.

Incorporating gender, equality and social inclusion considerations in climate budgeting is essential for promoting gender equality, a crucial element in climate resilience and the just transition. This fosters innovation to address diverse gender perspectives and ensures equal access to resources for climate action. Given the growing trend of international development institutions, climate funds and other stakeholders prioritizing gender considerations in their funding allocations, South Africa stands to gain a competitive advantage with a robust gender-responsive climate tagging process in place.

8. REFERENCES

1. Banktrack. 2022. *Locked out of a Just Transition: Fossil Fuel Financing in Africa*. Available at https://www.banktrack.org/download/locked_out_of_a_just_transition_fossil_fuel_financing_in_africa/07_md_banktrack_fossil_fuels_africa_rpt_hr_1.pdf
2. Cassim, A., Radmore, J., Dinham, N., & McCallum, S. (2021). *South African Climate Finance Landscape 2020*. South Africa: Climate Policy Initiative. Available at <https://www.climatepolicyinitiative.org/wp-content/uploads/2021/01/South-African-Climate-Finance-Landscape-January-2021.pdf>
3. Climate Bonds Initiative. 2020. *Financing credible transitions: How to ensure the transition label has impact*. Available at: https://www.climatebonds.net/files/reports/cbi_fincredtransitions_final.pdf
4. Climate Bonds Initiative. 2022. *Green Bonds in South Africa*. Available at: https://www.climatebonds.net/files/reports/cbio_sa_energytrans_03d.pdf
5. Climate Funds Update. 2023. *The Global Climate Finance Architecture*. Available at <https://climatefundsupdate.org/wp-content/uploads/2023/03/CFF2-2023-ENG-Global-Architecture.pdf>
6. Climate Policy Initiative. 2019. *Understanding the impact of a low-carbon transition on South Africa*. Available at: <https://climatepolicyinitiative.org/wp-content/uploads/2019/03/CPI-EF-Understanding-the-impact-of-a-low-carbon-transition-on-South-Africa-2019.pdf>
7. Climate Policy Initiative. 2022. *The State of Climate Finance in Africa: Climate Finance Needs of African Countries*. Available at: <https://www.climatepolicyinitiative.org/wp-content/uploads/2022/06/Climate-Finance-Needs-of-African-Countries-1.pdf>
8. Climate Policy Initiative. 2023. *Global Landscape of Climate Finance 2023*. Available at: <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-a-decade-of-data/>
9. Deloitte. 2023. *South Africa's carbon tax: Changes and implications for taxpayers*. Available at: <https://www2.deloitte.com/za/en/pages/tax/articles/south-africas-carbon-tax-changes-and-implications-for-taxpayers.html>
10. Department of Environmental Affairs. 2011. *Financing Climate Change*. Available at: https://www.dffe.gov.za/sites/default/files/docs/financing_climate_change.pdf
11. Department of Forestry, Fisheries, and the Environment. 2021. *South Africa's 4th Biennial Update Report to the United Nations Framework Convention on Climate Change*. Available at: <https://unfccc.int/sites/default/files/resource/South%20Africa%20BUR4%20to%20the%20UNFCCC.pdf>
12. Department of Forestry, Fisheries, and the Environment. 2023. *South Africa's 5th Biennial Update Report (BUR-5) to the United Nations Framework Convention on Climate Change (UNFCCC): First-order draft*.

13. Department of Public Works. 2022. Green Drop Report. Available at: https://ws.dws.gov.za/iris/releases/Report_DPW_Rev02_29Mar22_MN%20web.pdf
14. Department of Transport: Republic of South Africa. 2018. Green Transport Strategy for South Africa: (2015-2050). Available at: https://www.transport.gov.za/documents/11623/89294/Green_Transport_Strategy_2018_2050_onlineversion.pdf/71e19f1d-259e-4c55-9b27-30db418f105a
15. Department of Water and Sanitation, 2023 Blue Drop Watch Report. Available at: <https://ws.dws.gov.za/IRIS/releases/BDWR.pdf>
16. Enseadas, SE., Margaux, G., Boyer, AE. 2021. Inclusive Budgeting and Financing for Climate Change in Africa: Opportunities for coordinating the integration of gender and climate change into budgeting and finance. Available at: <https://www.cabri-sbo.org/uploads/files/Documents/Opportunities-for-coordinating-the-integration-of-gender-and-climate-change-into-budgeting-and-finance.pdf>
17. Eskom. 2023. Renewable statistics data portal. Available at: <https://www.eskom.co.za/dataportal/renewables-performance/renewable-statistics/>
18. Eskom. 2023. Transmission Development Plan 2023 - 2032. Available at: https://www.eskom.co.za/wp-content/uploads/2023/01/Transmission_Development_Plan_2023-2032_Rev1.pdf
19. European Commission. 2023. Overview of sustainable finance. Available at: https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en
20. European Parliament. 2021. Green and sustainable finance. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/679081/EPRS_BRI\(2021\)679081_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/679081/EPRS_BRI(2021)679081_EN.pdf)
21. European Union. 2023. COMMISSION RECOMMENDATION (EU) on facilitating finance for the transition to a sustainable economy. Available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023H1425#:~:text=\(5\)%20Although%20the%20Union's%20legal,with%20the%20climate%20and%20environmental](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023H1425#:~:text=(5)%20Although%20the%20Union's%20legal,with%20the%20climate%20and%20environmental)
22. Fossil Fuel Subsidy Tracker. 2023. Available at: <https://fossilfuelsubsidytracker.org/country/>
23. G20 Green Finance Study Group. 2016. G20 Green Finance Synthesis Report. Available at: <http://www.g20.utoronto.ca/2016/green-finance-synthesis.pdf>
24. German Development Institute. 2014. Definition of Green Finance. Available at: https://www.idos-research.de/uploads/media/Lindenberg_Definition_green_finance.pdf
25. GreenCape. 2022. Waste Market Intelligence Report. Available at: <https://greencape.co.za/market-intelligence/>
26. GreenCape. 2023. Electric Vehicles Market Intelligence Report. Available at: <https://greencape.co.za/market-intelligence/>
27. GreenCape. 2023a. Large-scale Renewable Energy Market Intelligence Report. Available at: <https://greencape.co.za/market-intelligence>

28. GreenCape. 2023b. Sustainable Agriculture Market Intelligence Report. Available at: <https://greencape.co.za/market-intelligence/>
29. GreenCape. 2023c. Water Market Intelligence Report. Available at: <https://greencape.co.za/market-intelligence/>
30. GreenCape. 2023d. Energy Services Market Intelligence Report. Available at: <https://greencape.co.za/market-intelligence/>
31. HSBC. 2020. Heavy lifting: Why transition finance is vital to combat climate change. Available at: <https://www.hsbc.com/news-and-views/views/hsbc-views/why-transition-finance-is-essential>
32. IMF Public Financial Management Blog. 2021. Advancing Gender Responsive Budgeting in South Africa. Available at: <https://blog-pfm.imf.org/en/pfmblog/2021/10/advancing-gender-responsive-budgeting-in-south-africa>
33. Intergovernmental Panel on Climate Change. Frequently asked questions. Available at: https://www.ipcc.ch/report/ar6/wg3/downloads/faqs/IPCC_AR6_WGIII_FAQ_Chapter_15.pdf
34. International Capital Market Association. 2020. Sustainable Finance High-level definition. Available at: <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainable-Finance-High-Level-Definitions-May-2020-051020.pdf>
35. International Development Finance. 2021. IDFC Green Finance Mapping Report 2021. Available at: <https://www.idfc.org/wp-content/uploads/2021/11/idfc-gfm2021-full-report-final.pdf>
36. International Finance Corporation. 2016. Climate Investment Opportunities in Emerging Markets: An IFC Analysis. Available at: <https://documents1.worldbank.org/curated/en/602971510740408248/pdf/121277-WP-IFC-Climate-Investment-Opportunity-Report-Dec-PUBLIC.pdf>
37. International Monetary Fund. 2022. Sustainable Finance in Emerging Markets: Evolution, Challenges, and Policy Priorities. Available at: <https://www.imf.org/en/Publications/WP/Issues/2022/09/09/Sustainable-Finance-in-Emerging-Markets-Evolution-Challenges-and-Policy-Priorities-521689>
38. International Monetary Fund. 2022a. Climate Change and Select Financial Instruments: An Overview of Opportunities and Challenges for Sub-Saharan Africa. Available at: <https://www.imf.org/en/Publications/staff-climate-notes/Issues/2022/10/28/Climate-Change-and-Select-Financial-Instruments-An-Overview-of-Opportunities-and-Challenges-525195>
39. International Platform on Sustainable Finance. 2022. Transition Finance Report. Available at: https://finance.ec.europa.eu/system/files/2022-11/221109-international-platform-sustainable-report-transition-finance_en.pdf
40. Investing in Climate Chaos. 2023. Available at: <https://investinginclimatechaos.org/data>
41. Joint Report of Multilateral Development Banks. 2022. Climate Finance. Available at: https://www.eib.org/attachments/lucalli/mdbs_joint_report_2021_en.pdf

42. Jun, M and Terad-Hagiwara, A. 2022. Transition Finance is Critical to Address Climate Change. Available at: <https://blogs.adb.org/blog/transition-finance-critical-address-climate-change>
43. Lange, F. 2023. Dark green initiatives alone won't suffice: Transition finance is an essential factor in the fight against climate change. Available at: <https://bankenverband.de/en/sustainable-finance/only-dark-green-not-enough/>
44. Marquard, A.; Merven, B.; Hartley, F.; McCall, B.; Ahjum, F.; Burton, J.; Hughes, A.; Von Blottnitz, H.; Ireland, G.; Schers, J.; Dane, A.; Cohen, B.; Winkler, H.; McGregor, J.; Steven, L. (2021). *South Africa's NDC Targets for 2025 and 2030*. Presidential Climate Commission. Available at https://pccommissionflo.imgix.net/uploads/images/1eb85a_75d745eb859d43c288f461810b336dd3-compressed.pdf
45. Mineral Resources & Energy Science and Innovation Trade, Industry and Competition. 2023. South African Renewable Energy Masterplan Draft. Available at: [https://www.dmr.gov.za/Portals/0/Resources/Renewable%20Energy%20Masterplan%20\(SAREM\)/South%20African%20Renewable%20Energy%20Masterplan%20\(SAREM\)%20Draft%20III.pdf?ver=2023-07-17-141604-137×tamp=1689596128318&utm_campaign=request-for-comment-from-department](https://www.dmr.gov.za/Portals/0/Resources/Renewable%20Energy%20Masterplan%20(SAREM)/South%20African%20Renewable%20Energy%20Masterplan%20(SAREM)%20Draft%20III.pdf?ver=2023-07-17-141604-137×tamp=1689596128318&utm_campaign=request-for-comment-from-department)
46. Ministry of the Environment, Japan. 2021. Basic Guidelines on Climate Transition Finance. Available at: https://www.fsa.jp/news/r2/singi/20210507_2/04.pdf.
47. Muhammad, F and Christi, P. 2023. From 'Climate Financing' to 'Just Energy Transition' Financing. Available at: <https://t20ind.org/research/from-climate-financing-to-just-energy-transition-financing/>
48. Muller, S and Robins, N. 2022. Where are the people in transition finance? Available at: <https://blogs.lse.ac.uk/businessreview/2022/03/22/where-are-the-people-in-transition-finance/>
49. National Treasury. 2021. Financing a sustainable economy. Available at: https://www.treasury.gov.za/comm_media/press/2021/2021101501%20Financing%20a%20Sustainable%20Economy.pdf
50. National Treasury. 2022. Budget Review 2022. Available at: <https://www.treasury.gov.za/documents/national%20budget/2022/review/FullBR.pdf>
51. National Treasury. 2023. Medium Term Expenditure Framework: Technical Guidelines 2023. Available at: [https://www.treasury.gov.za/publications/guidelines/Medium%20Term%20Expenditure%20Framework%20-%20Technical%20Guidelines%20\(2023%20MTEF\).pdf](https://www.treasury.gov.za/publications/guidelines/Medium%20Term%20Expenditure%20Framework%20-%20Technical%20Guidelines%20(2023%20MTEF).pdf)
52. Natixis. 2023. A new Taxonomy is born: insights on the Mexican Sustainable Taxonomy. Available at: <https://gsh.cib.natixis.com/our-center-of-expertise/articles/a-new-taxonomy-is-born-insights-on-the-mexican-sustainable-taxonomy>
53. Net Zero Banking Alliance. 2022. NZBA Transition Finance Guide. Available at: <https://www.unepfi.org/wordpress/wp-content/uploads/2022/10/NZBA-Transition-Finance-Guide.pdf>

54. OECD. 2022. OECD Guidance on Transition Finance: Ensuring Credibility of Corporate Climate Transition Plans. Available at: <https://www.oecd-ilibrary.org/sites/b0d62d2b-en/index.html?itemId=/content/component/b0d62d2b-en#section-d1e2305>
55. OECD. 2023. OECD Best Practices for Gender Budgeting. Available at: [https://one.oecd.org/document/GOV/SBO\(2023\)2/en/pdf](https://one.oecd.org/document/GOV/SBO(2023)2/en/pdf)
56. Presidency of South Africa. 2023 South Africa's Just Energy Transition Investment Plan (JET-IP) for the initial period 2023-2027. Available at: <https://pccommissionflo.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf>
57. Presidential Climate Commission. (2022). A Framework for a Just Transition in South Africa. Available at: <https://pccommissionflo.imgix.net/uploads/images/A-Just-Transition-Framework-for-South-Africa-2022.pdf>
58. Scholes, R. and Engelbrecht, F. (2021). Climate impacts in southern Africa during the 21st Century. Available here: https://cer.org.za/wp-content/uploads/2021/09/Climate-impacts-in-South-Africa_Final_September_2021.FINAL_.pdf
59. South African National Planning Commission. (2012). *National Development Plan 2030: Our Future-make it work*. South Africa: South African National Planning Commission. Available at https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf
60. South Africa Reserve Bank. 2022. Note on South Africa's rand-denominated debt securities issuance statistics. Available at: <https://www.resbank.co.za/content/dam/sarb/publications/quarterly-bulletins/articles-and-notes/2022/03Note%20on%20South%20Africas%20rand-denominated.pdf>
61. Standard Chartered. 2022. Just in Time: Financing a just transition to net zero. Available at: <https://www.sc.com/en/insights/just-in-time/>
62. Trade & Industrial Policy Strategies. 2021. Finance and Just Transition. Available at: https://www.tips.org.za/images/Working_Paper_PCC_Finance_and_the_Just_Transition_2021.pdf
63. Trade & Industrial Policy Strategies. 2022. Research to Support the Future of a Tagging System for Just Transition Financial Flows. Available at: <https://www.tips.org.za/research-archive/sustainable-growth/green-economy-2/item/4449-research-to-support-the-future-of-a-tagging-system-for-just-transition-financial-flows>
64. UNFCCC Standing Committee on Finance. 2020. Fourth (2020) Biennial Assessment and Overview of Climate Finance Flows. Available at: https://unfccc.int/sites/default/files/resource/54307_1%20-%20UNFCCC%20BA%202020%20-%20Report%20-%20V4.pdf
65. UNFCCC. 2022. Fifth Biennial Assessment and Overview of Climate Finance Flows Technical Report. Available at: <https://unfccc.int/documents/619173>
66. United Nations Development Programme. 2021. A snapshot on climate finance. Available at: https://www.undp.org/sites/g/files/zskgke326/files/publications/UNDP_infographic_final.pdf

67. United Nations Environment Programme. Green Financing. Available at: <https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-financing>
68. World Bank Group. 2022. *Agriculture, forestry, and fishing value added (% of GDP) - South Africa*. [Online] Available at: <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=ZA>.
69. World Bank Group. 2022. South Africa Country Climate and Development Report. Available at: <https://openknowledge.worldbank.org/server/api/core/bitstreams/2b9a25b1-f244-53cd-a6ff-73f12ba8c22c/content>
69. Yao, W. 2021. Rethinking Carbon Neutrality: The Role of Transition Finance. Available at: <https://iigf-china.com/rethinking-carbon-neutrality-the-role-of-transition-finance-2>

ANNEXURE A: METHODOLOGY

The South African Climate Finance Landscape 2023 builds on the methodology of the [South African Climate Finance Landscape 2020](#) (Cassim, Radmore, Dinham, & McCallum, 2021), which tracked annual average climate finance flows for years 2017 and 2018.

The current report tracks years 2019, 2020 and 2021 and aims to capture climate finance data flows along their lifecycle from the source and intermediaries of finance, their deployment via financial instruments, the recipients of finance, and ultimately how finance is used on the ground. The data collection and analysis was supplemented by interviews with over 75 public and private climate finance stakeholders.

The mapping took place between February and September 2023. It tracks primary capital flows directed toward low-carbon and climate-resilient development interventions with direct or indirect GHG mitigation or adaptation benefits. It excludes secondary market transactions; and follows the South African Green Finance Taxonomy for definitions and sectoral classification. Lastly, just transition finance, skills development and capacity building are not monitored or accounted for.

This study closely follows the methodology developed by CPI to build the [Global Landscape of Climate Finance series](#) (*Global Landscape*) and the [Landscape of Climate Finance in Africa \(2022\)](#). The process of such studies are shown in Figure 24.

Figure 24: Process of a climate finance landscape



This study's approach, in line with the 2021 report, consisted of five key stages that involved in-depth market research, expert interviews and data collection; which was further supplemented by qualitative interviews with a selection of key market players. The collection of the data culminated in a Sankey diagram, as shown in the Executive Summary of this report; with supplementary descriptions of trends, challenges, and recommendations for furthering climate finance in South Africa.

SCOPING A TYPOLOGY

The report aligned itself with the existing South African Green Finance Taxonomy conceptual overview and which is detailed in Table 6.

Table 6: A conceptual overview of the South African climate finance landscape typology

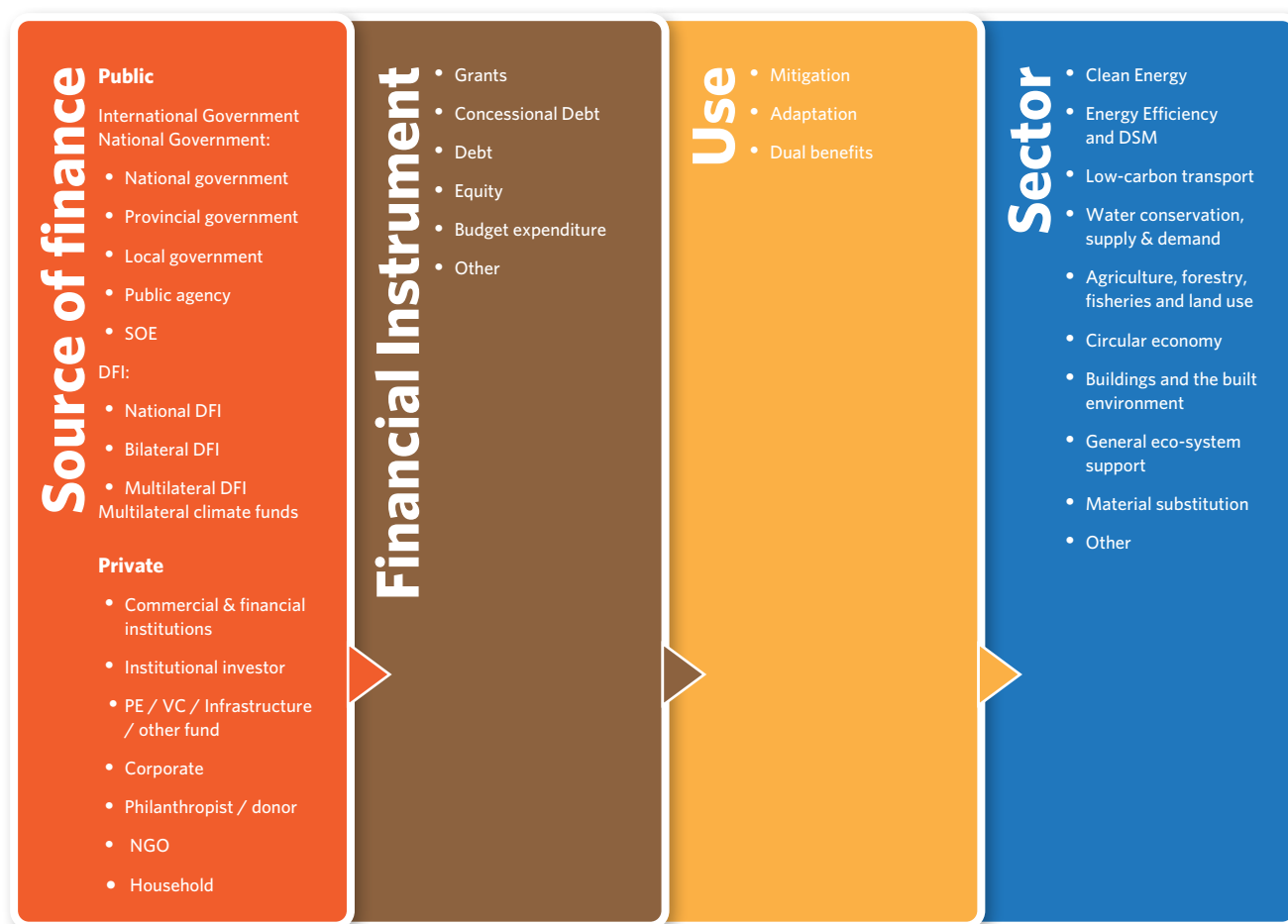
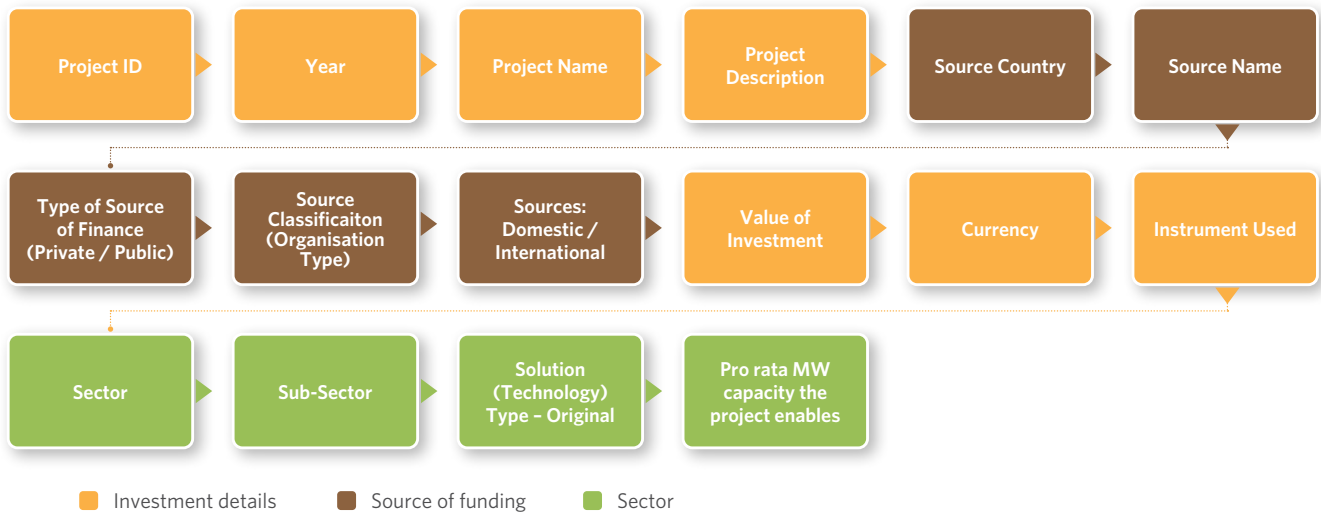


Figure 25 further illustrates how the typology was used in capturing the data information flow at a granular project level, for each climate finance entry into the data set.

Figure 25: High-level information capturing flow for data set



DEFINING CLIMATE FINANCE

The definition of **climate finance** is as per the South African National Treasury report [Financing a Sustainable Economy | Technical Paper 2021](#):

“Local, national, or transnational financing, which may be drawn from public, private, and alternative sources of financing. These financial resources are intended to cover the costs of transitioning to a low-carbon global economy and to adapt to, or build resilience against, current and future climate change impact.”

The below sub-definitions were utilised in the technical screening criteria and are as per the [South African Green Finance Taxonomy](#) (1st edition, March 2022), specifically:

MITIGATION FINANCE

An economic activity that contributes to the stabilisation of GHG concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system by avoiding or reducing GHG emissions or enhancing GHG removals.

ADAPTATION FINANCE

- a) An economic activity that either substantially reduces the risk of adverse impact or substantially reduces the adverse impact of the current and expected future climate on that economic activity itself without increasing the risk of an adverse impact on other people, nature and assets; or where
- b) An economic activity that prevents or reduces the risk of adverse impact or substantially reduces the adverse impact of the current and expected future climate on other people, nature or assets, without increasing the risk of an adverse impact on other people, nature and assets.

DUAL-BENEFIT FINANCE

Economic activity supporting both climate change mitigation and adaptation, and meeting the respective criteria for each category.

Box 16: Defining sustainable, green, climate and transition finance

The terms sustainable, green and climate finance are frequently used interchangeably, causing confusion on their intended purpose. A literature review of the various definitions has been conducted, focusing on the commonalities and differences within various iterations of these definitions. These aspects can be viewed within the following areas (UNFCCC, 2022):

1. The coverage and scope of the definition (e.g. SDG, mitigation, environmental benefits, etc.).
 2. The instruments used (e.g. grant, loan, concessional loan, etc.).
 3. The funding flow (developed to developing).
1. **The coverage and scope of the definition:** A common element between the definitions of “sustainable”, “green” and “climate finance”, is that each definition has a specific purpose for what the definition is designed for.

Sustainable finance

The variety of iterations of sustainable finance either reference the integration of environmental, social and governance (ESG) consideration into investment decisions or mention support for the UN’s Sustainability Development Goals (SDGs). A number of definitions also include references to climate, green and social finance, as well as economic sustainability objectives.

Green finance

All iterations affirm a focus on a broader scope of environmental benefit objectives such as biodiversity conservation; pollution prevention; and natural resource conservation, etc. They may also include references to mitigation and adaptation objectives, sustainable development priorities, the adjustments of risk perceptions and the improved pricing of financial risks related to environmental factors (G20 Green Finance Study Group, 2017).

Climate finance

All iterations affirm a focus on mitigation and adaptation objectives. One definition defined climate finance as financing environmental benefits in the broader context of environmental sustainable development (IFC, 2016). Others included means of implementation and refer to plans and policies, research and monitoring systems, capacity building and technology.

2. **The instruments used (e.g. grant, loan, concessional loan, etc.):** All definitions considered a variety of financial instruments as relevant.
3. **The source of funding:** Only climate finance mentions the source of finance. Almost all definitions note that climate finance may stem from a variety of public and private sources (UNFCCC, 2022). In some cases, climate finance was defined as comprising flows from developed to developing countries.

Transition finance

Transition finance is another term often conflated with green and climate finance as institutions accelerate their efforts to decarbonise.

Coverage and scope: Similar to green and climate finance, there are commonalities that can be found in transition finance, but the term has a specific purpose for which the definition is designed for.

All iterations affirm a focus on decarbonisation, with some including references to assisting institutions in implementing their own net zero initiatives; others including environmental, social, and sustainable initiatives; and some including finance for the development and scaling of climate solutions (NZBA, 2022). The exclusion of “green” industries was also highlighted as relevant, with some definitions arguing for transition financing to assist “brown” industries in transitioning to “less brown”.

Instruments: None of the definitions allude to the exclusive use of specific financial instruments. But a number refer to the popularity of sustainability-linked bonds and loans, and transition bonds when facilitating transition finance.

The actors: All definitions refer to corporations in emissions-intensive and hard-to-abate sectors as the primary users of transition finance.

This is a non-exhaustive approach of the various working definitions surrounding sustainable, green and climate finance.

SOURCES OF CLIMATE FINANCE

Private and public finance. The mapping of the climate finance landscape begins at the broadest definition of climate finance source being are the funds of private or public origination. Table 7 provides a definition for both.

Table 7: Private and public finance

Source	Descriptions
Private finance	Resources implemented by individuals and companies that are not state controlled.
Public finance	Resources in the form of public expenditure towards national and local objectives

TYPES OF SOURCES OF CLIMATE FINANCE

This report identifies five sub-categories of private and public financing sources, which are then broken down further into 18 different intermediaries. These are detailed in Table 8.

Table 8: Key sources and intermediaries of climate finance

Source	Definition
1. International government	International political bodies, or the aggregate of the citizens of a state, nation, or municipality.
2. Government	
National government	The whole body politic, or the aggregate of the citizens of the nation.
Provincial government	The whole body politic, or the aggregate of the citizens of a province (there are nine provinces in South Africa).
Local government	The whole body politic, or the aggregate of the citizens of a local municipality.
Public agency	Public agency means any city, city and county, town, county, municipal corporation, public district, or public authority located in whole or in part within Government.
State-owned enterprise (SOE)	A legal entity created by a government in order to partake in commercial activities on the government's behalf.
State-owned financial institutions	A legal entity created by a government in order to partake in commercial activities on the government's behalf.
3. Development Finance Institution (DFI)	
National DFI	National DFIs are specialised development banks or subsidiaries set up to support private sector development in developing countries.
Bilateral DFI	Bilateral DFIs are either independent institutions, or part of larger bilateral development banks where a single country owns the institution and finance is directed domestically.
Multilateral DFIs	Multilateral DFI's act as private sector arms of international finance institutions where the institution has multiple shareholder countries and directs finance flows internationally..
Multilateral climate funds	Multilateral climate funds support countries to adopt low-emission, climate-resilient development trajectories. They support capacity building, research, piloting and demonstrating new approaches and technologies, and removing barriers to other climate finance flows.
4. Commercial	
Commercial bank	A bank that offers services to the general public and to companies.
Institutional investor	An institutional investor is a company or organization that invests money on behalf of others. This includes mutual funds, pensions, and insurance companies.

Venture capital	A form of private equity financing provided by venture capital firms or funds to start-ups, early-stage, and emerging companies deemed to have high growth potential or which have demonstrated high growth.
Infrastructure fund	Infrastructure funds invest in public assets and services that are essential for a functioning society, such as power, transport, water, and waste.
Private Equity fund	Pooled investment vehicle where the adviser pools together the money invested in the fund by all the investors and uses that money to make investments on behalf of the fund.

5. Other

Other public	This includes the Export Credit Agency which is a private or quasi-governmental institution that acts as an intermediary between national governments and exporters to issue export insurance solutions and guarantees for financing.
Other private	Corporates or private companies; philanthropists and donors that provide donations to social good causes; and non-profit or non-governmental organizations.

TYPE OF INSTRUMENTS OF CLIMATE FINANCE

Instruments used to structure the provision of climate finance from one actor to another are divided into six categories, as shown in Table 9.

Table 9: Key financial instruments of climate finance defined

Source	Definition
Debt	Debt evidenced by a note which specifies, in particular, the principal amount, interest rate, and date of repayment. This debt is extended at regular market conditions.
Equity	A stock or any other security representing an ownership interest.
Grants	Subsidies or transfers made in cash, goods, or services for which no repayment is required. We also track grants specifically for technical readiness.
Concessional debt	Debt evidenced by a note which specifies, in particular, the principal amount, interest rate, and date of repayment, at below-market rates. Concessional debt is extended at terms preferable to those prevailing on the market, either through lower interest rates, longer maturity, grace periods, or a combination of those.
Concessional equity	A stock or any other security representing an ownership interest, at below-market rates.
Government budget spend	The capital disbursements of various South African ministries and government departments.

SECTOR CLASSIFICATION OF CLIMATE FINANCE

The end-use sectors are defined in line with the South African Green Finance Taxonomy. They are aligned with national priorities and policies; as well as having the highest market impact on South Africa’s climate emissions. The following sectors were selected: clean energy; energy efficiency and demand side management (DSM); low-carbon transport; water conservation, supply, and demand; agriculture, forestry, fisheries and land use; circular economy; buildings and the built environment; material substitution; and general ecosystem support. Table 10 details the activities of each of these sectors.

Table 10: Key financial sectors of climate finance defined

Sector	Activity	Description
Clean energy	Generation facilities and stationary combustion of cleaner fuels	Electricity generation facilities (Solar PV, wind, biogas, hydropower)
	Supply chain	Manufacturing facilities wholly dedicated to relevant sector
	Transmission and distribution	Dedicated transmission infrastructure for clean energy
	Storage	Energy storage, distribution, installation, and retail (including hydrogen)
Energy Efficiency and Demand Side Management (DSM)	Infrastructure / projects	Energy efficiency and DSM projects and facilities
	Supply chain	Manufacturing facilities wholly dedicated to relevant sector
	Transmission and distribution	Dedicated supporting infrastructure (including Smart Metering/smart grid)
Low-carbon transport	Modal shift (passenger and freight)	Improved integration of transport modes/system - Electric, hydrogen, gas, hybrid and non-motorised
	Supply chain (passenger and freight)	Manufacturing facilities wholly dedicated to relevant sector
	Infrastructure (passenger and freight)	Dedicated supporting infrastructure (charging, fuel etc.) - Smart logistics and efficient transport systems
Water conservation, supply, and demand	Water efficiency	Smart networks monitoring and leakage detection, water-efficient alien vegetation clearance
	Water storage	Dedicated storage (aquifer recharge, dam construction and refurbishment) and harvesting systems
	Water treatment	Water treatment facilities and systems (surface/ground/desalination)
	Water/wastewater distribution	More efficient and less polluting distribution systems
	Supply chain	Manufacturing facilities wholly dedicated to water sector

Agriculture, forestry, fisheries and land use	Resilient agriculture (crops)	Improved energy, water, fertilizer, pesticide, and herbicide efficiency. Improved soil health (biochar etc.)
	Resilient agriculture (livestock)	Improved manure management, feeding (Grazing Land Management) and breeding (reduced impact per unit).
	Resilient forestry and other land use	Sustainable land use management practices (revegetation, afforestation, reforestation and existing forest management, rewet wetlands)
	Resilient fisheries and ocean management	Sustainable fisheries and ocean management (managing fisheries and conserving protected resources and vital habitats)
	Supply chain	Manufacturing facilities wholly dedicated to the smart agriculture sector
Circular economy	Input material elimination and substitution	Facilities/methods/designs to eliminate the need for non-circular materials and/or produce new circular materials
	Product reuse	Reuse systems to recover and reuse products before they enter the secondary waste stream (packaging, composites)
	Waste collection, sorting and aggregation facilities	Facilities/methods for collection, sorting and material recovery
	E-waste refurbishment, dismantling and recycling	Facilities/methods facilitating the material storage and bulking of products/materials for beneficiation/value retention
	Dry waste recycling	Facilities for the collection, aggregation, sorting, and material recover/recycling/beneficiation of dry recyclable materials (example: plastic, glass, paper, textile, metal, builders' rubble)
	Wet waste treatment	Facilities/methods facilitating beneficiating of wet/organic materials (such as biochemical extraction [Bio-refinery], insect protein, composting, biomass palletisation, biodiesel, anaerobic digestion for heat, and anaerobic digestion for electricity). Biogas-CHP recovery, nutrient recovery, water reuse, non-sewered sanitation systems and water recycling
	Landfill mitigation	Facilities/methods of extracting value from already landfilled waste products/materials (such as landfill material mining, and landfill gas extraction)
	Supply chain	Manufacturing facilities wholly dedicated to relevant sector
Buildings and the built environment	New build - Green buildings	New green construction methods and systems (construction focused)
	Supply chain	Manufacturing facilities wholly dedicated to relevant sector
Material substitution	Product uses as substitutes for ozone-depleting substances	Product used as substitutes for ozone-depleting substances (hydrogen as an input into green steel)

General ecosystem support	GHG reduction projects	Projects focused on reduction of greenhouse gasses – carbon capture, repurposing coal, carbon dioxide transport and storage stations
	Disaster risk management (pre disaster)	Projects focus on the reduction of climate change linked risk (storm hardening, crop resilience, etc.)
	Disaster risk management (post disaster)	Projects focus on the response post climate change linked impact
	Natural resource conservation and management	Sustainable management, remediation and clean up (ocean and land)
Others & cross-sectoral	Other/Unspecified/Multiple	Undefined

DATA: COLLECTION AND ANALYSIS

Data sources

Data for this analysis was collected through both qualitative and quantitative methods. The quantitative data was collected from two primary sources: datasets and direct surveys, and was further complemented by desktop research, including government budgets, annual reports, and funding lists.

Datasets from CPI were retrieved from the entities listed in Table 11.

Table 11: Datasets for CPI’s international data sources

Source	Data granularity	Public/Private	Database Coverage
Bloomberg New Energy Finance (BNEF) Renewable Energy Projects	Project-level	Public and Private	Grid connected renewable energy
BNEF Small-scale solar panels	Aggregated	Private	Residential and commercial solar PV projects with capacity less than 1MW
BNEF Energy Storage	Project-level	Public	Battery storage systems
Climate Bonds Initiative	Project-level	Public and Private	Proprietary data
Climate Funds Update	Project-level	Public	Multilateral Climate Funds’ commitments
CPI Global Landscape of Climate Finance	Project-level and aggregated data (depending on reporting institution)	Public	Proprietary data which includes primary survey data from DFIs (MDBs and IDFCs members) collected.
Green Climate Fund and Global Environment Facility	Project-level	Public and Private	Individual project reports were screened to identify private and public finance mobilized by these funds’ transactions, apart from their own resources
International Energy Agency (IEA) Solar Heating & Cooling Programme (IEA SHC, 2021)	Aggregated	Public and Private	Households, corporates, and governments’ investments in solar water heating systems, estimated based on cost data from IEA SHC

IEA on Electrical Vehicles and Charging Stations	Aggregated	Public and Private	Proprietary data
Organisation for Economic Co-Operation and Development (OECD) DAC Creditor Reporting System	Project-level	Public and Private	Overseas development assistance data from bilateral and multilateral donors
REN21 solar water heater data	Aggregated	Public and Private	Aggregated solar water heater country and regional capital costs

Data collection surveys were sent out to a range of organisations spanning the public and private sector, including all sources and disbursement channels as defined above. Surveys were combined with one-on-one interviews to interrogate the data and gather qualitative insights. Datasets were cleaned and cross-referenced to ensure that double counting was avoided.

Project-level vs aggregated data

Wherever possible, project-level data was gathered. However, there were distinct challenges in gathering such data through surveys. As a result, the final dataset contains a combination of aggregated and project-level data, with preference given to project-level data where available. Of the total tracked climate finance for this report, approximately 92% was tracked using project-level data. This pragmatic approach ensured that the research provided a wide enough pool of information to adequately map and learn from the climate finance ecosystem. Domestic government data was provided in line with National Treasury’s efforts to tag “climate finance”. This data source was analysed and cleaned, and a conservative approach was taken to its inclusion.

Commitments vs disbursements

The figures reported in the South African climate finance landscape represent financial commitments rather than disbursements made during the period under investigation. While disbursement data may provide a better indication of flows of funding, financial commitments demonstrate the decision making involved, which is critical for assessing trends. The research team also found that data on commitments of climate finance was more easily accessible in the South African environment. Where possible, the team endeavoured to collect information on disbursement of committed funds to provide some insight on the “fulfilment rate” of climate finance commitments. Unfortunately, disbursement data was too limited to provide conclusive insights.

Conservative approach

In cases of insufficient details, the project team undertook a conservative approach and preferred to under-report rather than over-report on the tracked climate finance.

Tracking primary investments

In line with CPI’s methodological approach, the South African mapping focuses on primary investment into productive assets and projects that directly contribute to adaptation, mitigation, or both. However, since the South African Government’s plan for the low-carbon economy is built on industrialisation, local manufacturing and enabling investments into mitigation and adaptation sectors are vital to the relevance of the sector. As such, climate-specific investments and manufacturing were also included in the scope of the research.

The project excluded secondary transactions that involve money changing hands but no physical impact (either direct or enabled). Some examples are risk management instruments (including guarantees), R&D spending, revenue support mechanisms such as feed-in tariffs that payback investment costs, public subsidies, re-selling of stakes, or public trading on financial markets. The project also excluded capacity development investments, such as the development of national climate strategies, to maintain consistency in reporting primary investment flows.

Avoiding double counting

One of the most important precautions when using data from various points along the finance flow was to avoid double counting. The project team mitigated this risk by taking a consistent approach to tracking and triangulating data using the available unique project ID. Potential duplications were also tested with the relevant source of finance. Since green bonds' use of proceeds are linked to existing or future loans or projects already financed, they were not included in the dataset to avoid double counting.

Timeframe under investigation

As with previous studies, this project uses annual averages of data across multiple years (2019, 2020 and 2021) to flatten fluctuations and outliers in investment cycles that would otherwise skew overall trends. The aggregation was calculated using calendar years.

Exchange Rate

Those climate finance flows that were tracked in USD have been converted to ZAR. Official FX conversion rates for USD to ZAR come from the World Bank's World Development Indicators database, as shown in Table 12.

Table 12: World Bank's conversion exchange rates used in this report

Exchange Rate (ZAR/USD)	
2017	13.32
2018	13.23
2019	14.45
2020	16.46
2021	14.78

Inflation rate

Figures in ZAR are normalised for inflation using South Africa's official consumer price index, bringing climate finance flows to real values in 2021. These yearly inflation rates can be seen in Table 13.

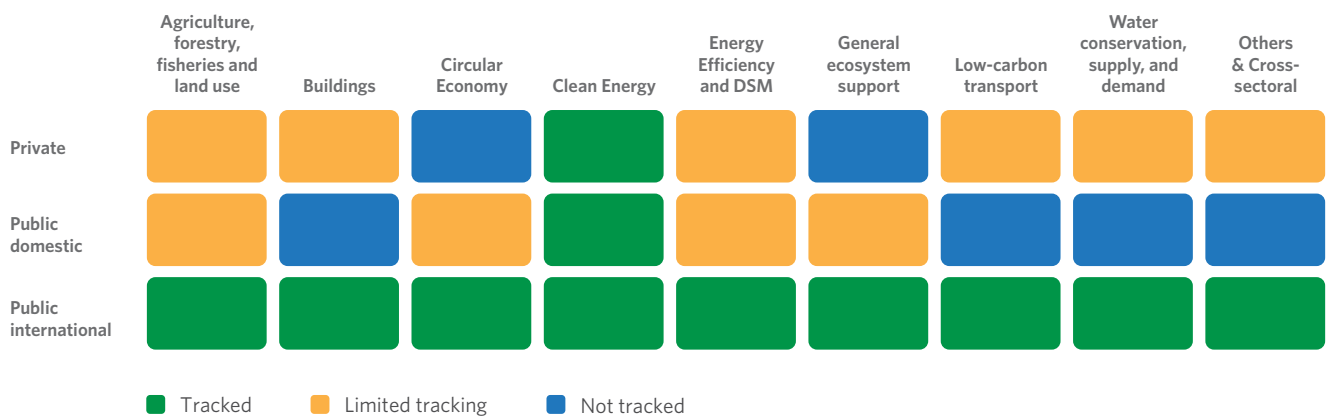
Table 13: South Africa’s consumer price index for years 2017 – 2021

Yearly Inflation Rates	
2017 - 2018	4.52%
2018-2019	4.12%
2019-2020	3.21%
2020-2021	4.61%

Data limitations and gaps

While this report presents the most comprehensive information available, methodological and data limitations persist. Tracking climate finance faces multiple issues related to the availability, quality, and robustness of investment data on both public and private sectors. Figure 26 highlights sectors that were tracked, as well as those that had limited or no tracking per source actor.

Figure 26: Tracked and untracked climate finance by source and sectors



Note: Other & cross-sectoral flows include general ecosystem support and financing for policy support at a national level, disaster risk management and financial inclusion.

OPEN ISSUES AND CONCERNS

Challenges of tracking climate-relevant budget expenditures

Many South African financial institutions have only recently adopted disclosure frameworks and/or aligned to the South African Green Finance Taxonomy. The taxonomy was established in 2021, resulting in the prior report years 2019 and 2020 not being fully aligned.

Challenges of tracking and reporting private sector investments

In line with the point raised above, financial institutions have only recently adopted disclosure frameworks and there is a lack of harmonization across frameworks resulting in different methodologies and processes adopted by different institutions. Furthermore, private sector actors were hesitant to provide confidential data without confidentiality agreements in place. Completing these agreements was a time consuming process which delayed the data collection process.

Challenges of tracking mobilized private finance

Data on climate finance disbursement is critical to understand the ground-level impact and progress of committed projects. However, it is difficult to gather information on actual disbursements as large, committed amounts are often disbursed over several years. Consistent data on disbursements is often lacking across international public finance actors; although some initiatives are emerging such as the OECD Common Reporting Standard, which contains data on commitments and disbursements for development assistance projects. Data on actual disbursement is usually available through national budget and expenditure systems, but the lack of climate budget tagging adds a layer of complexity when measuring and tracking climate-relevant disbursements.

Gender-responsive climate finance is still emerging

Less than 3% of tracked climate finance was tagged for gender responsiveness. This will likely improve with the adoption of the independent development of Climate Budget Tagging and Gender-Responsive Budgeting efforts in South Africa, as in other countries.

Risk management instruments

We acknowledge the importance of guarantees and insurance in enabling increased private climate flows. However, following the principle of conservatism, we exclude these instruments from the total climate finance figure because actual disbursements from these instruments are contingent upon uncertain future events. Guarantees are only exercised in particular circumstances; and there is a chance of there never being any financial outflow from the guarantor.

Primary vs. secondary investment

The South African Climate Finance Landscape 2023 focuses on primary investment into productive assets and projects that directly contribute to adaptation, mitigation, or a combination. It also includes climate-specific investments and manufacturing. The South African government's plan for the low-carbon economy is built on industrialisation; and therefore, local manufacturing and enabling investments into mitigation and adaptation sectors will be critical. The mapping excludes secondary transactions that involve money changing hands with no physical impact (either direct or enabled), i.e., re-selling of stakes or public trading on financial markets.

ANNEXURE B: PROGRAMME-LEVEL LEARNINGS

The project team identified several challenges in creating a South African climate finance landscape report; however, the majority of these have eased since the first mapping.

1. A lack of climate finance tagging across sectors and centralised datasets, exacerbated by a lack of awareness, and understanding of climate finance reporting.

- There were challenges with both under- and over-tagging. As such, those surveyed often had to trace their investments over the period requested and assign tags. This process could lead to inconsistencies. To mitigate against this, the project team had follow-up calls with stakeholders where necessary to clarify any definitions or unclear methodologies.
- Average annual blended finance tracked was minimal at R190 million which is less than 1% of total investments tracked (0.05%). This may be a result of poor tagging.

2. Limited availability of project-level data. A sub-set of the surveyed organisations provided aggregated data across multiple years. The research team encountered two main challenges in acquiring project-level data:

- South Africa's climate finance ecosystem is still relatively nascent. Although the country has published a Green Finance Taxonomy, many sources and distributors of climate finance do not yet track or tag their climate-related investments in detail.
- Financiers have reservations about sharing project-level details. This is sometimes as a result of confidentiality considerations, and other times a lack of willingness to dedicate the resources necessary to inform this research for each project financed. This was especially found to be the case with commercial investors and was corroborated in several interviews with other market players and fellow researchers.

3. Low response rate. As a whole there is a clear improvement in response rate since the first mapping; however, the project team still had to make follow-up attempts with organisations. This indicates one or all of the following:

- The number of private sector actors in the climate finance space remains low.
- There is a lack of knowledge and experience in robustly tracking climate finance flows internally in organisations.
- There is limited willingness to share internal data. Concerns around confidentiality were highlighted, despite assurances that shared information would ultimately be aggregated across all data entries.

4. Identifying duplication across multiple datasets. Challenges arose when correcting for double counting, due to a sub-set of the surveyed organisations providing aggregated, anonymised data across multiple years. These entries revealed identical finance flows and were removed.

5. Awareness, capacity building and alignment must be the centre points of the next phase of mapping the climate finance landscape of South Africa.

- It is apparent that there is scope for further awareness campaigns to highlight the need to direct more finance towards climate change mitigation, adaptation, and the just transition to achieve the country's goals. It is also clear that work is needed to identify, support, and showcase investment-ready low-carbon projects to aid the development of an investment pipeline. Awareness campaigns could be helpful to build a groundswell of private capital committed to making a valuable difference towards climate change.
- The lack of tracking, monitoring, and reporting makes it difficult to effectively plan and execute at an efficient level. Therefore, further awareness around the necessities to tag, report and manage for sustainable impact is an important first step.
- There is an opportunity for capacity building in the financial sector to assist in reporting at the project level. This starts with developing skills and knowledge on best practices around tagging, measuring, and managing for impact to take action against climate change.
- A high-level view of insurance, guarantees and the role of local pension funds used to address and mitigate climate risk and their effects on finance flows to be considered for the next South African climate finance landscape, to be published in 2025.

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