INTRODUCTORY POLITICAL ECONOMY ANALYSIS OF THE CLIMATE PHILANTHROPY SPACE IN SOUTH AFRICA

For ClimateWorks Foundation

Prepared by Africa Practice

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1 INTRODUCTION

While Africa is not currently a significant producer of greenhouse gases (GHGs) at a global level, it has the potential to be in the future, and there is an opportunity to prevent large future emissions if the problem is addressed now. With a view to informing decision-making in this space, Africa Practice conducted a tailored, high-level political economy analysis of six countries – Kenya, Ethiopia, South Africa, Nigeria, Ghana and Senegal – to serve as an introductory resource for philanthropic organisations seeking to understand foundational climate change issues and opportunities across these countries.

The bespoke political economy analysis framework was designed to help identify and understand feasible entry points into the countries, as well as tangible opportunities for philanthropic engagement and potential partnerships. The bespoke framework developed for this analysis can be replicated and will enable philanthropy to build robust strategies for investment and engagement across the whole continent. The report below summarises our findings on South Africa.

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3 METHODOLOGY

We developed a bespoke framework of assessment, rooted in political economy analysis, but also focusing on South Africa's specificities vis-à-vis the five main structural transformations that drive emissions on the continent:

- **Urbanisation**, taking into account the housing demand for 900 million more urban residents by 2050.
- **Land use changes**, with agriculture set to feed a growing population and cause up to 84% of deforestation.
- **Industrialisation**, which constitutes the backbone of many African governments' development strategies over the next decade. Across the continent, manufacturing is growing faster than anywhere else in the world.
- **Electrification**, on which industrialisation itself is heavily premised. It is estimated that 1.6 TW of power generation would be needed in Africa by 2030 and 600 million people would require access.
- **Oil and gas,** with governments balancing international pressure to adopt more rigorous environmental standards against the imperative to exploit discovered resources in order to boost energy security.

Africa Practice has a physical presence with longstanding offices in South Africa (Johannesburg). We used our consultants' deep contextual knowledge, as well as intelligence from expert sources, to inform and triangulate our **qualitative research programme**, which comprised a review of:

- **Statistics and risk indices compiled by national governments, multilateral institutions, NGOs and think tanks.** These covered: data from South Africa's national statistics office - Statistics South Africa; World Bank (climate change) data and indices such as Ease of Doing Business and Governance; Yale University's Environmental Performance Index (EPI); UNEP climate change data (CDF, REDD+) and UNFCCC data; the Climate Change Performance Index (CCPI); IMF data and bilateral consultation reports; summary data from the Extractive Industries Transparency Initiative and local chapters; Transparency International Corruption Perceptions Index; Mo Ibrahim Index; KPMG Africa Fiscal Guides; OECD Failed States Index; and the World Economic Forum's Global Competitiveness Report and Global Human Capital Report.
- **Other relevant grey literature.** This included, among others, recent reports by international donors, multilateral organisations, and European and North American state departments, as well as materials published by various government agencies and civil society organisations focusing on climate change and relevant fields.[1]

[1] Resources include Trade & Industrial Policy Strategies' Just Transition Knowledge Portal; Project 90 by 2030's Remaking Our Energy Future: Towards a Just Energy Transition in South Africa report; the Climate Investment Fund's

- **Media sources.** We examined open-access and subscription-based articles in English, related to recent and historical developments of relevance to the countries in question, both local and international.

South Africa case study; the World Resources Institute's South Africa: Strong Foundations for a Just Transition report; and the National Business Initiative's report on Decarbonising South Africa's Power System.

4 EXECUTIVE SUMMARY

South Africa is one of the 20 largest GHG emitters in the world. With an economy that is highly reliant on coal, the country has among the highest per capita emissions among developing nations. As a result, a comprehensive and relatively sophisticated set of policies and strategies on addressing climate change has been elaborated by the government over the past 20 years. Despite this, implementation has lagged severely as a result of poor institutional coordination, lack of political will and inadequate resourcing.

Although South Africa is politically stable, widespread corruption, high levels of unemployment and crime, and increasing fiscal pressure define its political economy. Since coming to power in 2019, President Cyril Ramaphosa has pledged to address these systemic issues and reverse the legacy of his predecessor, Jacob Zuma. High levels of political infighting, however, have an enduring, negative impact on the direction of climate change and energy policy. A stringent lockdown in response to the COVID-19 pandemic initially exacerbated South Africa's recession, but the economy has since returned to growth. Nevertheless, the country continues to experience high levels of (violent) crime and disenfranchisement of its marginalised populations – as illustrated by widespread looting and disruption in July-August 2021.

While South Africa has acknowledged the importance of environmental sustainability and the many reforms it needs to enact in order to achieve it, its political leaders tend to prioritise more short-term issues and the need to prop up a fragile economy. The backbone of the country's climate policy is the National Climate Change Response Policy (NCCRP), launched in 2004 and approved in 2011. A number of other strategies and, more recently, a Climate Change Bill – which is still to be passed – complement this body of policy work. There is a pronounced lack of coordination and jurisdictional definition among the institutions charged with implementation, which has resulted in persistent delays. Inadequate structural capacity and shrinking donor involvement further complicate the matter.

South Africa benefits from an influential international position in terms of climate action, coupled with a pool of technocratic and research experts in the field. The Department of Environmental Affairs, Forestry and Fisheries, however, is widely perceived as lacking political clout, leading to low budget allocation. As a result, both adaptation and mitigation are happening in an ad hoc manner, often driven by pressures other than climate change. Developing a national climate finance strategy is therefore a priority area of action; as is the establishment of related coordination mechanisms. Climate actors can contribute to the effort to align existing resources of funding and mobilise new ones.

Urbanisation presents the most tangible opportunity for philanthropic engagement, in both the construction/housing and transportation sub-sectors. The country's industrial sector is also receptive to a shift away from carbon-intensive production. In the energy sector, South Africa is reducing its reliance on coal power, with ambitious plans for national power utility Eskom to harness renewables. Energy generation reforms are also opening up space for private sector investment in independent power projects. This transition is likely to be complex, with multifaceted implications for jobs and the country's mining sector, but a recognition of the implications of international pressure and the potential for private sector investment has led to increasing political support for the reform agenda.

5 ASSESSMENT MATRIX

METRIC	ASSESSMENT*	FINDINGS
POLITICAL		
Instability, conflict and insecurity		No major structural sources of instability and potential for government collapse or insecurity to undermine climate spending.
Government change		Unlikely government change in the 2-3 year horizon, either through elections or successive, numerous cabinet reshuffles.
Environmental policy and commitment		A sophisticated environmental policy architecture, whose implementation has lagged and been deprioritised.
International influence		Central positioning in international relations mandates high responsiveness to pressure from international environment-focused bodies.
INSTITUTIONAL		
Governance and corruption		Deeply-entrenched governance issues and corruption, despite Ramaphosa's ongoing anti-corruption campaign.
Environmental leadership		Moderate enabling context due to demonstrated expertise but little political clout for environmental leaders.
Reform commitment and budgetary prioritisation		Lack of veritable prioritisation of environmental reforms and management in a highly constrained fiscal space.
Structural capacity		Moderate institutional capacity to support climate interventions and achieve sustainable outcomes.
Donor and development partners' support		Strong support from donors and development partners for national climate interventions, with the government able to attract funding.
Dialogue with non-government actors		Long track record and experience in consultation with actors from the private sector, the development community, academia and civil society more broadly.
COVID-19 impact		Dramatic impact of COVID-19 on budget availability, particularly vis-à-vis climate change.
SECTORAL		
Urbanisation		Shifts in transport and construction/housing policy create strong opportunities in this segment.
Electrification		National utility company Eskom remains heavily indebted and reliant on coal power stations, resulting in a weak opportunity.
Industrialisation		South Africa's historical reliance on mining and manufacturing creates strong opportunities for engagement, particularly around promoting the transition to low-carbon manufacturing.
Land use change		Moderate opportunity in this segment, due to the relatively low levels of GHG emissions and openings in livestock and forestry.
Oil and gas		South Africa's upstream industry is at a critical juncture, with gas poised to make a comeback and new laws under consideration.

*Assessment definitions:

1	Very strong enabling context for climate-spend impact with negligible limitations
2	Strong enabling context for climate-spend impact with some limitations
3	Moderate enabling context for climate-spend impact with several limitations
4	Weak enabling context for climate-spend impact with notable limitations
5	Challenging context for climate-spend impact with major limitations

6 SOUTH AFRICA

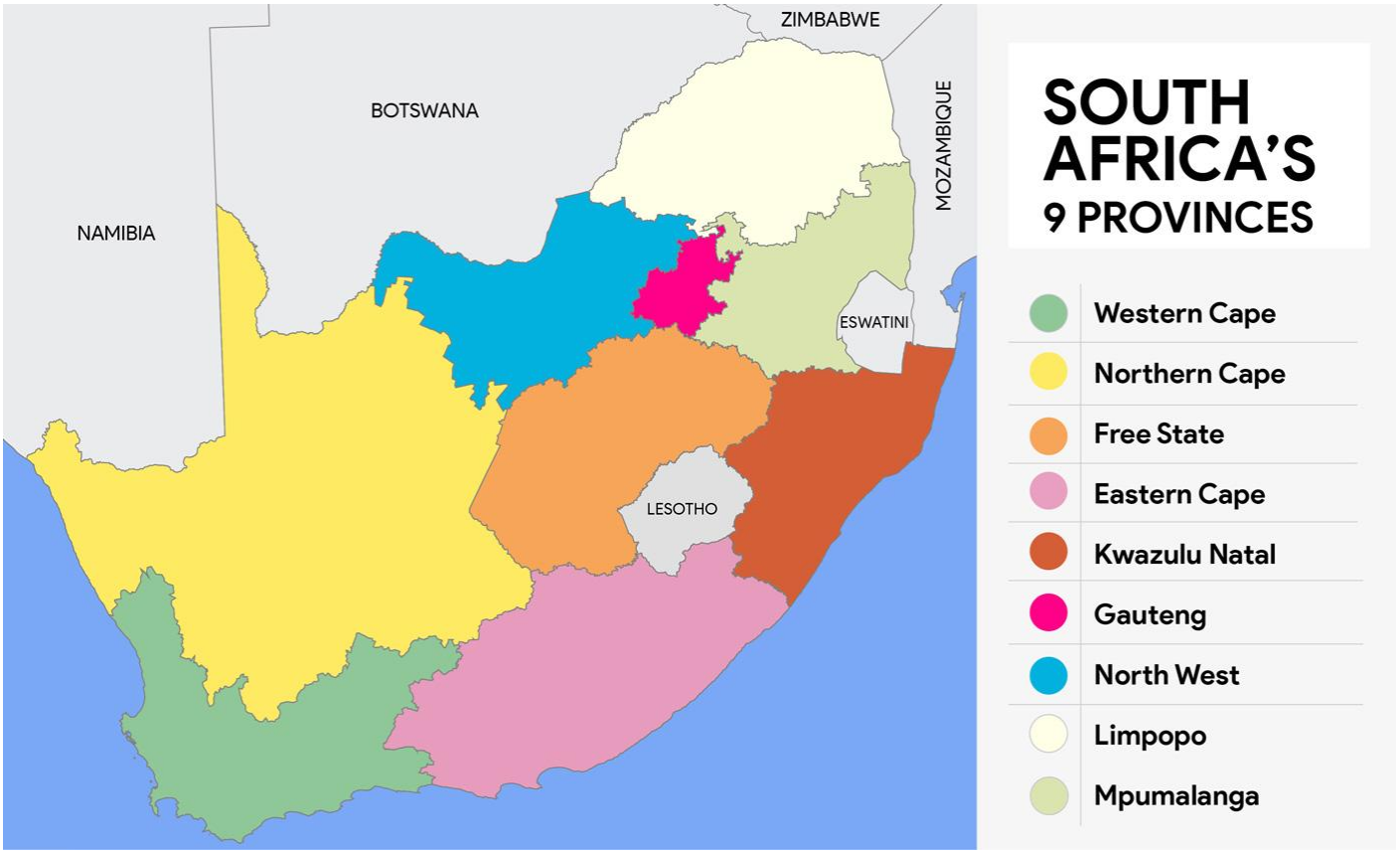
6.1 Political

6.1.1 Instability, conflict and insecurity (strong)

South Africa remains politically stable despite widespread corruption, high levels of unemployment, and increasing debt. The high levels of infighting within the ruling party and the legacy of "state capture"[2] under the last administration have produced confusion over the direction of climate change and energy policy, which is compounded by insufficient political will for implementation.

Since coming to power in 1994, the ruling African National Congress (ANC) has not faced powerful opposition, even though it did record its lowest majority win in the 2019 general elections with only 57.5% of votes nationwide.[3] Despite its enduring dominance, the ANC has, over the past decade, struggled to build on its popular anti-apartheid and social justice legacy, with voters increasingly preoccupied with the party's current performance.

The ANC's increasingly contested internal politics play out on the national stage. Rivalry within the party's provincial and local levels – often regarding appointments to local state bodies and the selection of delegates to national party decision-making organs – is often fierce, and in some cases has even led to political assassinations.



[2] State capture refers, most commonly, to the corrupt activities of a network of Zuma-allied ANC leaders and businesspeople, including the notorious Gupta family.
[3] Despite this, the ANC did maintain its parliamentary dominance.

Today, South Africa's main stability and security challenges are the consistently high levels of crime, pervasive gender-based violence, and recurring incidents of xenophobia. Violent crime in particular is a central threat – South Africa's murder rate is among the highest in the world and is on an upward trend. Although most violence occurs in marginalised townships, spillovers occasionally occur. Strikes and protests are also common, especially within the mining sector. The widespread looting witnessed in July/August 2021 provides a potent reminder of South Africa's weak social fabric and the ability of opportunists to mobilise disgruntled citizens.

South Africa's criminal trends stem primarily from the country's high levels of unemployment, disenfranchisement and deep-rooted social and economic inequality. Although the ANC is ideologically leftist, in practice it has melded pragmatic support for private sector-led growth with state-centric economic planning under what it terms the "developmental state" model. The success of this approach has been lacklustre. The ANC's flagship Broad-Based Black Economic Empowerment (BBBEE) policy, introduced in 2003, has largely failed to deliver the wealth redistribution it was intended to at inception.

6.1.2 Government change (very strong)

While democratic South Africa has never experienced the rule of a party other than the ANC, it did undergo a relatively recent change of leadership. President Cyril Ramaphosa – a former anti-apartheid activist and labour leader-turned-executive – succeeded controversial leader Jacob Zuma after winning a highly contentious party leadership election in late 2017, ahead of the 2019 general elections. After Ramaphosa became president of the ruling party, Zuma resigned as president of South Africa following pressure from the new ANC national executive committee. Ramaphosa served as president during the remainder of his predecessor's term, and was re-elected in 2019, beginning his first official term. His victory was hinged on a pledge to fight corruption and rebuild the economy, but so far he has made very limited progress on both fronts, a situation further exacerbated by the onset of COVID-19 (see section 6.2.7).

Local government elections in November 2021 saw a fundamental shift in South African politics, with the ANC dropping below 50% of the national vote share for the first time. The results saw the ANC lose all but two key metropolitan areas, along with smaller municipalities across the country. These losses were largely to local political parties and independents, with a markedly low turnout for the ANC in its strongholds. The main opposition, Democratic Alliance (DA), also suffered losses – with its voter base splintering in reaction to leadership failings in the party. The populist Economic Freedom Fighters (EFF) saw modest gains; however, these were not as strong as in previous elections and the party is likely to be concerned about stagnation. This leaves the outcome of the 2024 national elections as deeply uncertain, with complicated local dynamics driving an increasingly fragmented national picture.

In a post-election briefing, President Ramaphosa admitted that the return of rolling blackouts in the lead-up to the polls had undermined his party's electoral performance. This sets the stage for energy policy to be a key focus ahead of general elections in 2024 – a dynamic which threatens to heighten divisions in the ruling party concerning South Africa's reliance on coal.

To consolidate his power, President Ramaphosa will need to address public anger over poor public services and continuing economic malaise. One of the main factors undermining his position of power within the ruling party is the deepening of divisions within its top tiers. Some elite factions – several of whom have faced corruption allegations and are facing prosecution as a result of Ramaphosa's anti-corruption drive – have sought to actively obstruct the president's agenda. However, the incarceration of former President Zuma

demonstrated the growing strength and independence of law enforcement institutions, with further successful prosecutions likely to offer Ramaphosa scope to consolidate power.

Ramaphosa's ability to retain his position within the party will depend on how he manages the fallout from the local elections and the country's economic recovery from the COVID-19 pandemic. Initially lauded for his decisive action in response to the pandemic, he is coming under increasing pressure and scrutiny as the economy falters. Issues regarding the misuse of COVID-19 relief funds and questions around the government's public measures are likely to further erode public confidence in the president.

An August 2021 cabinet reshuffle saw the President aim to maintain the complex balance of power in the ruling party, while acting against security cluster ministers who had failed to avert a wave of recent violent unrest. The reshuffle absorbed the national intelligence ministry into the Presidency and replaced the defense minister with a Ramaphosa ally. The ministers of finance and health both resigned in the lead-up to the reshuffle announcement with the former having been interested in relinquishing his post for some time and the latter leaving due to a lengthy, ongoing corruption investigation.

6.1.3 Environmental policy and commitment (moderate)

South Africa has a comprehensive and relatively sophisticated set of policies and strategies on climate change, especially when compared to other countries in sub-Saharan Africa. Despite having over two decades of policy-making experience in the sphere, however, the government still struggles with policy alignment and implementation in particular. To fulfil its NDC as part of the Paris Agreement, South Africa would need to overcome a degree of disjunction in its current policy environment and institutional configuration, as well as certain resource availability and capacity issues.

South Africa's National Development Plan (NDP) – which was originally published in 2012 and was expected to be updated in 2020[4] – outlines the country's 2030 vision on sustainable development, including "the environment." The plan's provisions on climate action, however, are rather vague with an emphasis on developing "policies and regulatory initiatives that prompt improved resource management and deliver substantial clean technology industries. This will include policies that help people cope with new risks during the transition, adapting land and water management to protect livelihoods and threatened natural environments, while transforming energy systems."

The bedrock of the country's climate policy actually precedes the NDP – it is enshrined in the National Climate Change Response Policy (NCCRP), launched in 2004 and elaborated through the National Climate Change Response White Paper (NCCRWP), which was approved in 2011. The NCCRP is a comprehensive plan to address both mitigation and adaptation in the short-, medium- and long-term (up to 2050). The policy has two strategic objectives:

- Managing inevitable climate change impacts through interventions that build and sustain social, economic and environmental resilience and emergency response capacity;
- Making a fair contribution to the global effort to stabilise GHG concentrations in the atmosphere.

[4] According to our sources, there is no set plan for revisions at this stage, although there are discussions for this to happen. The plan was considered unrealistic even before the pandemic. While it is likely that it will be revised at some stage, there is no indication that it will happen this year.

The NCCRP sets out numerous adaptation and mitigation strategies, harnessing existing policy and delivery mechanisms pertaining to both. Adaptation efforts are heavily emphasised, acknowledging the vulnerability of the country. They include: early warning and forecasting for disaster risk reduction; medium-term (decade-scale) climate forecasting to identify potential resource challenges well in advance; and long-term climate projections that define the range of future climate conditions. These adaptation strategies are then integrated into sectoral plans, such as the National Water Resource Strategy, the Strategic Plan for South African Agriculture, and the National Biodiversity Strategy and Action Plan, as well as provincial biodiversity sector plans and local bioregional plans.

In terms of mitigation, the NCCRP provides for the so-called "desired emission reduction outcomes" (DEROs) for each sector, as well as the adoption of a carbon budget and tax. In concrete GHG terms, the policy envisages emissions to stop increasing by 2020-2025 at the latest, to stabilise for a maximum of 10 years, and finally to decline in absolute terms. The policy details strategies in seven key areas: carbon pricing; water; agriculture and commercial forestry; health; biodiversity and ecosystems; human settlements; and disaster risk reduction and management.

Part of the NCCRP's provisions entail a Climate Change Response Measurement and Evaluation System, which was set up in 2015. The system sits under the Department of Environmental Affairs (DEA), which became the Department of Environmental Affairs, Forestry and Fisheries following a merger in June 2019. Aside from the NCCRP, South Africa has also been preparing a Climate Change Bill, which is yet to be passed. It was drafted in 2018 with the aim to guide the government and private actors towards the achievement of the goals set out in the NCCRP, and, by extension, the adherence to South Africa's Paris Agreement pledge. The passing of the bill has since been delayed. Our sources suggested that this was due to push-back from the private sector during a series of consultations. Once passed into law, the bill would provide a legal framework on how to hold accountable each government department, as well as industries and individuals. While there were initially hopes that parliament would move forward on the bill during 2020, the COVID-19 pandemic saw the legislature's capacity curtailed and there has not been any further movement on the bill.

In mid-August 2020, South Africa's National Climate Change Adaptation Strategy (NCCAS) was approved by the DEA, three years after its draft release for consultation and comment. The strategy is aimed at helping the government meet its Paris Agreement obligations by defining the country's vulnerabilities and elaborating a plan for addressing them. The ten-year plan will be overseen by the DEA and reviewed halfway through its implementation.

6.1.4 International influence (very strong)

South Africa is a recognised leader in international efforts to cut carbon emissions and promote resilience to climate change through its dominant role in the region's energy sector. Its advocacy on climate change issues on the international stage gained momentum in 2009 when UNEP identified it as a strategically important country to coordinate and support its activities in the Southern African region. This prompted the opening of a UNEP office in Pretoria. The following year, South Africa was among the first developing countries to pledge a voluntary emissions reduction under the Copenhagen Accord.

In 2011, South Africa hosted COP 17, where the Durban Platform for Enhanced Action was launched. In 2015, the government submitted an intended NDC in the run-up to the Paris Agreement negotiations. This was finalised and submitted in November 2016. Although former President Zuma was a vocal supporter of climate action internationally, domestically his commitment did not prove to be as strong.

President Ramaphosa was appointed as the chair of the AU's Climate Change Committee in early 2020, boosting his influence across the region. He has made a number of international appeals to developed countries to support their developing counterparts in dealing with climate change issues. However, the president has also publicly criticised international financiers from disinvesting from fossil fuels abruptly, which he sees as having a disproportionate impact on African economies.

At the COP-26 climate summit in November 2021, South Africa announced that it had secured USD 8.5 billion to transition away from its reliance on coal power. The funding, from the United States of America, United Kingdom and European Union member states will facilitate the installation of renewable energy projects and mitigate the impact on workers affected by the transition. The details of the funding are not entirely clear yet, but it will likely come in the form of grants and concessional loans. The deal is being seen as a test for the ability of wealthy nations to assist developing nations' decarbonisation efforts, with South Africa identified as a candidate due to its carbon-intensive economy.

Positioning on the AfCFTA

South Africa has traditionally focused its economic and commercial influence on its immediate neighbourhood, via the Southern African Development Community (SADC). The country has also played a leadership role in the Southern African Customs Union (SACU) – the oldest such arrangement in the world – collecting and distributing levies on behalf of neighbouring Botswana, Eswatini (formerly Swaziland), Lesotho and Namibia.

This level of integration led South Africa to take a leading role in negotiating a regional Economic Partnership Arrangement with the European Union, albeit at the expense of regional initiatives such as the African Continental Free Trade Area (AfCFTA). South Africa's ability to mobilise its immediate neighbours in support of its position during AfCFTA bodes well for the country's ultimate support for the agenda, but it is hardly a priority for the government.

South Africa has a strong rhetorical commitment to the African Free Trade Agreement (AfCFTA); however, its current localisation policy risks directly contravening its obligations under the agreement. South Africa's Department for Trade, Industry and Competition (DTIC) identifies the agreement as a key instrument in the country's post-pandemic recovery and has scope to shape its implementation since the AfCFTA Secretary General is South Africa's former head of mission to the World Trade Organisation (WTO). However, the DTIC continues to pursue localisation plans which aim to reduce imports by 20% by channeling government procurement to locally-produced goods. This risks contravening non-discrimination clauses in the AfCFTA and has drawn the ire of many of the country's continental trading partners, particularly neighbouring states.

6.2 Institutional

6.2.1 Governance and corruption (weak)

President Ramaphosa's priorities are to reverse a marked deterioration in governance under Zuma and to enhance the operational efficacy of the government, especially with regard to state-owned enterprises (SOEs, see below). Despite this anti-corruption commitment, to this day, South Africa struggles with poor governance, most notably the continued disappearance of state funds and the government's inability to prosecute effectively. There is a lingering perception that corruption in the country cannot be contained, which has

undermined Ramaphosa's standing. Public confidence in the government is low, while negative perceptions of the integrity of its officials' operations are consistently high.

In the COVID-19 context, Ramphosa has also been tackling embezzlement from awareness campaigns, as well as corruption related to the manufacture of PPE and the distribution of food. Public discontent over these developments continues to mount, prompting the president to establish in August 2020 a dedicated body to investigate alleged wrongdoing.

Over the past decade, South Africa had seen no improvement in its corruption environment, as reflected in rankings such as Transparency International's Corruption Perceptions Index. In 2019, the country ranked 70th out of 198 countries worldwide – still ahead of most sub-Saharan African countries, but lagging on a global scale.

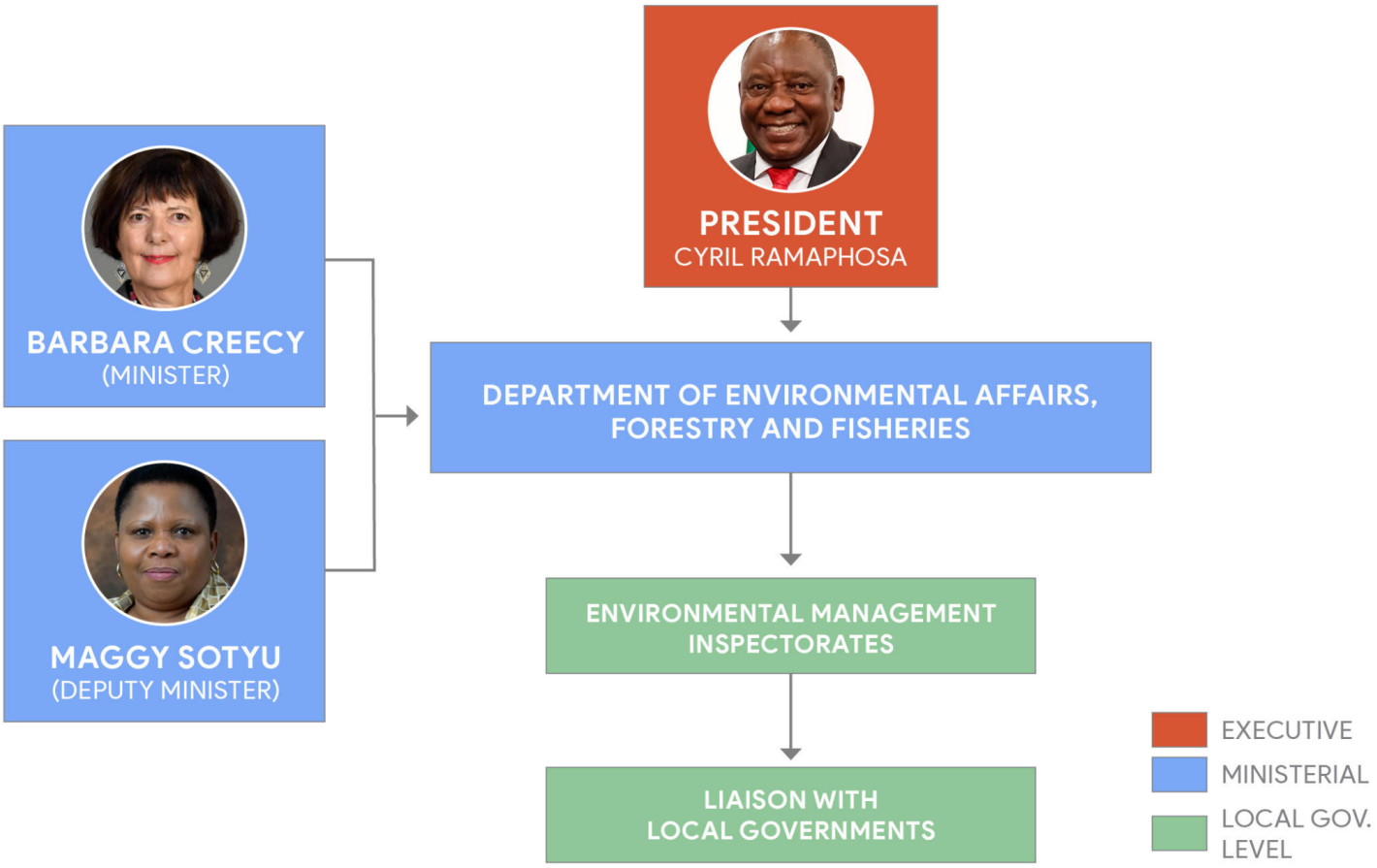
Ramaphosa's anti-corruption campaign has so far, predictably, focused on high-profile investigations and the reform of SOEs:

- **High-profile investigations**. Numerous investigations into high-profile allegations of corruption and influence peddling under Zuma continue to draw intense public attention. His network is widely perceived as having engineered high-level state-business collusion to influence and even control state enterprises and other agency decisions, contracts, regulatory processes, and fiscal assets to advance its financial and political interests. The most prominent example is the probe into the activities of the Gupta family, which was directly associated with Zuma. Zuma himself has faced numerous charges for corruption, with some estimates alleging that his wrongful conduct had cost the government up to USD 700 billion. Zuma is currently serving a 15-month sentence for contempt of court following his refusal to testify before the Zondo Commission, demonstrating that justice can, eventually, be served.

- **SOE reform.** Ramaphosa brought back Pravin Gordhan – who served twice as finance minister under Zuma despite publicly clashing with him – as minister of public enterprises, in a bid to strengthen SOEs' governance. In April 2018, Ramaphosa ordered probes into irregularities and mismanagement at two major SOEs: Eskom, the national power utility (see also section 6.3.2); and Transnet, a transport and logistics company. His administration also replaced these SOEs' boards, along with that of Denel, an important but ailing defence sector SOE.

6.2.2 Environmental leadership (moderate)

With a long history of global environmental thought, South Africa has some established technocrats with the requisite knowledge and expertise. On the climate change agenda, however, its leadership routinely falls short. The main government bodies charged with environmental affairs have suffered from budgetary and management constraints, and have also been affected by the endemic levels of corruption outlined above. Where the right leadership expertise might exist, it is likely to be operating in a constricting institutional environment. Outside of the political sphere, the country has some of the continent's most advanced academic voices on climate-related matters, as outlined below.



Department of Environmental Affairs, Forestry and Fisheries

- **Barbara Creecy – Minister:** Appointed minister in mid-2019, Creecy was a long-standing member of Gauteng's provincial legislature. This is her first ministerial appointment, which has presented her with the challenging task of two merged departments that can have conflicting agendas. Our sources uniformly described the relatively new minister as driven and keen to catch up on South Africa's neglected commitments in terms of climate action. Although Creecy does not have a track record in environmental affairs, she is known as a successful implementer – after the 2019 elections, there was speculation that Ramaphosa might even appoint her as finance minister. Creecy's appointment at the DEA follows the dismissal of Nomvula Mokonyane, who was widely perceived as a highly corrupt official.

- **Maggy Sotyu – Deputy Minister:** A former Deputy Minister of Police, as well as of arts and culture, Sotyu is an experienced politician and ANC veteran. Appointed to her current position in May 2019, Sotyu is perceived as having disciplinarian tendencies. She is also rumoured to be increasingly critical of Ramaphosa, especially as the COVID-19 crisis in the country deepens. Sotyu has minimal expertise in climate change-related matters.

- **Nomfundo Tshabalala – Director General:** Tshabalala has served as the director-general of the department since December 2020. She has spent her entire professional career as a civil servant in Swaziland and South Africa and joins from the Gauteng Provincial Treasury. Her expertise, both academic and professional, lie in public finance and debt management, with the department stating

that her appointment is a recognition of the need to place DEA on a more solid financial footing amidst maladministration challenges. The bulk of Tshabalala's professional experience was in the Gauteng Provincial Treasury, where she worked for over 15 years. During this time Minister Creecy served as the provincial Member of the Executive for Finance and would have worked closely with Tshabalala. Her appointment is a sign of the minister's desire to bring trusted allies into the department, with a focus on rectifying the concerning financial position of the department and its programmes.

- **Debra Roberts.** She currently heads the Sustainable and Resilient City Initiatives Unit in eThekwini Municipality (Durban), having previously established the Environmental Planning and Climate Protection Department of the same municipality. Roberts also co-chairs the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment cycle. This is the first time in the history of the IPCC that there has been a South African co-chair, who is also the first woman from Africa to hold such a position. Roberts is currently an advisor to the Global Commission on Adaptation, United Cities and Local Governments (UCLG) and the United Nations Secretary General's 2019 Climate Summit.

Academia

- **Mark New.** New is the director of the African Climate and Development Initiative (ACDI) at the University of Cape Town. He has been listed among the World's 100 Most Influential People in Climate Policy. With a research career spanning over 20 years, New focuses on detecting climate trends, climate modelling and assessing the impact of failed climate mitigation policy. He won the Piers Sellers Prize for his world-leading contribution to solution-focused climate research.

6.2.3 Reform commitment and budgetary prioritisation (weak)

On 20 September 2021, South Africa's cabinet committed to lower its GHG emissions to between 371 and 420 megatons (Mt) of carbon dioxide equivalent by 2030.[5] This is a more aggressive target than the previous range of between 398Mt and 440Mt adopted by the environment department. This target is unlikely to be reached without financial support from development partners – the challenging domestic African socio-economic context takes priority over such commitments.

While South Africa has acknowledged the importance of environmental sustainability and the many reforms it needs to enact in order to achieve it, its political leaders tend to neglect the implementation of those reforms, often turning their interests towards more short-term issues and the need to prop up an ailing economy. South Africa does not have a comprehensive climate finance strategy that clearly provides for the allocation of domestic resources and the attracting of international funding and/or investment.

The COVID-19 pandemic has constricted the already inadequate budgetary allocation for climate reforms. The added economic cost of the USD 26 billion economic stimulus package and the added health spending required by the pandemic saw re-prioritisation that reduced the DEA's budget for 2020-2021 relative to what had been allocated pre-pandemic. The country's continued financial challenges have seen a further reduction for this financial year, with its 2020-2021 USD 662 million budget reduced to USD 583 million for 2021-2022.

The budget did include an acknowledgment of South Africa's climate obligations, however, with direct funding through the National Treasury for a climate change-resilience programme in cities and an announcement that,

[5] Statement on Virtual Cabinet Meeting, 20 September 2021.

to support South Africa's climate change commitments under the Paris Agreement, the DEA is considering enhancing the carbon budgeting system to regulate greenhouse gas emissions by imposing caps on companies for a five-year period.

In August 2021, President Ramaphosa replaced finance minister Tito Mboweni with Enoch Godongwana. Mboweni was a widely respected former central bank governor and Minister of Labour, who had left government for a career in the private sector. Godongwana has a much lower profile, but will bring a growth-focused and market-friendly approach, having argued that the National Treasury should focus on structural reforms and resist pressure to increase government spending. National Treasury informed Parliament on 24 August 2021 that it has not done any explicit work on a just transition, but was involved in the Presidential Climate Change Commission (PCCC) process. This was in the context of a submission that the National Treasury was preparing a draft review paper outlining policy design options for the second phase of the carbon tax, which comes into effect at the beginning of 2023. This indicates that the National Treasury continues to see its role as administrative rather than being actively involved in climate policy formulation.

6.2.4 Structural capacity (moderate)

The institutions in charge of climate policy formulation and implementation in South Africa remain fragmented, malcoordinated and under-resourced – possibly the biggest factor undermining the implementation of the country's environmental policy. The lack of clearly defined areas of responsibility is constrained by limited structural capacity. As all of South Africa's government agencies are mandated to cooperate, consult and support one another on matters involving or affecting the environment, their operational efficiency is severely undermined, resulting in long bureaucratic processes that can also be vulnerable to corruption. The absence of sufficient human resources with the requisite expertise and skills also contributes to this. At the provincial and municipal level, these issues become particularly visible.

Coordination[6] – both across government agencies and the different levels of government – was uniformly cited by our sources as a persistent challenge. Many spoke of an ad hoc or bottom-up coordination approach that developed as a result. The DEA remains relatively weak politically and unable to provide the requisite level of direction needed at the subnational level.

To enforce environmental policies and guidelines, the DEA, provincial environmental departments and other provincial and municipal organs of the state employ Environmental Management Inspectorates (EMIs), a network of environmental enforcement officials from various national, provincial and municipal government departments created by the National Environmental Management Act (NEMA) of 2008. The EMIs are vested with wide-ranging powers, which include investigation, inspection, enforcement and administration. They work closely with the South African Police Services.

6.2.5 Donor and development partners' support (strong)

To reach its commitments in terms of GHG reduction by 2050 the DEA has estimated a cost of USD 349 billion billion – a target that would require significant input from donors and development partners (including DFIs), given the budgetary constraints outlined above. For the 2019-20 financial year, according to its official annual

[6] The Inter-Ministerial Committee on Climate Change and Intergovernmental Committee on Climate Change are South Africa's main coordination structures.

report, DEA managed to mobilise USD 715 million in donor funds, but for 2020-2021 those are drastically lower, at only USD 20 million.[7]

The DEA, South Africa's biggest receiver of international aid in the environmental sector, currently has four major donors for its projects:

- **Global Environment Facility (GEF)**. This is the largest independent financial organisation in the environment sector that provides assistance or grants to both government and non-government entities. Resources made available by the GEF to South Africa through the DEA include grants and non-grant instruments based on a four-year replenishment cycle. The GEF offers small, medium and full size grants that protect the integrity of the environment while stimulating economic and social development.

- **UNFCCC.** Currently, South Africa has established two major funds with the UNFCCC: the Adaptation Fund and the Green Climate Fund (GCF). Its allocations are evenly split between mitigation and adaptation. In 2019, the GCF signed an agreement with the Development Bank of Southern Africa (DBSA) to work towards accelerating investments in climate projects. The DBSA Climate Finance Facility (CFF), to which GCF is contributing USD 56 million, will provide credit enhancements in an attempt to de-risk and increase the bankability of such projects.

- **Germany (GIZ).** South Africa has been supported by Germany on environmental and climate change issues since 1998. Germany's Climate Support Programme (CSP, 2017-2020), in direct partnership with the DEA, has assisted the development of climate policy and governance, alongside implementation in mitigation, adaptation, and monitoring and evaluation. The CSP has in the past been directly involved in the NCCRP and the drafting of the Climate Change Bill.

- **Norway**. The environmental cooperation programme between South Africa and Norway started in 1997 and focuses on biodiversity and air pollution. Further support in environmental management was offered by Norway subsequently.

Key international influencers

South Africa has sought to broaden its international relations since the advent of democracy, with efforts to build ties with new rising powers such as China and India continuing alongside efforts to uphold ties with developed economies. Efforts to strengthen ties with the "BRICS" nations, a group including Brazil, Russia, India and China, was a core part of the country's foreign policy strategy in the early 2000s, however this has waned, with partner countries taking divergent routes in their international relations. While South Africa continues to pursue ties with these states, the benefits of these relationships have never reached the levels expected and have not replaced the country's traditional economic or cultural relations with western partners.

While scepticism of traditional trading partners persists in many parts of government and society, the United Kingdom (UK), United States of America (USA) and European Union (EU) remain influential both economically and culturally. South Africa's main trading partners continue to be drawn from this group, as do the majority of influential multinational corporations operating in the country. These western partners are also more likely to wield influence in the policy and regulatory spheres, as their governance systems resemble South Africa's.

[7] The DEA has not yet released their actual budget vote document.

These trading relations, and the actions of western headquartered multinationals, are also shaping South African climate policy and increasingly pushing for more decisive action. Carbon border tax proposals in the European Union have played a major role in ideas driving South African sentiment on decarbonisation. Large industrial corporations raised concerns that exports would be excluded from these markets, according to one informant. This pushed the government to raise the embedded licensing threshold – and has been mentioned by Eskom's CEO as a reason for more rapid sector decarbonisation.

President Cyril Ramaphosa's June 2021 participation in the G7 leaders' summit in the United Kingdom was perceived as an opportunity for both parties to strengthen ties. The subsequent donation of over 5 million vaccine doses from the USA after the meeting provided a reminder of South Africa's strong ties with America. The G7 summit also galvanised Western support for South Africa's energy transition ahead of COP26, where the UK, USA, France, Germany and the EU committed to help mobilise up to USD 8.5 billion to reduce the country's reliance on coal.[8]

6.2.6 Dialogue with non-government actors (very strong)

South Africa's climate-related legislative process, as outlined above, is highly consultative. The government has recognised that in order to achieve its policy outcomes, support is needed from all stakeholders, including business, trade unions, communities and NGOs. The private sector and local and international NGOs play an active role and have established avenues of input into legislative changes.

South Africa has a National Framework for Sustainable Development (NFSD), which involves the business sector, government, NGOs, civil society, academia and other key role players collaborating on issues surrounding sustainable development. The government also actively promotes the idea of a "green economy," which has been its clearest move so far towards a co-operative effort with industry and NGOs to align on environmental concerns and take proactive measures to achieve stated objectives.

Existing consultation fora and mechanisms for dialogue would benefit from greater openness, especially in terms of public-private interaction, such as, for instance, meetings between the Inter-Ministerial Committee on Climate Change and business leaders. Many of our sources in the private sector emphasised that while consultation does indeed happen, it is at times hindered by perceptions of a lack of transparency in the government's dealing with feedback. Some sources also referred to the overly formal mode of exchange, which is not conducive to constructive dialogue.

6.2.7 Non-government influencers

Groundwork South Africa

Groundwork South Africa is a South Africa-based non-profit working on environmental justice issues. They focus on working with impacted communities and empowering them to protect their environmental rights. Part of this sees them focus on local issues alongside broader national and international campaigns. Their influence on the national climate policy landscape is largely through the prominence of their founder and current Director, Bobby Peek, a highly-regarded climate activist who sits on the Presidential Climate Change Coordinating Committee (PCCCC).

Centre for Environmental Rights (CER)

[8] Political Declaration on the Just Energy Transition in South Africa

Founded in 2009 by a coalition of South African climate organisations, CER is non-profit organisation and law clinic. The centre is staffed by lawyers who help communities and civil society organisations in South Africa realise their constitutional right to a healthy environment through litigation and advocacy work. Their legal work has included opposition to a clandestine deal for emergency power generation from KarPowership, which generates electricity from gas turbines aboard moored vessels. CER is also actively involved in research and advocacy on the intricacies of South Africa's pursuit of a "just transition" away from fossil fuels.

Congress of South African Trade Unions (COSATU)
South Africa's trade union movement is an influential player in the country's climate policy, with a stated commitment to supporting a just transition to a low-carbon economy. COSATU is the country's largest trade union federation and holds influence as an alliance partner of the ruling ANC. The federation has produced numerous policy papers on South Africa's decarbonisation while protecting the interests of workers. However, COSATU includes a number of unions representing workers in the energy and extractives sector and therefore its attitude towards many proposed interventions is hedged by their need to protect jobs in these sectors. Proposals have, however, been made on channeling renewed investments into areas that will be worst hit by decarbonisation. Engagement with COSATU on facilitating a just transition is therefore important for those seeking green alternatives to current modes of production.

6.2.8 COVID-19 impact (challenging)

South Africa is facing a dire economic outlook, exacerbated by the onset of COVID-19. Its pre-pandemic economic outlook was already weak, with GDP growth projected to average 1.3% between 2020 and 2022. The contraction associated with COVID-19 will put greater pressure on trade, investment and employment, and, by extension, the government's ability to mobilise resources, including for climate action. The World Bank's most recent estimates forecast growth to drop 7.1% in 2020. This reduction in economic activity would have major implications for South Africa's public finances, against a backdrop of accumulating public debt. The February 2021 budget placed substantial emphasis on the role of the private sector in facilitating South Africa's economic recovery alongside the need for the government to reduce its debt burden. This will create substantial opportunities for private sector investment, with the National Treasury placing faith in the private sector to lead investment, including in renewable energy.

6.3 Sectoral

SOUTH AFRICA
SECTOR OPPORTUNITIES & RISKS

Sector	Opportunities	Risks
Urbanisation	• C40 Cities South Africa Buildings Programme • Tshwane "green capital" • Green Transportation Strategy 2019	• Apartheid legacy in cities' spatial organisation • Poor public transportation interconnectivity • Inadequate financing, failed past programmes
Electrification	• Pressure for shift away from coal reliance • Integrated Resource Plan 2019 • Integrated National Electrification Programme access targets 2025 • Renewable Energy Independent Power Producers Procurement Programme • Reforms at Eskom	• Eskom dominance and financial mismanagement • Severe implementation delays • Budget reallocations • Unconducive regulatory environment • Heavy reliance on coal, with mining unions tied to the ruling ANC
Industrialisation	• A concurrent deindustrialisation and reindustrialisation path • Green industries within AfCFTA • Manufacturing for the renewables sector	• Advanced stage of industrialisation for the continent • Reliance on heavy industry • Vested interests in mining
Land use change	• A track record of climate-smart innovations • Forestry adaptation potential, as outline in NCCAS	• Not an environmental priority for the government • Historical land ownership issues • Limited forest cover
Oil and gas	• Brulpadda and Luiperd gas discoveries could displace diesel at the Gourikwa power plant	• Plans for LNG imports and a floating power plant cloud the energy transition

6.3.1 Urbanisation (very strong)

South Africa is among the continent's most urbanised countries. In 2019, over 66% of the total population lived in urban areas and cities and by 2030, more than 70% of South Africans will be living in cities. Today, South Africa's five largest municipalities each now have over 3 million residents, driving up both energy demands and pollution levels. Population density is also on a steady growth trajectory, although cities remain relatively sprawling in their spatial organisation.

South Africa's metropolitan areas account for 46% of the national energy consumption, 52% of the country's petrol and diesel consumption, and over a quarter of the energy-related GHG emissions. Additionally, the particular spatial organisation of South Africa's urban centres – still to a large extent defined by apartheid (see text box below) – presents an obstacle for building climate-resilient infrastructure. Poor public transportation interconnectivity and the sheer sprawl of most South African cities represent key vulnerabilities.

The spatial segregation legacy of apartheid

The legacy of apartheid has played a big role in today's spatial challenges in South African cities. These

include injustice, unsustainability, inefficiencies, and lack of resilience. Four factors have perpetuated apartheid-era spatial patterns: continued segregated urban settlements; unequal income levels and access to services; unsustainable infrastructure networks and consumption patterns; and existing markets and land use. Given this reality, the government developed its Integrated Urban Development Framework (IUDF) in April 2016. This policy initiative aims to manage the peculiar challenges of urbanisation in South Africa and is coordinated by the Department Of Cooperative Governance and Traditional Affairs (COGTA).

Our research identified two main opportunities for potential philanthropic climate engagement in this sector:

- **Construction and housing.** Over a quarter of South Africa's GHG emissions are from energy used to power, heat and operate buildings in urban areas. In light of this, in 2018, the municipalities of Johannesburg, Cape Town, Durban and Tshwane launched the C40 Cities South Africa Buildings Programme, aimed at making buildings more energy efficient. Tshwane has been designated as the country's "green capital" due to having its own Green Buildings Programme. Meanwhile, low-carbon buildings in South Africa with Green Star certification have been found by UN-HABITAT to reduce energy and carbon emissions by between 30% and 40% annually compared to industry norms. New development projects in South Africa's housing sector present a strong opportunity for change in current building practices, supported by increasingly conscious municipal authorities.

- **Transport.** Most South African cities' transport emissions come from road transportation, primarily through fuel use by private cars and minibus taxis. Despite the existence of some public transport expansion programmes, South African urban areas remain highly dependent on private vehicles. Few have robust spatial planning frameworks to enable the development of energy-efficient public transportation. Developing a public transportation network that comprises all modes of transport is thus of crucial importance. After the launch of the country's first Green Transportation Strategy (GTS) in 2019, South Africa is looking to improve its public transport network – particularly in cities – and thus also increase employment opportunities for spatially marginalised, poor communities. The GTS mandates that by 2022, South Africa should convert 5% of its public transport fleet to cleaner alternative fuel and efficient technology vehicles. The strategy requires long-term finance and investment, as well as supplementary work to prepare detailed business plans for investing in transport-related mitigation and economic opportunities in the public and private sectors.

  In the past, similar programmes have encountered implementation issues, particularly in terms of resourcing. The NCCRP's Transportation Flagship Programme, for instance, was to facilitate lower-carbon mobility in five metros and improve the efficiency of the vehicle fleet by 2020. The programme has not yet produced the desired outcomes.

6.3.2 Electrification (weak)

South Africa's energy production is heavily reliant on coal, which accounts for approximately 93% of its supply. Responsible for 95% of South Africa's electricity supply, state-owned power utility Eskom operates the country's grid and owns most of its coal-fired power plants. It operates two coal power plants in Limpopo, while two others – Khanyisa and Thabametsi – are being built. Recently, South Africa has been experiencing severe power shortages with frequent, highly disruptive outages. Eskom is also beleaguered by financial problems, which the Treasury has described as the single biggest risk to the South African economy. Cost and time overruns at the two large coal plants Eskom is building are a major cause of these financial problems.

The combination of the utility's financial troubles and South Africa's decarbonisation efforts has led Eskom to take a greater interest in renewable energy investment, which has proceeded in line with the organisation's restructuring. The utility's CEO, Andre De Ruyter, is particularly keen on the opportunity to transition from coal to renewables, and the potential for international "green financing" to assist with this. In comments on 17 August 2021, De Ruyter pointed to the threats South Africa faces if it fails to transition away from coal, saying "pivoting to green energy will create a competitive advantage for South African exports. Persisting with coal will lead to another era of isolation and punitive trade measures." He also highlighted the shorter construction time for renewables projects, important given the country's energy challenges, and the increasing non-availability of funding for fossil fuel investments.

A further development in South Africa's shift away from fossil fuels are reforms to allow much greater private generation of power. In June 2021, President Ramaphosa, who sees energy reform as key to economic growth, raised the threshold for independent power projects exempt from licensing requirements from 1MW to 100MW. This will enable substantial investment in private electricity generation, the majority of which is expected to utilise renewables, as South Africa's private sector looks for independence from the constrained national grid. In August 2021, the Department of Minerals and Energy published regulations confirming the president's announcement and partially set out the specifics of the new system. The regulations are poorly drafted and vague, but they will likely also allow offtake agreements that facilitate a market in independent power that will further facilitate investment in renewables. Further clarity on the application of these regulations, specifically the role the Eskom grid will play in facilitating wheeling, will come as Eskom and municipalities conclude agreements with independent generators and issue their own regulations. There is also the possibility of legal action being required to provide further clarity.

Although Ramaphosa has committed to shift away from coal towards renewables, his government is still maintaining a reliance on coal power against a backdrop of badly needed investment in new generating capacity. A much-delayed Integrated Resource Plan (IRP) was published in October 2019, outlining a reduced role of coal in South Africa's energy mix, alongside increases in the adoption of renewables and gas. It aims to decommission over 35GW (of 42GW currently operating) coal-fired power capacity from Eskom by 2050. The new plan, however, also provides for 1,500MW of new coal power, alongside 2,500MW from hydropower, 6,000MW from solar, 14,400MW from wind and 3,000MW from natural gas. Unlike earlier IRPs, the 2019 one also proposes extending the operational lifetime of South Africa's sole nuclear power plant by 20 years, up to 2044.

Efforts to move away from coal are likely to be hampered by the Department of Minerals and Energy, led by Minister Gwede Mantashe. Mantashe is a supporter of the coal industry, driven by his past as a mining union leader and concerns about the political impact of unemployment in coal-mining towns, where the ANC has traditionally been dominant. Mantashe responded to South Africa's USD 8.5 billion energy transition deal by calling for a coordinated African front to fight the "anti-fossil fuel agenda." Mantashe also told an energy conference in November 2022 that he was willing to take legal action to protect plans to build more coal-fired power stations.

South Africa's Integrated National Electrification Programme (INEP) provides for universal access to be achieved by 2025 – 90% of the population is expected to be reached through grid connections. Announcements in the new emergency budget of cuts to the Department of Mineral Resources and Energy (DMRE) – which is responsible for INEP's implementation – have raised concerns regarding the feasibility of this objective. The DMRE confirmed that the reduction would delay the implementation of planned bulk

infrastructure projects, and decrease the number of new household connections in 2020-21 by 43,000 to 137,000, from the initial 180,000 connections targeted.

The country's Renewable Energy Independent Power Producers Procurement Programme (REI4P), first introduced in 2011, aims to install 17.8GW of renewable energy by 2030. The initially lauded programme, however, has since faltered as a result of political deprioritisation, mismanagement and policy uncertainty. Although REI4P managed to channel some private investment, the subsequent push to renegotiate the terms with successful bidders has undermined investors' confidence.

A more conducive regulatory environment is sorely needed. The increased participation of IPPs in the sector is seen by many as the most plausible way forward in terms of diversifying South Africa's energy mix. Still, there is also significant debate as to whether South Africa's potential transition to renewable energy should be led by the private sector or Eskom.

South Africa needs to continue creating innovative funding solutions, elaborating the future deployment of varying financial solutions, whereby development finance, philanthropy and commercial finance each take on the level of risk/returns that are commensurate with their ability to absorb potential losses for a given level of impact. The interest of international partners, and the country's private sector, to fund decarbonisation efforts is also crucial. South Africa will have to foster these relationships, but sustained effort should result in greater levels of funding.

6.3.3 Industrialisation (strong)

South Africa is one of the continent's most industrialised countries, which is also home to the world's fifth largest mining sector. Industrial process emissions account for approximately 14% of all GHG emissions. Its economy is reliant on heavy industry – including the unique for Africa large-scale manufacturing of automobiles – which is highly energy-intensive. Despite this, South Africa is on both a deindustrialisation and reindustrialisation path, which is likely to offer tangible opportunities for climate philanthropy involvement. Reindustrialisation in particular can help capture greater value within the domestic economy, boost exports and sustain diversification, given the rapid growth in the services sector in South Africa.

Reindustrialisation is also in line with regional trade integration plans. In July 2020, Ramaphosa announced that the AU is planning on improving industrial output through the establishment of a regional value chain with the aid of private sector stakeholders. The African Continental Free Trade Area (AfCFTA) is bound to speed up the continent's regional economic integration. Thus, the opportunity to develop green industries and trade-related opportunities in South Africa – both for import substitution and export – is a strong one.

More effort can be directed towards the promotion of low-carbon manufacturing. Approximately a third of South Africa's carbon emissions are exported – the highest percentage of any country's emissions that are so transferred, according to the Carbon Brief. With a looming global low-carbon shift, South Africa is poised to transition away from a carbon-intensive model if it is to remain competitive. The government already supports mitigation initiatives that use low-carbon technologies through the provision of various tax rebates in the Income Tax Act. We note also that the aforementioned REI4P envisages the development of local manufacturing of equipment for the renewable energy sector.

As detrimental as it might be to the economy more broadly, COVID-19 has also accelerated the deindustrialisation process. South Africa's automotive industry came to a grinding halt, while production of basic inputs (such as iron, steel and wood) also fell dramatically.

6.3.4 Land use change (moderate)

Agriculture in South Africa accounts for only 7% of country-wide GHG emissions[9] – as opposed to energy, for example, which accounts for 84% – and is thus not an environmental priority for the government. Agriculture in South Africa has been decreasing over the past two decades as the country turns its economy towards services. This coincides with the increasing rates of urbanisation and decreasing rates of employment in commercial agriculture. Meanwhile, the country maintains its dual agricultural economy, comprising both commercial farming and subsistence-based production. It merits mention that South Africa does not have an emissions baseline for the agriculture, forestry and livestock management sector, and as a result it is often omitted from future emission projections.

The land ownership question

A critical issue surrounding land in South Africa is ownership and reform. Land usage and ownership have been controversial topics ever since the country became democratic, particularly given its history of racial inequality and discrimination. South Africa's constitution and its NDP both provide frameworks for land reform, protection of property rights and expropriation if it is in the public interest, in order to address the consequences of the legacy of apartheid.

At present much of South Africa's agricultural sector is dependent on large-scale agriculture, however land reform has the potential to alter this by facilitating an increase in smallholder farming. While this might lead to greater subsistence farming, with potential environmental benefits as industrialised farming declines, it could also lead to less productive farming methods – with negative environmental impacts.

The rise of renewable energy will also see South African land valuations change, with the potential for previously unproductive portions of land to become more valuable given their generation potential. This could lead to renewed contestation over land ownership in areas which had not previously been identified as requiring reform.

The main opportunity we identified in the sector as a whole would be in providing support for the research and development of climate-smart and conservation practices, focusing on boosting productivity and building farmers' resilience, while lowering carbon emissions.

- **Livestock sub-sector.** The most recently available data on South African GHG emissions from agriculture indicates that livestock emissions contribute over 77%. Our research identified a track record of innovations in the sub-sector that could be considered climate-smart. The country's Agricultural Research Council, for example, has pushed for advances in biotechnology that enable lower carbon footprint livestock production and improved cattle breeding success. This has enabled South Africa to maintain its market leadership in the region. Meanwhile, electricity generation from abattoir waste and manure has demonstrated a potential reduction of the beef and pork value chain's

[9] Significantly lower than the average for most developing countries, estimates for which vary, but hover around the 40% mark.

carbon footprint by between 10 and 30%, or 1.56 Mt CO2 per year. Such findings indicate the need for further research into sustainable livestock farming through adaptive technology, which can be supported through philanthropic engagement.

- **Forestry sub-sector.** The country's complex and contentious land tenure system, together with its limited forest cover, represent the most notable challenges for REDD+. Restoration and the strengthening of forest protection are among the priority intervention areas in this sub-sector, in addition to the decoupling of agricultural expansion from deforestation. The NCCAS makes provision for further research into an expanded forestry sector's impact on water availability.

6.3.5 Oil and gas (moderate)

South Africa's oil and gas industry is unorthodox, having been shaped by the apartheid-era government's response to international sanctions, including a petroleum embargo. State-owned enterprises developed coal-to-liquid and gas-to-liquid technology, generating oil for the local market and spurring the development of an advanced refining and petrochemicals industry. Once sanctions were removed, and post-apartheid South Africa was able to access crude oil and refined petroleum products on international markets, these facilities were set to decline in importance.

However, in 2019 and 2020, TotalEnergies made two significant gas condensate discoveries at the Brulpadda and Luiperd wells in the Outeniqua basin. Located some 180km from the coast, and close to existing infrastructure, TotalEnergies' fields have the potential to generate feedstock for a state-owned gas-to-liquids facility in Mossel Bay and displace diesel at the Gourikwa open-cycle gas turbine power plant. The offshore fields could also potentially supply natural gas to industrial users in the Gqeberha (Port Elizabeth) area.

The path to development remains unclear. TotalEnergies will need to negotiate gas sales agreements in order to transform its petroleum exploration licence into a production contract. Its exploration rights are currently due to expire in September 2022, providing some sense of urgency. The operator also faces competition from more established gas imports from Mozambique, and mooted LNG imports. This includes a controversial emergency power project, utilising floating power plants fuelled by LNG in the absence of local gas.

Natural gas has been highlighted as a transitional fuel as South Africa moves away from its reliance on coal. Speaking at COP26 in November 2021, environment minister Barbara Creecy identified increased natural gas use as part of the country's transition, given its lower carbon emissions relative to coal. Creecy did, however, raise concerns about attracting investment for gas projects, given international pressure to avoid new fossil fuel investments.

Finally, energy companies face an evolving regulatory landscape, with South Africa's parliament considering a new Upstream Petroleum Resources Bill. With the draft legislation soon to reach committee stage, organisations advocating on climate change policy have significant scope to feed into the bill at this critical juncture.

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