



Climate, Energy and Environment Landscape Analysis for Children in South Africa (CEELAC)



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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for every child

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ABBREVIATIONS AND ACRONYMS

AFD	Agence Française de Développement
AfDB	African Development Bank
AFLOU	Agriculture, Forestry and Other Land Use
AsgiSA	Accelerated and Shared Growth Initiative for South Africa
ARC	Agricultural Research Commission
BBBEE	Broad-Based Black Economic Empowerment
BRICS	Brazil, Russia, India, China and South Africa
CCRI	Children Climate Risk Index
CEDAW	Convention for The Elimination Of Discrimination Against Women And Children
CEE	Climate, Energy and Environment
CER	Centre for Environmental Rights
CF4C	Climate Facility for Children
CFF	Climate Finance Facility
CIF	Climate Investment Fund
CEELAC	Climate Environment Energy Landscape Analysis for Children
CO	Carbon Monoxide
CO	Country Office
CO2	Carbon Dioxide
COGTA	Department of Cooperative Governance
CRC	Convention on the Rights of the Child
CSOs	Civil Society Organisations
DALYs	Disability-adjusted Life Years
DBE	Department of Basic Education
DBSA	Development Bank of Southern Africa
DDM	District Development Model
DFFE	Department of Forestry, Fisheries and the Environment
DHET	Department of Higher Education and Training
DHS	Department of Human Settlements
DoH	Department of Health
DPME	Department of Planning, Monitoring and Evaluation
DSI	Department of Science and Innovation
DWS	Department of Water and Sanitation
DWYPD	Department of Women, Youth and Persons with Disabilities
EGIP	Embedded Generation Investment Programme
EIB	European Investment Bank
EIMP	Environmental Implementation and Management Plan
EIP	Integrated Energy Plan

EPI	Environmental Performance Index
ERS	Emergency Response Systems
ESG	Environmental, Social, Governance
FGD	Focus Group Discussion
FLY	Fun Learning for Youth
GBVF-NSP	National Strategic Plan to End Gender-Based Violence and Femicide
GCF	Green Climate Fund
GEF	Global Environment Fund
GHG	Greenhouse gas
GNI	Gross National Income
HAP	Household Air Pollution
HDI	Human Development Index
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
IDP	Integrated Development Plan
IRENA	International Renewable Energy Agency
IRP	Integrated Resource Plan
IUCN	International Union for Conservation of Nature
JET	Just Energy Transition
JTF	Just Transition Framework
KZN	KwaZulu-Natal
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Intersex, Asexual, Plus
MTREF	Medium Term Revenue Expenditure Framework
NAS	National Adaptation Strategy
NCCAS	National Climate Change Adaptation Strategy
NCCRP	National Climate Change Response Policy
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDMC	National Disaster Management Centre
ND-GAIN	University of Notre Dame Global Adaptation Index
NDP	National Development Plan
NEMA	National Environmental Management Act
NGO	Non-governmental Organisation
NOx	Nitrogen Oxides
NSDF	Draft National Spatial Development Framework
NSP	National Strategic Plan
NT	National Treasury

NT-CSP	National Treasury's Cities Support Programme
NuWASH-4CR	Nutrition-Wash for climate resilience
NYP	National Youth Policy
NYDA	National Youth Development Agency
PCC	Presidential Climate Commission
PM	Particulate Matter
REIPPP	Renewable Energy Independent Power Producer Programme
SA	South Africa
SACAN	South African Climate Action Network
SAIIA	South African Institute of International Affairs
SA-LEDS	Low Emission Development Strategy 2050
SALGA	South African Local Government Association
SANBI	South African National Biodiversity Institute
SANPARKS	South African National Parks
SAWS	South African Weather Services
SAYCCC	South African Youth Climate Change Coalition
SCAT	Social Change Assistance Trust
SDG	Sustainable Development Goals
SMME	Small, Medium, And Micro Enterprises
SO2	Sulphur Dioxide
STC	Save the Children
TNC	Third National Communication
TVET	Technical and Vocational Education and Training
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
VAC	Violence Against Children
WASH	Water, Sanitation, And Hygiene Services
WESSA	Wildlife and Environment Society of South Africa
WHO	World Health Organisation
WRC	Water Research Commission

EXECUTIVE SUMMARY

The United Nations Children Fund (UNICEF) assists the world's children, especially the most vulnerable, through health and educational interventions; improved water, sanitation, and hygiene services (WASH); and emergency assistance. Climate change has made these tasks more urgent and complicated, but as governments step up efforts to mitigate and adapt to climate change, new collaborative opportunities are emerging for UNICEF.

In South Africa's case, the challenge is two-fold: to build resilience in adapting to climate change; and to mitigate climate change by transitioning away from its fossil fuel-intensive growth path through a 'just' energy transition (JET). The national Just Transition Framework (JTF) seeks to address both challenges through ensuring that workers and communities are not unduly compromised by the national transition to a low carbon and climate resilient economy and society. UNICEF can assist in both respects and in ways that are consistent with its core mandate.

South Africa is a signatory to the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC). The Nationally Determined Contribution (NDC) under the Paris Agreement, sets out climate mitigation as well as adaptation objectives (the latter across ten sectors), alongside financing and capacitation requirements.

The University of Notre Dame Global Adaptation Index (ND-GAIN) ranks countries in terms of climate vulnerability, and on readiness to respond to climate change. South Africa is close to the global median for vulnerability to climate change, but below it on the readiness score. This suggests that UNICEF has a potentially important role in assisting South Africa to develop capacity and promote investments and innovations targeted at building the climate resilience of children.

CLIMATE IMPACT ANALYSIS

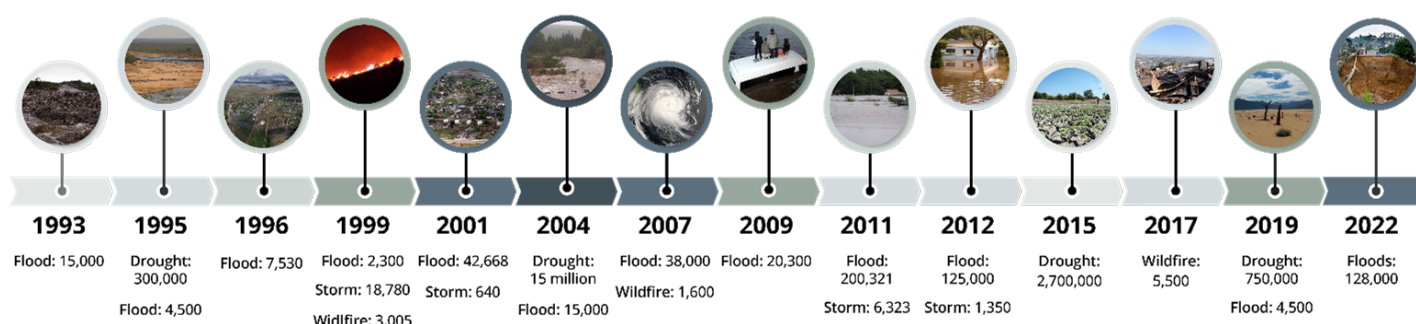
South Africa is an upper middle-income country with a relatively young population. The country has a unique development challenge of having one of the highest rates of unemployment and inequality in the world and a very carbon-intensive growth path. South Africa is the thirteenth highest emitter of carbon dioxide (from the burning of fossil fuels and the manufacturing of cement) in the world. The carbon intensity of South Africa's economy is over three times higher than the global average.

This is an important backdrop against which to consider the impacts of climate change and climate disasters in South Africa. Weather related events have caused extensive damage to the economy and to society at large, with significant increases in direct and recovery costs for households and the economy. Figure 1 on the next page provides some examples and data for a range of weather and climate-related disasters in South Africa between 1990 and 2021.

Climate in South Africa varies regionally, and the expected impact of climate change is projected also to vary regionally. This matters for any policy-oriented, contextualised actions towards assisting the most vulnerable children.

South Africa is a semi-arid and water-scarce country. Temperatures vary from 15°C to 36°C during summer, and from -2°C to 26°C during winter. It is already warming at twice the global average and increased frequency and severity of heatwaves, drought and floods is evident. Climate change is expected to make the country hotter, especially in the arid centre and north, and to make the more arable eastern areas wetter and more vulnerable to extreme rainfall and flooding. Sea level rise, increased frequency and intensity of extreme events, and fire hazard are also expected to be further challenges.

Figure 1. Examples of key disasters caused by climate hazards in South Africa and number of people affected between 1990 and 2022



Source: Data taken from World Bank (Climate Change Knowledge Portal), 2021

Much of South Africa's landscape, or land cover, is already degraded by the over abstraction of water, coupled with mining activities, urbanisation, and infrastructure development. It equally suffers from over-harvesting of natural resources, bush encroachment, alien invasive species, high population densities in some areas, and unsustainable land management. Unless land and water management changes, degradation will get significantly worse by mid-century, further undermining biodiversity, ecosystem services, and agricultural practices.

Air pollution is, unsurprisingly, a major health risk leading to deaths and disease. Some air pollution related diseases, such as asthma, are often contracted by young children who live with this for the rest of their lives. The impact is most visible in the eastern coal belt region of the Highveld, home to most of the country's coal mines and coal-fired power stations. Heavy dependence on coal is also a major cause of water and soil pollution.

The impact of climate change will vary regionally, mediated by already-existing socio-economic vulnerability. Most poverty is concentrated in the east, in KwaZulu-Natal and the Eastern Cape, but also in the North-West, Mpumalanga, and Limpopo. Children are more likely to suffer from monetary or multidimensional poverty if they are black and in households with unemployed and uneducated adults.

UNIQUE VULNERABILITY OF CHILDREN

Children are highly vulnerable to environmental exposures throughout their development. Exposure to, and the impacts of, various environmental hazards vary according to geography, socio-economic circumstances, and life stage. Climate change impacts, including rising temperatures and increased frequency and intensity of extreme events such as floods and droughts, are exacerbating the impacts of environmental hazards on children, increasing exposure risk, particularly in rural and impoverished communities, and in cities that rely on effective storm water drainage as a flood management solution.

Too many of South Africa's children are poor. There are high concentrations of poor people in almost all provinces of the country, with pockets of poverty in the relatively better off provinces of Gauteng and the Western Cape. Nationally, 51% of children (0-17 years of age) are financially poor and 6 out of every 10 are multidimensionally poor (deprived in three or more of dimensions of WASH, housing, nutrition, protection, health, information, child development and education). Limpopo and Eastern Cape have the highest percentage of children who face both multidimensional poverty and monetary poverty.

The legacy of Apartheid and the concentration of economic activity in the main urban centres means that poverty in South Africa has a very rural face. Poverty is fundamentally related to unemployment, which is very high among South Africans, especially its youth. Households without anyone employed depend on social grants. As of 2021, half of all households were in receipt of at least one social grant, and social grants are especially important for the poorer provinces.

In contrast to many African and Latin American countries where subsistence agriculture and informal employment provides a safety net, these sectors are relatively small in South Africa. The impact of climate change on socio-economic vulnerability thus depends primarily on its impact on the formal economy which drives both employment and the capacity of the government to provide social assistance, basic services and to respond to environmental disasters. South Africa faces significant vulnerabilities when it comes to its public health infrastructure (unequal access to services, corrupt and/or failing healthcare institutions, lack of trained doctors, etc.). Children are more severely affected due to their young age, their early stage of physical and mental development, and their lack of resources to respond directly to crises. All of these issues are compounded by climate impacts, which have significant detrimental effects on health infrastructure and service delivery procedures.

Nutrition and child protection

Adequate nutrition is critical for child health, requiring access to sufficient proteins, energy, and micro-nutrients. Poor nutrition, particularly at early stages of child development, can have far-reaching consequences including reduced education and learning, and lower employment opportunities later in life. Agriculture the primary source of this nutrition, and critical for food security with strong forward and backward linkages to the wider economy uses 60 percent of South Africa's water and is most directly at risk to climate change. Commercial agriculture dominates the country's few arable areas. While many rural households practise some limited subsistence agriculture, this is mainly as a supplementary source of food and produce rarely comes to market.

Child hunger is a serious issue with less than 21% of small children receiving the minimum acceptable diet. Studies show that in 2020, 2.1 million children between the ages of 0 and 17 lived in households that reported child hunger. Malnutrition in children and mothers plays a significant role in child mortality and is one of the leading risk factors for deaths in children under five, which occur mainly as a result of maternal and neonatal disorders, enteric infections and respiratory infections such as tuberculosis.

Direct impacts of climate change on children

Heat stress is among the most significant climate hazards for South Africa's children. Heat stress is predicted to substantially reduce labour productivity by the end of the century, and by mid-century, climate change is anticipated to have shrunk the economy by between 1 and 5 percent. Heat stress is expected to negatively affect the mental health of children as well as their education. Severe heat events limit the ability of children to play outside, and to concentrate on their studies. Teachers engaged for this project highlighted that it is hard to teach, especially in public schools that lack fans and air conditioning necessary for mitigating increasing heat stress. This will have a stronger impact on schools with limited resources as they might not be able to afford cooling solutions. Child abuse, which is already very high in South Africa, is likely to increase in the event of heat stress which can cause mental health disturbances, or in the aftermath of an extreme event such as a flood, where families can be displaced and forced to live in crowded spaces such as community halls.

Climate related impacts such as flooding, and risk of fire, will obviously vary regionally due to the geographical differences in the country. Households with assets and skilled labour will be in a better position to move from vulnerable areas, and to adapt to environmental disasters when they happen. Poorer households with unemployed members and few marketable skills are likely to find themselves trapped in marginalised and climate-vulnerable situations. Examples include informal settlements facing a heightened risk of fire, and those located on wetlands or floodplains will face the additional risk of flooding. All poor households, irrespective of whether they are directly affected in such ways will be indirectly affected by climate change through heightened risk of disease, unsafe drinking water, food insecurity and failing basic education and health services. Children in such households will be especially at risk, with knock-on effects for the economy as this adverse impact on early childhood development plays out in undermining productivity further in the future. Rural-urban migration, in response to a climate change induced decrease in agricultural productivity, or displacement because of climate-related disasters, also exposes children to harm.

Children in informal settlements, especially where communities have been disrupted, are more vulnerable to exploitation for labour, as well as human trafficking and abuse.

THE NEED FOR DIFFERENTIATED RESPONSE

Health

The physiology of children makes them more vulnerable than adults to certain health impacts. From conception to adolescence, their bodies go through a number of complex biological changes and development. It is during this developmental and growth time that the bodies of children are most affected by environmental health hazards. The window of rapid development of children, particularly between birth and the age of five, makes these younger children especially vulnerable to adverse impacts.

Along with this, South Africa has a high prevalence of HIV/AIDS, which has left many children orphaned and vulnerable. Furthermore, malnutrition and inadequate access to healthcare are persistent challenges, particularly in marginalised and rural communities. When it comes to malnutrition, stunting and wasting among children under five years are concerningly prevalent in the country, especially in rural areas. Many child illnesses related to malnutrition are a result of delays in seeking care for the child, lack of ability to recognize danger signs or severity of illness, inadequate nutrition and the use of traditional remedies. Around 43% of children live in rural households. These children face additional challenges, including difficulty in accessing healthcare (more than 30% of rural children have to travel more than 30 minutes to reach a healthcare provider).

Children are especially at risk of diarrhoeal disease and further impoverishment where they live on flood-prone land and in households without adequate access to improved toilets. Limpopo, Mpumalanga, North West and KwaZulu-Natal are most at risk. These also have the highest rates of utilisation of wood and coal for cooking. Differentiated responses will however rely on child disaggregated data, which is currently not available for different stages of child development.

Air Pollution

Children are more susceptible to, and affected by air pollution, compared to adults because they have immature immune systems and undeveloped respiratory systems. Children in households that rely on wood and coal for cooking (most of whom will be in rural areas or urban informal settlements), are at increased risk of respiratory and related illnesses, asthma and lung cancer, as well as increased risk of chronic disease later in life. Paraffin cookers, kerosene lamps, and candles have also been associated with greater risk of fire. Children in homes without any access to electricity, or very limited access, will be at a disadvantage educationally (in lacking access to light and power sources needed for studying). Some may have to miss school if required to go out to collect wood for cooking and heating.

WASH and the spread of disease

Climate change poses significant challenges to the Water, Sanitation, and Hygiene (WASH) sector, affecting water availability, sanitation, and hygiene, and exacerbating health and social disparities. Climate change is threatening national water security, with major implications for WASH services. WASH is ranked as the second highest risk for children under five, and for children between the ages of five and 14. The WASH sector is vital for child health, as it plays a crucial role in preventing waterborne diseases to which children are highly susceptible and maintaining hygienic living conditions. Children are the most at risk when WASH services fail or are impacted by flooding. Flooding destroys or damages WASH infrastructure leading to flooding of pit toilets and contamination of drinking water sources. Frequently this leads to outbreaks of cholera and other diarrheal diseases. Contaminated drinking water has been blamed for the May 2023 lethal outbreak of cholera in Hammanskraal, for example.

Children without access to safe sources of drinking water are clearly at increased risk of water-borne disease and malnutrition. Most of South Africa's urban areas are well supplied, but poorer provinces have proportionately more people living without access to piped water – with associated health risks. Moreover, municipalities around the country are facing increasing water outages due to power outages, climate change impacts and inadequate infrastructure investments. Functional drainage and wastewater treatment systems are already severely lacking, especially many rural and urban informal settlements in South Africa. Climate-induced flooding may destroy poorly built latrines or cause them to overflow, leading to contamination of surface water from sewerage, contributing to outbreaks of cholera and other water-borne diseases. This has serious impacts on children's health, especially for those under five.

Children in vulnerable rural areas observed that excessive litter blocks stormwater drains, water pipes and results in the street flooding. This situation exacerbates flood events as stormwater drainage and water pipes are critical for mitigating floods, while dysfunctional infrastructure can also cause routine, local flooding.

All children are at risk for the likely increase in vector-borne diseases (due to rising temperatures and changing rainfall patterns) but the risks are increased for children living in areas without adequate sanitation and access to primary health care, for instance, the zero-dose. All children are at risk where rising temperatures and mental health constraints provoke increased interpersonal violence, but poor children living in households already stressed by inadequate policing and high levels of unemployment and poverty will be the most at risk.

Energy Poverty

The rising cost of electricity along with power outages has heightened the focus on 'energy poverty' since marginalised households suffer disproportionately from the related impacts on growth, the economy, and livelihoods. Up to half of South African households are estimated to need more energy than they use. Poorer households also cannot afford to install their own energy systems and alleviate the household impacts of load shedding. There are thus widespread calls, especially from civil society and business groupings, and municipalities, for additional free, or subsidised electricity.

Energy poverty directly affects children and the youth in multiple ways. Children need consistent access to modern energy services to study (which requires adequate lighting at night), and to access the internet. Children also need modern energy services to support healthcare, for example access to medicines that require refrigeration. Children who are unable to access sufficient modern energy services are heavily exposed to health and life risks associated with cheap fossil fuel-based alternatives. Children in vulnerable rural communities engaged for this project also reported that when there is a shortage of electricity, people in their community lose their jobs, and the roads become dark and unsafe, which puts them at risk of violence and crime, including on their way to and from school.

Structural change is needed to decarbonise the national energy sector. Achieving a just transition without impoverishing the poor further, requires additional efforts to provide renewable energy (e.g., solar products) and additional social grants. Solving energy poverty is best done through improving access to income and renewable energy rather than providing subsidised or free power from coal-powered Eskom. This is a critical issue to address in safeguarding the future for South Africa's children.

UNICEF, The Just Transition, and CEE

If South African policy towards a renewable energy transition remains fragmented and undermined by vested interests, then the country will remain on its CO₂-intensive growth path and the health and environmental harm caused by climate change will intensify. Under this business-as-usual scenario, UNICEF will have little option other than to keep focussing on improving WASH services in poor areas, responding to climate-related emergencies (children caught up in life-threatening droughts, fires, and floods) and developing programmes to deal with rising childhood diseases.

If South Africa does develop and implement a co-ordinated, innovative, strategy for decarbonisation and environmental protection, other options open for UNICEF. A low carbon economy will result in direct job losses in high-emitting sectors (coal, steel, chemicals, transport, and related services) and direct job gains (non-coal mining, renewable energy value chains, green manufacturing and related services, and utilities) as well as indirect losses and gains through backward and forward linkages.

Much of the required economic action for just decarbonisation – the reduction or elimination of carbon dioxide, or its equivalent greenhouse gases from industrial processes such as manufacturing, or energy production – is beyond UNICEF's mandate. Yet there are clear opportunities for targeted assistance. UNICEF could expand its focus on children in areas rendered especially vulnerable to climate change, to include those living in areas where shrinking employment deepens socio-economic vulnerability.

RECOMMENDATIONS

The recommendations outlined in this section seek to put children at the heart of South Africa's development and industrialisation, and CEE agenda and to pivot South Africa's CEE agenda toward a child responsive end-state. They are designed to ensure that children are protected from the risks of climate change, energy choices and environmental degradation, while enabling their potential to become catalysts and the future leaders of positive change. As such, these recommendations are designed to help identify:

- i) strategic entry points for strengthening the integration of children in national CEE policies and programmes, and for mainstreaming CEE into child related social policy;
- ii) knowledge and data gaps and issues for further research;
- iii) strategic partnerships;
- iv) opportunities for leveraging climate finance and other innovative financing tools for improved CEE outcomes for children;
- v) UNICEF's comparative advantage to introduce joint proposals and programmes;
- vi) Capacity-building interventions for safeguarding children from the impacts of CEE; and
- vii) opportunities for raising awareness on the impacts of CEE-related issues and decisions within South Africa's vulnerable communities.

Increasing awareness of the linkages between child rights and CEE issues is cross-cutting to the recommendations outlined below – it underpins them all the ten recommendations for UNICEF and its partners. Some of these recommendations are cross cutting, while others apply to one or other of the sectors that UNICEF works in.

Cross cutting recommendations

1. ***Increase the visibility of children in the CEE agenda by deploying deliberate and explicit language on children*** – the national climate response policies and programmes should explicitly target, women, children, adolescents and youth.
2. ***Enhance the visibility of children in relation to CEE through improving the collection and sharing of CEE related data*** and increase research on the special needs of children as they relate to CEE issues. Data could be gathered on numbers of children, by age group (and income level), affected by extreme events, and in which regions/districts; or data on children experiencing respiratory illness, disaggregated by factors such as age and location.
3. ***Increase the visibility of children in climate, environment, and energy policies and strategies*** – any revisions of the country's national development plans and CEE policies and plans should make attempts to integrate the linkages between CEE and the needs and rights of children
4. ***Mainstream, scale up, and integrate CEE issues within all child-focused or child responsive policies, programmes and plans*** – institutions will likely need assistance in the form of guidelines and checklists to ensure meaningful integration of CEE issues that is joined up between different policies and programmes.
5. ***Increase collaboration among government agencies and non-governmental actors***. Increasing the child responsive or child sensitive focus in South Africa's CEE agenda necessitates bringing together the expertise and resources of multiple government departments, sectors, actors, and stakeholders under a common objective. Building such public private partnerships will ensure that the unique needs of South Africa's vulnerable children are well understood and addressed in relevant policies and in the design of programmes and initiatives.

6. **Mobilise resources for child responsive CEE action** and address funding gaps for CEE and children. Implementing the recommendations outlined in this report requires the scaling up of human and financial resources. This includes not only the budgets of ministries and agencies working in CEE to ensure that a focus can be placed on child and youth measures and targets. It also involves mobilising resources from development partners and the multilateral funds.

Sector-specific recommendations

Education

7. **Integrate CEE issues into formal and non-formal education.** South African children need to be equipped with the knowledge and life skills required for building climate resilience, including sustainable lifestyles and economic practices
8. **Promote jobs for youth in “green” and climate-resilient activities.** Efforts are needed in researching and showcasing career opportunities for young people in the green economy, for example in nature-based tourism and climate resilient, value-added agriculture, and in climate technologies such as renewable energy, climate resilient food systems, biodiversity mapping, and early warning systems.

Child protection

9. **Leverage UNICEF’s comparative advantage and existing initiatives in mainstreaming climate change into child protection.** There is a role for all UNICEF’s existing partners and every UNICEF section to play in mainstreaming CEE, building child resilience, and protecting children from the varied impacts of climate-related natural disasters. UNICEF should also build new partnerships as it develops and implements its roadmap for mainstreaming CEE into its programming.

Nutrition, WASH and Health

10. **Design, raise funding for and implement an integrated Nutrition-WASH for climate resilience** (NuWASH-4CR) programme that mainstreams climate resilience into core UNICEF programmes and leverages climate finance for doing so through joint proposals.

South Africa’s children and their families are dependent on UNICEF which has a vital role to play in addressing the unique needs of children vis-à-vis CEE impacts. This focus is required to enable children to function effectively under a different climate and development future.

1. BACKGROUND AND INTRODUCTION

THE CLIMATE LANDSCAPE ASSESSMENT FOR CHILDREN

The United Nations Children's Fund works with international and local partners to advance and support children's survival, protection, and development. It focuses primarily on child health and nutrition, clean water and good sanitation, quality basic education and the protection of children from violence and exploitation. More recently, UNICEF's work has been shaped by the recognition that climate change, access to energy, and environmental degradation disproportionately affect children and young people.

This CEELAC report for South Africa was commissioned by the UNICEF South Africa Country Office. It responds to a UNICEF Executive Directive for incorporating climate change and related issues in all UNICEF Country Programmes. UNICEF works with partners at global and local levels to ensure that children can live in a safe and clean environment. It structures its support and interventions to help ensure that children are at the centre of climate change strategies and responses of countries; that children are recognised as agents of change; children are protected from the adverse impacts of climate change and environmental degradation; and emissions and pollution are reduced.

CEELAC examines the baseline situation of climate, energy and environment (CEE)-related issues affecting children in South Africa, and how these issues are addressed in the country's development priorities and national policies and strategies. It identifies strategic entry points and potential sources of finance for mainstreaming child-centred CEE issues into national policies. As such, the CEELAC proposes policy recommendations and priority child-targeted interventions to assist UNICEF, the South African government and other development partners respond to CEE in ways sensitive to the needs of children, especially poor children. It is intended to be useful to UN Agencies; Development Partners engaged in CEE action; Government partners; and Civil Society Organisations, research institutions and the media.

The specific aims of the Care to assist in identifying: i) knowledge and data gaps and issues requiring further research; ii) strategic entry points for mainstreaming CEE issues for children into national policies and plans; iii) strategic partnerships; iv) opportunities for leveraging climate finance and other innovative financing tools that improve outcomes for children; v) the comparative advantage for UNICEF and the broader UN to introduce joint proposals and partnerships, and; vi) recommendations for building capacity on CEE issues within the UN and UNICEF, and broadly across the Government of South Africa to support inclusion of CEE issues particularly as they relate to the impacts on children.

The CEELAC therefore proposes 10 recommendations that would enable government, the UN, and other development partners to further incorporate and strengthen their activities relating to CEE issues in their programmes of work, and wherever possible, to eliminate the negative impacts on children. These policy recommendations are also expected to underpin UN programmes, as well as those of other development partners, to augment the Government of South Africa's efforts in addressing CEE impacts on children and to promote resilience building in communities and among children and youth through well integrated and coordinated CEE responses, including shock responsive social and livelihood protection strategies.

The CEELAC assessment and recommendations are also expected to help inform the Government's National Communications to the United Nations Framework Convention on Climate change (UNFCCC) and future iterations of South Africa's Nationally Determined Contribution (NDC) to the 2015 Paris Agreement on Climate Change².

South Africa: the challenge

South Africa is considered to be the leading emerging economy in Africa as a destination for foreign investment. However, the country faces huge environmental and social challenges that are closely interlinked, with significant negative implications for children and the youth.

People under the age of 18 are understood to be 'children' in South African law and this definition is employed in this CEELAC, although it occasionally differentiates between children, adolescents and youth (Box 1).

² Republic of South Africa, 2021 [https://unfccc.int/sites/default/files/NDC/2022-06/South Africa updated first NDC September 2021.pdf](https://unfccc.int/sites/default/files/NDC/2022-06/South%20Africa%20updated%20first%20NDC%20September%202021.pdf)

Box 1. Defining children

Definitions of ‘child’, ‘adolescent’ and ‘youth’, as used in this report, and legally in South Africa

The South African Constitution states that a ‘child’ means a person under 18 and the Children’s Act of 2005 indicates that a child, whether male or female, becomes a major on reaching the age of 18 years unless a specific law specifies that majority is attained earlier. The National Youth Policy defines young people as those aged between 14 and 35 years whereas the National Adolescent and Youth Health Policy of 2017 refers to adolescents and youth as those aged between 10–24 years.

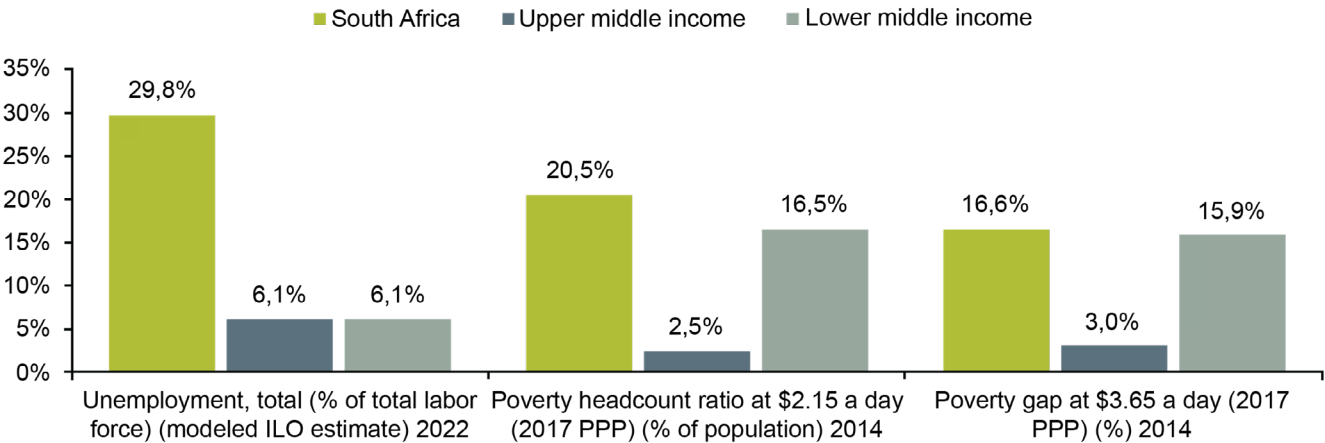
The United Nations (UN) defines youth as anyone between the ages of 15–24, and 15–29 according to the Commonwealth (United Nations Department of Economic and Social Affairs (UNDESA), n.d.). This inconsistent understanding complicates not only the analysis of youth issues but also effective programming and targeting as it creates many loopholes for exclusion if service providers choose to use different authorities.

For this report, we have adopted definitions consistent with the UN/WHO/UNFPA where a child is defined as anyone under the age of 18, adolescents are those between 10–19 years of age, youth as people within the ages of 15–24, and young people are those aged between 10–24. Throughout the report, the collective noun of children is used when referring to this CEELAC’s target group, unless a distinction is required, and a specific category of ‘children’ is applied. For example, some climate impacts such as for malnutrition from decreased food security are a high priority for children and some climate responses in the forthcoming Country Programme may need to be differentiated toward the different age categories within the overall term, children.

South Africa is an upper middle-income country with a relatively young population. However, the country has the unique development challenge of having one of the highest rates of unemployment and inequality in the world. This is in part a legacy of Apartheid, which systematically disadvantaged black South Africans, and South Africa’s capital-intensive growth path which benefitted relatively skilled South Africans (both black and white). Even within the black South African population, there are major disparities in income and wealth distribution. Black South Africans comprise 81% of the population and account for half of the top 20% of income earners. Economic dynamics pertaining to the growth path, which delivers unemployment for many households and high incomes for the relatively skilled, are important further drivers of inequality.³

High unemployment is a key reason for South Africa having higher rates of poverty than the mean for both upper middle and lower middle-income countries (Figure 2). It should be noted that South Africa’s actual, current (June, 2023) unemployment rates are estimated to be significantly higher than reflected in Figure 2 that follows, and that youth unemployment is particularly high. Current unemployment is estimated at around 37%, while youth unemployment is close to 67%.

Figure 2. Unemployment and poverty

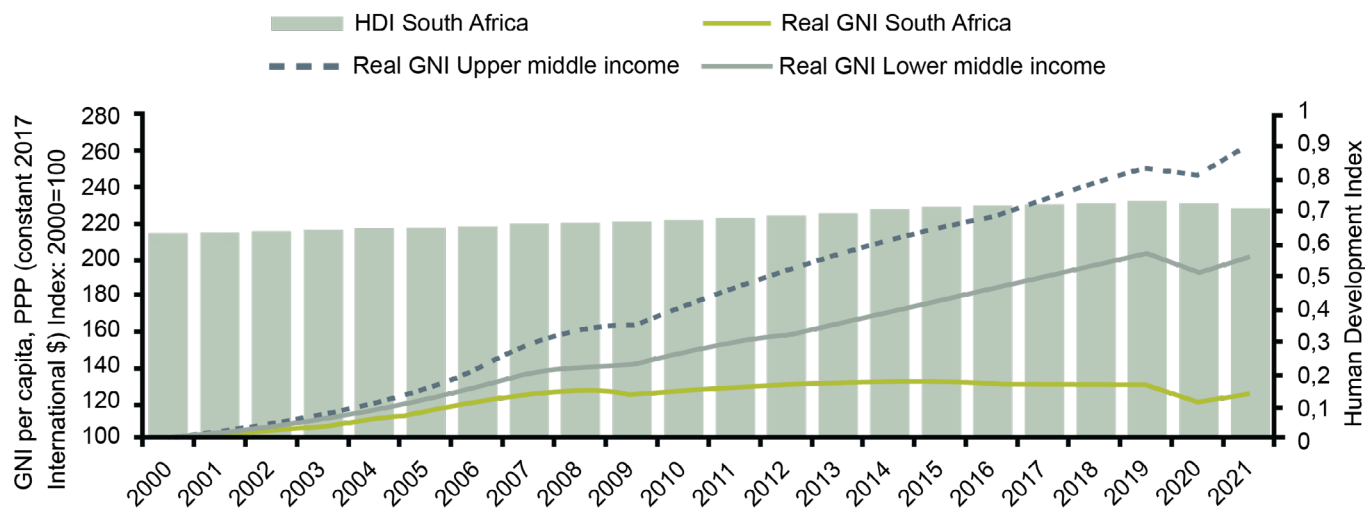


Source: The World Bank, 2023

3 Seekings and Nattrass, 2015; Nattrass and Seekings, 2019

South Africa scores relatively high on the Human Development Index (HDI), which provides an aggregate score comprising life expectancy, real Gross National Income (GNI)⁴ per capita, and (mean and expected) years of schooling. Yet South Africa's performance has declined relatively – and in absolute terms since 2019 – largely because of its comparatively weak economic performance. As can be seen in Figure 3, South Africa's real GNI per capita growth has been consistently slower than that of upper-middle and lower-middle income countries. Global economic growth dipped in 2009, because of the financial crisis, and again in 2020 because of the COVID-19 pandemic. South Africa was unable to recover as well as other middle-income countries from either crisis.

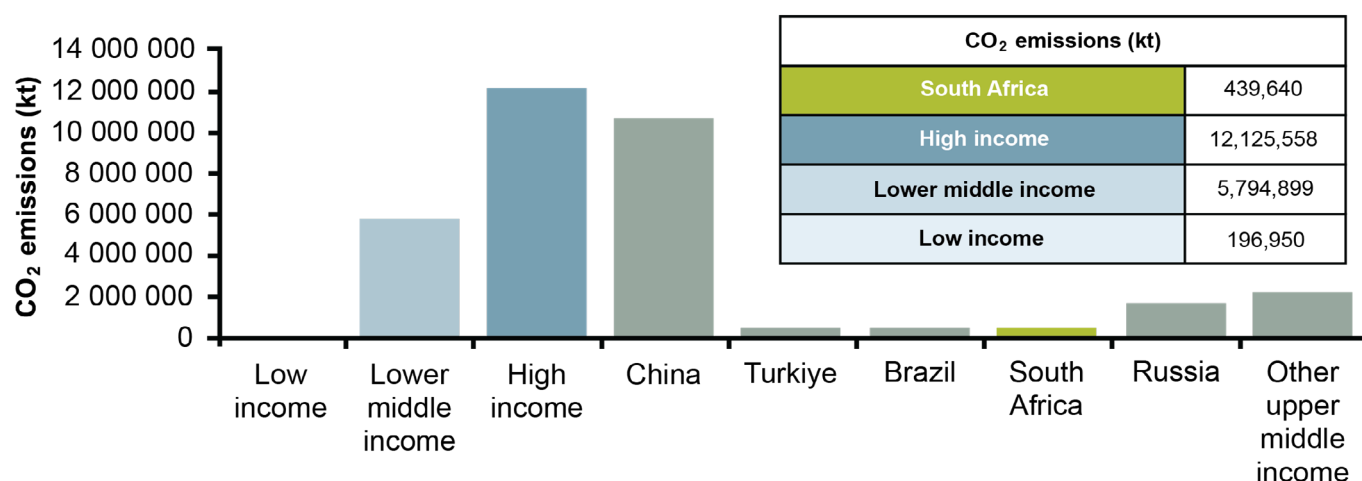
Figure 3. South Africa's Human Development Index Score in comparative context



Source: (Statista, 2022)

South Africa also has a very carbon-intensive growth path. Traditional fossil fuels such as coal, oil and gas make up 92% of the national energy mix. South Africa is the highest emitter of carbon dioxide (from the burning of fossil fuels and the manufacturing of cement) in the world. Upper middle-income countries collectively accounted for almost half of global CO₂ emissions – of which two thirds came from China. South Africa, like Brazil, Türkiye and Mexico contributed just over 1% of global emissions (Figure 4).

Figure 4. Total CO₂ emissions (kt) from South Africa, compared to states with similar levels of emissions contributions



At the same time, global climate change caused by fossil-fuel driven global development has also affected South Africa's rainy seasons, driven up temperatures and exacerbated floods and drought, placing communities and vulnerable population groups at great risk from the related impacts. Human settlements have expanded onto floodplains and wetlands. More people face dehydration and heatstroke, water availability for agriculture and drinking is reducing, as is crop productivity with implications for food security and the cost of food.

⁴ Gross national income (GNI) is defined as gross domestic product, plus net receipts from abroad of compensation of employees, property income and net taxes less subsidies on production (OECD, 2022).

The complexity of the challenge is exacerbated by high levels of regional variation in South Africa's climate with the expected impact of climate change also projected to vary regionally. This matters for any policy oriented towards assisting the most vulnerable children.

According to Yale University's Environmental Performance Index (EPI),⁵ South Africa's environmental performance is ranked at 116 out of 180 countries. Its EPI score decreased from 54.83, to 44.73 in 2018, and 37.2 in 2022 (a higher score indicates a better performance and vice versa). South Africa continues to rank in the bottom 25th percentile of the world. Unwelcome shifts in ecosystem services (wetland, tree cover and grassland losses) air quality (both from greenhouse gas emissions and local air pollutants) and indicators for human health (HIV, AIDS, life expectancy at birth, and child mortality) have contributed to these declines over the last decade. As a developing country, it is to be expected that South Africa is not ranked in the top 10%. However, much needs to be done to improve air quality, protect the country's natural resources and improve human health.

South Africa's policymakers recognise the importance of environment and climate change in sustainable low-carbon development. South Africa is a signatory to the Paris Agreement under the UNFCCC and its underlying policy reflects the country's dual climate-related development challenge: to adapt to climate change and mitigate it by implementing a just transition away from such fossil-fuel intensive development. South Africa's National Climate Change Adaptation Strategy (NCCAS) accordingly aims to build resilience by aligning adaptation strategies across different sectors, while focusing on priority areas. Accordingly, South Africa's Nationally Determined Contribution (NDC) to the UNFCCC under the Paris Agreement, sets out climate mitigation as well as adaptation objectives (the latter across 10 sectors), alongside financing and capacity building requirements.

South Africa's future lies in its children and youth. The country has a relatively young population with just over a third (33.6%) of its estimated population of about 60 million under the age of 18. Most are children under the age of five, or adolescents aged between 10 and 15 years.

Sustainable development thus requires ensuring adequate health care, education, and a safe environment for children. Contemporary CEE challenges also require that child-centred approaches target environmental hazards such as air pollution and assist communities in preventing and responding to environmental hazards, such as floods, drought and heat stress. Raising awareness in schools of how the national fragile ecology provides essential ecosystem services is important – as is assisting young adults obtain the skills needed to work in the green economy.

This CEELAC report for South Africa provides an overview of key CEE challenges and their implications for child-centred development strategies.

⁵ EPI, 2022

2. APPROACH AND METHODOLOGY

The work for the CEELAC entailed a three-pronged, iterative approach. The first was a desk review of relevant reports and data to provide a descriptive analysis of CEE issues in South Africa, emphasising how these affect children especially. The second was stakeholder engagement to gain additional insight, and to develop policy recommendations, and the third involved site visits to elicit the perspectives of children.

Stakeholder engagement was achieved through focus groups, interviews, and site visits. Relevant government ministries, agencies, research institutions, business, and civil society organisations were consulted to identify gaps in the analysis and priority areas for future child-focused CEE interventions. Engagements with civil society and related organisations focused on understanding CEE from the perspective of children and those who care for them. Site visits augmented the participatory analysis, and included consultations with children of different age groups, through their schools (consultations with children) in three CEE vulnerable provinces in South Africa.

Critically, actors within the various UN offices and UNICEF programmes in South Africa were consulted to gain a greater understanding of relevant programme areas and potential areas for alignment and collaboration. Development partners were engaged to understand the CEE finance landscape in South Africa and identify and evaluate appropriate financing opportunities that are sensitive to child rights and CEE. The children consultations validated the key CEE challenges and impacts that communities face in South Africa's most vulnerable provinces: i) Eastern Cape (drought prone); ii) KwaZulu Natal, and Western Cape (climate, environment and energy issues). These consultations also elicited perspectives on priority interventions and actions, including by UNICEF.

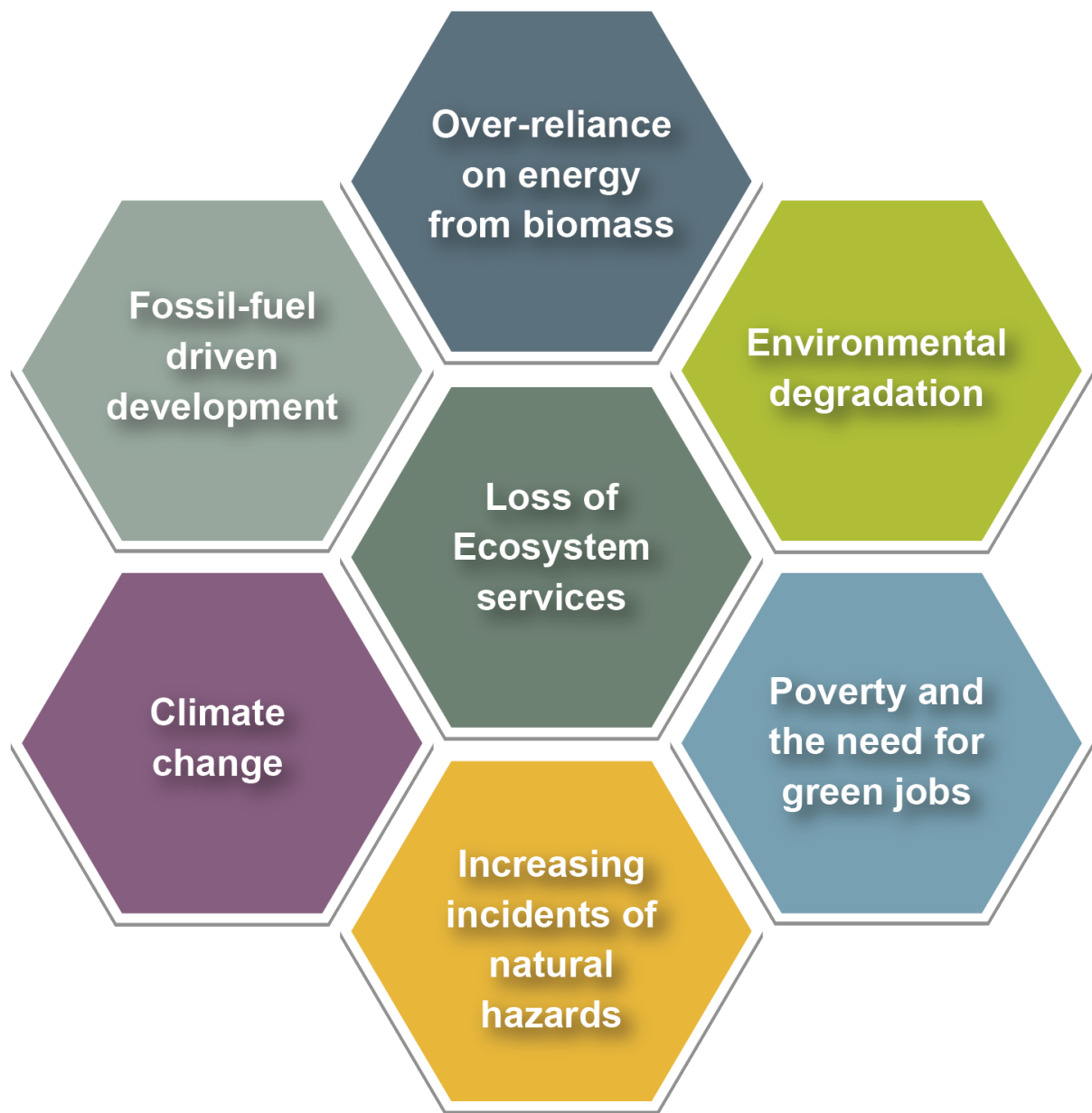
The CEELAC provides an overview of national trends, pointing to key regional variation where relevant. South Africa has a diverse geography and significant variation in socio-economic status across the country. The risks posed by climate change for children thus vary regionally, as does the capacity of households to respond. A child-centred approach that is alert to South Africa's multifaceted CEE challenges will thus, inevitably, be one that is regionally differentiated. It should also be pro-poor as far as possible.

For more detailed information from the stakeholder analysis, readers are advised to consult the supplementary stakeholder engagement report accompanying the CEELAC.

3. THE CLIMATE, ENERGY AND ENVIRONMENT CONTEXT: DRIVERS OF RISK AND VULNERABILITY

This section provides a situational analysis of the climate, energy and environment situation in South Africa and sets the baseline for determining how CEE affects children. CEE impacts on children are not only climate hazards (extreme events, or disasters) such as flooding and droughts, or long-term changes such as increased duration of dry spells. Less obvious effects on children are those that result from land degradation, energy choices and economic factors such as poverty. Figure 5 that follows presents a visual representation of the range of CEE issues that interact and affect children, by impacting on the systems, livelihoods and economies that support them.

Figure 5. Visual representation of the CEE impacts on children in South Africa



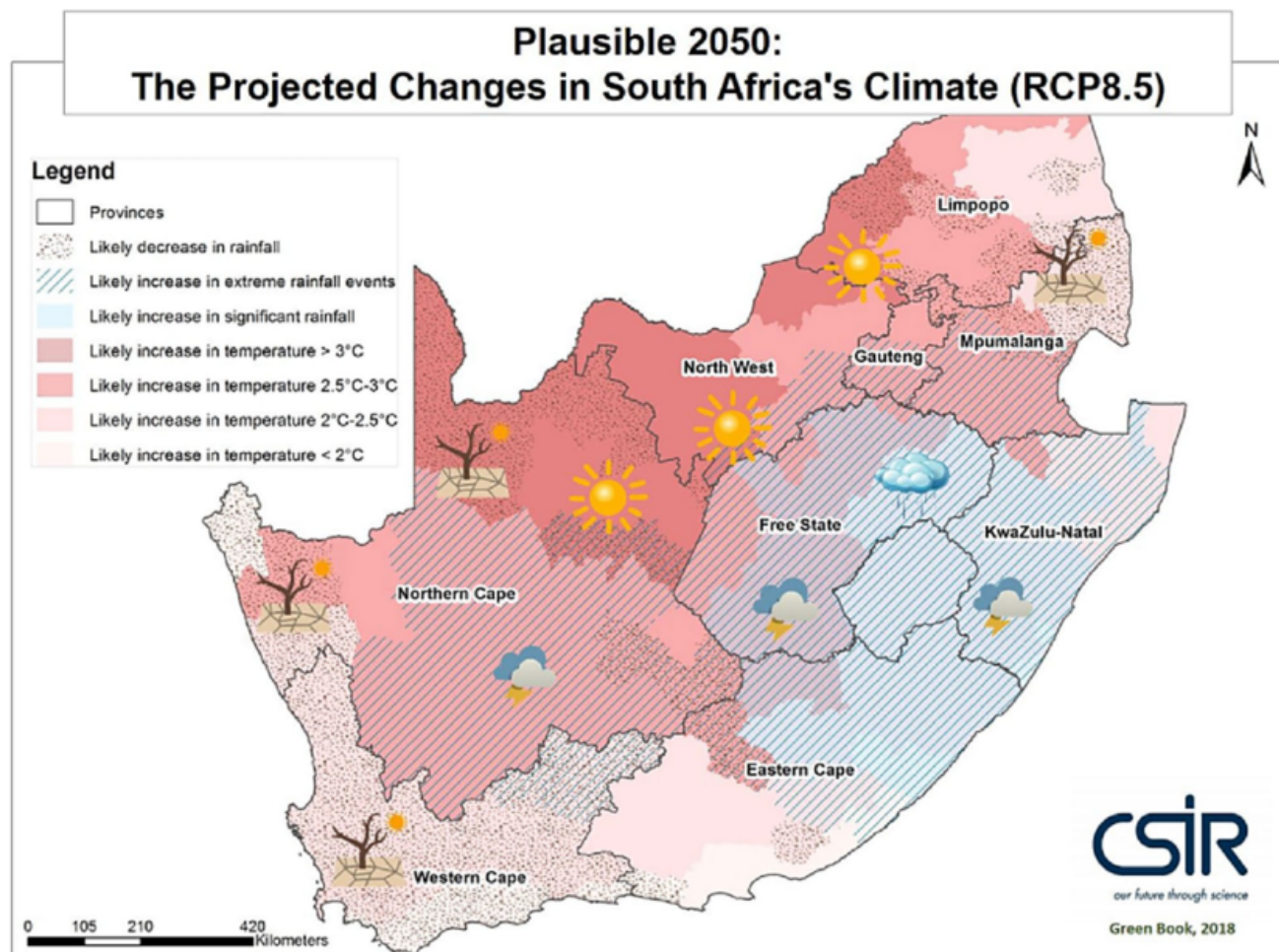
CLIMATE CHANGE AND THE IMPACTS ON SOUTH AFRICA

South Africa is a semi-arid country, already degraded by the over-abstraction of water, and hence water scarcity is an issue. It is already warming at twice the global average and increased frequency and severity of heatwaves, drought and floods is already evident (World Bank, 2022). In terms of temperature extremes, maximum and minimum daily temperatures have been increasing annually across the country, with the highest increase being in the Western Cape, KwaZulu Natal and Gauteng regions.

South Africa is likely to experience a rapid rise in temperatures, particularly over the north-western interior which stretches into Namibia and Botswana, where temperatures are projected to rise 1.5 to 2 times faster than the global rate of temperature increase.⁶ Figure 6 below shows the overall projected climate change trends for South Africa, highlighting that temperature and rainfall variability are of primary concern.

6 Department of Environmental Affairs, 2018

Figure 6. Projected climate change trends for South Africa



Source: Le Roux et al, 2019; Van Niekerk et al, 2020, Lotter et al, cited in CSIR, 2021

The increasing trend in the number of heat wave days is particularly prevalent in the interior plateau, the interior of the Western Cape and Limpopo, and the coastal zone of the Northern Cape (Engelbrecht, 2019). Dry periods and droughts appeared to increase in prevalence along the north-eastern regions of the country, particularly in the northern interior of Limpopo. The impact of climate change varies regionally, mediated by already-existing socio-economic vulnerability. This will make the already arid central and northern regions hotter and prone to drought, and more arable eastern areas wetter and more vulnerable to extreme rainfall and flooding.

South Africa already suffers from over-harvesting of natural resources, bush encroachment, alien invasive species, intensive and increasing dependence on mining activities, high population densities, encroachment of human settlement, and unsustainable land management. Water security is already threatened due to the degradation of wetlands and river supply, siltation, and pollution of dams, increased commercial agricultural use, urbanisation, and economic growth. Degradation of land and infrastructure is expected to get significantly worse by mid-century.

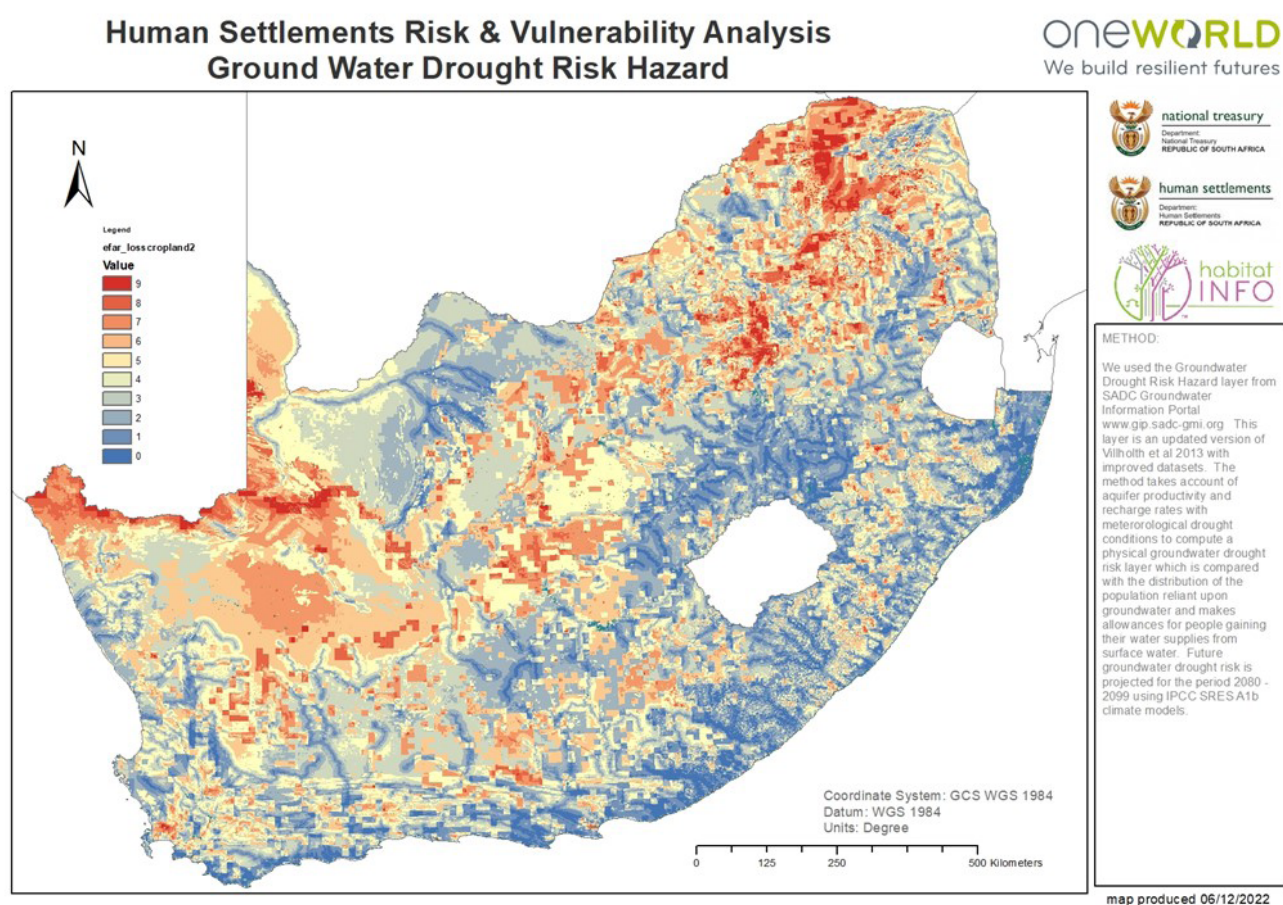
These increased climate impacts will severely affect the viability of diverse economic sectors – particularly tourism, agriculture, mining, and infrastructure. They will also have a substantial impact on the general population's health and well-being, especially children. Existing land degradation, which is already problematic, is expected to increase, especially in communal cropland and grazing lands. This will impact on soil erosion, increase of drylands, consequent desertification in the more arid regions, further degradation of vegetation, and woody plant encroachment. Increased alien plant invasions will alter ecosystems, reduce water availability, change fire protection regimes, and reduce ecosystem carrying capacity.

INCREASING INCIDENCE OF NATURAL HAZARDS

Flooding and droughts are the most common natural hazards in South Africa⁷. The increasing incidence of wildfires, is of further concern, as is the spreading of shack fires in parts of the country where wind intensity and frequency is expected to increase. While natural hazards have been a consequence of climate variability for decades, the frequency and intensity of these is increasing as a result of climate change. An example is evident in Figure 7 below.

Droughts deplete dams, threaten hydroelectric power generation, increase the concentration of pollutants in water sources, dry out the soil, and enhance erosion and desertification. When severe, drought can seriously undermine livelihoods, even causing localised famine and population dislocation as people move to access water. South Africa's drought risk hazard is the most prevalent in high-risk areas, settlements will require effective service delivery to provide access to alternative water resources as they will no longer be able to rely on boreholes. Figure 7 that follows highlights these hotspots of groundwater vulnerability in South Africa. Excessive rainfall damages crops, roads and housing and increasing the risk of diarrhoeal and mosquito-borne diseases.

Figure 7. Ground Water Drought Risk Hazard in South Africa



Source: Petrie, et al., 2023

The coastal areas, as well as the Gauteng and Limpopo provinces, show a strong increasing trend in the number of warm nights as well as a strong decreasing trend in the number of cold nights. In addition, the frequency and severity of heat waves have also increased as shown by increases in the number of heat wave days. This increasing trend in the number of heat wave days is particularly prevalent in the interior plateau, the interior of the Western Cape and Limpopo, and the coastal zone of the Northern Cape. Dry periods and droughts appeared to increase in prevalence along the north-eastern regions of the country, particularly in the northern interior of Limpopo.

⁷ Petrie, et al., 2023; Engelbrecht, 2019; Petrie et al., 2021

Between 1921 to 2015 there has been an increase in flood events for the central southern interior and adjacent coastal areas extending into the eastern portions of the Western Cape. Rainfall has become more intense, leading to flooding across the southern coast and the interior. Storms, where rainfall equals or exceeds 20mm over an area of 64km² within a period of 24 hours, are defined as extreme rainfall events. Between 1971 to 2000, approximately 10 storm events occurred annually over the east coast and the eastern escarpment region, the highest frequency in South Africa.

Sea level rise is another factor that can affect flooding, with coastal areas particularly at risk, as well as those that lie along rivers. Coastal inundation can also lead to saltwater intrusion, which affects agricultural land and freshwater systems. Flood hazard is currently rated as medium for most of South Africa. Studies have given varying ratings of the areas at greatest risk of flooding, and the areas of greatest concentration of risk, however there is agreement that particular areas in KwaZulu-Natal, Eastern Cape, Western Cape and Mpumalanga are at relatively higher risk (see Figure 8).

Climate change is already affecting sea levels along the South African coast. Sea levels have risen markedly between 1993 to 2018, with severe implications for coastal flooding as suffered in KwaZulu Natal in 2022.

Box 2: Flooding in KwaZulu-Natal

Flooding in KwaZulu-Natal – Disaster risk preparedness

KwaZulu-Natal has a long history of severe flooding; however, the devastation of April 2022 has been called some of the worst in the region's history (BBC, 2022). Partly a result of the El Niño Southern Oscillation (VMO, 2018), the 2022 flooding in eThekweni and KwaZulu-Natal caused a tragic loss of life and extensive damage to property and infrastructure, estimated at R7 billion, although estimates vary. UNICEF estimates that 45,000 people became unemployed, at least temporarily (UNICEF, 2022).

More than 430 people died, including 67 children (UNICEF, 2022). It is important to note that this data on the numbers of children who died, from UNICEF, appears to be the only data available, apart from a growing count in newspapers in the aftermath of the event. This suggests a clear and urgent need for child-disaggregated data on disaster impacts, as well as research on the vulnerability of children in severe climate events.

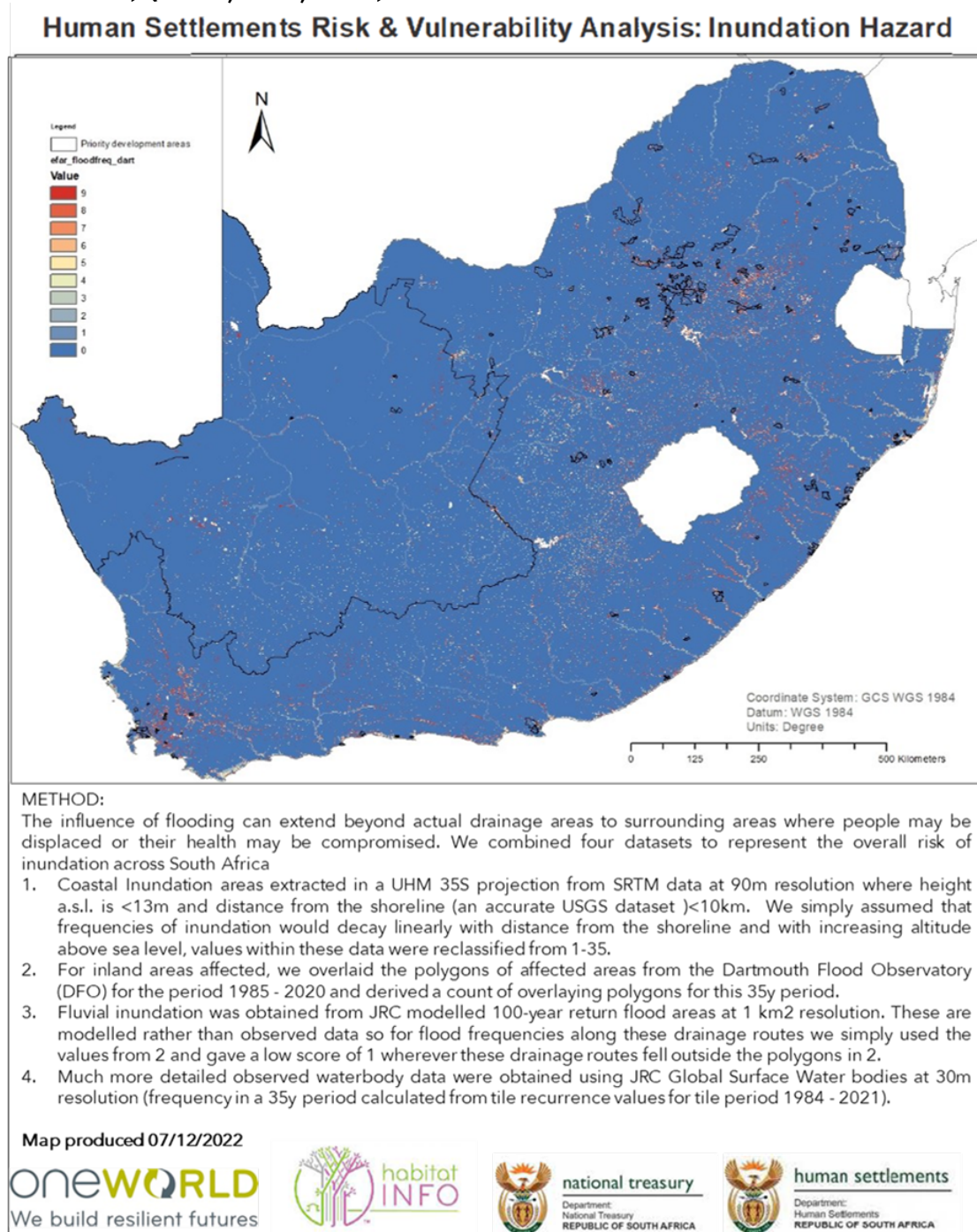
A month later, at the end of May 2022, about 40,000 people who had lost their homes were still living in temporary accommodation such as community halls and shelters. In addition, "more than 600 schools were affected, with 124 being seriously damaged, 101 completely inaccessible and more than 320,000 pupils affected" (UNICEF, 2022). In the aftermath of the disaster, there were severe shortages or complete absence of clean water, as well as electricity. This exacerbated the situation of families who were already severely affected.

People living in informal housing and in precarious and exposed zones such as floodplains were the most severely affected. These are where most of the deaths occurred and historically, where disaster planning has been the weakest. The National Water Act stipulates that all flood lines are indicated in development plans, and consequently, no buildings built below those lines. However, it is often the case that this stipulation is not followed, with informal dwellings – which cannot withstand floods – being built in these areas. This puts people and property at great risk – especially in the face of increasingly regular and severe flooding, under climate change. In addition, rising temperatures will increase sea levels, while storms are projected to become more intense and more frequent. This will bring increasing frequency and intensity of damaging storm surges along coasts.

The eThekweni disaster has raised serious questions regarding the preparedness of local municipalities in facing increasingly frequent and deadly climate shocks (ReliefWeb, 2022).

The levels of extreme rainfall in the region have been attributed to climate change-related causes (one weather station in Durban recorded more than a fifth of a metre of rainfall in a day). However, the extent of the loss of life and infrastructure damage have been blamed on a serious lack of local government disaster preparedness, as well as lack of coordination between government agencies at different levels. There is a clear need for pre-emptive planning, financing, forecasting measures such as Early Warning Systems, and stormwater infrastructure resilience. In addition, many commentators (Erasmus, 2022; Marwala, 2022) have noted that corruption and negligence have resulted in systemic maintenance shortages and deeply unreliable disaster response mechanisms. This is despite various legislation and policies to support climate change adaptation and disaster preparedness. National government policy dictates measures to mitigate the severity of flood-related impacts – such as through the National Water Act – however, a lack of coordination, capacity and planning has meant that municipalities are unable, or unwilling, to meet the requirements.

Figure 8. Human Settlements Risk and Vulnerability Analysis: Inundation Hazard (settlements at high risk are outlined in black) (Petrie, et.al, 2023)



THE LOSS OF ECOSYSTEM SERVICES

South Africa has abundant levels of biodiversity, which contributes to overall ecosystem health by ensuring proper functioning of critical urban and rural habitats. Healthy ecosystems (such as forests and wetlands) ensure a sustainable relationship between human settlement and the natural environment by providing an abundance of services. For example, clean water and water security, flood and storm surge prevention, access to natural resources, climate regulation, clean air, and carbon sequestration. In short, they provide better resilience to climate change and projected impacts on both natural environments and communities.

Ecosystems in South Africa are largely under threat from a variety of pressures, especially climate change, with insufficient protection to curb these threats. Examples include habitat loss, overuse and degradation of land, biological invasions, altered fire regimes, water insecurity due to changes in patterns of water availability. These factors are likely to worsen under the influence of climate change.

Wetlands cover a total of 29, 000km, which is only about 2.4% of the entire land area of South Africa. The latest National Biodiversity Assessment (SANBI, 2019) reported that 48% of the 791 wetland ecosystem types were under threat from human activities. Floodplain wetlands are the most threatened due to their high productivity and easy accessibility, making them ideal for land use changes for agriculture and settlements.

South Africa is renowned for its rich biodiversity, characterised by a large diversity of species as well as numerous species which do not naturally occur outside of the country. However, this is under threat due to several human-induced pressures, including habitat loss, biological invasions, and climate change. Forests play a pivotal role in communities by providing carbon storage, nutrient cycling, water purification, storm protection, places of recreation, and a source of food and traditional medicines. Climate change induced fires, and their consequent increasing frequency, are however threatening forest sustainability.

Many people living in informal settlements across South Africa have limited or no access to electricity and rely heavily on the use of paraffin stoves and heaters. This not only affects air quality and health well-being but is also a major cause of fires. Many shack fires are caused by knocking over paraffin stoves or candles. Due to the proximity of shacks within informal settlements, and materials used to build them, fires spread rapidly throughout the settlement resulting in severe loss of human life and destruction of homes.

ENVIRONMENTAL DEGRADATION

Environmental degradation in South Africa is most obvious in its levels of deforestation. More insidious, and less visible, is the poisoning and contamination of water resources, and air pollution. The mining industry plays a significant role in land and water contamination. Over 6000 of South Africa's mines that have ended their life of mine cycle have not complied with legislation for rehabilitation. Municipal management of drinking water supplies and sewage treatment plants also contributes to a growing problem in South Africa.

Water contamination

Water resources in South Africa are susceptible to significant pollution and depletion. Rivers and wetlands are often contaminated due to land use changes. Some of the contaminating pollutants include pesticides, sediments, sewage, and fertilisers, which all degrade wetlands ecosystems and water quality. These originate from household sewage, urban wastewater, garbage and solid waste, agricultural and forestry effluents, and industrial effluents. Water contamination, measured by the increased level of nutrients (algae and bacteria build-up) limit access to safe, clean drinking water and negatively impact on human health and safety. In 2021, 41 sites, concentrated in Gauteng, Limpopo, Mpumalanga, and North West provinces, were flagged as having nutrient levels above safe thresholds as part of the National Eutrophication Monitoring Programme (Department of Water and Sanitation (DWS), 2022).

The high levels of nutrients were attributed to the inflow of untreated sewage from domestic and industrial wastewater effluent, agricultural runoff, and untreated effluent from wastewater treatment.

In addition, water contamination can be linked to the ability of district municipalities to monitor the impact of discharge into water bodies. According to the DWS (2017)⁸ the issue of water contamination can also be linked to inconsistencies and non-adherence to the monitoring programmes, such as Blue and Green Drop Systems. While the former is specifically focused on drinking water quality, the Green Drop certification programme is meant to ensure that operations of wastewater treatment works improve to avoid negatively impacting on the water bodies into which they discharge their products.

Coal mining and the near absence of mine rehabilitation also leads to a high degree of water and soil pollution, especially in Mpumalanga. The provinces with the highest nutrient concentrations were Gauteng and North-West, with Mpumalanga following closely. However, it is likely that the problem is much more greatly dispersed throughout the country, since only 64% of water sites are officially monitored (Department of Water and Sanitation, 2022).

Air quality

Good air quality refers to clean and clear air that is essential for life. Poor air quality, or polluted air, is a result of factors including emissions from various sources, both natural and human-induced. In South Africa, the main contributors to poor outdoor air/ambient air quality are emission of air pollutants from energy generation; industrial production; transport emissions from motor vehicles and trucks; and burning of agricultural and solid waste at dumps and by some households. The main contributors to indoor air pollution are household energy generation or use.

Common air pollutants include total suspended particulate matter (PM), nitrogen oxides (NO_x), sulphur dioxide (SO₂), volatile organic compounds, photochemical oxidants, ozone, carbon monoxide (CO) carbon dioxide (CO₂) and lead. On average in 2021, South Africa had a fine particulate matter (PM_{2.5}) concentration 4.5 times the World Health Organisation (WHO) annual air quality guideline value⁹, indicating that vulnerable groups would be at risk of negative health effects.

Air pollution is, unsurprisingly, a major health risk, estimated to cause the premature deaths of over 20,000 South Africans every year¹⁰ (World Bank, 2016)(World Bank, 2016). Carbon and polluting development has come at the cost of dangerous levels of air pollution and escalating damage from CO₂ and other particulate emissions. South Africa's CO₂ emissions severely compound the impacts of the other air pollutants.

Shortages of either reliable or renewable energy coupled with rising electricity prices has meant that coal, wood, and paraffin remain the dominant sources of fuel and heat for millions in South Africa. These are often used inside the home and contribute directly to dirty, unhealthy indoor air¹¹ and severe risk to human health. South Africa is heavily reliant on fossil fuels for electricity generation, heating, cooking and transport. Traditional fossil fuels (coal, oil, and gas) currently make up 92% of the national energy mix. Energy from coal comprised 74% of the energy mix in 2021. The heavy weight of South Africa's reliance on coal mining and coal-fired power stations has a disproportionate impact on air pollution. The impact of air pollution is most visible in the eastern coal belt region of the Highveld, home to most of the country's coal mines and coal-fired power stations.¹²

Despite improved electrification rates, a large segment of households rely on alternative energy sources such as wood (and charcoal) to meet their heating and cooking needs, in both rural and urban areas. A total of 96% of rural households and 68% of low-income urban households make use of wood and other alternative sources for their cooking and heating needs. This is reflected in the breakdown of South Africa's energy mix, a major source of the country's air pollution problem, shown in Figure 9 that follows.

⁸ Parliamentary Monitoring Group, 2017

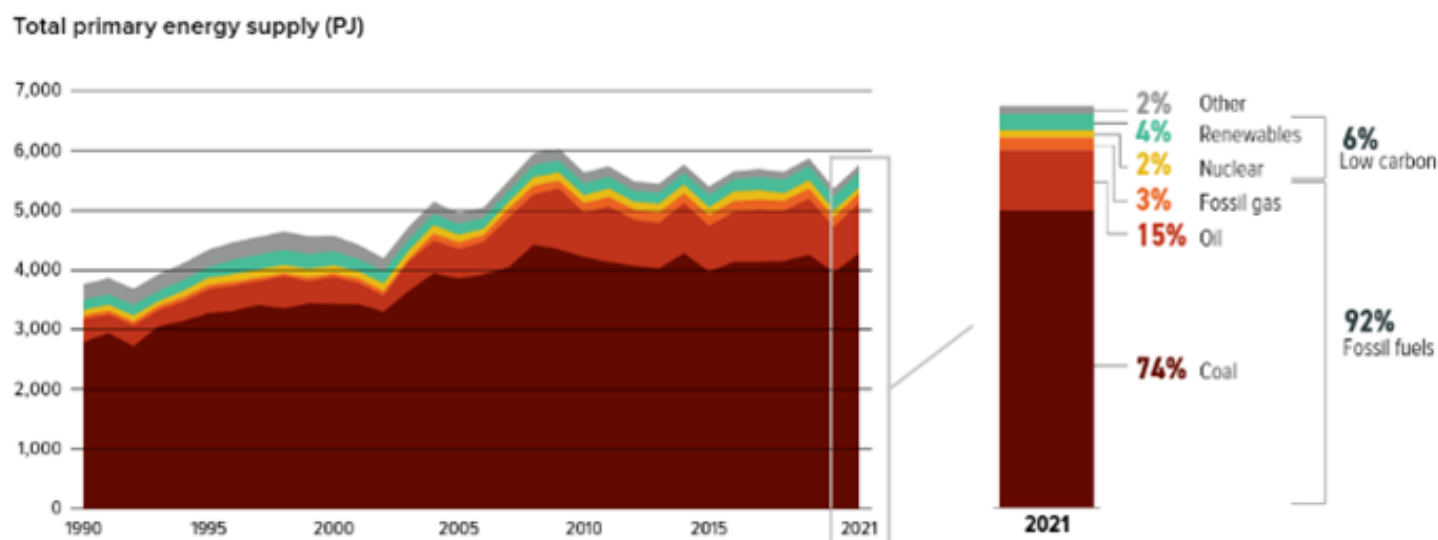
⁹ IQAir, 2023

¹⁰ World Bank, 2016

¹¹ Barnes et al, 2009

¹² World Bank, 2022

Figure 9. Primary energy mix 1990–2021



Source: (Climate Transparency, 2022)

The country's commitment to increase the share of renewable energy in its total energy mix, and to considerably reduce its greenhouse gas emissions will also reduce its ambient air pollution. Achieving universal access to affordable electricity in the country will also result in improved air quality as this would reduce the reliance on wood fuel for household energy use. Fortunately, renewable energy is now cheaper, as well as being cleaner than the fossil fuels the country continues to rely on.

Improved implementation and enforcement of South Africa's excellent environmental legislation would also greatly reduce the harmful impacts of air pollution on the environment, and on human health and well-being in large parts of the country¹³

Poverty and the need for green jobs

Poverty is strongly linked to environmental degradation. Poor people are more likely to be landless or forced to farm on marginal, ecologically fragile lands. In urban areas, they are more likely to be in areas without adequate waste management and on land inappropriate for human settlement such as wetlands and unsafe industrial areas. Impoverished members of the population thus contribute to environmental degradation as they strive to meet basic needs – and are likely to be most affected by climate and environmental disasters. Only around half of poor households have access to basic drinking water services and more than a third of South Africa's poor people lack access to basic or improved sanitation. Children in these households are especially vulnerable to shocks, whether from climate disasters (droughts, floods, wildfires) or declining agricultural productivity from rising temperatures, diseases and pests, and erratic weather. There are however job and enterprise development opportunities linked to cleaning up the environment and responding to climate change. Entrepreneurs are building enterprises in local communities for land restoration and reforestation, while small holder farmers are improving their livelihoods through climate resilient and sustainable agricultural activities. There are also increasing opportunities in cleaning up polluted water and air. These, and the growing number of jobs in clean energy generation are the future livelihoods and careers of South Africa's children.

¹³ Centre for Environmental Rights, 2023

4. A SNAPSHOT ON THE STATUS OF SOUTH AFRICA'S CHILDREN

A significant share of South Africa's population is young. Approximately one third of the population is aged 18 years or younger. Despite progress in recent years, many children across the country continue to face numerous challenges and inequalities. What is true for most children in the country is that they lack agency, and they need special care and protection. Beyond this fact, while there is obviously no typical South African child, many (too many) children in South Africa suffer from a variety of ills, including poverty, malnutrition, inadequate WASH, poor access to health services, and poor education levels. All these factors put children at risk, as well as increasing their underlying vulnerability to climate change. An additional indicator for children's vulnerability both in general and to climate change – is which province and which type of human settlement they live in (e.g. rural village, middle-class suburb in a metro, peri-urban informal settlement). The youth in South Africa also face overwhelmingly limited employment prospects.

CHILD POVERTY

Most South African children are poor and bear the brunt of the country's persistent inequality. Poverty is one of the major issues affecting children in South Africa. It is estimated that around 60% of the country's children live in households that fall below the poverty line. Socio-economic inequalities and poverty drive a lack of access to basic services. This basic lack underpins children's and youth's poor situation in terms of health, well-being and safety. Children's lives are characterised by significant levels of poverty and a heavy dependence on inadequate child support and other grants. Many children rely on school feeding programmes as their main source of nutrition and many suffer from high levels of hunger (30% in ages 6-10 years) and malnutrition (with resulting stunting, wasting and overweight and obesity).¹⁴

Most poverty is concentrated in the east, in the KwaZulu-Natal and Eastern Cape provinces, but also in the North West, Mpumalanga, and Limpopo provinces (Figures 10 and 11). There are high concentrations of poor people in all provinces except for Gauteng and the Western Cape. These two provinces are better off on a range of indicators as shown in Table 1, though these aggregate figures disguise the fact that there are pockets of poverty in all provinces. Nationally, 51% of children (0-17 years of age) are poor in terms of money metrics and 6 out of every 10 children are multidimensionally poor.¹⁵

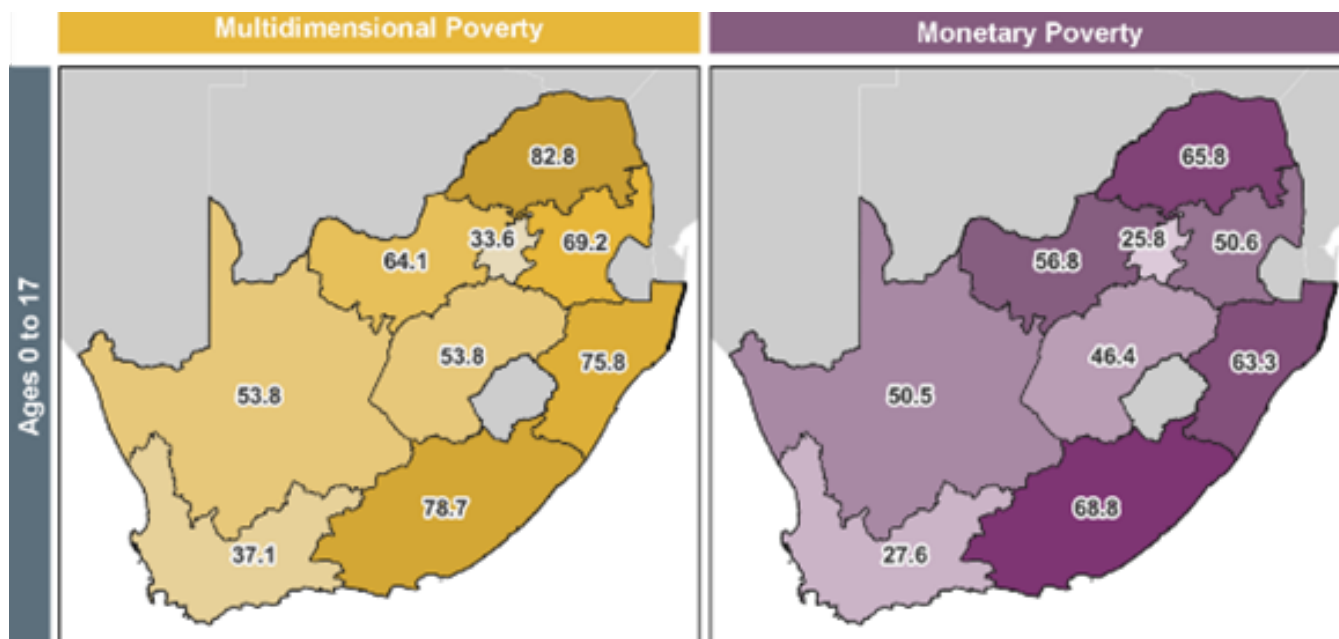
Children are more likely to suffer multidimensional poverty if they are black; from large households; from households with many unemployed adults; from households where the head has no or a low level of education; and who are either single orphans, with only their mother alive, or double orphans, neither parent is alive. The Limpopo and Eastern Cape provinces have the highest percentage of children facing both multidimensional poverty and monetary poverty (see Figure 11).

Households without members in employment are likely to be poor and heavily dependent on social grants: the pension, the child support grant, the foster care grant, the disability grant, and since COVID-19, the social relief of distress grant. As of 2021, half of all households were in receipt of at least one social grant (Stats SA, 2022). Social grants are especially important for the poorer provinces. These statistics are presented in Figure 11 that follows, showing the percentage of children (0-17 years of age) experiencing multidimensional poverty or monetary poverty (Lower-Bound Poverty Line of ZAR647 in 2015 prices per person per month).

¹⁴ UNICEF South Africa and Statistics SA, 2020

¹⁵ UNICEF South Africa and Statistics SA, 2020

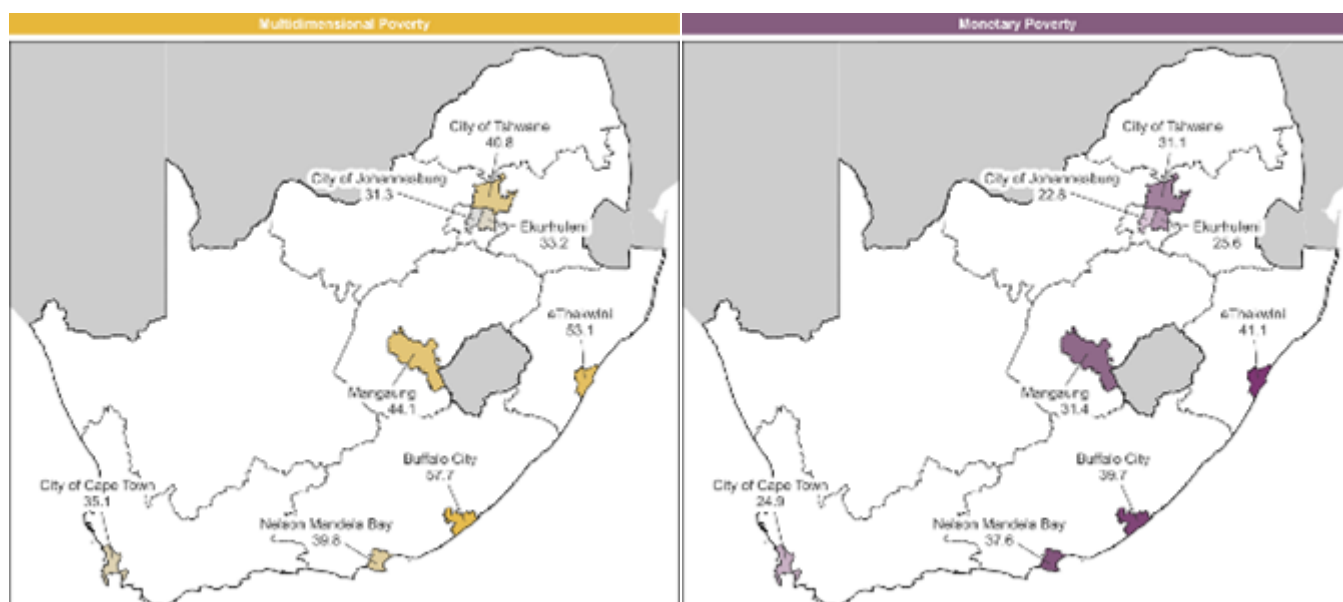
Figure 10. Percentage of children facing poverty at provincial level (two metrics)



Source: (UNICEF South Africa and Statistics SA, 2020)

Poverty is typically concentrated in rural areas and in the least urbanised provinces. However, as Figure 11 shows, child poverty is also evident in urban areas, and the extent of this too, varies by province. Informal settlements and townships with high unemployment and limited access to basic services are especially at risk for child poverty. A child living in an informal settlement faces considerable additional challenges as a result of lack of services, including education, health, WASH, electricity, transport and protection. Informal housing tends to be unsafe and vulnerable to climate hazards as well as catastrophic fires.

Figure 11. Overview of the extent (percent) of multidimensional and monetary poverty among children of all age groups (0-17) in Metropolitan Municipalities



Source: (UNICEF South Africa and Statistics SA, 2020)

EDUCATION

Education is a significant challenge for the country. Despite significant strides in improving access to education, there are persistent disparities between rural and urban areas, and between different socio-economic groups. Many children struggle to attend school regularly and to receive a quality education. Educational outcomes are poor as a result, with a high dropout rate and approximately 8 in 10 children unable to read for meaning at Grade 4 level.

HEALTH

Health issues also pose significant challenges for children in South Africa. The country has a high prevalence of HIV/AIDS, which has left many children orphaned and vulnerable. Furthermore, malnutrition and inadequate access to healthcare are persistent challenges, particularly in marginalised and rural communities. When it comes to malnutrition, stunting and wasting among children under five years are concerningly prevalent in the country, especially in rural areas. Many child illnesses related to malnutrition are a result of delays in seeking care for the child, lack of ability to recognize danger signs or severity of illness, inadequate nutrition and the use of traditional remedies. Around 43% of children live in rural households. These children face additional challenges, including difficulty in accessing healthcare (more than 30% of rural children have to travel more than 30 minutes to reach a healthcare provider). Access to transport is one of the biggest barriers, with only around 2% of poor children having access to a private car for transport to a health facility.¹⁶

ACCESS TO BASIC SERVICES

Access to clean, safe water, and sanitation and hygiene (WASH) remains a problem in rural areas and around 6 million children lack access to safe water in their homes¹⁷. These children are also less likely to have access to adequate sanitation in the home. As of 2018, ~70% of children have access to a safe and reliable supply of drinking water (proxied as access to a piped water connection) at home – either inside the dwelling or on site. There are distinct socio-economic differences in access to safe and reliable water. Most (77%) of children in formal dwellings have access to water on their property, but only 55% of children living in informal dwellings and only 19% of children living in traditional housing have the same access.¹⁸ As of 2018, it is calculated that ~79% of children across South Africa had access to basic sanitation (proxied as flush toilets or ventilated pit latrines that dispose of waste safely and which are within or near the house).¹⁹

Poor access to affordable electricity is a further critical challenge. The Children Count analysis of the 2016 South Africa Demographic and Health Survey (SADHS)²⁰ suggests that, as of 2018, 91% of children in South Africa had access to mains electricity at home, provided by Eskom or a municipality. However, this varies considerably depending on the type of housing considered, with only 55% of children in informal dwellings having access to mains electricity, compared to 96% of children living in formal housing.²¹ It is also important to note that this measure only captures whether a connection exists in the household. It does not capture the extent to which electricity is accessible or affordable. Many families, particularly those in indigent households that rely on Free Basic Electricity, typically run out of free electricity on the seventh day of the month. These households resort to cheaper and unsafe fuels for the rest of the month, despite having an active connection to the grid. Table 1 that follows summarises the underlying factors and inequalities that drive the lack of access to services that underpin the health, well-being and rights of children, adults and youth, including in terms of whether they grow up in rural or urban communities, or in informal settlements.

¹⁶ Hall, 2019c

¹⁷ Hall and Lake, 2019

¹⁸ Hall, 2019a

¹⁹ Hall and Lake, 2019

²⁰ Hall, 2019b

²¹ Hall, 2019b

Table 1. Underlying factors that drive lack of access to services for various ages of children (poverty and inequality; type of human settlement; rural/urban)

	Under 5 years	6 to 10 years	10 to 17 years	Youth/Young adults
Inequality and poverty	Socio-economic inequalities and widespread poverty drive lack of access to basic services that underpin health and well-being of children, adolescents and youth			
	<ul style="list-style-type: none"> • High levels of poverty and high dependence on inadequate child grants • Maternal and post-natal malnutrition • Lack of access to healthcare • Immunisation rates high, but coverage remains low in impoverished districts • Poor sanitation • Lack of access to early childhood development services and unequal access to high quality services 	<ul style="list-style-type: none"> • High levels of poverty and high dependence on inadequate child grants and school feeding programmes • Chronic malnutrition and hunger • Lack of access to education (damage to infrastructure, high cost of transport, high cost of schooling) • Loss of education opportunities (loadshedding, absence from school &/or poor performance due to hunger and/or illness) 	<ul style="list-style-type: none"> • School dropouts due to teenage pregnancy, illness, financial constraints, lack of perceived progress/benefit of schooling, abuse of learners by teachers, lack of support for disabled students • Racial and socioeconomic inequalities among schools result in unequal educational outcomes 	<ul style="list-style-type: none"> • Low quality and incomplete education limits opportunities for further study or employment
Rural children	<p>~43% of children live in rural households. These children face additional challenges, including:</p> <ul style="list-style-type: none"> • Accessing healthcare – more than 30% of rural children have to travel more than 30 minutes to reach a healthcare provider • Accessing WASH services – Access to clean and safe water has not improved significantly in rural areas in the last 15 years, 6 million children lack access to safe water in their homes. Children in poor, rural households are less likely to have access to adequate sanitation at home • Accessing housing – Lack of access to formal housing in rural areas increases dependence on informal and traditional housing, which are likely to be poorly serviced and not built to withstand climate hazards • Urbanisation – Men and young people tend to migrate towards urban centres seeking job opportunities, leaving women, children and the elderly in poorly serviced rural areas 			
Children in informal settlements	<p>Children living in informal housing face considerable additional challenges as a result of lack of services, including education, WASH, transport and protection. There are strong racial and economic divisions that trap these children into a cycle of inequality that persists into adulthood.</p> <ul style="list-style-type: none"> • Inadequate and unsafe housing – Informal housing tends to be unsafe and vulnerable to climate hazards as well as catastrophic fires • Overcrowding – 57% of children living in informal settlements live in overcrowded conditions, which limits their ability to study, infringes on their right to privacy, exposes them to abuse/violence and place them at risk for communicable diseases • Lack of access to WASH – Only 55% of children in informal settlements have access to safe water, most lack access to sanitation services • Urbanisation – Men and young people tend to migrate towards urban centres seeking job opportunities, placing additional pressure on poorly serviced informal settlements 			

Source: Children Count (2023), the UNICEF Dashboard (2023), Statistics SA (2022)

CHILD PROTECTION

This is yet another issue facing children in this country. South Africa has one of the highest rates of violence against children globally, including physical and sexual abuse. Significant efforts have been made to improve child protection services and legislation, and numerous organisations and initiatives are focused on improving the lives and enhancing the safety of children. However, much more work is needed, including to better protect South Africa's children from the increased rate of climate hazards and disasters.

UNEMPLOYMENT

Unemployment among the youth is high and growing in South Africa and is marginally higher for women. It is an increasingly pressing issue for the country and refers to the situation where young people, typically between the ages of 15 and 34, are unable to find suitable employment opportunities.²²

South Africa has one of the highest rates of youth unemployment in the world. According to recent statistics, the youth unemployment rate was estimated at 61.7% for the second quarter of 2023²³ and is significantly higher than the overall national unemployment rate. Youth unemployment is mainly attributable to structural issues in the economy. Factors such as limited access to quality education, skills mismatch and lack of work experience, and unequal distribution of opportunities all contribute to the high unemployment rates among young people.

High levels of youth unemployment also bring detrimental impacts for the economy. Consultations with one of South Africa's leading business associations revealed the deep concerns businesses have over the situation, highlighting that the country's workforce is compromised, which further hampers economic growth as a significant portion of the population is not able to contribute to the country's productivity. Additional concerns include increased social inequality and a high risk of social unrest.

Certain groups within the youth population are more vulnerable to unemployment. Those living in rural areas, groups and individuals with low levels of education, and individuals from disadvantaged backgrounds often face additional barriers to accessing employment opportunities.

²² Trading Economics, 2023

²³ Trading Economics, 2023

5. CEE CHALLENGES AND IMPACTS ON CHILDREN

A safe, clean and healthy environment which includes ecosystems that are able to carry out their functions and yield adequate services such as water and soil nutrients, is essential for the survival, well-being and development of children. It is therefore a critical condition for the realisation of child rights. Conversely, environmental degradation is an erosion of children's rights, and South Africa's Constitution enshrines the right to a healthy environment for people living in South Africa.

Pollution of natural resources such as air, water and soil particularly affect children, as their fundamental rights to good health, growth and being able to achieve their fullest potential may become violated by CEE influences that are beyond their control. Climate change, alongside the decisions people make on energy and the environment, is caused by human activities that compromise sanitary conditions, and access to environmental goods and services such as clean water and uncontaminated and nutritious food. Children in South Africa should not have to suffer the harmful disturbances caused by such human activities.

Adequate nutrition is critical for child health, requiring access to sufficient proteins, energy, and micro-nutrients. Poor nutrition, particularly at early stages of child development, can have far-reaching consequences including reduced education and learning, and lower employment opportunities later in life.

Climate change has implications for water, agriculture and food security. Overall, rising temperatures, falling soil moisture, and more extreme weather events (disasters) particularly droughts and floods, are likely to undermine food production and nutrition. The knock-on effects for health, combined with the cumulative health impacts from indoor and ambient air pollution, contaminated water sources, and poor sanitation, stand to severely compromise child rights across the country, but particularly the most vulnerable among South Africa's children and youth population. Children in poor households are likely to be most affected as they are more likely to farming on marginal land, or unable to afford the rising price of food.

CLIMATE AND ENVIRONMENTAL RISK AND CHILD VULNERABILITY

Climate change is increasingly considered to be a major cause of growing inequality among children. These children include particularly vulnerable groups such as children with disabilities, girls, children living in poverty, and child headed households.

The major impacts of CEE issues on children and their health, protection, and education, are caused by:

- **Heat stress and hotter temperatures** – extreme temperatures affect the mental and physiological health of children negatively, affecting children with defects and heart problems the most.
- **Natural resource pollution** – warmer temperatures increase air, water and soil pollution, which in turn affects the health of children. Warmer temperatures can accelerate the chemical reactions that form ground-level ozone – or the state that is formed from the reaction of pollutants such as nitrous oxides and volatile organic compounds in the presence of sunlight. Warmer temperatures can also lead to increased emissions of these ozone causing pollutants for example from vehicles, vegetation and industries. Children can also contract illnesses such as diarrhea due to post climate disaster conditions such as lack of water.
- **Drought** – the increased intensity and frequency of drought events can cause food insecurity as a result of inadequate water availability, with increased risks of malnutrition, child stunting and low birth weight. Children may also be held back from school because of reduced household incomes, while prolonged hunger will hamper their concentration and compromise their education.
- **Increased fire hazard** – is a function of heat stress interactions with dry or degraded land. This is especially a threat for the provinces of the Northern Cape, North-West, and the Western Cape, but also threatens Gauteng, Limpopo and Mpumalanga. Children are often more vulnerable than adults because of their limited understanding of fire safety, and their natural curiosity.

Case example: Cholera outbreak South Africa, May 2023

South Africa has been experiencing a cholera outbreak across various provinces since the beginning of 2023. Gauteng, Free State and Limpopo recorded cases since early February 2023. The number of deaths related to the outbreak rose to 20 just in Hammanskraal, north of Pretoria. Although the causes are still under investigation, cholera is usually caused by contaminated water and food. Climate change can also indirectly contribute to the spread of the disease in a number of ways:

Increased temperatures – warmer temperatures can increase water temperatures which promote the growth and survival of cholera bacteria in aquatic environments.

Sea level rise – rising sea levels can lead to the intrusion of saltwater into freshwater sources, contaminating them and making them unsuitable for drinking. This can force affected communities to use alternative water sources that may be more likely to contain cholera bacteria.

Extreme weather events – intensified by climate change, extreme events such as heavy rainfall and flooding can disrupt sanitation systems and contaminate water resources, increasing the risk of cholera outbreaks.

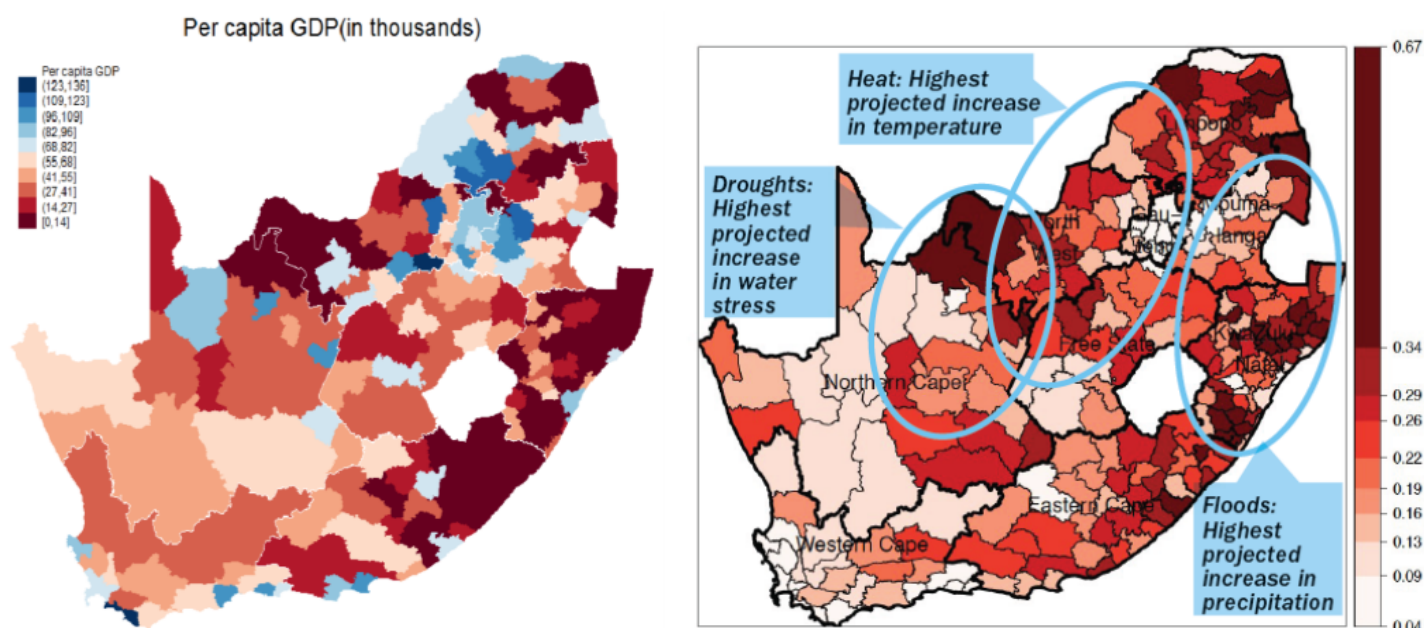
Extreme events – such as floods can displace populations, forcing them to live in overcrowded and unsanitary conditions, which can facilitate the spread of cholera.

- **Flooding** – climate change brings about changes in precipitation. Increases in rainfall, changes in rainfall patterns and variability and sea level rise in coastal areas is increasing the frequency and intensity of flood events that in turn lead to the contamination of wells, pits and surface water. This can flood sewerage and sanitation systems and spread infectious diseases.
- **Increased weather events** – and the long-term consequences of droughts, storm and floods can also increase mental health stress among children.
- **Increased burden of communicable disease** – high temperatures increase the potential to spread vector borne disease such as dengue and malaria.
- **Increased risk of food insecurity** – unpredictable and extreme weather events, as well as natural resource pollution can negatively affect agricultural practices by leading to lower soil fertility crop yields, and nutrient density. This can in turn lead to an increase in the already high rates of food insecurity and malnutrition, especially among the most vulnerable.

There is the possibility that climate change could bring about positive impacts, such as a reduction in the number of cold related illnesses among children, or in diversification of employment and income producing opportunities, for example in the green economy.

Poorer children are more vulnerable than those who live in better-resourced households. Although the impacts of CEE issues are felt across the country, rural children are currently the most vulnerable because of low adaptive capacities and access to basic services. Figure 12 below shows municipal poverty maps for South Africa against the key climate indicators for water stress, temperature rise and floods.

Figure 12. Socio-economic vulnerability measured as per capita GDP and the poverty headcount ratio at municipal level, aligned with climate indicators (water stress, temperature and precipitation)



Sources: David et al, 2018; World Bank, 2022. Notes: The shading reflects the poverty headcount ratio across municipalities (darker is poorer). Municipal-level poverty maps constructed from 2011 census and 2010 and 2020/2011 HIES. The projects for water stress, temperature and precipitation (indicated by the circles) are done for the SSP3-7.0, dry scenario over the period 2040-2059.

CHILD EXPOSURE TO EXTREME CLIMATE EVENTS

Floods and storms, and other natural disasters associated with climate change can cause direct physical harm to children and their families. Children or their family members can be injured or killed. Families may lose income if members of lower-income households, particularly those involved in small-scale agriculture and fishing, may not be able to resume work immediately following a disaster. Most poor and vulnerable people do not have access to savings or insurance products. In some instances where incomes are lost or there is damage to homes, some children may have to stay away from school, while some may even enter the labour force earlier than anticipated, either temporarily or permanently. Children may also suffer from malnutrition because of reduced or lost household income following an extreme event.

Moreover, natural disasters can damage health care facilities and schools in affected areas. This can disrupt education and reduce the availability of medical care. Climate change will further influence people's ability to access healthcare services (Petrie, Chapman and Weaver, 2021). Increased temperatures and flooding and extreme rainfall events damage or destroy road infrastructure, as well as healthcare facilities themselves. When roads and bridges are washed away, healthcare facilities may become inaccessible for extended periods. Ambulance services will be impacted. At the same time, people living in rural areas or in informal settlements are more likely to need healthcare services, given poverty, poorly insulated homes built out of flimsy materials and poorer health profiles.

The increase in wildfires because of climate impacts and land degradation, and in household fires from wood flames, candles or paraffin lamps because of low access to affordable electricity is of particular concern for children. Children may accidentally encounter fire, or hot surfaces just after a fire has occurred, leading to burns and other injuries. They are often unaware of the dangers associated with flames or hot objects and surfaces. Furthermore, fires produce smoke which can be hazardous for children to breathe in. Children, especially infants and toddlers have less developed respiratory systems and smaller airways, making them more susceptible to the harmful effects of smoke inhalation. Home evacuations in the event of a fire can be difficult, particularly for children who may not be able to escape easily because of their very young age, or if they have mobility issues. Children in these situations may require assistance from adults or emergency personnel which could increase the risk if there are obstacles or delays during evacuation.

Children are likely to face psychological and social impacts following a natural disaster. Their caregivers, such as grandparents, caregivers and other family members may be overwhelmed themselves following an extreme event. Children may also suffer emotional stress, or event post-traumatic stress disorder due to the disaster, or the loss of a home and possessions, or as a result of the pain and suffering and injuries they see around them. Children will struggle to cope with the potential loss of life or injuries of a close family member.

Children process trauma very differently to adults, while evidence shows that girls and boys can react very differently to these events. This is especially true in contexts where boys are taught from an early age that fear or crying is considered to be 'unmanly'. Children may suffer sleeplessness, anxiety, and loss of concentration, following an extreme event, and may fear that the event may happen again.

Disasters are likely to increase the vulnerability of individuals, families and communities to violence. Although further research is still needed, early studies suggest that the incidence of sexual violence, child abuse and child trafficking increases following natural disasters and that much of the violence or abuse may take place in post disaster shelters, or in the home environment.

It is crucial to prioritise safety measures for children in homes, schools and other social infrastructure and public spaces where children spend time, to safeguard children in the event of a fire, flood, or extreme heat stress. Measures such as teaching children about safety, supervising small children closely, and establishing well-rehearsed emergency response and fire escape plans can help reduce the impact of hazards and the likelihood of harmful incidences, and increase the protection of children.

CHILD PROTECTION AND CEE

Child protection is a key area of focus for UNICEF since it cuts across all impact areas. The impacts of climate change are felt by communities, families, and households. The incidence of child abandonment is likely to increase if families are separated and/or migration occurs, for example because of harsh flooding events. Children will also suffer emotional trauma if they experience environmental disasters such as a flood or drought, especially where these result in loss of human life, livestock, livelihoods and/or housing.

Rural-urban migration, in response to decreasing agricultural productivity or displacement because of climate-related disasters, also exposes children to harm. Children in informal settlements, especially where communities have been disrupted are more vulnerable to exploitation for labour, as well as human trafficking and abuse. Child abuse, which already very high in South Africa, is likely to increase in the event of heat stress which can cause mental health disturbances, or in the aftermath of an extreme event such as a flood, where families can be displaced and forced to live in crowded spaces such as community halls.

CHILD HEALTH AND CEE

Adequate nutrition is critical for child health and development. Children require access to sufficient amounts of the right foods at the right time including all the nutrients needed to survive, thrive and reach their full potential. The availability of such foods is however expected to be reduced by climate impacts. Poor nutrition, particularly at the early stages of child development, can have far reaching consequences for children including challenges to their physical and cognitive development, leading to reduced education and learning and lower employment opportunities.

The physiology of children makes them more vulnerable than adults to certain health impacts. From conception to adolescence, their bodies go through a number of complex biological changes and development. It is during this developmental and growth time that the bodies of children are most affected by environmental health hazards. The window of rapid development of children, particularly between birth and the age of five, makes these younger children especially vulnerable to adverse impacts (WHO 2017).

Relative to adults, children are more heavily exposed per unit of body weight to environmental toxins than adults. Pollution from pesticides can affect children's skin, eyes, nervous system, cardiovascular system, gastrointestinal tract, liver, kidneys, reproductive system, endocrine system, blood, and immune system. It has also been linked with cancer including childhood leukemia and can impact brain development, behaviour and cause developmental delays. Children also eat more food, drink more water and breathe more air than adults in relation to their body weight. For example, children absorb up to 50% of lead present in food, whereas adults only absorb up to 10%. Children's hearts beat faster than adults' and their breathing rates are higher, resulting in them absorbing more air pollution given their body size than an adult would in the same situation. Children's immature immune systems and undeveloped respiratory systems also make them more susceptible than adults to air pollution. Most of South Africa's children are exposed to harmful levels of air pollution (fine particulate matter with an aerodynamic diameter of less than 2.5 microns of $10 \times \mu\text{g}/\text{m}^3$ or above). Children without adequate access to electricity (predominantly in rural areas, and in poorer peri-urban areas) or in poor households which can afford very limited access to electricity, are particularly at risk.

Children's bodies are not always able to break down harmful contaminants that enter their body, either through the respiratory or alimentary canals. The health problems they suffer as a consequence of CEE exposure can take years to develop compared to adults who are exposed later in their life cycle. For these and various other reasons, CEE issues impact on children more severely than they do on adults, and often through several pathways concurrently (e.g. poverty and air pollution and poor nutrition and drought/flooding). The CEE actors affecting children are closely interlinked, compounded and exacerbated by the very nature of children's vulnerability and lack of agency.

A study on the impact of climate change on the health sector in South Africa found a number of links between climate change and health (Petrie, Chapman and Weaver, 2021). In particular, higher temperatures aggravate rates of inter-personal violence, especially when coupled with high alcohol consumption and poor diet, which characterise low-income households (Petrie, Chapman and Weaver, 2021). This study also found that the impacts of climate change on child health vary across the country. Limpopo, North West and Northern Cape are particularly at risk, especially Limpopo. In addition, climate change impacts on and worsens some of the causes of malnutrition (food insecurity, poor agricultural yields), and WASH (reduced availability of clean water, flooding, increased water-borne diseases).

A 'heatmap' of the main risk factors for death in children under five, and those aged five to 14, by province (GBD, 2019) shows that most of the risk factors are consistent, at the same level, across all or most provinces, with a few exceptions. The most common risk factors are malnutrition, WASH, and air quality, as outlined below. Variations include for example that in all provinces except Gauteng, malnutrition and WASH are the highest ranking risks for children under 5, with the exception of Gauteng, where air quality outranks WASH as a key child risk.

Malnutrition

Malnutrition, particularly undernutrition including stunting and wasting, is the number 1 risk for children under five across all provinces and this stands to be exacerbated by climate change impacts. Climate change affects food security by reducing soil fertility, rainfall, agricultural yields and thus food production. In addition, climate change influences aspects of the food supply value chain, for example, cold chains, and it increases the impacts of pests. These latter effects influence the quality of diets and the availability of nutrients (Owino et al., 2022). In addition, decreased access to clean water for food production and individual consumption is expected to affect access to food (FAO et al., 2023) and thus the nutritional status of children.

The percentage of children facing hunger varies across provinces and against key indicators (pertaining to poverty, access to grants and factors rendering children vulnerable to malnutrition and disease). It is estimated that 2.5%, or 152,000 children are wasted and about 1 in 3 children under five years is stunted. Children who are both wasted and stunted are 12.3 times more likely to die than their well-nourished counterparts. Both stunting and wasting are caused by inadequate feeding practices and food insecurity. In 2021, it was estimated that 1 in 5 households was food insecure, with higher rates in the province of Eastern Cape which is also particularly struck by poverty. Those most vulnerable to food insecurity included black South Africans (compared to those of European, Asian or mixed descent), females, people of low socio-economic status and without high school certificates, as well as people living in rural areas (Mtintsilana, 2023).

Children who do not have adequate nutritious food are unable to fully develop and are at a high risk of acute malnutrition. Poverty and recorded hunger are risk factors for malnutrition, and this is the biggest health risk to children under five – across all South African provinces. As children get older, malnutrition continues to be a risk, but is ranked lower, as the third highest risk facing children between the ages of five and 14 years of age. Urban-rural differences in stunting and wasting arise in part from disparities in access to health care, water, sanitation and a hygienic environment.

Stunting in early childhood, low rates of breastfeeding and limited access to nourishing foods are also risk factors for overweight and obesity, which can lead to noncommunicable diseases such as diabetes, hypertension and cancer. Thus, although undernutrition is the main concern, the effects of climate change can increase the prevalence of all forms of malnutrition.

CEE and WASH

Climate change poses significant challenges to the Water, Sanitation, and Hygiene (WASH) sector, affecting water availability, sanitation, and hygiene, and exacerbating health and social disparities. Climate change is threatening national water security, with major implications for WASH services. WASH is ranked as the second highest risk for children under five, and for children between the ages of five and 14. The WASH sector is vital for child health, as it plays a crucial role in preventing waterborne diseases to which children are highly susceptible and maintaining hygienic living conditions. Children are the most at risk when WASH services fail or are impacted by flooding. Flooding destroys or damages WASH infrastructure leading to flooding of pit toilets and contamination of drinking water sources. Frequently this leads to outbreaks of cholera and other diarrheal diseases. Contaminated drinking water has been blamed for the May 2023 lethal outbreak of cholera in Hammanskraal, for example.

By implementing adaptive strategies and promoting resilience, communities can better cope with the impacts of climate change on WASH, ensuring access to clean water and improved sanitation in the face of an uncertain climate future. Climate change affects the availability, accessibility, and quality of water resources and sanitation facilities. Climate-related changes exacerbate existing challenges and introduce new ones, making it crucial to address climate impacts on WASH to ensure sustainable and resilient water and sanitation systems.

Climate change impacts **water availability and quality** through altered precipitation patterns, which bring about more intense and prolonged droughts in some regions, or increased rainfall and flooding in others. These changes can affect the availability of freshwater sources, with droughts reducing surface and groundwater levels and floods contaminating water sources with pollutants and pathogens. As a result, access to safe drinking water becomes challenging for communities, increasing the risk of waterborne diseases.

Sanitation and Health is also affected by climate change. In areas prone to flooding, sanitation infrastructure, such as latrines and septic systems, can be damaged or compromised, leading to inadequate waste management and increased health risks. Floodwaters can contaminate water sources and lead to the spread of waterborne diseases like cholera and dysentery. Additionally, extreme heat events tend to exacerbate sanitation issues by increasing water demand for personal hygiene while putting a strain on water resources.

Similarly, **WASH Infrastructure** is vulnerable to climate-related hazards such as hurricanes, storms, and sea-level rise. Coastal communities face the risk of inundation and saltwater intrusion into freshwater sources and sanitation facilities. Severe weather events often damage water supply and treatment systems, disrupting services and causing water shortages. This was evident in the recent KwaZulu Natal (KZN) floods.

The KZN floods, like most extreme weather events resulted in negative **economic and social impacts**. Impacts on WASH can have severe economic and social consequences. Reduced access to clean water can lead to increased healthcare costs and lost productivity due to waterborne diseases. Women and girls, who are often responsible for water collection, may face longer and more dangerous journeys to find water during droughts. Additionally, climate-induced displacement and migration can strain existing WASH services in host communities, in schools, and in clinics.

Strengthening the **climate resilience of WASH infrastructure and services** is essential. This includes enhancing water storage and management systems to cope with changing rainfall patterns, improving water-use efficiency, developing climate-resilient sanitation infrastructure, involving local people in the monitoring of water quality at the point-of-use, and promoting safe, water treatment and purification technologies. Moreover, integrating climate considerations into WASH planning and policies is essential for long-term sustainability. Specifically, the impacts of climate change need to be thoroughly considered in WASH plans to ensure that: i) the climate risks for WASH infrastructure and services are understood through climate risks assessments; ii) technical response options are identified and evaluated; iii) implementable solutions are integral to WASH strategies and plans; and iv) monitoring, evaluation and reporting systems are in place to inform future WASH plans (UNICEF 2017).

Air quality

Children's immature immune systems and undeveloped respiratory systems make them more susceptible than adults to the impacts of air pollution. Many children in urban areas already suffer from asthma. Poor children in households that depend on air polluting energy sources which have considerable negative implications for indoor air quality (household air pollution/HAP) and therefore for children's health are affected the most. Approximately 9 million people (~18% of the national population) were exposed to HAP through the use of solid fuels for cooking.²⁴ Children in households that rely on wood and coal for cooking (most of whom live in urban areas or urban informal settlements) are at greater risk of respiratory issues and related diseases, including asthma and lung cancer, as well as increased risk of chronic disease in later life.²⁵ There is also evidence that higher temperatures magnify the effect of poor air quality, increasing the number of hospital admissions when temperatures are higher.²⁶

The effects of air pollution on children living in informal settlements are particularly high, with evidence of increased incidence of asthma, when nitrous dioxide (NO₂) was below national and international guidelines.²⁷

In addition to the risk of respiratory infections and asthma, increased exposure to poor quality air, longer pollen seasons and mould can increase the incidence of, rhinosinusitis, allergic diseases and cancers among South Africa's children. Household air pollution also contributes to deaths from diabetes, lung cancer and ischemic heart disease.

In the Vaal Triangle Airshed Priority Area, a study provides further evidence for pollutant-related declines in lung function among schoolchildren. The region is home to multiple sources of pollution, including large petrochemical plants and coal-fired power stations. In addition, biomass fuels are used for cooking, and controlled burning of agricultural fields contributes additional pollutants. Source: Phaswana et al., 2022

The impacts of HAP on health, mortality and birth outcomes in South Africa are significant. The burden of disease – measured as deaths, years of life lost, years lived with disability and disability-adjusted life years (DALYs) – related to HAP exposure is significant. In 2012 4,879 and 3,982 deaths were attributed to HAP exposure in women and men, respectively, accounting for ~1.7% of all deaths in South Africa. In children under nine years of age, as well as youth between 10 and 19 years of age, lower respiratory infections accounted for all recorded deaths related to HAP exposure in 2012.²⁸ Children under five years old are especially vulnerable to lower respiratory infections due to indoor air pollution.²⁹ In addition, there is growing evidence that exposure to PM_{2.5} is associated with adverse pregnancy outcomes such as reduction in birth weight and gestational age.

²⁴ Roomaney et al., 2022

²⁵ UNICEF, 2021

²⁶ Lokotola, Wichmann and Wright, 2019

²⁷ Dalvie, et.al., 2019

²⁸ Dalvie, et.al., 2019

²⁹ Barnes et al., 2009

This suggests that, to protect population reproductive health, public health policy should also focus on indoor PM. Furthermore, paraffin cookers, kerosene lamps and candles have also been associated with greater risk of fire. This is a problem particularly in dense urban and informal settlements where a fire in one shack can quickly spread. The risk of fires in such settlements is increased in areas such as the Western Cape which is facing increased wind speed and frequency because of climate change. Children's education can also be affected. Some may have to miss school if required to spend time collecting wood for cooking and heating.

CEE AND EDUCATION

CEE issues are intrinsically linked to children's education access and performance in South Africa. This was highlighted by children engaged through schools for this project. Without quality education – including on CEE issues, children are not enabled or equipped to prepare themselves for climate and environmental hazards, to serve as climate change champions and agents of change, or to become part of a functional workforce for economic growth. Climate change is likely to worsen children's access to education and its quality, particularly in rural households as infrastructure damage increases and reduced livelihoods and incomes force parents into increasing levels of child labour or retention from school.

An income shock from worsening agricultural conditions due to climate change typically results in two main coping strategies: firstly, households will reduce current expenditure on food and/or education, thus reducing school enrolment and children's ability to perform at school. Alternatively, households may seek additional income streams, with older children removed from school for agricultural and non-agricultural labour (Grace, 2020). Families which migrate to urban areas seeking new opportunities may be forced to settle in informal settlements, where access to basic services are poor. In these environments, the risk of child labour and abuse can be higher than in rural areas.

An additional impact derived from the dependence of rural households on wood energy sources is sending older children, primarily girls, to forage for sticks (biomass) to burn. This exposes them to the risk of violence and decreases their school attendance, thus lowering their educational attainment and reducing time for recreational activities.³⁰

CONCLUSION

In short, South Africa's children are vulnerable to climate and environmental risk in different ways. South Africa's children are poor and poverty has a disproportionately rural face. Children are particularly exposed to hazards of flood, heat, fire, and water shortages in Gauteng, Limpopo and parts of the Northern Cape, all of which have relatively high levels of exposure to climate risks. Exposure to harm in the croplands of the Western Cape, Northern Cape and North West Provinces, where heat stress, fire hazards and loss of cropland may occur are of further concern to household food security, and to child malnutrition in these areas. The combined effects of these climate threats will have a significant impact the people living in settlements within these areas, particularly those with limited adaptive capacity due to their socio-economic circumstances.³¹ A regionally differentiated and poverty sensitive approach is thus required to protect South Africa's children.

A dynamic approach is also required. Families forced to migrate during disasters need additional assistance for example with safely moving children, the disabled and the aged away from a flood area. Children who face disrupted schooling because of a natural disaster require assistance in catching up on lost lessons, while child targeted disaster risk responses are required to protect children from the health and safety risks associated with a flood or a drought. As livelihoods decline in some areas, new opportunities, especially for the youth need to be created. Ideally, this will assist South Africa in its transition towards a greener growth path, as well as protect the environment, expand nature-based tourism, and transition to climate resilient sectors, livelihoods and behaviours.

Finally, there is a need for targeted interventions, for example, to expand access to renewable energy solutions, both on and off grid. Addressing other forms of pollution, notably from polluted air, water and soil, will also help South Africa's children to thrive.

³⁰ WHO, 2022

³¹ Petrie, et al., 2023

6. POLICY AND INSTITUTIONAL ECOSYSTEM FOR CLIMATE, ENERGY AND ENVIRONMENT

South Africa has ratified and become party to a number of international and regional conventions and protocols related to climate and the environment, as well as children, including the Convention on the Rights of the Child (CRC); United Nations Framework Convention on Climate Change (UNFCCC); Paris Agreement under the UNFCCC; 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs); the Sendai Framework for Disaster Risk Reduction; the Convention on Biological Diversity (CBD) signed by 150 government leaders at the 1992 Rio Earth Summit; the Basel Convention on Hazardous Wastes; the Convention for the Elimination of Discrimination Against Women and children (CEDAW); UN Convention on the Rights of the Child.

The country also has a comprehensive range of national climate change, environmental and energy laws and policies. While many of these address youth and/or children, the needs and rights of children should be much more explicit, in order to protect them. Government officials interviewed for this project observed that children were generally subsumed under the category of vulnerable people or households.

The relevant international agreements only began to integrate a human rights-based approach, including a focus on the rights of children, around mid to late 2000s. The inclusion of human rights in climate-related policies is becoming the norm. The Paris Agreement was the first universal and legally binding climate change agreement to explicitly include human rights, calling on States, when taking action to address climate change, to “respect, promote and consider their respective obligations on human rights”.³² This approach is also reflected in the transformative ambition of the 2030 Agenda, which seeks “to realise the human rights of all” including children in its SDGs.³³

More recently, the Just Transition Framework has been gathering pace and is grounded in a human-rights based approach. The just transition seeks to limit any labour market disruptions and job losses associated with transitions to climate resilience and low carbon development and helps to advance progress toward the SDGs. South Africa’s innovation in charting an inclusive and just transition pathway for low carbon and climate resilient transitions reinforces this approach. It promotes skills development particularly for youth, job creation in climate resilient and low carbon developments, and in balancing private sector climate related investments with policy reforms.³⁴

South Africa’s Constitution provides a firm basis for the protection of children’s rights, as captured below. However, the international frameworks, and national policy such as the National Climate Change Response White Paper, and the NDC, do not specifically refer to children’s rights (see analysis in Table 2).

Constitution of the Republic of South Africa

The Republic of South Africa’s Constitution provides comprehensive rights and protections for children. These rights are enshrined in the Bill of Rights, which forms Chapter 2 of the Constitution. The specific provisions pertaining to children’s rights and protections are outlined in section 28 of the Bill of Rights. Further, Section 24 of the Constitution broadly enshrines the right of all people to “an environment which is not harmful to their health or well-being”. Overall, South Africa’s Constitution provides a strong framework for safeguarding the rights and well-being of its children, promoting their access to education, healthcare, and protection from abuse or exploitation.

South Africa has adopted a broad range of policies and strategies that address climate change, disaster management, environmental and energy issues, as well as policies affecting children such as welfare, health, education, poverty reduction, and social protection. Government spokespeople often argue that most Bills are inclusive of children. However, in the absence of an explicit statement about children within government Acts, Declarations and Frameworks implementation strategies do not focus on children and hence they are most often left behind.

32 The Preamble to the Paris Agreement to the UNFCCC (2016) expands upon the first direct reference to human rights made in the context of the UNFCCC when UNFCCC (2011) referred to the Human Rights Council (n.d.), which recognises the adverse effects of climate change on the effective enjoyment of human rights and calls upon States to ensure respect for human rights in their climate actions.

33 The 2030 Agenda (United Nations, 2015) is firmly anchored in human rights principles and standards, including the Universal Declaration of Human Rights and the international human rights treaties.

34 National Planning Commission (NPC), 2012 & Presidential Climate Commission, 2022




















DO EXISTING CEE POLICIES AND STRATEGIES ADDRESS CHILDREN'S NEEDS?














































Few policies in South Africa are explicit in referencing children, although many of these policies are extremely supportive of child development. Environmental, energy, water, waste and biodiversity policies and frameworks do not explicitly acknowledge children. Disaster management plans, apart from the Disaster Management Framework, do not target child responsive disaster risk preparedness or responses. Gender, child, education, and social assistance policies generally make little mention of CEE. The institutional environment for climate change was strengthened in 2020 with the establishment of the Presidential Climate Commission (PCC) to advise and facilitate the country's Just Energy Transition. The Just Transition puts people at the centre of the country's climate response.

Table 2 summarises the extent to which South Africa's environmental policies, strategies and programmes include issues related to CEE and children and the linkages between CEE and children. Of the 28 policies assessed, only seven include significant linkages to children. This includes the general National Development Plan which is more often acknowledged rather than implemented, and the Just Transition Framework which is yet to be given legal teeth. An additional seven reflect some linkages between CEE and children. However, that still means that half of the CEE policies ignore explicit linkages between CEE and children.

Table 2 CEE and the inclusion of Children in key South African Policies

 Significant inclusion or linkage
  Some inclusion or linkage
  No/very little inclusion or linkage

National Policies & Plans	CEE	Children		Linkages between CEE & Children
General				
National Development Plan (2030)				CC & environmental sustainability are key focus. Children discussed extensively but not as linked to environmental sustainability.
Just Transition Framework				Prioritises CEE & children in development, education, safe, healthy living environment
Climate Change				
Climate Change Bill (2022)				Children considered in principles of the Act
National Climate Change Response White Paper				Recognises that children are among the most vulnerable to climate change
National Climate Change Adaptation Strategy (2020)				Children are considered vulnerable, & are in the guiding principles
Low Emission Development Strategy 2050 (2020)				No mention of children
Nationally Determined Contribution (2021)				Recognises that children are among the most vulnerable to climate change
Energy				
Integrated Energy Plan (2016)				Mentions children in implementation plans
Integrated Resource Plan (2019)				No mention of children
Renewable Energy Independent Power Producer Programme				No mention of children
Environment				
National Environmental Management Act (1998)				No mention of children
Forestry 2030 Roadmap: Forest Strategy (2009)				Considers cash savings in rural households, e.g. for children's education
Environmental Implementation & Management Plan (2020-2024)				No mention of children

Biodiversity				
National Biodiversity Framework 2019-2024 (2021)				No mention of children
2nd National Biodiversity Strategy and Action Plan (2015)				Children are included in the flagship project known as "Kids in Parks Programme"
Water & Sanitation				
National Water Act (1998)				No mention of children
National Water Resources Strategy				No mention of children
National Water & Sanitation Master Plan (2018)				focuses on needs of girl children providing safe sanitation facilities/sanitary supplies
National Sanitation Policy (2016)				Children are considered in criteria for appropriate sanitation technology ensuring their right to access basic sanitation
National Waste Management Strategy (2020)				No mention of children
Disaster Risk Management				
Disaster Management Act (2002)				No mention of children
Disaster Management Framework				Key Priority Area 2 considers children plans & procedures in case of disaster risk
Disaster Management Amendment Act 16 (2015)				Children included as a vulnerable group
Sectoral Disaster Risk Management Plan (2012)				No mention of children
Drought Management Plan (2005)				No mention of children
Agriculture & Land Use				
Policy on Agriculture in Sustainable Development				Child labour is a matter for concern as it may impact school attendance
The Strategic Plan for South African Agriculture (2001)				No mention of children
Land Redistribution for Agricultural Development (2000)				No mention of children. Policy to expand women/youth opportunities in rural areas

Source: Authors' analysis

National Development Plan 2030

South Africa's key development policy is its **National Development Plan (NDP) 2030**, published in 2012. The NDP has two central goals: (i) the elimination of poverty; and (ii) the reduction of inequality in South Africa by 2030. These goals inform all the programmatic actions which the document highlights in its 15 chapters, and the simple fact of their inclusion as the main objectives of the NDP 2030, indicates that the government believes they are the two greatest issues which South Africa faces. Moreover, the document makes it clear that these two issues pervade every other social ill the population faces – or at the very least, they impede progress made towards other objectives. Chapter 5 of the NDP 2030 focuses explicitly on climate change and the just transition to a low-carbon economy. Some key investment areas earmarked for development in this chapter include the water, biodiversity, fisheries, forestry, and agriculture sectors. Further adaptation strategies prioritised are Early Warning Systems (EWS) and disaster relief preparedness.

The Just Transition Framework (2021)

The Just Transition Framework (JTF) is a planning tool for achieving a just transition in South Africa, setting 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. A just transition is essentially a way of transforming an economy to one which is low-carbon, climate resilient and sustainable, but which also centres on the needs and livelihoods of communities across the country. This transition must consider the job losses in carbon-intensive industries (such as coal mining, coal-fired power stations in South Africa), and the need for reskilling to enable transitions into green sectors. The framework is built upon the principles of distributive, restorative and procedural justice and uses these tools to integrate the aspect of development into the country's climate response.³⁵

The ultimate aim of the just transition is that the institutional responses required to address global impacts brought about by climate change – both in the need to reduce carbon emissions and transform to cleaner energy sources, as well as to build resilience to the devastating impacts of climate change – do not negatively impact on the most vulnerable people, communities and groups, which of course includes children.

Building on the Just Transition Framework, the **Just Energy Transition Investment Plan (2023–2027)** was announced in 2022³⁶ as part of the United Nations Just Energy Transition Partnership to assist South Africa achieve its target emissions reduction of 420–350 megatons of carbon dioxide equivalent by 2030 (Republic of South Africa, 2021). The intention is to safeguard economic growth, address existing energy gaps (including energy poverty) while protecting the welfare of South Africans and the environment. This, however, will require dedicated and coherent industrial policy. It also requires greater consistency between branches of the South African government and organised labour regarding the speed at which the country moves away from coal-based power generation.³⁷

The national generation, transmission and distribution of electricity is dominated by Eskom, which has been mired in inefficiency and corruption for years. Rolling blackouts continue to undermine economic activity, hospital services, water, and sanitation services, and imposed hardship, especially on poor people who, in addition to many having lost their jobs because of the economic impacts, are unable to purchase inverters to help smooth out electricity supply.

POLICIES RELATED TO CLIMATE CHANGE AND DISASTER RISK REDUCTION

South Africa's concern for the rapidly changing climate is evident from the publication of the country's Nationally Determined Contributions (NDC) in line with the Paris Agreement, the NDP, the National Climate Change Response Policy (NCCRP)³⁸ as well as the three National Communications to the UNFCCC. South Africa's Third National Communication (TNC) to the UNFCCC published in 2018 has a comprehensive overview of the country's climate trends, projected changes and vulnerabilities to climate change, as discussed in more detail in the following.

National Climate Change Bill

Still to be ratified, this forthcoming Bill will form the legislative foundation for the country's climate change adaptation and mitigation response. With respect to mitigation, the Bill provides for future review and determination of the national greenhouse gas emissions trajectory; determination of sectoral emissions targets for emitting sectors and subsectors; and allocation of carbon budgets. It also makes provision for the development of plans to phase down or phase out the use of synthetic greenhouse gases in line with the Kigali Amendments to the Montreal Protocol.

³⁵ Presidential Climate Commission, 2022

³⁶ Presidential Climate Commission, 2022

³⁷ Presidential Climate Commission, 2022

³⁸ DFFE, 2011

Nationally Determined Contribution

The Paris Agreement requests each country to outline and communicate their post-2020 climate actions, in the form of a document known as the NDC. South Africa submitted its first updated NDC in 2021 following the submission of the country's first NDC in 2016. South Africa's NDC outlines the country's contribution to the global emission reduction and adaptation goals and the related priorities, which include policy, planning, enhancing governance and implementation of programmes. The NDC outlines the national commitments for reducing greenhouse gas emissions in line with the global effort to limit global warming to well below 2 degrees Celsius above pre-industrial levels. The updated NDC aims to address development challenges such as poverty, inequality and climate change impacts. The NDC proposes long term adaptation actions in key sectors that are vulnerable to climate change such as health, agriculture and forestry, human settlements, biodiversity, and water. The NDC recognises that children are among the most vulnerable to climate change.

National Climate Change Response Policy

The NCCRP is well aligned with and promotes the NDC and serves as the overarching framework for addressing climate change. As such, it sets out South Africa's adaptation and mitigation response objectives, as well as the objectives for promoting the green economy through sustainable development, renewable energy and green technologies. Furthermore, the NCCRP aims to facilitate a just transition to a climate resilient and low carbon economy while promoting socio-economic development.

National Climate Change Adaptation Strategy (NCCAS)

This strategy focuses on building resilience and adaptive capacity to cope with the impacts of climate change. It outlines measures to address vulnerabilities in various sectors, including agriculture, water resources, biodiversity, and human settlements.

Low Emission Development Strategy 2050 (SA-LEDS)

This is South Africa's first strategy for low emission development and reiterates the country's commitment to achieving the Paris Agreement objectives while also supporting national SDG achievements. The strategy centres on measures currently being implemented by government to address mitigation across the four key sectors of the economy, namely energy, industry, Agriculture, Forestry and Other Land Use (AFOLU) and waste. It also presents planned cross-sectoral measures that will contribute to driving mitigation action. Many of the measures put forward only address the short term and are not considered transformational. Rather, they are put forward as the starting point for ratcheting up ambition.

South Africa is further committed to reducing the risk of disasters and ensuring preparedness and effective response to disasters.

The ***Disaster Management Amendment Act 16 of 2015*** for example aims to amend the Disaster Management Act of 2002 in order to clarify a policy focus on rehabilitation and functioning of disaster management centres. This is done to align functions of the National Disaster Management Advisory Forum to accommodate the South African National Platform for Disaster Risk Reduction and allow organs of state such as the South African National Defence Force and South African Police Service to assist with disaster management structures. It further aims to improve reporting on the implementation of policy and legislation relating to disaster risk reduction and management of funds to intergovernmental forums, and to allow for the representation of traditional leaders in disaster management advisory forums. It expands the contents of disaster management plans to include disaster risk assessments and mapping of risks areas and communities that are vulnerable to disasters, and to provide regulations on disaster management education, training and research.³⁹ These aspects are critical for the safety of children.

³⁹ Republic of South Africa, 2015

POLICIES RELATED TO THE NATURAL ENVIRONMENT

South Africa’s policy space relating to the natural environment reflects a commitment to conservation, sustainability, and responsible resource management. The country has enacted several laws and policies to protect its rich biodiversity, unique ecosystems, and natural resources. *The National Environmental Management Act (NEMA) of 1998* serves as the cornerstone of environmental governance, guiding decision-making and promoting integrated environmental management.

National Environmental Management Act (NEMA)

The aim of NEMA is to provide for co-operative environmental governance on matters that concern the environment and institutions that enforce environmental laws. The regulations in terms of NEMA list specific activities that require authorisation.⁴⁰ The **Environmental Implementation and Management Plan (EIMP)** 2020–2024 implements NEMA by managing specific priority sectors of government. These specific functions from different core sectors are: biodiversity and conservation, climate change, air quality, sustainable development, chemicals and waste management, environmental programmes, ocean and coastal management, forestry, protection of land and water, and fisheries – aiming at ensuring their sustainable utilisation and access to marine living resources.⁴¹

Forestry 2030 Roadmap of 2009

The Roadmap is informed by the White Paper on Sustainable Forest Management (1997), National Forests Act, 1998 (Act No 36 of 1998), National Veld and Forest Fire Act, 1998 (Act No 101 of 1998), Forest Sector BBBEE Charter, the Accelerated and Shared Growth Initiative for South Africa (AsgiSA) and National Industrial Policy Framework, and Governments’ Programme of Action. The road map aims to bring about a thriving forest sector which significantly contributes to the country’s economic growth, employment, eradication of poverty and transformation by participation at all levels through the development and implementation of policies in the country.⁴² The roadmap’s strategic objectives include ensuring sustainability of the timber value chain through improved timber availability and supply, increase the contribution of forest good and services to improve the quality of life for the country’s people, conserve forest biological diversity, ecosystems and habitats while also ensuring economic, social and environmental benefits. Additional objectives include skills development and awareness raising of the forestry sector, implementing ways to ensure sustainable development, maintaining the South African forest sector as a knowledge-based enterprise and strengthening international and regional partnerships in order to enhance sustainable forest management. Forest resources play an important role in allowing the poor in rural areas to save scarce cash resources to be used for household needs. This includes the education of children, investment in agricultural tools, and capital for income generation activities. In terms of children and social sustainability, the Roadmap considers how sustainable forests may contribute to the saving of scarce cash for use in rural households and for children’s education.

Biodiversity Policy Framework

South Africa’s policy and legislative framework for biodiversity is well developed, providing a strong basis for the conservation and sustainable use of biodiversity. South Africa is one of the few countries in the world to have a Biodiversity Act and a National Biodiversity Institute (SANBI). The framework includes a range of national policy and legislative instruments, while some of South Africa’s nine provinces have their own provincial biodiversity legislation, as nature conservation is a concurrent function of national and provincial government in terms of the Constitution. Building capacity, raising awareness, increasing access to biodiversity data, and ensuring excellent biodiversity science are among the key objectives of this policy framework. More recent instruments in the framework make specific reference to children, as shown in the Table 2 above.

40 DEA, 1998

41 DFFE, 2021a

42 DFFE, 2009

POLICIES RELATED TO ENERGY

South Africa's energy development goals aim to address the nation's energy demands while ensuring environmental sustainability. The country has been pursuing a diversified energy mix that includes a combination of conventional and renewable energy sources. Key objectives include reducing reliance on coal, which has been the dominant energy source, and increasing the share of renewable energy in the overall energy supply. The government has implemented various initiatives to attract investments in renewable energy projects, such as wind and solar farms, to harness the country's abundant natural resources.

South Africa's energy planning is guided by the ***Integrated Energy Plan (IEP) of 2016***, which assesses the current energy supply and demand trends within the different sectors of the economy, across all energy carriers. The IEP then uses the assessed information, along with predicted demand and technology evolution, to project the country's future energy requirements under a variety of different scenarios (such as those with emissions limits and different carbon prices). Along with this, the ***Integrated Resource Plan (IRP) of 2019*** is an electricity infrastructure development plan based on least-cost electricity supply and demand balance, taking into account security of supply and the environment (to minimise negative emissions and water usage).⁴³ The IRP that was introduced in 2011 incorporated government objectives such as affordable electricity, reduced GHG emissions, reduced water consumption, diversified electricity generation sources, localisation and regional development in its plan.

However, this document needs to be updated urgently, to incorporate detailed plans for clean energy sources (wind and solar) to align with the government's focus on transformation of the energy sector through the Just Energy Transition (under the mandate of the Presidential Climate Commission).

The Renewable Energy Independent Power Producer Programme (REIPPP) is a competitive tender process developed by the Department of Energy in order to facilitate private sector investment in renewable energy generation in South Africa. The programme is a response to the Integrated Resource Plan of 2010, in that it seeks to bolster energy access across the country whilst simultaneously stimulating the market for renewable energy. This contributes directly to mitigation objectives as well as expanding access to clean, safe energy for households (and thus for children).

POLICIES RELATED TO HEALTH

South Africa's health policy demonstrates a commitment to improving the well-being and healthcare access for its young population. The country acknowledges that children have unique health needs and vulnerabilities, and as such, it has implemented a comprehensive approach to address these concerns. Health policies do not however incorporate CEE issues and the implications of CEE on human and child health are not considered.

The National Adolescent and Youth Health Policy (2017) aims to promote the health and well-being of young people, aged 10-24 years. Over the past two decades in South Africa, the country has focused on equitable distribution of health resources and the expansion of service delivery. This has transformed the public health service. In adolescent and youth health, evidence from research has improved our understanding of needs and responses, and programmatic innovation has expanded healthcare provision and awareness. Despite this progress, adolescents and youth still face risks. Persistent high rates of HIV transmission (particularly among young black women), tuberculosis, unintended and unsupported pregnancy, sexually transmitted infections and substance abuse are major challenges for adolescents and youth, and for the health sector that services their needs (Department of Health, 2017).

The Department of Health's Strategic Plan 2020/21-2024/25 is a strategy for the implementation of four key policies and strategies over a five-year period, including: the National Health Insurance Bill; the health system goals outlined by Chapter 10 of the NDP 2030; SDG 3 – Ensure healthy lives and promote well-being for all at all ages; and finally execute the strategies set out in the Medium Term Strategic Framework 2019–2024 and NDP Implementation Plan 2019–2024. All of these objectives inform the core vision of the Strategic Plan which is a “long and healthy life for all South Africans”, achievable through the Department's mission of preventing illness and disease, promoting healthy lifestyles, and consistently improving health care delivery for all (Department of Health, 2020).

⁴³ Department of Energy, 2019

POLICIES RELATED TO SOCIAL AND CHILD PROTECTION

South Africa's policies regarding child social protection reflect a commitment to ensuring the welfare and well-being of its young population. The government has recognised the importance of safeguarding children's rights and providing them with a nurturing environment to thrive. These policies encompass a range of initiatives, including social grants, support services, and interventions targeted at vulnerable children and families. By prioritising child social protection, South Africa aims to address poverty, inequality, and various socioeconomic challenges that affect children's development and access to basic services. These policies do not however CEE issues and their implications for protecting South Africa's children.

The National Integrated Early Childhood Development Policy (2015) is a critically important policy through which the Government has prioritised early childhood development within its NDP 2030. Overwhelming scientific evidence attests to the importance of the early years of human development and to the need for investing resources in supporting and promoting optimal child development from conception. A lack of opportunities and interventions, or poor-quality interventions, during early childhood can significantly disadvantage young children and diminish their potential for success. This policy is aimed at transforming early childhood development service delivery in South Africa, especially to address critical gaps and to ensure the provision of a comprehensive, universally available and equitable early childhood development service.⁴⁴

The National Strategic Plan to End Gender-Based Violence and Femicide (GBVF-NSP) for 2020-2030 was produced in 2020 to respond to the South Africa's national GBVF crisis. This followed the historic 2018 Presidential Summit on the subject. The GBVF-NSP aims to produce policy to efficiently respond to the crisis of gender-based violence, with the goal of making South Africa free from violence against women, children and LGBTQIA+ persons.⁴⁵ A key strength of this policy is the holistic and multi-stakeholder approach taken in producing it. The central pillars that will help in achieving the policy's goal of ending GBVF include (i) accountability, coordination and leadership, (ii) prevention and rebuilding social cohesion, (iii) justice, safety and protection, (iv) response, care, support and healing, (v) economic power, and (vi) research and information management. The NSP also explicitly highlights the linkages between violence against children (VAC) and gender-based violence.

DO SECTOR POLICIES AND STRATEGIES RELATED TO CHILDREN INCORPORATE CEE ISSUES?

South Africa has made advancements in recognising CEE impacts in policy across wide-ranging sectors such as health and nutrition. Environmental hazards have been identified as key risk factors to issues such as food security and the well-being of citizens, which has resulted in strategies being created in these sectors to adequately respond. Policies related specifically to children, gender and education, however, do not discuss the impacts CEE has on these vulnerable groups (women and children) – which is a key area of concern.

The country's major guiding policies such as the NDP and the Medium-Term Strategic Framework both include climate change as an area of priority – children are viewed as overall beneficiaries in these plans but the direct link between climate impacts and children is not made clearly. With reference specifically to CEE, the NDP presents Chapter 5. Transition to a low carbon economy. This chapter was produced after extensive stakeholder consultation by the NDP commission in order to inform the relevant challenges and trade-offs before a consensus could be reached. Ultimately, the conclusion was that the "primary approach to adapting to climate change is to strengthen the nation's resilience". What this means is that the socio-economic objectives of reducing poverty and inequality, improving healthcare, raising levels of education and having a strong economy are all prerequisites of the country being able to achieve a successful transition to a country that is adaptively resilient to climate change.

Further to this, the JTF sets out the policy measures and undertakings by different social partners to minimise the social and economic impacts of the climate transition, and to improve the livelihoods of those most vulnerable to climate change. For children in particular, the framework addresses problems such as hunger, malnutrition and micronutrient deficiencies that affect physical growth and cognitive development.⁴⁶

⁴⁴ Department of Social Development, 2015

⁴⁵ Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual and all other extensions

⁴⁶ Presidential Climate Commission, 2022

The National Youth Policy (NYP) 2020–2030 is a cross-sectoral policy developed by the Department of Women, Youth and Persons with Disabilities (DWYPD) aimed at effecting positive youth development efforts at local, provincial and national levels in South Africa. It is developed collaboratively by multiple stakeholders in consultation with young people, for all young people in South Africa, with the intent to redress the wrongs and injustices of the past and to deal decisively with persistent, new and emerging challenges of the country's diverse youth. This policy document builds on South Africa's first and second NYPs, which covered the periods 2009–2014 and 2015–2020, respectively. It improves on and updates the previous policies by acknowledging the unique challenges of the 21st century (including growing populations and climate change) which South Africa's youth face and continuing to address the challenges identified in the previous NYPs.⁴⁷

What children had to say

Climate change education in schools plays a pivotal role in equipping the next generation with the knowledge, awareness, and skills necessary to address the pressing environmental challenges facing South African children. By integrating climate change education into the curriculum, students gain a comprehensive understanding of the causes, impacts, and potential solutions related to climate change.

Engagement with schools has been a key focus over the course of this project.⁴⁸ Engagements have revealed that flooding, particularly in rural areas, continues to seriously impact a range of critical services. This includes children's access to drinking water, school infrastructure as well as their ability to attend school. In urban areas (informal settlements) there is often no water, i.e. it is off for long periods. In rural areas, people are drinking dirty water, e.g. from rivers. The small children get sick [under-fives]. Waste management was also highlighted as a specific issue with children highlighting that rubbish in the streets is blocking drains and leading to/increasing flooding – making it difficult for children to get to school.

Children further noted that heavy rains also destroy crops, limiting the food supply. Children are often forced to go to school hungry, and already failing feeding programmes cannot do enough to ensure daily adequate nutrition intake – a critical factor in early childhood development as this report has already demonstrated.

Moreover, energy poverty is exacerbated by load shedding. This compound these impacts making it incredibly difficult for children to achieve suitable educational outcomes. Without access to electricity, students observed that cannot use computers or even simple electric lights. This forces them to rely on candles and paraffin lamps – both serious fire hazards. Load shedding also compromises the security of children as the streets are often dark in the early hours of the morning and evening, increasing the dangers related to car accidents and violent crimes.

Despite these challenges, children offered several solutions to making their school environments, healthier, safer, and more environmentally friendly. These included:

- Community efforts related to waste collection and disposal
- Fixing potholes after flood events to make travel to school safer and faster
- Installation of solar power to mitigate the effects of load shedding (children can use lights instead of candles, study longer, access the internet)
- Installation of rainwater harvesting technology such as JoJo tanks.

The awareness of CEE issues among the children engaged for this project confirms the findings of this report that children are important champions or agents of change. The insights and observations offered from their experiences of current CEE issues in South Africa are a powerful if obvious reminder of priority impacts and solutions. These lie in strengthening the adaptive capacities of children and their communities. Some solutions, for example to energy poverty that is exacerbated by load shedding, will also result in important climate mitigation co-benefits for South Africa and its communities, such as reduced carbon emissions and improved air quality.

⁴⁷ National Youth Policy, 2020

⁴⁸ Refer to the Report on Stakeholder Engagement

CHILD AND YOUTH PARTICIPATION IN CEE

Although there is enduring (and not unfounded) concern that children and youth are not properly consulted or included as relevant stakeholders within the broader discourse on climate change, the direct participation of children, youth and adolescents in CEE or related issues is increasing. Children are engaging in grassroots projects for protecting the environment and for building climate resilience.

Organisations such as the South African Youth Climate Change Coalition (SAYCCC), as well as the Youth Programmes at the South African Institute of International Affairs (SAIIA) are representative of a broader shift by the youth of South Africa towards greater climate responsive action. For example, the living document developed through the cooperative efforts of a range of different youth and advocacy groups: the **South African Youth Climate Action Plan**, demonstrates a committed focus by the youth of this country towards combatting the negative effects of climate change through the inclusion of young people in the broader policy development space.

Stakeholder engagement conducted for this project also revealed a nascent but significant impetus emerging among the youth for engagement on issues of climate impacts which effect all sectors of South African society.

A useful outcome of increased youth participation is to position their role in CEE action in partnership with Government. An example of such an outcome as a blueprint for action follows:

What Youth should do	What Government should do
Raise awareness within communities and schools of the need for CEE action at the individual and household level and promote climate smart and sustainable agricultural practices	Mainstream climate resilience into the built environment, including retrofitting/building climate resilient schools, clinics and roads, and incentivising climate resilient housing in poor and vulnerable communities
Contribute to indoor air pollution management through promoting clean cookstoves, and catalyse alternative energy solutions and improved environmental practices in their homes and communities	Subsidise and scale up household level renewable energy solutions and incentivise improved biodiversity management
Hold government and its agencies accountable to fulfil their mandates and stated development objectives	Incentivise the use of high yielding climate resilient crops and promote sustainable farming and water resource management practices and incentivise these in poor and highly vulnerable communities
Engage in environmental education and identify careers and income generating opportunities in the green economy	Integrate best practice CEE strategies into urban planning and development and anticipate the pressure of rapid urbanisation
Seek to identify and develop skills needed to participate in future job and enterprise development opportunities in the green and climate resilient economy	Incentivise the TVET and education system to anticipate market demand for green skills and support endeavours to understand evolving demand.

Source: Authors analysis from the stakeholder engagements for this project

MAIN INSTITUTIONAL AND FINANCING ARRANGEMENTS FOR CEE AND CHILDREN

Institutional arrangements

The primary institutions with responsibility for climate change and environment, energy, and children and youth policy and programming, are DFFE, the PCC, Department of Human Settlements, National Treasury, and DWYP. While there are additional relevant authorities, such as the Department of Health, and the two ministries responsible for education, joined up efforts between these key authorities could substantially advance the CEE-children nexus. Provinces and municipalities also play an important role in South Africa's development agenda and are critical for rolling out climate response programmes.

The forthcoming Climate Change Bill creates the legislative framework for such joined up approaches, both vertically and horizontally, as outlined in the *Table 3* that follows. South Africa's Climate Change Bill. Currently, DFFE is limited in driving and coordinating actions, but the Bill is expected to provide the department with coordinating responsibilities at the national level.

Table 3. Climate Change Bill provisions and climate governance stakeholders

Institution	Role provided for in the Bill
Department of Forestry, Fisheries and the Environment	<p>The Bill provides powers to the Minister of Environment to coordinate the climate change response. The bill empowers the Minister among others</p> <ul style="list-style-type: none"> • To ensure that sectors and all spheres conduct climate needs and response assessments, identify responses, and develop the means and mechanisms to implement and manage these responses as part of their planning processes. • To make regulations to give effect to SA's international commitments. • To promote effective monitoring, evaluation, and assessment national climate change progress. • To administer and operate any committee established in terms of the Act. <p>The Bill compels the Minister to publish and report on key climate change plans and progress toward emission reductions, climate resilience building, and the impacts of climate change on society over time. Clause 19 allows the Minister to determine measures and mechanisms to manage and implement the required adaptation response, while Clause 22 states that sectoral emission targets must be implemented by the Ministers responsible through the relevant planning instruments, policies, and programmes. The Climate Change Bill strengthens the mandate of the DFFE at provincial and local government spheres.</p>
Premiers' and Districts' Intergovernmental Forums	<p>Every Premier's intergovernmental forum, established in terms of section 16 of the Intergovernmental Relations Framework Act, will serve as a provincial forum on climate change, while every district intergovernmental forum established in terms of section 24 of the Intergovernmental Relations Framework Act, will also serve as a municipal forum on climate change.</p>

Provinces, metros, and district municipalities	Article 15. (1) provides that within one year of publication of the National Adaptation Strategy (NAS) an executive of provinces and metropolitan and district municipalities must undertake a climate change needs and response assessment for the area under their jurisdiction, and to the extent to which climate change impacts their constitutionally mandated functions should formulate steps to effectively address these effects. The resultant plans should furthermore include both adaptation and mitigation programmes and measures in line with constitutional mandates and these implementation plans should be made a specific component of the relevant municipality's integrated development plan (IDP).
National sectors	Similar provisions are contained in the Bill for national sectors that are required to develop and implement adaptation and mitigation needs assessments and response plans, as driven by the Minister concerned. The Bill requires that all climate-relevant national sector ministries must review, and if necessary, revise, amend, coordinate, and harmonise their policies, programmes, and measures to ensure that the risks of climate change impacts and associated vulnerabilities are taken into consideration. Specifically, these sectors are required to align with relevant national policies for adaptation and mitigation, as articulated in the Bill.
DPME	DPME will required to comply with Clause 7 of the Climate Change Bill (that all organs of state that exercise powers or perform a function affected by climate change, must review and revise their policies to address climate change-related risks).DPME will also be concerned with the Bill's stated requirements for integrating CC into relevant national planning instruments: Clause 16 enables the Minister of Environment to set a date by which the national adaptation objectives should be incorporated into all relevant national planning instruments, policies and programmes which address, or are affected by, the actual and potential impacts of climate change
National Treasury	The NT will be required to comply with Clause 7 of the Climate Change Bill (that all organs of state that exercise powers or perform a function affected by climate change, must review and revise their policies to address climate change-related risks).
PCC	<p>Consideration must be given to the establishment, institutional arrangements, and mandate of the PCC, as appointed by the President, who also chairs the Commission, in 2020. In its current form, the PCC is an independent multi-stakeholder body overseeing and facilitating a just and equitable transition and is supported by a permanent secretariat housed in the Presidency.</p> <p>The PCC will be established as a statutory advisory body should the Climate Change Bill be passed. The Bill states its functions as advising on South Africa's climate change response (adaptation and mitigation), while also providing independent monitoring and review of the country's progress in meeting its emission reduction targets and adaptation and just transition goals. The Bill assigns PCC secretariat functions to DFFE.</p>

Source: Author's analysis

Department of Forestry, Fisheries and the Environment is mandated to coordinate the national climate change response as articulated in the forthcoming Climate Change Bill. DFFE is responsible for the development and dissemination of environmental and climate change policies, strategies and programmes and the legal instruments that give them effect. Other agencies also play an important implementation role, including the South African Weather Services (SAWS), who could improve access to climate information for children, for example through schools and clinics.

Presidential Climate Commission (PCC): The institutional environment for climate change was strengthened in 2020 with the establishment of the PCC as a multi-stakeholder body created by the President to advise the country's climate change response and facilitate the country's Just Transition. The PCC thus leads on government's intention to put people at the centre of the country's climate response. The central department identified for the transition is the DFFE as per its national mandate, with support from National Treasury (NT) and the Department of the Presidency.

In meetings held with PCC staff for this CEELAC, alignment of CCE mainstreaming in schools to national curricula development efforts was highlighted. Identifying and supporting children and youth champions for CEE was also identified as critical, noting that the PCC already integrated inclusion of youth in its CEE dialogue programme. Young people must, in the PCC's view, have access to policy spaces. Furthermore, efforts are needed to build the resilience of children as the impacts of climate change have a massive impact on the emotional and psychological health of children and the youth. The PCC also echoed the voices of numerous stakeholders on the criticality of developing soft skills on CEE among young people, and to formally equip them for a future.

The roles of other key entities are also key. **National Treasury (NT)** has taken the lead in greening the public finance agenda and developing fiscal policy to support the country's climate response. NT's role in implementing and enhancing reporting indicators in the Municipal Finance Management Act (MFMA) Circular-88 is central to ensuring that disaggregated data on children is available, as this currently does not exist. NT is generally an important entity for ensuring that children are mainstreamed into public fiscal policy which already has a strong focus on mainstreaming climate change. NT has been developing gender and climate budget tagging systems for the country, and in 2021 and 2022, piloted a climate budget tagging system in four ministries, three provinces, and four municipalities. In parallel, NT developed a Green Taxonomy system for the country. Lastly, with its intergovernmental grant system in mind, NT is currently supporting the development of a climate response strategy for human settlements in South Africa. Mainstreaming climate resilience in the informal settlements upgrading programme - e.g. with climate resilient WASH services - is considered important to the forthcoming strategy for instance.

Circular-88 is an instrumental tool in NT's toolbox for guiding metropolitan municipalities (metros) on the preparation of statutory planning and reporting documents required for the Medium-Term Revenue Expenditure Framework (MTREF). MTREF is the means for operationalizing national and municipal development plans. Circular 88 aims to rationalize municipal reporting frameworks by prescribing municipal performance indicators for local government, particularly the metros. NT collaborates with the Department of Cooperative Governance (COGTA), DPME, and STATS-SA on implementing and strengthening Circular-88.

In terms of planning and managing for the CEE risks to children, a further institutional body that should be aligned is the **Department of Human Settlements (DHS)**, which is currently developing a Climate Change Response Strategy and Implementation Plan for South Africa's human settlements. DHS as the custodian of this instrument is interested in aligning with initiatives to strengthen children's and communities' resilience, through understanding and strengthening the resilience of climate-impacted, vulnerable human settlements, across the country.

The mandate of the **Department of Women, Youth and Persons with Disabilities** is central to achieving the CEE-child nexus in South Africa. DWYPD leads on socio-economic transformation and implementation of the empowerment and participation of women, youth and persons with disabilities through mainstreaming, advocacy, monitoring and evaluation. The Department provides strategic leadership, advocacy and coordination to government departments and the country on mainstreaming socio-economic empowerment of women, youth and persons with disabilities. DWYPD played an instrumental role in DFFE's work for mainstreaming gender into South Africa's NDC and is well placed to expand this focus to specifically target children.

Finally, the **Department of Social Development** holds a mandate that is central to mainstreaming CEE more explicitly into South Africa's child protection programmes and initiatives. Child labour, interpersonal violence, family separation, protection from flood and drought, loss of identity, teenage pregnancy and domestic violence are key aspects of national social and child protection agenda. They are also all impacted or exacerbated by climate change, and by CEE issues in general.

Financing arrangements

DFFE hosts the Green Fund, which contributes towards the transition to a greener economy including the financing of projects and programmes that reduce the impact on climate change.

The main objectives of the fund are to promote high-impact, innovative, low-carbon, inclusive programmes, while reinforcing climate policy objectives and sustainable development imperatives that fall in line with social, economic, and environmental priorities. The fund also focuses on building an evidence base for the advancement of a climate-resilient, inclusive economy, together with the mobilising and leveraging of additional resources to support the country's low-carbon economy.

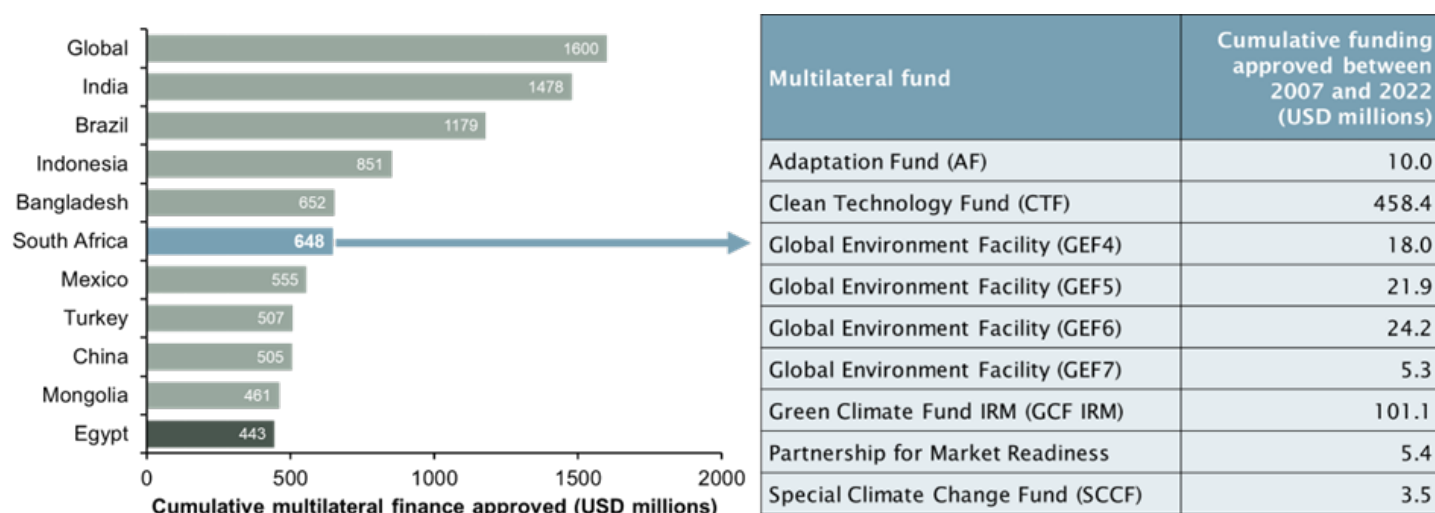
South Africa is one of the largest recipients of global climate financing, as shown in *Figure 13*. Most of the financing provided is for mitigation finance directed at developing the renewable energy sector – particularly wind and solar, and supporting the country in its shift away from coal as the main source of energy, through a just transition. The majority of the large financing sources are administered via concessional loans, with grants accounting for a larger number of projects, but smaller project sizes.

South Africa's largest bilateral funders are Germany and France via their respective development agencies (Kreditanstalt für Wiederaufbau (KfW) and Agence Française de Développement (AFD), respectively). Multilateral entities that also play a major role in the country's climate financing are the African Development Bank (AfDB) and the European Investment Bank (EIB), as well as the Climate Investment Fund (CIF), the Green Climate Fund (GCF) and the Global Environment Fund (GEF).

To date, the Green Climate Fund has eight approved projects in South Africa and there are a range of projects currently under development. The National Designated Authority (NDA) in the country is the Department of Forestry, Fisheries and the Environment and there are two direct access accredited entities – the Development Bank of Southern Africa (DBSA) and the South African National Biodiversity Institute (SANBI).

Investment directed at child-focused sectors such as Education, Health and WASH has been quite scarce, making up only 5% of total financing during the period 2010–2020. There is an urgent need to draw the link between climate events and areas focused on child welfare.

Figure 13. Top ten recipients of climate financing globally (multilateral financing), including cumulative funding approved for South Africa between 2007 and 2022 (USD millions)



Source: (Climate Funds Update, 2022)

Substantial opportunities are in place for accessing climate financing and South Africa has not yet tapped into all sources it has access to, especially in relation to climate change adaptation and resilience building. Apart from global funding sources, the country also has a large, sophisticated financial sector that has the ability to support climate related projects but lacks the incentive and knowledge to actively participate.

Innovative sources of finance that can be leveraged and blended with climate finance include biodiversity finance, green, social impact and resilience bonds. There are however challenges for the green bond market, with growing concerns that issuers could ‘greenwash’ projects that produce few real climate benefits. Third party evaluations are required to ensure that investments go into green projects and some countries are putting specific standards in place for green bonds in recognition of the need for taxonomies. National Treasury has launched a Green Taxonomy for South Africa, an important enabling instrument for accessing innovative green finance.

Lastly, South Africa has a robust private sector, creating another potentially important source of finance. Private capital includes funding from private institutions, investors and companies in climate responsive projects and assets. Critically, it includes finance mobilised through Environmental, Social, Governance (ESG) initiatives currently being undertaken by larger private firms, particularly those with an international presence. The main commercial banks in South Africa, such as Rand Merchant Bank are also driving ESG and climate resilient investments as a key risk mitigation strategy. Although it has grown rapidly in recent years, private sector finance remains a small share of total assets under management globally. The uncertainties concerning policy and technology are generally the limiting factors, and de-risking by public financial resources is likely needed to fully mobilise private capital. South Africa’s robust policy framework and its strong private sector and financial services are all assets in this regard.

DO CHILDREN BENEFIT FROM INVESTMENTS AND PROGRAMMES ON CEE?

Various CEE national programmes and projects are being implemented: to increase climate resilience, improve ecosystem health and reduce land degradation, and provide affordable clean and sustainable energy. These CEE initiatives will benefit all South Africans– and thus will also benefit the most vulnerable, including children and their families.

However, children and other vulnerable groups in South Africa have largely been left behind in terms of climate-related finance allocations. A larger focus needs to be placed on the vulnerability of children to climate-related events.

In addition to the investments outlined in the Figure 13, South Africa's development partners, including development banks, UN and bilateral agencies, government agencies, and NGOs, are supporting the national efforts in achieving structural transformation, and particularly in overcoming constraining development challenges in the context of scarce resources. Indicative examples of the different ways in which this support is being offered include:⁴⁹

The African Development Bank (AfDB) focuses on households and social infrastructure and services (that affect children), such as nutrition, WASH, education, and South Africa's transition to renewable energy and energy efficiency. Gender mainstreaming and gathering gender disaggregated data is part of the M&E system and is being mainstreamed into all initiatives. The AfDB wishes to adopt a more intentional approach to gender inclusion and responsiveness in its climate programmes and is collaborating with the Green Growth Institute, as well as IUCN, on integrating gender in climate change projects, including for forestry and solar energy.

The AfDB is very open to specifically including children and young people as target groups in this and other work. Furthermore, children would be an important focus in the AfDB's water and sanitation supply projects and this is a partnership opportunity for UNICEF. The aim is to improve access to safe water, including improved WASH in schools and clinics. The AfDBs focus on nutrition and climate resilience is a further key entry point for UNICEF.

The Development Bank of Southern Africa (DBSA) is one of South Africa's two direct Accredited Entities to the GCF and so is an important avenue for accessing climate finance from this multilateral fund. The DBSA is also an accredited National Project Agency for the GEF, placing the bank in the global arena of providing financial assistance to environment and climate change projects. This is aligned with DBSA's strategy and focus on energy and environment. With its GCF and GEF accreditation, DBSA is also well placed to access and leverage funding from other sources. Successfully accessing GCF funding, has enabled the DBSA to set up the Embedded Generation Investment Programme (EGIP) which supports the development of solar and wind embedded generation projects in South Africa. The EGIP provides communities with Broad Based Black Economic Empowerment (BBBEE) funding, as well as small, medium, and micro enterprises (SMMEs). This both enhances opportunities for young people in green sector jobs and livelihoods and has the potential to improve energy access which will benefit children in local communities. The GCF enabled Climate Finance Facility (CFF) also presents opportunities for child and youth responsive climate resilience initiatives in the private sector. The Facility de-risks climate change projects and increases their bankability in order to crowd in private sector investment.

The CFF is potentially an important opportunity for child responsive climate finance. Business Unity South Africa (BUSA) and its members, such as Old Mutual indicated through engagements for this project that business in South Africa wishes to increase its participation in climate change interventions. They also articulated the need to include a strong focus on children and young people. Specifically, BUSA highlighted their interest in preparing young people for the changing nature of work going forward, and to capacitate young people for a prosperous future. For BUSA, this approach falls within their broader focus on Loss and Damage, which involves limiting the impact of climate change in damaging critical infrastructure in South Africa. Roads needed to access schools, clinics, and markets must for example be climate resilient to ensure as little disruption to social services and food security systems as possible.

⁴⁹ These initiatives have been synthesised from the stakeholder consultations conducted for this project, as well as from desk research. This is not an exhaustive list.

Critically, the DBSA is progressing the development of a Climate Facility for Children (CF4C) in collaboration with UNICEF. Co-funding for this facility is being sought from the GCF. The GCF Concept Note for the CF4C is currently being finalised. Although South Africa is not one of the ten African countries initially identified as beneficiaries of this facility⁵⁰ it is still well positioned to access climate finance through this facility which targets critical investments in target countries. These include climate resilient nutrition and WASH investments, which urgently need to be adapted towards climate resilience in South Africa. Applications to the facility, once it has been formally launched, will provide funding for projects related to the objectives of the facility, which also directly relate to the UNICEF Children Climate Risk Index (CCRI) pillars.

World Bank's child and CEE related work lies in education, social protection and safety net program support, nutrition (agriculture and food production), health, transport (national road access, urban transport system in secondary cities and urban mobility), energy, environmental protection and wetland conservation, and climate finance. Women and girls are highlighted as being particularly impacted by CEE issues. Policy measures are recognised as being necessary to advance the resilience of children to CEE given that children will be particularly affected by reduced food production and nutrition, and the diseases that arise from drought and floods. Jobs, improved food systems, landscape and catchment restoration, are all being integrated to improve families' livelihoods and the well-being of children.

UNDP is very active in South Africa. UNDP is particularly active in promoting gender equality and empowering women and girls. The UNDP Climate Promise supported the mainstreaming of gender into the ten sectors of South Africa's NDC. This initiative was implemented by DFFE, who expressed interest in consultations for this CEELAC in including children as a specific target in this ongoing initiative.

The German Government has supported more than 200 projects in South Africa mainly in the Agriculture Forestry and Fishing, Energy, General Environmental Protection and Other sector categories. However, most of the financing has been directed at the energy, transport, and water and sanitation. Major focus areas have been providing knowledge and training support in the agriculture sector, developing renewable energy generation capacity, providing policy and administrative support to the government on environmental policy, developing rail transport in the country and evolving the urban wastewater management systems.

The AFD, or French Development Bank, like Germany, has directed most of its financing to projects related to developing the renewable energy sector, supporting urban development and waste management and capacitating governments and communities with environmental policy development and education.

South African Local Government Association (SALGA) is an important partner for child responsive CEE. SALGA works on climate and energy issues with municipalities across the country, and local government is responsible for childcare facilities as per the constitution. However, support for child differentiated responses in their initiatives is required. SALGA tacitly includes a child lens through its social development unit that deals with vulnerable groups and focusses on mainstreaming climate change. Notably however, SALGA observed that it does not currently have an explicit child and climate focus, noting that they do not have tangible examples of how to mainstream children in their municipal work. Enhancing community safety in the face of increasing climate disasters is a further area of SALGA's focus on social development. Building inclusive green municipalities, and working towards greater inclusivity, including with environmental groups and enhanced asset management is currently integral to their work in the Eastern Cape, highlighted in this CEELAC as one South Africa's most vulnerable provinces to climate change.

SALGA is planning to do some awareness raising activities around climate change and the just transition. The expressed interest in partnering with UNICEF to bring a children and youth component into that work. Additional opportunities include the organisation's intention to advocate for taking female, and possibly also children's needs into account in their WASH awareness raising and education work with municipalities. In terms of mainstreaming climate resilience into this work, SALGA envisages partnering with DFFE to spread the awareness at the municipal level. SALGA prefers to work through existing policy instruments such as municipal Integrated Development Plans (IDPs) rather than through specific programmes rolled out across the country. This is because communities are not homogenous, and have different needs.

50 Angola, Comoros, Madagascar, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia and Zimbabwe are the countries that will be included in the pilot phase and have immediate access to CF4C, and the climate financing provided by the facility

Save the Children (STC) has a focus on four key areas, and all are relevant to CEE, particularly those for resilient families, health, and education. Climate resilience and climate change actions and interventions are integrated across all three areas, as well as in the fourth objective – free from violence. Climate mainstreaming, is however, a relatively new focus and significant efforts are being made towards mainstreaming CEE into child rights and child protection. The objective is to impart information to those that STC supports on how climate change affects them and children, and how they can build resilience. Climate change is positioned as a cross cutting issue in STC’s programmes for: healthy eco-systems; green and safer schools; adapting education to carry on during severe climate impacts that stop children from going to school, accountability of government to implement climate commitments; and climate-responsive child protection system (safety nets and resilient families).

South African Institute of International Affairs (SAIIA) has adopted an approach of mainstreaming climate change across existing programmes. This is closely aligned with other developing partner approaches. SAIIA is focused on the green transition opportunities with they believe to be extensive for South Africa’s youth who need green skills and training for green jobs, training youth. SAIIA also works on innovative finance (blockchain etc.) to incentivise and reach unemployed youth. Their primary partners include NGOs that are operating in schools, GreenCape, with its focus on creating awareness for green jobs, especially in rural areas, and Project 90 x 2030, a social and environmental justice organisation that seeks to inspire and mobilise South Africa society towards a sustainably developed and equitable low carbon future.

SAIIA was among the strong voices calling for compelling child disaggregated data for both policy reform and more general science communication. SAIIA further highlighted the need to plan for the country’s high levels of in-migration, including through fostering a sense of diversity and co-existence among young people. Establishing the CEE-children nexus should be a central focus for UNICEF – CEE is not only about children and WASH.

Wildlife and Environment Society of South Africa (WESSA) focuses on CEE education which is highly relevant to children and youth. They see sporting and cultural activities as among the important avenues for such education and their philosophy is that people should be given the tools to help themselves. This fits into the cradle to grave approach.

World Vision is focused on carbon emissions reduction in the energy sector and this, and their other initiatives, are establishing optimal models for impact through testing and demonstrating these. Their disaster management portfolio is underpinned by a preventative approach for building sustainability, rather than emergency responses. They have a strong community focus, with important relationships that could be leveraged.

Other relevant initiatives include the **Children’s Investment Fund Foundation (CIFF)**, which is an independent philanthropic organisation that has climate change as one of its priority areas. All finance is provided in the form of grants towards energy sector reform in the country. **SA National Parks (SANPARKS)** is helpful for reaching children living in rural areas and indigenous communities far removed from urban centres. However, SANPARKS noted that a child focus is lacking in in much of the scientific realm which deals with mapping and forecasting CEE impacts – an important area to improve. **Faith Based Communities**, such as the Green Anglicans, among others, are also important, not least because they have massive reach and influence across the country.

Other government agencies include the **National Disaster Management Centre**, who together with the National Disaster Management Advisory Forum is responsible for disaster legislation, and disaster risk planning in South Africa.

Many of these projects address the needs of underserved communities and the most vulnerable citizens and will directly support children. For example, improving the climate resilience of schools enhancing the country’s disaster risk preparedness and prevention systems and capacity, and increasing access to clean energy will ensure continuity of children’s access to education, reduce their exposure to the risks of natural hazards, and contain their risk of respiratory infections respectively.

However, many of these institutions acknowledged that it will be important to specifically target child responsive CEE in future. Some acknowledged that children's health and education are compromised by poor energy solutions, and many highlighted that policy and data need to be strengthened to include a child disaggregated focus and through child targeted research, noting that children are the economic asset of the future. Child-disaggregated and focused policy and data is essential to increase access to climate finance that benefits children, especially the most vulnerable children. Most development partners and NGOs articulated examples of how they could strengthen their climate resilience work in partnership with UNICEF and others, including through: supporting families that live in crowded spaces to ensure cleaner air for children with the aim of reducing respiratory disease; child protection on climate change, for example food shortages can result in fathers leaving home to seek work resulting in mothers needing parenting support; addressing climate change as a source of domestic violence; considering the differences of climate impacts on boys and girls; mainstreaming CEE in education and establishing child and youth friendly CEE guidelines; positioning children in CEE policy; increasing child focused climate research to strengthen the evidence base for policy and action; and positioning children as CEE actors and change agents of the future, rather than as victims.

UNICEF has clear entry points for CEE in its established programme of support in South Africa, and its core business to protect children. CEE issues are pivotal to efforts for ensuring access to quality health, for example through cleaner air and water, and reducing malnutrition for all children. The modernity of South African households is contingent on the structures and services and practices of these homes (WASH, etc.) and surroundings being resilient to the impacts of climate change, such as natural disasters, and to energy use patterns.

The quality of education will be improved by working with formal and non-formal systems to better position all South African children as catalysts for CEE change improving their CEE literacy, and skilling them for the jobs, livelihoods, and leadership roles of the future. Early childhood development programmes in South Africa are potential building blocks for climate adaptation, resilience and sustainable development. These programmes are cross cutting and have the power to transform the lives of the youngest among the country's population.⁵¹ Ultimately, graduating children from poverty relies on children's resilience to CEE shocks, and their ability to participate in South Africa's climate resilient and healthy environment of the future.

These are examples of initiatives already undertaken by UNICEF, which could be built upon to strengthen the drive towards a children-CEE nexus. Integrating public climate finance for children onto the current public finance efforts will not be difficult. Similarly, programmes on child protection deserve a clear climate resilience focus. UNICEF is involved in developing the 21st core competency framework with DBE, and CEE issues are cross cutting to this work which will impact the national curriculum and assessment system, and teacher training endeavors. The Innovation Section partnered with SAILA, the Presidential Stimulus Group and DTI, to stimulate youth employment in green sectors. WASH and Climate Programme of Health and Nutrition Section's proposed a Working Group on Climate - through which climate mainstreaming in the programmes has been introduced. In June 2023, the Programme coordinated a South-South Cooperation event between China and South Africa, to exchange technical expertise on water and sanitation technologies for ECDs, schools and HCFs. Youth engagement at the event was leveraged on, to establish SACO' children and youth network on climate and environment.

UNICEF also has a range of active and new partners to work with. Partners such as World Bank, AfDB, UNDP, UNESCO, and several bilateral agencies continue to support the government and other stakeholders to implement projects that contribute to the well-being of children. They also contribute through undertaking studies and research that support programming activities specifically designed for children. Several NGOs such as WESSA and World Vision, and community-based organisations such as Nature Connect, Indigo Development and Change, and Project 90 x 2030, are implementing CEE initiatives that support the development of children or are important for CEE and children.

⁵¹ UNICEF, 2022

Nature Connect highlighted that NGO's that are working in schools, specifically with learners and teachers, can be asking questions of learners to start involving them in the conversation. However, support is needed as to how to collate this information and data. This organisation is also involved in the Sustainable Schools Hub (Nature Connect, 2021) which provides a safe platform for collective learning and education for sustainable development. Project 90 x 2030 recently developed a toolkit to bring climate change into primary schools, a useful initiative to leverage. GreenCape's Climate Change Champions Grant targets rural communities to raise awareness around green jobs. Indigo Development and Change run summer and winter schools during school holidays – a platform for integrating CEE topics into their programme. In terms of targeting improved air quality and therefore health outcomes for South Africa's children, the Centre for Environmental Rights is a champion for compliance and change. They partner with Groundwork and others to reach communities and to advocate for change in air quality and environmental management and practices that bring about positive outcomes for local communities.

Activities include advocacy, awareness raising, land restoration and community clean ups. National NGOs form extensive organisation networks, such as Earthlife Africa and Groundwork. These institutions together host or coordinate numerous national and local level NGOs working on environment, climate change and development related initiatives in South Africa and provide a valuable entry-point to accessing individual NGOs across the country. These NGOs are also supported by and provide a gateway to larger international NGOs, such as IUCN, World Wide Fund for Nature (WWF), and the Wildlife Conservation Society.

Those partners that don't specifically target children have indicated the need to do so. They have existing and planned funds that they can leverage. Some partners, such as AfDB, DBSA, SANBI, UNDP, UNEP, IUCN and WWF, and are also accredited entities to the GCF and are thus positioned to directly access these funds, and then to work with UNICEF South Africa, and other partners, to implement and execute child responsive climate change projects. Most partners indicated their interest in partnering with UNICEF and Government to enhance the focus of children in their CEE initiatives.

7. CEE RECOMMENDATIONS TO ADVANCE THE DEVELOPMENT OF CHILDREN

The Government of South Africa is aware of the interlinkages between climate change responses, environmental protection, disaster risk reduction, safe and clean energy resources, and their cumulative contributions to healthy people and communities, sustainable livelihoods, and the economy. In the last decade, the Just Transition has become a strong thread in the climate change discourse. This originated in the NDP which envisages an equitable transition to a low carbon and climate resilient economy and has been cemented through the PCC's JTF, as well as in the JET-IP, among other policy and investment instruments. South Africa's Development partners are well-aligned with this approach. There is also acknowledgement that extra effort must be placed on ensuring that the most vulnerable people – which include the children and the youth – are enabled to benefit from the country's development so that South Africa can truly reflect its vision of achieving a just transition, which includes, but is broader than the just energy transition (JET).

There are many unknowns regarding the impact of climate change on the economy – especially where policy effort is also being made to mitigate its effects and to push the economy towards greater reliance on renewable energy. However, South Africa's efforts to strive for a balanced approach between adaptation or building the resilience of its society and economy to climate change echoes the global discourse for a balanced climate finance deal where the share for adaptation finance is equal to that for mitigation.

If South African policy towards a renewable energy transition remains fragmented and undermined by vested interests (Morris et al., 2021) then South Africa will remain on its CO₂ intensive growth path and the health- and environmental harms for the country's children, caused by climate change and current energy and environmental practices, will intensify. The World Bank predicts that without rapid and inclusive adaptation to climate change, an additional 1 million South Africans will be driven into poverty or economic fragility by 2030.⁵² Under this business-as-usual scenario, UNICEF will have little option other than to keep focusing on improving WASH services in poor areas, responding to climate-related emergencies (children caught up in life-threatening droughts, fires, and floods) and developing programmes to deal with rising childhood diseases.

If South Africa does develop and implement a co-ordinated, innovative, strategy for a JET, other options open for UNICEF in the just transition. Much of the required economic action for a JET is beyond UNICEF's mandate and lies mainly in industrial and agricultural policy as well as transport and small business development. Yet there are clear opportunities for targeted assistance within the context of the broader JT. UNICEF could expand its focus on children in areas rendered especially vulnerable to climate change to include those living in areas where shrinking employment deepens socio-economic vulnerability.

Awareness of the CEE and socio-economic linkages, including adopting alternative and climate adaptive technologies, needs to be strengthened – particularly around the impacts for children. Poorer populations believe they have no or few alternatives. Affordability is certainly a factor. However, behaviour change is also slow, and at the heart of it lies a lack of awareness.

Increasing awareness of the linkages between child rights and CEE issues is cross cutting to the recommendations outlined as follows – it underpins them all.

Climate change and environmental management agencies should place greater emphasis on increasing the awareness of the multiple links between a changing climate, a safe and healthy environment, and children's rights. The basis for this is established in the UN Convention on the Rights of the Child which provides a clear, normative framework for realising children's rights to a healthy environment, as well as in the national JTF.

Increasing awareness at all levels of governance could help to ensure that both the treaty and the JTF become central to climate and environmental policies, laws and actions. Partnerships with NGOs and CSOs that are active on CEE, and/or are working towards enhancing children's rights will be key. They will enable working efficiently and effectively in scaling up, and accelerating, awareness and action on the CEE-children nexus.

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The 10 recommendations outlined in this section strive to put children at the heart of South Africa's development and industrialisation, and CEE agenda and to pivot South Africa's CEE agenda toward a child responsive end-state. They are designed to ensure that children are protected from the risks of climate change, energy choices and environmental degradation, while enabling their potential to become catalysts and the future leaders of positive change. As such, these recommendations are designed to help identify:

- i) strategic entry points for strengthening the integration of children in national CEE policies and programmes, and for mainstreaming CEE into child related social policy;
- ii) knowledge and data gaps and issues for further research;
- iii) strategic partnerships;
- iv) opportunities for leveraging climate finance and other innovative financing tools for improved CEE outcomes for children;
- v) UNICEF's comparative advantage to introduce joint proposals and programmes;
- vi) capacity building interventions for safeguarding children from the impacts of CEE; and
- vii) opportunities for raising awareness on the impacts of CEE-related issues and decisions within South Africa's vulnerable communities.

Multi-sectoral collaboration stands out as the critical enabling condition for this process, and together with the Government of South Africa, and key development and private sector partners, UNICEF is well positioned to play a central role. Collaboration among public sector, private sector, international partners, CSOs and youth, will enable the design and implementation of child-sensitive CEE action, to build children's resilience. Such action needs to arise from the available assets, networks, strengths, and capacities of each stakeholder. The CEELAC has highlighted that this process will benefit from a combination of both soft approaches (e.g., advocacy) and hard approaches (e.g., establishment of data platforms and/or financing mechanisms).

Recommendation 1: Increase the visibility of children in the CEE agenda by deploying deliberate and explicit language on children

UNICEF should work with all its partners toward this objective, including those within the UN system. Many institutions promote gender inclusion, while others also focus on youth. Children and adolescents are often lost in this broad language. Ideally, all institutions that promote social inclusion in their policies and programmes should include specific reference to children, adolescents and youth. The DWYPD and DFFE, as well as the various UN agencies are important partners in this regard.

The national climate response policies and programmes should explicitly target, women, children, adolescents, and youth.

Recommendation 2: Enhance the visibility of children in relation to CEE through improving the collection and sharing of CEE related data and increase research on the special needs of children as they relate to CEE issues

Recognising that good policies and strategies are based on good data, UNICEF, along with key government departments could enhance the visibility of children in national statistics for CEE.

Data could be gathered on children affected by CEE issues, such as how extreme events affect them specifically, or on the relationship between increasing air quality and respiratory illness among children. Such data needs to be disaggregated by, e.g., age group, income level, and regions/districts.

In addressing the current lack of disaggregated data, research and analysis, UNICEF, along with other key partners, can increase the awareness of policy makers and other key stakeholders, and inform child-sensitive policy and action on CEE issues. These efforts would need to link into the national commitment toward achieving and reporting on the SDGs, the JTF implementation, the NDP objective, and the statutory planning and reporting systems required under the rolling MTREF cycle. A systemic lack of data collection, analysis and monitoring of the situation of children and CEE hampers effective planning, policy development, monitoring and budgeting.

These aspects are critical for targeting and delivering child-sensitive actions and outcomes at scale across South Africa's most vulnerable regions. Ideally, a mixed methods approach to collecting data (combining quantitative and qualitative means) is methodologically optimal, given the sensitivity of collecting data on children.

Examples of indicators that should be included are: air pollution-related disease, disaggregated by age group; post disaster on school attendance/dropout, child labour and domestic violence following floods; injuries/deaths following extreme climate events; expenditure on child-related CEE initiatives; outcomes and/or impacts of investments in child-related initiatives. Data should be disaggregated by location and income level to facilitate targeted CEE action and focused future responses.

Recommendation 3: Increase the visibility of children in climate, environment, and energy policies and strategies

Children are acknowledged in many of South Africa's national policies, plans and programmes. However, few policies are currently positioned to deliver transformative change in addressing their needs in responding to CEE interactions. South Africa's policies typically consider children as part of households/families and thus assume that targeting poor areas and vulnerable households, is a form of targeting children. This is, of course, often the case especially for small children. Even so, child-focused interventions can improve the targeting of vulnerable children. UNICEF could thus usefully engage with government to identify areas where CEE policies can be adapted to address the needs of vulnerable children more specifically.

Revisions to national plans and policies should integrate the linkages between CEE and the needs and rights of children. The NDP already includes extensive discussion on children and identifies climate change and environmental sustainability as key target areas, but it does not link children to environmental sustainability.

The Just Transition framework prioritises both CEE and children in terms of their early development, education and right to a safe, healthy living environment, and the Disaster Management Framework mentions children. However, disaster management plans do not pay specific attention to children. This is a critical omission – South Africa is failing to equip its children for increasing natural disasters such as floods.

The NDP, MTREF, NSDF are all under consideration for revision and UNICEF can play a role in helping to ensure that the linkages between CEE and children are appropriately incorporated.

CEE policy reviews will take their cue from these overarching development policies and plans. From a CEE policy perspective, DFFE and the PCC are key partners for UNICEF, although the line ministries are also important. Energy policy is a further key consideration. South Africa's energy strategies are silent on children even though pollution and energy sources for cooking can have especially adverse effects on them. Children must be better integrated into the national disaster management and response framework. Policy reviews should also address the critical need for retrofitting, refurbishing, and building new schools and healthcare facilities to climate resilience standards and specifications able to withstand natural disasters.

Children could be integrated into the PCC's forthcoming monitoring and evaluation (M&E) plan for the JTF and into DFFE's climate change M&E frameworks. DFFE also expressed interest in mainstreaming children into its climate change policies and programmes, for example in its ongoing efforts to mainstream gender into the NDC sectors. The PCC is supporting efforts for addressing South Africa's energy poverty problem and children could be incorporated into targeted interventions.

Child responsive disaster risk management policy and plans should draw upon recent experiences of natural disasters, (e.g. the KZN floods) to understand the extent to which preparedness and response strategies protect children.

Child focused policy interventions should be based on increased research on the CEE impacts borne by children, and the involvement of additional stakeholders from the social and child protection sectors in revising these policies. This is critical for ensuring more strategic budgeting and programming for child responsive CEE. It is also essential for attracting climate finance to child responsive CEE action, as well as for accessing other new and innovative financing mechanisms, such as emerging biodiversity incentives.

Policies focusing on social protection should focus on any amendments necessary to ensure that shock responsive strategies and approaches which specifically address children are incorporated (e.g., in response to drought, flooding, famine, epidemic, landslide). Such revisions should seek to enable social safety nets to be able to respond faster to disasters in a more effective and efficient manner.

To ensure that children's needs are mainstreamed in the CEE framework, and to enhance awareness and understanding of decision makers on these issues, all policies tabled with Cabinet for approval could be requested to undergo an assessment of their adequacy in addressing children's needs. This approach would be consistent with how policies are assessed for gender inclusion. UNICEF and partners could develop guidelines for such assessments, as a tool for decision makers.

Recommendation 4: Mainstream, scale up, and integrate CEE issues within all child-focused policies, programmes and plans.

Attention should be paid to South Africa's social development policy framework for improving living standards, such as grants, education and healthcare reforms, and housing programmes. It is unlikely that South Africa will be able to build climate resilience equally for all in the short to medium term.

While resilience building efforts could improve the resilience of all members of society, their departure points are very different. Many will still require social support and may need grants that factor in the impacts of climate change, while others can implement their own coping measures such as increased insurance in the face of flood risk. There is already precedent for child responsiveness in the national grant system. The means-tested child support grant for example goes to caregivers on behalf of children.

South Africa's climate change policies require that climate change be incorporated in all relevant sectoral policies, including those focused on social protection and health. The forthcoming Climate Change Bill will mandate this, including that sectors develop plans and strategies and regularly report on these, within legally required time frames. This approach will ultimately lead to increased integration and mainstreaming of CEE across child focused policy and programmes. However, institutions will likely need assistance in the form of guidelines and checklists to ensure meaningful integration of CEE issues that is joined up between different policies. UNICEF South Africa could provide technical support in this regard (for example through designing guidelines and a tool for assessing objectively the child-responsiveness of policy).

A further approach is to apply markers to the national budget (budget tagging) for CEE issues and children. CEE budget tagging would allow for the easy identification and tracking of the level of resources that are being allocated to expenditures that address CEE and children.

If implemented appropriately, CEE budget tagging could also enable decision makers to track the extent to which CEE expenditure is addressing the national policy objectives. National Treasury has made considerable progress with developing both gender and climate budget tagging systems across the spheres of governance. This is a critical entry point for UNICEF to mainstream children.

Recommendation 5: Increase collaboration among government agencies and non-government actors.

Increasing the child focus in South Africa's CEE agenda necessitates bringing together the expertise and resources of multiple government departments, sectors, actors, and stakeholders under a common objective. Building such public private partnerships will ensure that the unique needs of South Africa's vulnerable children are well understood and addressed in relevant policies and in the design of programmes and initiatives. Government can create an enabling environment for different actors to engage in areas where they are best placed to interact with their constituents in local, vulnerable communities.

Certain NGOs could for example be designated within a partnership with Government, to coordinate CEE activities in certain highly vulnerable areas to climate change impacts and disasters, such as KZN. Such a partnership could be expanded to include development partners active in the disaster risk reduction space, such as Groundwork.

The private sector is another key partner through their foundations, corporate social responsibility programmes, sustainable development initiatives, and their focus on ensuring a functional workforce. There is a rationale for building partnerships such as these with the private sector who often include a focus on energy, environment, and education.

BUSA highlighted that business should increase its focus on ensuring that the children of today can contribute to and participate in the functional workforce of tomorrow. Shifting South Africa's economic focus toward green industrialisation and green sectors is a priority and children must be equipped to participate effectively.

Recommendation 6: Integrate CEE issues into formal and non-formal education

South African children need to be equipped with the knowledge and life skills required for building climate resilience, including sustainable lifestyles and economic practices. UNICEF could expand its educational and training interventions to include educating and developing the skills of children and adolescents for a green future. This is critical given South Africa's extremely high youth unemployment rates. These should be locally relevant, working with local municipalities and schools in areas vulnerable to climate impacts. In areas transitioning away from coal-dependent jobs, UNICEF could collaborate with the Department of Trade and Industry, as well as the technical vocational education and training (TVET) system, in providing training relevant for the industrial policies to be implemented to create alternative employment for young people.

Conservation NGOs also play a crucial role supporting climate and environmental education in South Africa through community engagement and supporting young scientists working in conservation research, among other activities. UNICEF could collaborate with DFFE and civil society organisations such as the Wildlife and Environmental Society of South Africa in providing training relevant to environmental protection where relevant. The overall objective should be to build children's capacity to join the workforce for a green economy, including in transition sectors such as agriculture, energy, transport and waste. In this regard, collaboration with the private sector, among other partners, is critical. Specific objectives could include:

- Nurturing skills and values around CEE from young age to enable the building of child resilience, adaptive capacities and flexibility. This relies on developing soft skills and learning, which can come from sports and extra mural activities such as school clubs.
- Making the linkages between experiences of natural hazards/events and the underlying CEE issues within educational practices, to ensure that children can better understand their risks and potential actions and prevention measures.

- Enhancing environmental literacy so as to educate children on disaster risk reduction and to catalyse sustainable energy choices.
- Strengthen non formal education through the above approach to ensure that children and youth have access to information on how to prepare for and cope with a natural disaster, and on the sustainable and climate responsive practices that they could promote in their homes and communities.

Recommendation 7: Promote jobs for youth in climate-resilient activities

Efforts are needed in researching and showcasing career opportunities for young people in the green economy, for example in nature-based tourism and climate resilient, value-added agriculture, and in climate technologies such as renewable energy, climate resilient food systems, biodiversity mapping, and early warning systems. Given South Africa's accelerating youth employment problem, and the opportunities for creating jobs that resolve CEE issues for children, emphasis is needed on creating job opportunities for unemployed youth in areas such as water quality monitoring in the community. This is critically needed to supplement the short-staffed /resource-limited district municipalities and can be integral to the continuation of the Citizens Science Programme, originally coined by the University of KwaZulu-Natal. Skills development needs should be identified, and programmes established to address these, including with development partners and business. Support for integrating children into South Africa's green growth and just transition efforts and opportunities for nature-based solutions would help prepare young people in the role envisaged for them in implementing national policy such as for biodiversity, and wildlife and conservation. This would help to strengthen South Africa's climate resilience overall.

UNESCO has initiated an initiative for greening the Technical Vocational Education and Training system and colleges across the world and building their capacities for skilling the workforce for green economy related work opportunities. Opportunities to skill South Africa's youth for a green and just transition should also be explored. A strong focus on reducing youth unemployment is urgently required. This necessitates research and development of opportunities in the future growth pathways of the country.

Recommendation 8: Leverage UNICEF's comparative advantage and existing initiatives in enhancing children's rights and well-being.

UNICEF South Africa's child-focused actions as presented in the Country Programme (CP) can be leveraged and adapted to yield multiple benefits for child health, nutrition, and education and to reduce child poverty. There is a role for every UNICEF section to play in mainstreaming CEE, building child resilience, and protecting children from the varied impacts of climate related natural disasters.

- Children need improved and/or climate resilient access to critical social services. WASH infrastructure needs to be climate resilient, and water and air pollution must be improved to generate positive outcomes for South African children. At the same time, creating jobs for the youth to engage in community and household level water quality monitoring and other areas that address CEE issues, will have positive outcomes for learners in schools, in early childhood development centres as well as in the community at large.

Children can raise awareness of the issues associated with environmental degradation and facilitate uptake of climate resilient technology. Demonstration projects would help to achieve this objective. Climate resilient WASH infrastructure pilots in schools could demonstrate the technological adaptation and its benefits to children.

- Climate impacts on agricultural productivity require an even greater, and more nuanced focus on child nutrition and health.

- Children, as agents of change and with their increasing awareness of environmental issues, could play a role in limiting the environmental degradation that occurs because of biomass collection.
- UNICEF could collaborate with key actors engaging in limiting or eradicating energy poverty to ensure that this is a recognised dimension of child poverty in South Africa. This requires that energy poverty is understood not only at a household level, but from the perspective of children. Solutions need to be child-focused. Key services for children's well-being and reduced burden of respiratory disease rely on access to clean energy and adequate, modern energy services, including health services, education, and effective water and sanitation services. In addition, employment options for youth are reliant on secure energy supply, for example for small start-up businesses.

Lobbying and awareness raising activities could include a focus on a scaled shift away from wood and fossil fuels to clean energy, for example through lobbying for an SSEG subsidy for all poor households in South Africa. Key partners include SALGA, the PCC, and NGOs such as CER and Groundwork.

- School-led initiatives for land restoration, such as in mining degraded areas, could enlighten children on the impacts of degraded land, and the community-based solutions for addressing these.
- With UNICEF's popularised educational assistance children can use learnings to raise awareness and change behaviours in their communities.
- In areas threatened by flooding, such as informal settlements built on or encroaching onto wetlands, UNICEF could establish/build on existing appropriate partnerships in their efforts to educate and raise awareness on appropriate responses to and planning for more effective flood risk management. With government and development partners, UNICEF could ensure that the resulting communities have adequate child facilities (schools, clinics, safe spaces), that WASH facilities are climate-resilient (flood-proof) and that early childhood development programmes engage in building the climate resilience of South Africa's children and in better preparing children for climate related disasters. These facilities should ideally be solar powered to ensure and/or supplement electricity supply.

UNICEF and NDHS could partner with SALGA and municipalities and leverage the District Development Model (DDM) to relocate communities and/or build new and better houses on safer lands, and critically, to better prepare children in at risk areas for extreme climate events such as droughts and floods.

- UNICEF and its partners could prepare emergency response systems (ERS) and policing for increased violence against women, children and adolescents post extreme flood events or during period of heat stress. Working with ERS and policing can include engaging drones and digital technologies to improve the police radar and tracking of violence, as well as raising awareness and improving coping mechanisms of children and adolescents for during and post extreme event periods.

The impacts of crises such as climate change are often negatively expressed in human behaviour. This can range from children being listless or experiencing depression in periods of heat stress, which affects their concentration or ability to play or engage in sports, to adults targeting anger in violent behaviour towards children and adolescents.

- UNICEF could strengthen the engagement of development partners in CEE initiatives that target children. Development partners have played a strategic role in ensuring that CEE is mainstreamed in South Africa's policies and targets, in line with the Government driven agenda. These development partners can help to mobilise resources for child responsive CEE action. They can also support government and UNICEF to identify ways in which national policies, plans, and programmes can be designed to build the CEE resilience of children.

Development partners, such as UNDP, USAID and the German Embassy can be encouraged to include specific targets that address children's needs in relation to the impacts of CEE on children.

Recommendation 9: Mobilise resources for child responsive CEE action and address funding gaps for CEE and children

Implementing the recommendations outlined in this report requires the scaling up of human and financial resources. This includes not only the budgets of ministries and agencies working in CEE to ensure that a focus can be placed on child and youth measures and targets.

Resources can be mobilised from development partners (e.g., UNDP, UNESCO) and development finance institutions (AfDB, DBSA, and its forthcoming climate facility for children).

Accessing international climate finance from bilateral and multilateral sources is key to financing the scale of implementation needed in South Africa. Accessing the multilateral funds can only be achieved through fund accredited partners. South Africa has two Direct Accredited Entities to the Green Climate Fund. The DBSA and SANBI are both accredited but with different focus areas.

Blended finance can be drawn from results-based or impact finance, where investors receive a more favourable return if agreed upon results are achieved. Blended finance can be drawn from other innovative finance mechanisms such as debt for nature swaps, biodiversity incentive-based finance, and green bonds.

Joint proposals would therefore be necessary for accessing multilateral finance at the scale required. UNICEF could partner with agencies that have a comparative advantage in accessing the GCF and bring the child rights lens and its expertise in working with children into successful proposals. Strategic partnerships for resource mobilisation and blending financing arrangements will be a critical success factor to building the CEE resilience of South Africa's children.

UNICEF could position and leverage the UNICEF Country Programme to catalyse capital for child responsive climate interventions, thus addressing existing funding gaps. While South Africa's CEE policies are generally child sensitive, few are geared toward transforming the climate resilience of children. Funding is more likely to be accessible where policy is explicit on the needs of children in building climate resilience.

Convening multiple stakeholders for multi-sectoral collaboration and leveraging the financial and human resources of these stakeholders towards limiting the costs of inaction, is critical for South African children. Priority should also be targeted at longevity and sustainability of finance and actions given the significant environmental constraints for the country's economy, and for livelihoods and human well-being.

Evidence-based plans, projects and financing mechanisms that apply child disaggregated data to inform decisions, and those engaging youth in decision-making and/or implementation, should be prioritised.

Recommendation 10: Design, finance and implement an integrated Nutrition-WASH for climate resilience (NuWASH-4CR) programme

UNICEF, with key UN and developing partners could design, raise funding for and implement an integrated Nutrition-WASH for climate resilience (NuWASH-4CR) programme that, broadly, targets four interlinked components:

- i) Integrated NuWASH business models, designed, piloted and monitored in three of South Africa's most vulnerable geographic areas, and through the DDM, to demonstrate bankable SME business models.

A NuWASH-4CR programme could be developed in partnership with interested and engaged institutions such as the AfDB and DBSA. Both are Accredited to the GCF which will enable access to these funds. Co-funding, a requirement of the GCF, and other multilateral funds, could come from UNICEF, as well as from interested commercial banks (Rand Merchant Bank is increasingly active in municipal, climate resilient social infrastructure, and from DHS and the Department of Water and Sanitation (DWS).

- ii) Entrepreneurs are identified and capacitated for NuWASH SME business development and communities and SMEs are fully aware of the opportunities and benefits of NuWASH-4CR.
- iii) Government incentives for NuWASH SMEs enable a line of credit for financier and SME engagement.
- iv) Affordable microfinance/line of credit is established for SMEs to access for in NuWASH business opportunities and is scaled/scalable across South Africa.

UNICEF South Africa has a vital role to play in addressing the unique needs of children *vis-à-vis* CEE impacts. There is no other institution in the country that is focusing the attention required to enable children to function effectively under a different climate and development future. South Africa's children and their families are dependent on UNICEF.

REFERENCES

- Agricultural Research Council - Institute for Soil, Climate and Water (2016). Phase 1 of Desertification, Land Degradation and Drought (DLDD) Land Cover Mapping Impact Indicator of the United Nations Convention to Combat Desertification (UNCCD), Final Technical Report GW/A/2016/29, Department of Environmental Affairs (DEA), South Africa.
- Barnes, B. et al. (2009) 'Household energy, indoor air pollution and child respiratory health in South Africa', *Journal of Energy in Southern Africa*, 20(1), pp. 4-13.
- Centre for Environmental Rights (2023) Impact Report. Available at: https://cer.org.za/wp-content/uploads/2023/03/CER-Impact-report-2023_Final.pdf.
- Chen, C., Noble, I., Hellmann, J., Coffee, J., Murillo, M. and Chawla, N., 2015. University of Notre Dame global adaptation index. University of Notre Dame: Notre Dame, IN, USA.
- Children Count (2023) Children Count: Statistics on Children in South Africa, Children Count, Children's Institute, University of Cape Town. Available at: <http://childrencount.uct.ac.za/index.php> (Accessed: 9 May 2023).
- Climate Funds Update (2022) Data Dashboard. Available at: <https://climatefundsupdate.org/data-dashboard/#1541245745457-d3cda887-f010>.
- Climate Transparency (2022) CLIMATE TRANSPARENCY REPORT: COMPARING G20 CLIMATE ACTION. Available at: <https://www.climate-transparency.org/wp-content/uploads/2022/10/CT2022-South-Africa-Web.pdf>.
- CSIR. 2021. Technical analysis to support the update of South Africa's first nationally determined contribution: Adaptation report. Available online: <https://www.csir.co.za/nationally-determined-contributions-update-adaptation-component>
- Cullis, J., Alton, T., Arndt, C., Cartwright, A., Chang, A., Gabriel, S., Gebretsadik, Y., Hartley, F., de Jager, G., Makrelov, K. and Robertson, G., 2015. An uncertainty approach to modelling climate change risk in South Africa (No. 2015/045). WIDER working paper.
- Dalvie, M. et al. (2019) 'The effects of ambient NO2 and PM2.5 exposure on asthma-related outcomes in school children residing in informal settlements in South Africa.', *Environmental Epidemiology*, 3, p. 87. Available at: <https://doi.org/10.1097/01.EE9.0000606636.41028.f0>.
- David, A., Guilbert, N., Hamaguchi, N., Higashi, Y., Hino, H., Leibbrandt, M. and Shifa, M., 2018. Spatial poverty and inequality in South Africa: A municipality level analysis. SALRDU Working Paper, University of Cape Town.
- DEA (2018) South Africa: Final country report of the LDN Target Setting Programme. South Africa: Department of Environmental Affairs (DEA).
- Department of Energy (2019) Integrated Resource Plan (IRP). Available at: <https://www.energy.gov.za/IRP/2019/IRP-2019.pdf>.
- Department of Environmental Affairs (2018) South Africa's Third National Communication under the United Nations Framework Convention on Climate Change. Available at: https://soer.environment.gov.za/soer/UploadLibraryImages/UploadDocuments/300819120529_SOUTH%20AFRICA%E2%80%99S%20THIRD%20NATIONAL%20COMMUNICATION%20UNDER%20THE%20UNITED%20NATIONS%20FRAMEWORK%20CONVENTION%20ON%20CLIMATE%20CHANGE%202018.pdf.
- Department of Health (2017) National Adolescent and Youth Health Policy - 2017 | Department of Health Knowledge Hub. Available at: <https://www.knowledgehub.org.za/elibrary/national-adolescent-and-youth-health-policy-2017> (Accessed: 22 December 2022).

Department of Health (2020) 'Strategic Plan 2020/21-2024/25'. Available at: <https://www.health.gov.za/strategic-plans/> (Accessed: 22 December 2022).

Department of Social Development (2015) National Integrated Early Childhood Development Policy. Available at: https://www.gov.za/sites/default/files/gcis_document/201610/national-integrated-eecd-policy-web-version-final-01-08-2016a.pdf.

Department of Water and Sanitation (2022) National State of Water Report 2022. Available at: <https://www.dws.gov.za/Projects/National%20State%20of%20Water%20Report/Documents/National%20State%20of%20Water%20Report%202022.pdf>.

Department of Women, Youth and Persons with Disabilities (2020) National Youth Policy (2020 - 2030). Available at: https://www.gov.za/sites/default/files/gcis_document/202103/national-youthpolicy.pdf.

DFFE (2009) Forestry 2030 Roadmap. South Africa: Department of Forestry, Fisheries and the Environment (DFFE). Available at: <https://faolex.fao.org/docs/pdf/saf149602.pdf>.

DFFE (2011) South Africa: Second National Communication. Department of Forestry, Fisheries and the Environment [DFFE]. Available at: <https://unfccc.int/resource/docs/natc/zafnc02.pdf>.

DFFE (2021) Environmental Implementation and Management Plan (EIMP) 2020-2024 - 4th Generation. Consolidated version. South Africa: Department of Forestry, Fisheries and the Environment (DFFE). Available at: <http://faolex.fao.org/docs/pdf/SAF210137.pdf>.

Engelbrecht, F. (2019) Green Book - Detailed Projections of Future Climate Change over South Africa. Technical Report. Pretoria, South Africa: CSIR.

EPI (2022) Environmental Performance Index 2022. Available at: <https://epi.yale.edu/downloads/epi2022report06062022.pdf>.

Erasmus, D. (2022). Ramaphosa calls KZN floods a 'catastrophe' as death toll climbs above 300. Daily Maverick. 13 April. Available: <https://www.dailymaverick.co.za/article/2022-04-13-ramaphosa-calls-kzn-floods-a-catastrophe-as-death-toll-climbs-above-300/> [1 June, 2022].

FAO et al. (2023) The State of Food Security and Nutrition in the World 2023. Urbanization, agrifood systems transformation and healthy diets across the rural-urban continuum. Rome. Available at: <https://www.fao.org/documents/card/en/c/cc3017en>.

Global Burden of Disease Collaborative Network. 2019. Global Burden of Disease Study 2019 (GBD 2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. Available from <https://vizhub.healthdata.org/gbd-results/>.

Grace, I.U. (2020) Loss and damage in Rwanda: a young climate activist reports, International Institute for Environment and Development. Available at: <https://www.iied.org/loss-damage-rwanda-young-climate-activist-reports> (Accessed: 26 November 2022).

Hall, K. (2019a) 'Access to adequate water'. Children Count, Children's Institute, University of Cape Town. Available at: <http://childrencount.uct.ac.za/indicator.php?domain=3&indicator=41>.

Hall, K. (2019b) 'Access to electricity'. Children Count, Children's Institute, University of Cape Town. Available at: <http://childrencount.uct.ac.za/indicator.php?domain=3&indicator=43>.

Hall, K. (2019c) 'Children living far from clinics'. Children Count, Children's Institute, University of Cape Town. Available at: <http://childrencount.uct.ac.za/indicator.php?domain=5&indicator=49>.

Hall, K. (2022). Housing Type. Statistics in Children in South Africa. Children Count. <http://childrencount.uct.ac.za/indicator.php?domain=3&indicator=11>

Hall, K. and Lake, L. (2019) 'Access to basic sanitation'. Children Count, Children's Institute, University of Cape Town. Available at: <http://childrencount.uct.ac.za/indicator.php?domain=3&indicator=42>.

- Hartford, D. (2022). KwaZulu-Natal floods: building back better for every child. Article, UNICEF South Africa. Available at: <https://www.unicef.org/southafrica/stories/kwazulu-natal-floods-building-back-better-every-child>
- Human Rights Council (n.d.) Resolution 10/4. Human rights and climate change. Available at: http://ap.ohchr.org/documents/E/HRC/resolutions/A_HRC_RES_10_4.pdf.
- IQAir (2023). South Africa Air Quality Index (AQI) and Air Pollution Information, IQAir, Viewed 16 January 2023, <https://www.iqair.com/south-africa>.
- Just Energy Transition (2022) Presidential Climate Commission (PCC). Available at: [https://www.climatecommission.org.za/\\$PRIMARY_SITE_URL/just-energy-transition](https://www.climatecommission.org.za/$PRIMARY_SITE_URL/just-energy-transition) (Accessed: 11 January 2023).
- Lokotola, C., Wichmann, J. and Wright, C. (2019) 'Effect modification of temperature on air pollution associated with hospital admission for respiratory diseases in Cape Town, South Africa', *Environmental Epidemiology*, 3, p. 249. Available at: <https://doi.org/10.1097/01.EE9.0000608628.89964.ea>.
- Marwala, T. (2022). Durban floods are a massive wake-up call: A deadly combination of climate change, corruption and ineptitude. Daily Maverick. 13 April. Available: <https://www.dailymaverick.co.za/opinionista/2022-04-13-durban-floods-are-a-massive-wake-up-call-a-deadly-combination-of-climate-change-corruption-and-ineptitude/> [26 May, 2022].
- Morris, M., Robbins, G., Hansen, U. and Nygard, I., 2021. The wind energy global value chain localisation and industrial policy failure in South Africa. *Journal of International Business Policy*, pp.1-22.
- Mtintsilana, A. (2023) Hunger in SA: 1 in 5 at risk, University of Witwatersrand. Available at: <https://www.wits.ac.za/news/latest-news/opinion/2023/2023-02/hunger-in-sa-1-in-5-at-risk.html>.
- National Planning Commission (NPC) (2012) National Development Plan 2030. South Africa. Available at: <https://www.gov.za/issues/national-development-plan-2030>.
- Nattrass, N. and Seekings, J., 2019. Inclusive Dualism: Labour-intensive development, decent work, and surplus labour in Southern Africa. Oxford University Press.
- Nature Connect (2021) Sustainable Schools Hub. Available at: <https://sustainableschools.natureconnect.earth/>.
- Ngepah, N., Tchuinkam Djemo, C.R. and Saba, C.S., 2022. Forecasting the Economic Growth Impacts of Climate Change in South Africa in the 2030 and 2050 Horizons. *Sustainability*, 14(14), p.8299.
- Noble, M. and Wright, G., 2013. Using indicators of multiple deprivation to demonstrate the spatial legacy of apartheid in South Africa. *Social Indicators Research*, 112, pp.187-201.
- OECD (2022) National income - Gross national income - OECD Data. Available at: <http://data.oecd.org/natincome/gross-national-income.htm> (Accessed: 12 January 2023).
- Olutola, B. et al. (2019) 'Apparent temperature as a modifier of the effects of air pollution on respiratory disease hospital admissions in Secunda, South Africa', *Environmental Epidemiology*, 3, p. 439. Available at: <https://doi.org/10.1097/01.EE9.0000610944.80871.4a>.
- Owino, V. et al. (2022) 'The impact of climate change on food systems, diet quality, nutrition, and health outcomes: A narrative review', *Frontiers in Climate*, 4. Available at: <https://www.frontiersin.org/articles/10.3389/fclim.2022.941842> (Accessed: 25 June 2023).
- Parliamentary Monitoring Group (2017) Blue Drop Green Drop Report: Department of Water and Sanitation briefing, Parliamentary Monitoring Group. Available at: <https://pmg.org.za/committee-meeting/23873/>.

- PCC. 2023 Presidential Commission on Climate Change. Draft Report. Stakeholder Perspectives on the PCC recommendations on electricity planning in South Africa. Draft Report.
- Petrie, B., Beukes, D. and Davies, R.A.G. (2023) Diagnostic Assessment of Climate Change, Governance and Human Settlements in South Africa, for the Human Settlements Sector Climate Change Response Strategy and Implementation Plan. For the Department of Human Settlements and National Treasury. Cape Town, South Africa.: OneWorld Sustainable Investments.
- Petrie, B., Chapman, R.A. and Weaver, Z. (2021) Capacity building on risk and vulnerability assessment tool and development of National Climate RVA for Health. For GIZ. Synthesis Report. Cape Town, South Africa: OneWorld Sustainable Investments.
- Petrie, B., Walsh, K., Filipova, A., Shai, L., Unite, E., Smit, D., Ocran, M. (2019). Results Report: Financial Modelling and Cost Benefit Analysis, for the project Elaboration of a “Sustainable Low-Income Energy Services” Study to the Benefit of the City of Cape Town. For Suez/Safege, under contract to Agence Française de Développement (AFD), for the City of Cape Town. OneWorld Sustainable Investments, Cape Town, South Africa.
- Phaswana, S. et al. (2022) ‘Lagged acute respiratory outcomes among children related to ambient pollutant exposure in a high exposure setting in South Africa’, *Environmental Epidemiology*, 6(6), p. e228. Available at: <https://doi.org/10.1097/EE9.0000000000000228>.
- Presidential Climate Commission (2022) A framework for a just transition in South Africa. Available at: <https://pcccommissionflow.imgix.net/uploads/images/A-Just-Transition-Framework-for-South-Africa-2022.pdf>.
- ReliefWeb. (2022). Damage to KZN companies estimated at R7 billion. ReliefWeb. 20 May. Available: <https://reliefweb.int/report/south-africa/damage-kzn-companies-estimated-r7-billion> [29 May, 2022].
- Republic of South Africa (2015) Disaster Management Amendment Act 16 of 2015. Available at: https://www.gov.za/sites/default/files/gcis_document/201512/39520act16of2015-disastermanamendact.pdf.
- Republic of South Africa (2021). South Africa First Nationally Determined Contribution Under the Paris Agreement, Viewed https://www.environment.gov.za/sites/default/files/reports/draftnationally-determinedcontributions_2021updated.pdf.
- Roomaney, R.A. et al. (2022) ‘Estimating the burden of disease attributable to household air pollution from cooking with solid fuels in South Africa for 2000, 2006 and 2012’, *South African Medical Journal*, 112(8b), pp. 718-728.
- Rother, H.-A., Wijesekera, S., Ward, F. (2019). ‘The impact of the environment on South Africa’s child and adolescent health: An overlooked health risk’, in Shung-King, M., Lake, L., Sanders, D. and Hendricks, M., eds., *South African Child Gauge 2019*, Children’s Institute, University of Cape Town: Cape Town.
- Seekings, J. and Nattrass, N. (2015) *Policy, Politics and Poverty in South Africa*. South Africa: Springer International Publishing. Available at: <https://link.springer.com/book/10.1057/9781137452696> (Accessed: 4 January 2023).
- Shayegh, S., Manoussi, V. and Dasgupta, S., 2021. Climate change and development in South Africa: the impact of rising temperatures on economic productivity and labour availability. *Climate and Development*, 13(8), pp.725-735.
- Smit, J. (2022). 12 000 family homes destroyed in floods. City Press. 17 April. Available: <https://www.news24.com/citypress/news/12-000-family-homes-destroyed-in-devastating-family-floods-20220417> [30 May, 2022].
- Statista (2022) South Africa: human development index, Statista. Available at: <https://www.statista.com/statistics/1236017/human-development-index-of-south-africa/> (Accessed: 4 January 2023).

- Statistics SA (2022) Stats SA, Stats SA. Available at: <https://www.statssa.gov.za/?s=access+to+basic+services&sitem=publications>.
- Stats SA (2022) General Household Survey 2021. Statistical publications P0318. Available at: https://www.statssa.gov.za/?page_id=1854&PPN=P0318&SCH=73293.
- The World Bank (2023) World Bank Open Data, The World Bank. Available at: <https://data.worldbank.org/>.
- Trading Economics (2023) South Africa Unemployment Rate, Trading Economics. Available at: <https://tradingeconomics.com/south-africa/unemployment-rate>.
- UNFCCC (2011) Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010. Available at: <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>.
- UNFCCC (2016) Paris Agreement. Available at: <http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>.
- UNICEF (2021) Healthy environments for healthy children, UNICEF.org. Available at: <https://www.unicef.org/health/healthy-environments> (Accessed: 10 January 2023).
- UNICEF (2022) Early Childhood Development and Climate Change Advocacy Brief. UNICEF. Available at: <https://www.unicef.org/eap/media/12801/file/UNICEF%20EAPRO%20ECD%20and%20Climate%20Change%20Advocacy%20Brief%20doc.pdf>.
- UNICEF South Africa and Statistics SA (2020) Child Poverty in South Africa. Available at: <https://www.statssa.gov.za/publications/03-10-22/03-10-22June2020.pdf>.
- United Nations (2015) 'Transforming our world: the 2030 Agenda for Sustainable Development'. United Nations. Available at: <https://sdgs.un.org/2030agenda>.
- United Nations Department of Economic and Social Affairs (UNDESA) (n.d.) 'Fact-sheet: Definition of Youth'. Available at: <https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-definition.pdf>.
- Wernecke, B. et al. (2021) 'Quantifying potential particulate matter intake dose in a low-income community in South Africa', Clean Air Journal, 31(2). Available at: <https://doi.org/10.17159/caj/2021/31/2.9426>.
- WHO (2022) 'Modeled Exposures of PM2.5 - WHO'. World Health Organisation (WHO). Available at: https://datacore.unepgrid.ch/geoserver/unea_pollution/wms?service=WMS&version=1.1.0&request=GetMap&layers=unea_pollution%3Awho25&bbox=-180.033333333333%2C-55.9333333333335%2C179.9666666666673863%2C70.066666666669184&width=768&height=330&srs=EPSG%3A4326&styles=&format=application/openlayers#toggle.
- WMO. (2018). El Niño/La Niña Southern Oscillation (ENSO) [WWW Document]. World Meteorological Organization. URL <https://public.wmo.int/en/our-mandate/climate/el-ni%C3%B1o-la-ni%C3%B1a-update> (accessed 5.31.22).
- World Bank (2016) The Cost of Air Pollution: Strengthening the Economic Case for Action. Washington, DC: World Bank. Available at: <https://doi.org/10.1596/25013>.
- World Bank (2021). South Africa > Risk > Historical Hazards. Washington, DC: World Bank Group (WBG). Available at: <https://climateknowledgeportal.worldbank.org/country/south-africa/vulnerability>
- World Bank (2022) Country Climate and Development Report. Washington, DC: World Bank Group (WBG). Available at: <https://openknowledge.worldbank.org/handle/10986/38216>.

ACKNOWLEDGEMENTS

The CEELAC report was prepared by OneWorld Sustainable Investments under the technical guidance of UNICEF South Africa, Sufang Guo and Khumbuzile Zuma. UNICEF South Africa's Country and Deputy Country Representatives, Christine Muhigana and Muriel Mafico respectively provided valuable inputs. Key insights came from UNICEF section leads and officers, Ben-Albert Smith (Innovation), Hana Yoshimoto (Education), Lea Castro (Nutrition), Makiba Yamano (Child Protection), Russel Wildeman (Social Policy), Toby Fricker (Communication & Partnerships) and Sudeshan Reddy (Communications).

Nancy Chawawa from UNICEF ESARO further provided additional valuable inputs.

Published by UNICEF South Africa

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August 2023