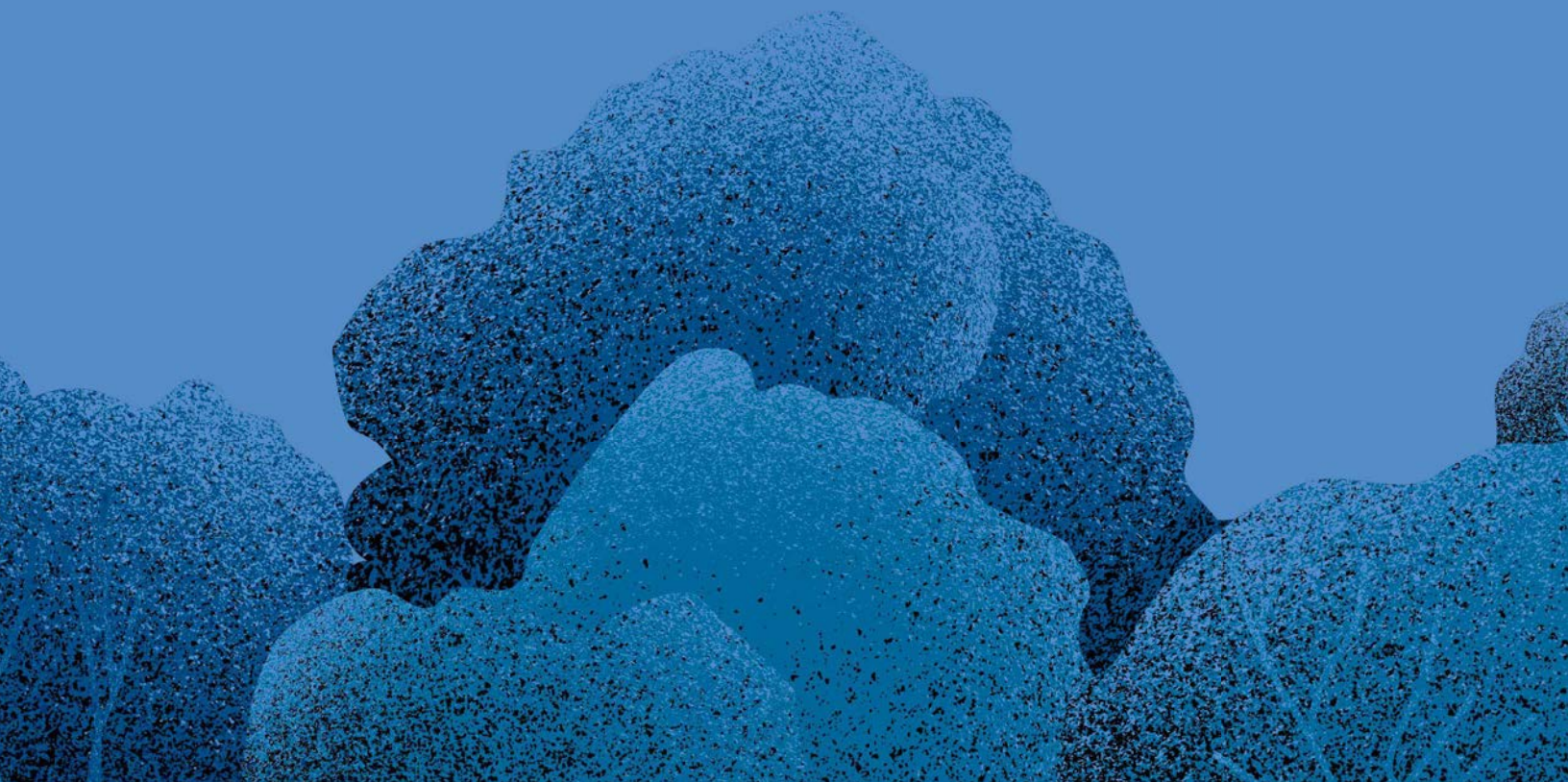




CLIMATE CHANGE



ESSAY

| | |
|---|----|
| The climate crisis: A generational opportunity for Africa | 36 |
|---|----|

VIEWPOINT

| | |
|--|----|
| Africa: Navigating the energy transition | 40 |
| Needs and opportunities for addressing the nexus of climate change and public health in Africa | 43 |
| Scaling impact and opportunities in Africa through the leverage of carbon markets | 45 |
| Championing green energy in Africa: A strategy for quick wins | 47 |
| Why we can't overlook people in addressing climate change | 50 |
| Blue is the new green: The perspective of a small island nation | 52 |
| Climate change and food security in the Sahel | 54 |
| Informal settlements and climate change in the 'last mile of urbanization' | 57 |
| Finance for climate adaptation in Africa still insufficient and losing ground | 60 |



The climate crisis: A generational opportunity for Africa

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The climate crisis is intensifying, extreme events have become the new normal. The fight against climate must not, however, slide into a long, low-intensity crisis. It is a daunting but not insurmountable challenge. Well-executed and at scale, winning the climate battle is synonymous to winning the battle against poverty. It is in this sense that the battle for our planet is also a battle for the prosperity of all its people.

Each year the destruction to the planet is harsher than the last. In 2021 atmospheric levels of greenhouse gases reached new highs.* The increase in CO₂ from 2020 to 2021 was higher than the average annual growth rate over the last decade. Similarly, the annual increase in methane from 2020 to 2021 was the largest annual increase on record. The year 2022 was either the fifth or the sixth warmest year on record according to six data sets.¹

Africa is ground zero of the climate crisis. Over the past 60 years, Africa has recorded a warming trend that has generally been more rapid than the global average, according to the Intergovernmental Panel on Climate Change.²

The impact on lives and livelihoods is devastating. Over 110 million people in 2022 were impacted by the climate crisis in Africa.³ Food inflation reached its highest levels in three decades at on average 30%, compounded by the war in Ukraine.⁴

It is estimated that nearly 282 million people in Africa (about 20% of the population) are undernourished, and suffer from food insecurity on the continent.⁵ Droughts and flood are worsening agriculture productivity and increasing Africa's dependence on food imports, worsening the current account balance, and displacing productive investments.

Improvements in livelihoods are correlated with climate events and policies. The response to the climate crisis in Africa broadly calls for a three-pronged approach: Mitigation, adaptation, and nature.

* The latest year for which consolidated global figures are available.

1 World Meteorological Organization. "State of the Global Climate 2022." WMO-No. 1316. https://library.wmo.int/viewer/66214/download?file=Statement_2022.pdf&type=pdf&navigator=1.

2 The Intergovernmental Panel on Climate Change (IPCC). 2021. "Regional fact sheet – Africa." Working Group 1 – The Physical Science Basis contribution to Sixth Assessment Report. https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_Africa.pdf.

3 World Meteorological Organization (WMO). 2023. "State of the Climate in Africa 2022." WMO-No. 1330. <https://library.wmo.int/records/item/67761-state-of-the-climate-in-africa-2022>.

4 Food and Agriculture Organization of the United Nations (FAO). FAO Food Price Index. <https://www.fao.org/worldfood-situation/FoodPricesIndex/en/>.

5 FAO, AUC, EXA and WFP. 2023. "Africa – Regional Overview of Food Security and Nutrition 2023: Statistics and trends." <https://www.fao.org/africa/news/detail-news/en/c/1672786/>.

Despite its low emissions levels and favorable initial endowments, Africa must engage on all three fronts. With its increasing population, urbanization, and industrialization, emissions are set to increase in the medium term, but they can be managed and steered toward a progressive transition which delivers growth while protecting our planet.

The paradox of Africa: Africa is energy-access poor, it is renewable energy rich but a large part of its energy comes from coal and other fossil fuels. Of the 1.2 gigatons (Gt) of carbon dioxide emitted in 2020 in Africa, 40% came from fossil fuel-based electricity and heat generation, a quarter from transport and another 17% from productive uses. Closing the energy access gap will require an estimated annual investment of over \$25 billion up to 2030.⁶

In 2022, African countries lost close to \$9 billion as a result of loss and damage suffered and spend over 5-15% of their GDP per capita building it back. The loss and damage costs in Africa due to climate change are projected to reach at least USD 290 billion (in a 2 °C warming scenario).^{7,8}

Africa's carbon sinks help to slow the speed of global warming and provide a global public good to the planet. A recent study shows that African Tropical forests hold more carbon than previously believed and together sequester more carbon than any other forests in the world.⁹ 26% of land in Africa is classified as forest.¹⁰

Illegal logging, poor agriculture, and cooking practices are responsible for the destruction of these vital forests.

Transitioning to a more inclusive green industrial growth agenda offers Africa the best opportunity to accelerate its growth, provide jobs, transform its economies, and build thriving, prosperous societies. Transitioning to the climate economy consistently delivers a higher growth trajectory for African countries. Studies by Vivid Economics, Oxford University, and UNECA for South Africa, DRC, and Egypt in collaboration with the authorities highlight this growth potential.^{11,12,13} The Automotive Masterplan in South Africa could double employment from 120,000 to 240,000 and increase

6 International Energy Agency (IEA). "Africa Energy Outlook 2022." World Energy Outlook Special Report. <https://iea.blob.core.windows.net/assets/220b2862-33a6-47bd-81e9-00e586f4d384/AfricaEnergyOutlook2022.pdf>.

7 Zero Carbon Analytics. 2023. "Loss and damage funding in Africa will be back on the table at COP28." <https://zerocarbon-analytics.org/archives/justice/keeping-loss-and-damage-alive-in-africa>.

8 World Meteorological Organization (WMO). 2023. "State of the Climate in Africa 2022." WMO-No. 1330.

9 Cuni-Sanchez, A., Sullivan, M.J.P., Platts, P.J. et al. High aboveground carbon stock of African tropical montane forests. *Nature* 596, 536–542 (2021). <https://doi.org/10.1038/s41586-021-03728-4>.

10 FAO. 2021. "Africa Open D.E.A.L.: Open Data for Environment, Agriculture and Land & Africa's Great Green Wall." <https://www.fao.org/3/cb5896en/cb5896en.pdf>.

11 O'Callaghan, Brian, Julia Bird, and Em Murdock. 2021. "A Prosperous Green Recovery for South Africa." Oxford University Recovery Project, SSEE and Vivid Economics in partnership with the United Nations Economic Commission for Africa.

12 O'Callaghan, Brian, Julia Bird, and Em Murdock. 2021. "Green Economic Growth for the Democratic Republic of Congo." Oxford University Recovery Project, SSEE and Vivid Economics in partnership with the United Nations Economic Commission for Africa.

13 O'Callaghan, Brian, et. al. 2021. "Green Economic Recovery for the Arab Republic of Egypt: Could green investment accelerate the COVID-19 recovery while at the same time making progress on climate change?" Oxford University Recovery Project, SSEE and Vivid Economics in partnership with the United Nations Economic Commission for Africa.

domestic vehicle production to 1% of global output, of which 20% will be EVs by 2030. These results are similar for Egypt, Senegal, Kenya, and DRC.¹⁴

Closing the policy and finance gap

African economies can deliver comprehensive economic programs by designing country-led green, sustainable growth strategies. However, for these policies to be successful they need the right policy environment and adequate financing from both domestic and external sources.

The response to the climate crisis must be global, swift, and at scale. The world needs USD 2.4 trillion per year by 2030, of which USD 1 trillion per year must come from external finance for emerging markets and developing countries (EMDCs) other than China to credibly tackle the climate change challenge.¹⁵ With the polycrisis from 2020-2023, countries have used up all the fiscal space available to undertake development and investment activity. Increasing debt burdens are also weighing heavily on countries.

Despite increasing costs, financing for climate to Africa is shrinking. It will cost between USD 2.8-3 trillion between 2020 and 2030 to implement Africa's nationally defined contributions (NDCs). However, total annual climate finance flows in Africa for 2020, domestic and international, were only USD 30 billion, or 12% of the amount needed.¹⁶

Climate finance on the continent must be additional, affordable and wealth-creating.

The main financing for climate action will come from three sources: domestic resources, the Multilateral Development Banks and bilateral resources, and the private sector—capital markets, institutional investors.

The main financing for climate action will come from three sources: domestic resources, the Multilateral Development Banks and bilateral resources, and the private sector—capital markets, institutional investors.¹⁷ Philanthropy is increasingly becoming an important source of resources.

National governments will continue to fund over half the costs of climate investments. While tax to GDP has increased over the last decade in Africa, the 15.6% average should increase to around 30% to provide governments with the fiscal space required to undertake climate investments at scale.¹⁸ There are two ways this can be done. First, phasing out fossil fuel consumption subsidies and second, the rapid development of a market-based, transparent, high-integrity carbon emissions voluntary or compliance trading system. According to studies from the UN Economic Commission for Africa,

14 Ibid.

15 Independent High-Level Expert Group on Climate Finance. 2022. "Finance for climate action: Scaling up investment for climate and development." <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2022/11/IHLEG-Finance-for-Climate-Action-1.pdf>.

16 Guzman, Sandra, et. al. 2022. "The State of Climate Finance in Africa: Climate Finance Needs of African Countries." Climate Policy Initiative. <https://www.climatepolicyinitiative.org/wp-content/uploads/2022/06/Climate-Finance-Needs-of-African-Countries-1.pdf>.

17 Songwe, Vera. 2023. "Financing Our Survival." Project Syndicate.

18 OECD. 2023. "Revenue Statistics in Africa 2023." <https://www.oecd.org/tax/tax-policy/brochure-revenue-statistics-africa.pdf>.

Africa could raise approximately USD 6 billion in revenue by 2030 and over USD 120 billion by 2050 from carbon markets alone.¹⁹ Initiatives like this and the great green wall could raise resources to fund nature protection activities.

The international financial system deploys annually about USD 100 billion in addition to some USD 30 billion deployed by the international development association (IDA).²⁰ These resources are grossly inadequate to deal with the triple challenges of fighting poverty, building a sustainable planet, and increasing prosperity for all. The IEG report has called for a tripling of the resources made available to the MDBs to about USD 390 billion.²¹ It does not suffice to capitalize the MDBs; they also need to reform to become bolder and better, working more together as a system and, where possible, pulling resources for greater scale and impact. These include using their guarantees more effectively to provide credit enhancements to attract the private sector. Public resources would be fundamental to close funding gaps on loss and damage, for example, and dedicated agencies like the Green Climate Fund will remain important funding agencies for Africa. However, to restore trust in the system, these institutions must be adequately funded. The Bridgetown Initiative and the Nairobi Declaration all propose new and innovative ways of using concessional financing. High debt to GDP levels is crowding out much needed investments in climate. Implementing debt for nature swaps could help countries access additional financing.

The IMF's USD 40 billion Resilience and Sustainability Trust is another important source of financing which provides long-term concessional financing. The provision of additional on-lending of Special Drawing Rights could augment the fund to USD 100 billion. Developing countries are calling for additional liquidity in the form of a new issuance of "climate" SDRs to help provide the liquidity needed to address the biggest challenge of our time. Regional Development Banks should become active recipients of SDRs.

The private sector, institutional investors, equity investors, domestic and foreign, would provide the bulk of the financing needed for mitigation and adaptation projects with a satisfactory risk adjusted rate of return. 66% of Africa's climate finance needs are mitigation needs where there is more private sector appetite.²² African pension and sovereign wealth funds are increasingly investing in climate projects. The Glasgow Financial Alliance for Net Zero is supporting the Senegal Just Energy Transition Plan. Increasingly philanthropy capital is supporting project preparation and development for example the Global Energy Alliance for People and Planet.

The climate challenge ahead for Africa is immense, however, with the right policy environment, adequate financing and country programs that deliver green industrialization as a core part of the solution, success is possible. Africa can and must do more to support the global ambition to end climate change while delivering prosperity for its citizens.

19 Climate Champions. 2022. "Africa Carbon Markets Initiative launched to dramatically expand Africa's participation in voluntary carbon market." <https://climatechampions.unfccc.int/africa-carbon-markets-initiative/>.

20 The Independent Experts Group. 2023. "Strengthening Multilateral Development Banks: The Triple Agenda."

21 Ibid.

22 Kone, Tiangoue. UNDP. 2023. "For Africa to meet its climate goals, finance is essential."

Africa: Navigating the energy transition

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For Africa, the energy transition is therefore not merely about reaching net zero by a target date, but about securing a decent existence and sustainable livelihoods for the fastest growing population on earth.

Africa is faced with not one, but two existential challenges. There is climate change itself, warming up the continent faster than any other region of the world. And despite emitting the least to global emissions, Africa remains the most vulnerable to the worst of its ravages. Then there is the added challenge of energy poverty and lack of access, and its implications for the survival of Africa's 1.4 billion people, 580 million of whom have no access to energy.²³ More than 150 million Africans have access to unreliable energy and nearly 1 billion have no access to clean cooking, leading to 600,000 avoidable deaths per year.²⁴

For Africa, the energy transition is therefore not merely about reaching net zero by a target date, but about securing a decent existence and sustainable livelihoods for the fastest growing population on earth. However, were Africa to grow to middle to high income status on the same carbon intensive pathway that wealthier countries have gone, she will add at least 9.4 gigatons of CO₂ emissions annually until 2050,²⁵ making global net zero ambitions impossible to achieve. But this conundrum disguises a real opportunity: An opportunity for Africa to grow to middle income status and beyond while solving humanity's biggest existential threat, climate change. The opportunity lies in climate positive growth. African countries can decarbonize the world, halt, and eventually undo climate damage—and generate inclusive economic growth, jobs, and livelihoods. With the world's largest untapped renewable energy potential, youngest and fastest growing workforce, and 30% of the world's critical minerals, Africa is uniquely positioned to lead on green global manufacturing and supply chains and remove carbon from the air. The abundance and low seasonality of Africa's renewable energy position it to reliably provide considerably cheaper renewable base load to continuously power industrial production. Providing the same renewable base load from Kenya would cost half as much as from Spain, one of Europe's best renewable power locations, and 20% less from Nigeria.²⁶ In fact, by aggressively deploying its renewable energy resources, Africa can provide energy to all Africans—600 million of whom currently lack access to energy and 150 million of whom have unreliable access to energy—at a 30% lower cost and with over 90% lower emissions per kWh, compared to the current stated policy.

Furthermore, significant cost efficiencies can be achieved by establishing green value chains to process critical raw materials on the continent. A BloombergNEF study on the production of battery precursors found that manufacturing in the lithium and

23 International Energy Agency. 2023. "SDG7: Data and Projections".

24 Fiona Lambe, Marie Jürisoo, Hannah Wanjiru, and Jacqueline Senyagwa. 2015. "Bringing clean, safe, affordable cooking energy to households across Africa: an agenda for action." Stockholm Environment Institute.

25 Climate Action Platform Africa (CAP-A). 2023. "Towards sustainable global prosperity - Climate Positive Growth". Nairobi, Kenya: Climate Action Platform Africa.

26 Ibid.

cobalt rich Democratic Republic of the Congo (DRC) is three times cheaper than in the U.S., Poland, and China.²⁷ In addition, manufacturing in DRC would expand value chain opportunities to other African countries, as the process would require manganese from Zambia, Tanzania, Gabon, and South Africa to contribute to its production capacity. Using green hydrogen to process raw materials such as iron ore (nearly 80 tons produced annually) into green steel locally would also lower global emission rates by 110 million tons a year and supply global car manufacturers.²⁸

In fact, African countries are already inserting themselves firmly in value chains by imposing restrictions on the export of critical raw minerals. Excluding North Africa, over 42% of African countries²⁹ now have these restrictions, including Zimbabwe (with Africa's largest lithium reserves), Namibia, and Nigeria. Mining companies are establishing local processing plants in response, creating more job opportunities for Africa's young and growing workforce. It is critical that these establishments are accompanied by local laws ensuring the transfer of relevant skills and protection of worker rights.

Realizing such opportunities and powering local value chains with renewable energy could transform Africa from a source of raw materials to a bustling green industrial hub. For example, if Africa processed the bauxite mines (24% of global bauxite production) to aluminium with renewable energy before exporting it, we could save 335 million tons of CO2 emissions per year (1 percent of global emissions), create 280,000 jobs, and generate \$37 billion of additional revenue for the continent³⁰.

In September 2023, the African Union adopted the Nairobi Declaration at the inaugural Africa Climate Summit. The Declaration states:

*Africa possesses both the potential and the ambition to be a vital component of the global solution to climate change. [...] Our continent has the fundamentals to spearhead a climate compatible pathway as a thriving, cost-competitive industrial hub with the capacity to support other regions in achieving their net zero ambitions.*³¹

The Declaration then commits to pursue a climate positive development path, listing a series of concrete commitments and focus areas. Structurally, there are four key elements for implementation of Africa's climate positive growth ambition. Two of these are primarily the responsibility of African countries, while the other two elements require global collaboration. The Nairobi Declaration includes these as African commitments: African countries must focus economic development plans on climate positive growth and develop and implement supporting legislation and regulation.

27 Bloomberg New Energy Finance. 2021. "The Cost of Producing Battery Precursors in the DRC".

28 Climate Action Platform Africa (CAP-A).2023. "Towards sustainable global prosperity - Climate Positive Growth". Nairobi, Kenya: Climate Action Platform Africa.

29 Nosmot Gbadamosi. 2022. "Zimbabwe's 'White Gold'". Foreign Policy.

30 Ibid.

31 African Union.2023. "The African Leaders Nairobi Declaration on Climate Change and Call to Action". Nairobi: African Union.

The two requirements for global collaboration are appropriate and sufficient finance and investment and fair and equitable market access. Africa brings ambition and commitment, underpinned by action and achievement. Yet it cannot do this alone. Collective global action is required to mobilize the necessary capital to invest. The second area of global collaboration is the need for market access to ensure that production happens where it makes the most climate and economic sense. This has implications for trade and industrial policy—both in African countries to stimulate investment, and globally, to allow Africa to meet global demand efficiently.

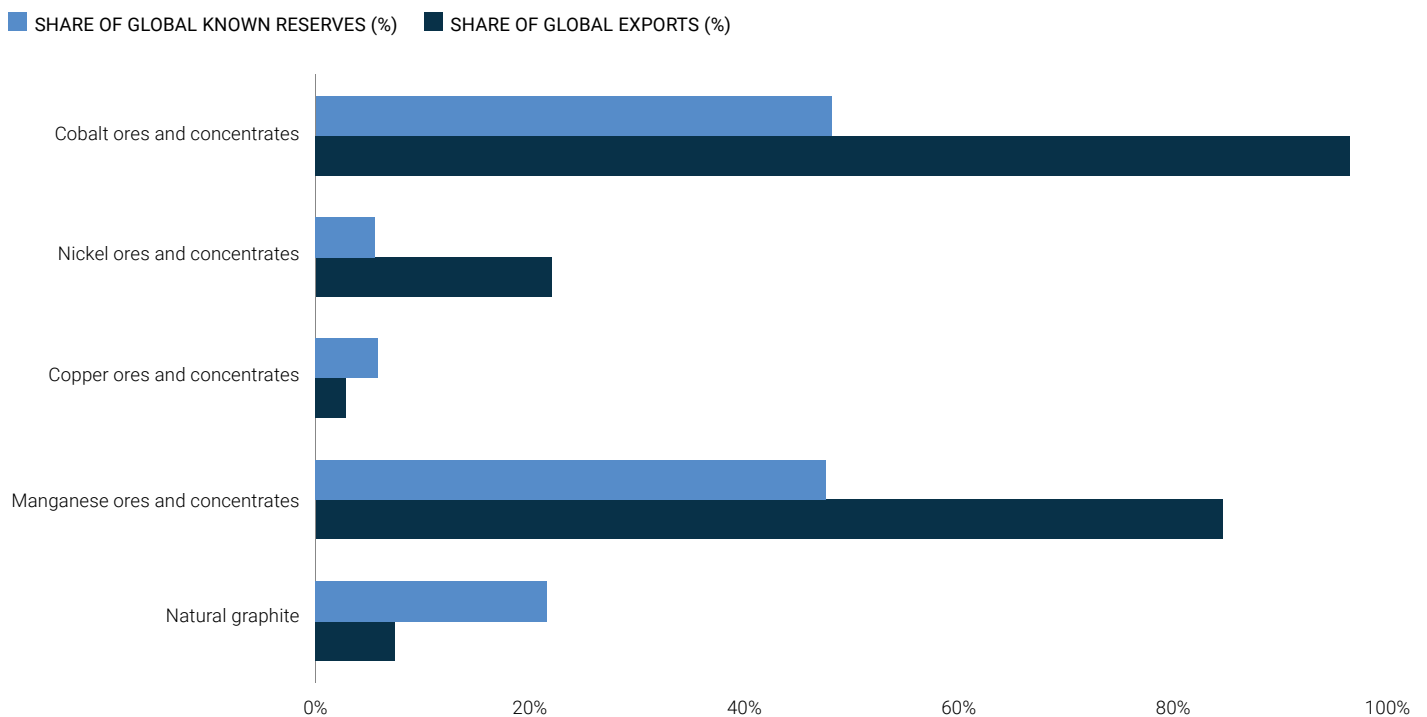
What is different about the climate positive growth paradigm is its scale and scope. It is about rethinking the global allocation of economic activities and investment, building on Africa’s intrinsic value as one of the most cost-competitive locations for climate action.

With Africa’s climate competitiveness, we can provide solutions to achieve net zero emissions globally, grow our economies, and create jobs.

FIGURE 5

AFRICA'S CRITICAL RESERVES AND EXPORTS

Africa plays an important role in the global supply chain of minerals critical to renewable and clean energy technologies. However, in terms of actual known reserves, Africa holds a comparatively smaller share, indicating its higher reliance on immediate extraction and production rather than sustainable management of these minerals.



Source: United Nations Conference on Trade and Development (UNCTAD). 2023. Economic Development in Africa Report 2023. United States Geological Survey.

Needs and opportunities for addressing the nexus of climate change and public health in Africa

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More than half of the public health events reported in Africa during the first two decades of the 21st century are identified as climate-related health emergencies, according to a recent analysis by the WHO. This already worrying trend is accelerating. There were 25% more climate-related events recorded between 2011 and 2021³² when compared with the previous decade.

The population of Africa is projected to almost double to 2.5 billion by 2050, and along with increasing urbanization, that will mean more people living in areas exposed to hazards such as extreme heat waves and floods. Unless adaptation measures are implemented, the toll of deaths, injuries, and illness due to climate disasters will continue to increase rapidly.

Under the umbrella of the historic 2008 Libreville Declaration on health and environment, the WHO supports countries to cope with the impacts of climate and environmental change on health systems, while networks such as Clim-Health Africa support multisectoral work and capacity building for climate-related health emergencies in Africa.

Following COP26 in Glasgow in 2021, with support from the U.K., Egypt, and the United Arab Emirates, the WHO launched the Alliance for Transformative Action on Climate and Health (ATACH). So far, 75 countries have committed to ATACH, 29 of them from Africa—allowing them to learn quickly from each other and from partners and to accelerate assessments, planning, and implementation to build climate-resilient and sustainable low-carbon health systems.

In many respects, African countries are ahead of the curve in climate adaptation. For example, the WHO is supporting Mozambique to connect climate information to health surveillance and planning to guide a faster and more effective early warning and response system to health risks from cyclones to malaria transmission. We are also working with Somalia to power essential health equipment in rural health clinics with cheap, clean, and reliable electricity from solar panels—leapfrogging the need for connection to an electrical grid. These interventions save lives now, provide resilience from climate change, and offer a vision of a greener and healthier continent.

32 WHO Africa. 2022. "Africa faces rising climate-linked health emergencies".

Climate change is having increasingly disastrous effects on human health and well-being, especially in Africa, and protecting and promoting health is a powerful argument for climate action. Ultimately, the climate crisis is a health crisis.

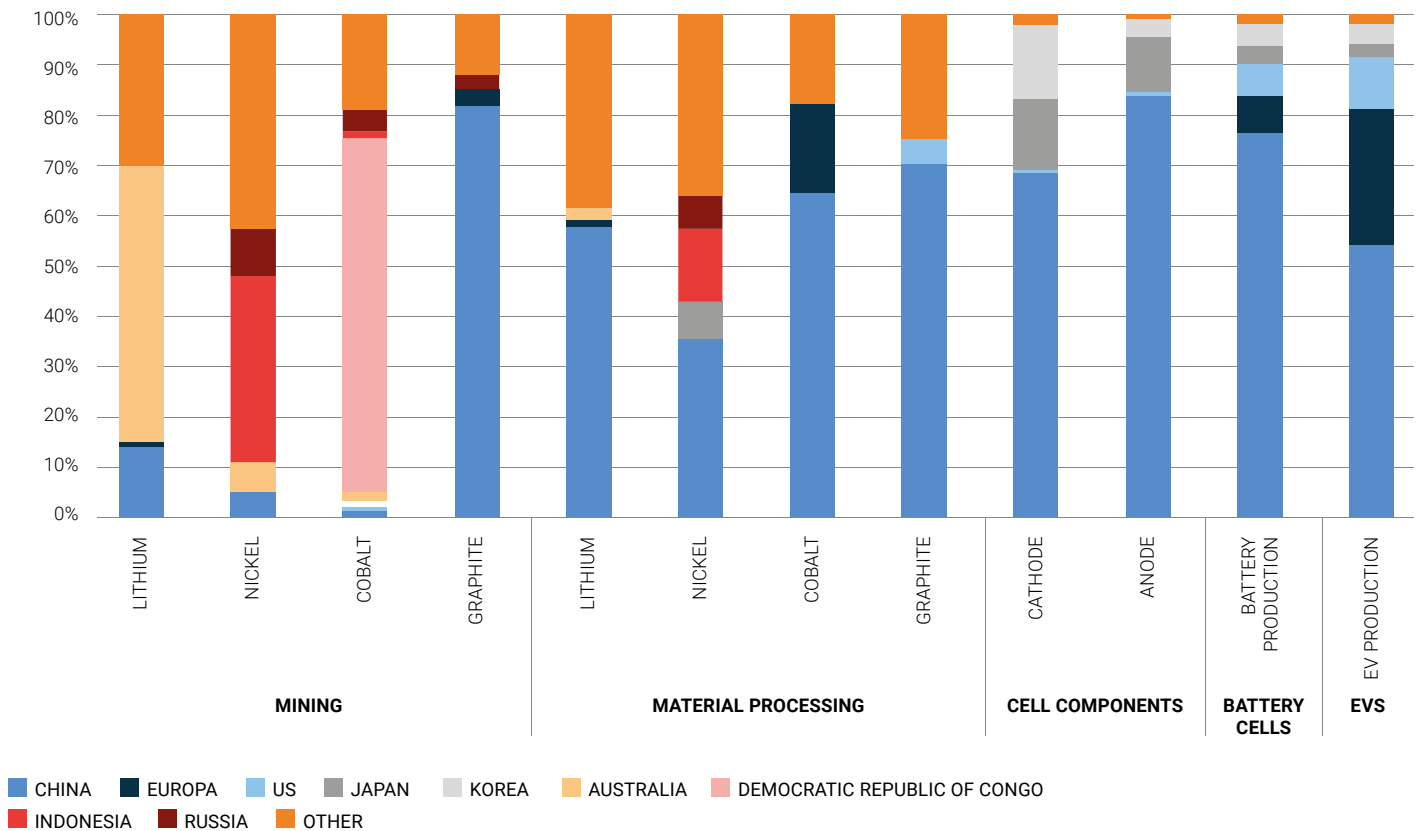
The WHO welcomes the leadership of the United Arab Emirates in dedicating an entire day of COP28 to health. This is a critical opportunity for driving system transformation, strengthening support on adaptation and resilience, and financing climate and health, specifically for the African continent, which is one of the most-affected regions while a minimal contributor of greenhouse gas emissions.

To promote the human right to health and a healthy environment, the global health community is calling for health to be explicitly integrated into United Nations Framework Convention on Climate Change negotiation texts and outcomes. Climate change is having increasingly disastrous effects on human health and well-being, especially in Africa, and protecting and promoting health is a powerful argument for climate action. Ultimately, the climate crisis is a health crisis.

FIGURE 6

CHINA CONTROLS THE MAJORITY OF THE DOWNSTREAM EV BATTERY SUPPLY CHAIN

China dominates the mining and manufacturing processes vital for EV production. Africa also holds substantial reserves of critical minerals (lithium, manganese, and platinum). The DRC holds a substantial stake in cobalt mining. Clearly, Africa has a key role to play in the global transition to EVs.



Note: Geographical breakdown refers to the country where the production occurs. Mining is based on production data. Material processing is based on refining production capacity data. Cell component production is based on cathode and anode material production capacity data. Battery cell production is based on battery cell production capacity data. EV production is based on EV production data. Although Indonesia produces around 40% of total nickel, little of this is currently used in the EV battery supply chain. The largest Class 1 battery-grade nickel producers are Russia, Canada, and Australia.

Source: IEA. 2022. Global EV Outlook 2022. International Energy Agency

Scaling impact and opportunities in Africa through the leverage of carbon markets

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Africa is uniquely positioned to tackle climate change while improving livelihoods and protecting biodiversity. For one, its abundance of cost-effective clean energy allows for the “prioritizing [of] energy-intense industries to trigger a virtuous circle of renewable energy deployment and economic activity [including] shifting the primary processing of Africa’s raw material exports to the continent.”³³ Transforming energy generation and usage patterns on the continent will reduce emissions, transform health outcomes, improve energy access, and create better livelihoods.

Launched at COP27, the Africa Carbon Markets Initiative (ACMI) was formed to help shape and harness the potential of carbon markets in Africa. We have an objective to drive a dramatic increase in the production of African carbon credits while ensuring that carbon credit revenues are transparent, equitable, and create good jobs.

Credit projects can create jobs, increase climate resilience, and build capacity in the local communities and within emerging economies. Done right, carbon credits present a fresh economic opportunity and offer an important tool for working towards the USD 250 billion fresh investment needed in Africa’s natural environment and agriculture by 2030 to align with the Paris Agreement³⁴. Reinforcing the importance of integrity in the carbon market proposition in Africa is central to the mission of ACMI, as without integrity, the increasing demand for credits will pass Africa by.

A core part of ACMI’s support entails working with governments to help them operationalize a conducive environment to, among other priorities, drive private sector investment into carbon projects—whether in clean cooking, reforestation, conservation, distributed renewable energy, or engineered removals. ACMI is actively working with a number of countries including Kenya, Mozambique, Rwanda, Malawi, Ghana, and Nigeria to deliver this support. These are the first movers in a pipeline of a total of 20 countries that have sought the assistance of ACMI.

Carbon credits must, however, inspire the confidence of all participants in this marketplace as a key tool in reducing emissions and financing removals. Buyers have to be able to trust what they’re buying while using credits in a way that drive genuine emissions reductions. There have been a number of critiques in the media regarding these topics. At ACMI, we believe only through an increased focus on integrity and transparency will this market scale and benefit communities on

Carbon credits must, however, inspire the confidence of all participants in this marketplace as a key tool in reducing emissions and financing removals.

³³ Africa Union. 2023. The Africa Leaders Nairobi Declaration on Climate Change and Call to Action.

³⁴ Africa.com. 2023. Carbon Credits from Africa: A Transformative Force for Good.

the ground. ACMI is working in close partnership with both the Integrity Council for Voluntary Carbon Markets (ICVCM) and the Voluntary Carbon Markets Integrity Initiative (VCMI) to promote end-to-end integrity. The ACMI Showcase is subject to a clear set of integrity principles to underpin supplier inclusion, including compulsory verification using standards recognized by the International Carbon Reduction and Offset Alliance that are also compliant with ICVCM's Core Carbon Principles. These integrity principles also extend to covering any intermediaries and buyers ACMI engages with. Training programs for carbon project auditors on the continent will also be run, helping develop expertise that's appropriate and effective in African contexts, supporting a high-integrity supply.

In complement, ACMI is working with different financial sector players to create de-risking solutions to bring early-stage investments into carbon projects. It is only through increases in early-stage investment that the current environment of a multiplicity of single small-project players will be surpassed.

ACMI continues to work with partners to create new methodologies; to scale local capacity to verify, measure, and validate projects; and to build capacities of indigenous peoples and local communities to transparently leverage and benefit from carbon finance. This capacity building and empowerment are intended to improve efficiency, promote integrity, and unlock revenue as Africa delivers on its full potential to meaningfully contribute to solving the climate crisis.

Championing green energy in Africa: A strategy for quick wins

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Among green sources, hydropower is the only type of energy with potential base load generation that is readily available throughout most of Africa.

With the 2050 net zero deadline approaching, the world is in full gear for a 25-year push to increase the green energy footprint. However, green energy is not a universal panacea that will cure all illnesses. This truth is particularly pertinent in Africa where governments are confronted with an ever-increasing tension between the quest for universal electrification of their populations and ambitions for a green energy revolution.

Africa's burgeoning manufacturing centers, sprawling schools, and growing hospitals need resilient electric generation and networks. That demand will not be met with solar panels and wind farms alone. Yet, the road to success must remain green, and it involves leveraging one of Africa's most precious natural resource endowments: hydropower.

Among green sources, hydropower is the only type of energy with potential base load generation that is readily available throughout most of Africa. It represents 17% of power generation in the continent, while only 11% of Africa's hydro potential has been exploited.³⁵ Additionally, hydropower remains attractive for national interests of many countries due to its strategic role in energy security and cost for megawatts (MW).

However, the business-as-usual approach to hydropower development—focusing only on greenfield projects, many of which remain unbankable or lack proper government support—has proven ineffective. A paradigm shift towards quick wins that can lead to substantial progress is required.

Africa has 38.5GW of installed hydropower capacity, 14.7 gigawatts (GW) of which are more than 20 years old and urgently require refurbishment.^{36,37} Despite the dim state of this critical infrastructure, there is good news on the horizon. Estimations demonstrate that with an approximately \$7 billion investment, aged hydropower plants can be upgraded swiftly.³⁸ No other project in Africa can provide a large activation of GW capacity in such a short time and at such a low, competitive cost. These refurbishing projects, scattered across Africa, have a clear path forward since they are not entangled in the array of red tape of concession agreements, land expropriation, or permit issues. Their construction timelines are a fraction of greenfield projects. These initiatives simply require political will and investment support.

35 PWC. 2021. Africa Energy Review 2021.

36 UNCTAD. 2023. "Commodities at a glance: Special issue on access to energy in sub-Saharan Africa."

37 IHA. 2023. "Africa's hydropower modernization opportunities."

38 Sustainable Energy fund for Africa (SEFA). 2023. "Africa Hydropower Modernisation Programme."

As social demands increase across the continent for stronger climate-friendly energy solutions, governments in the region will gradually recognize that upgrading their existing hydro capacity is the smartest bet.

As a cheap source of energy, hydropower lowers nationwide energy costs, allowing domestic industries to become more competitive, create new jobs, and expand production capacity. Furthermore, the capacity of refurbished plants could be substantially enhanced through the implementation of hybrid solutions such as adding floating solar panels in reservoirs which prevent evaporation. Additionally, hydro reservoirs can become useful tools for water preservation and help regulate its use. At a macro level, upgrading hydro infrastructure unlocks a cascade of economic benefits.

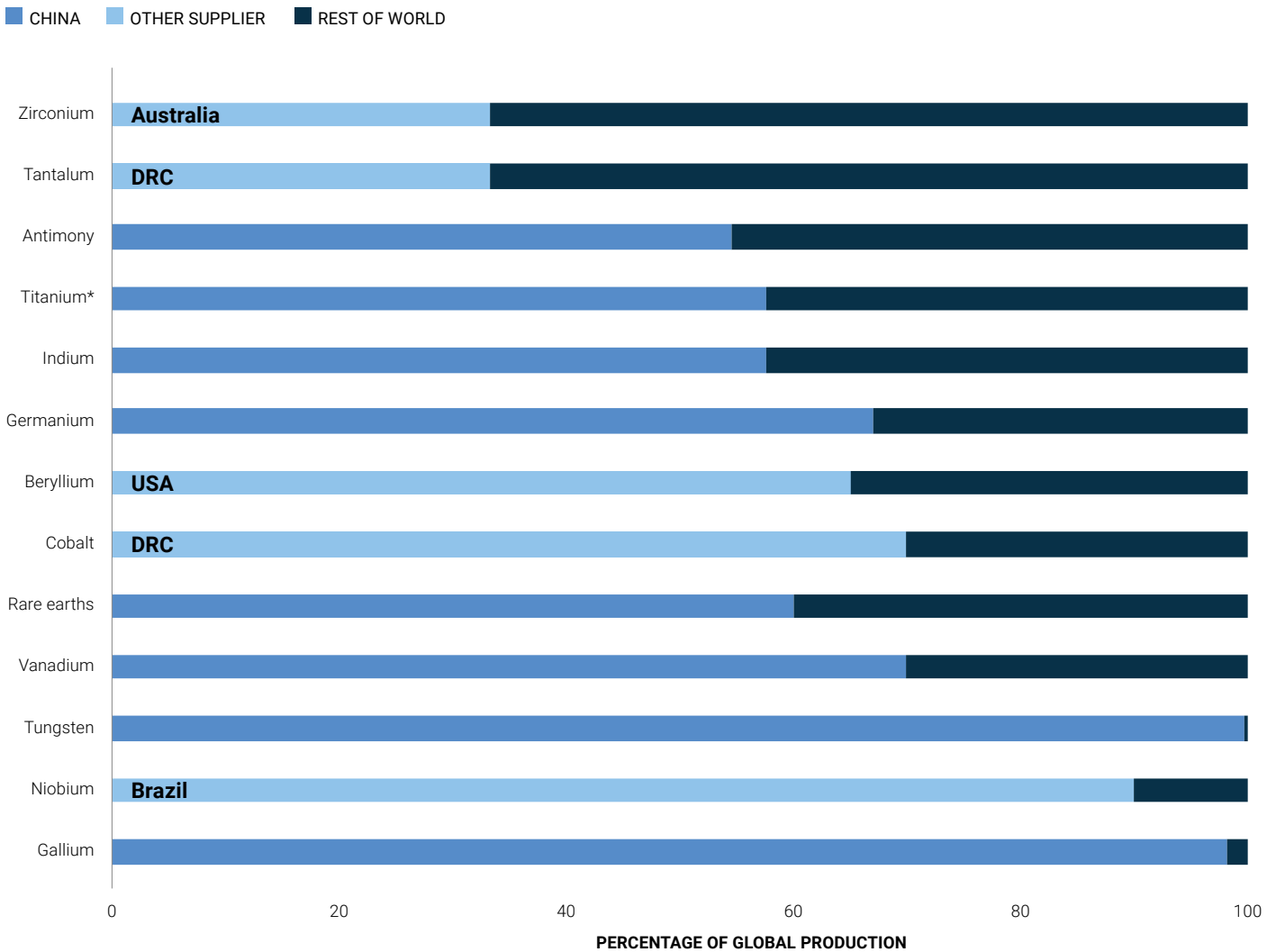
As social demands increase across the continent for stronger climate-friendly energy solutions, governments in the region will gradually recognize that upgrading their existing hydro capacity is the smartest bet.

A greener and more energy-resilient Africa is dependent on quick wins in the renewable energy space and on teams that can materialize these objectives. At Themis, we identified seven hydropower plants totaling 450MW requiring refurbishment and has taken two of these to the pilot stage. At Themis, we are confident that the way forward for a greener and more energy-resilient Africa passes through championing quick wins in the renewable energy space, and Themis has already placed its bet on this promising future as one of its anchor strategies.

FIGURE 7

CHINA LEADS PRODUCTION OF MINERALS VITAL FOR SECURITY AND DEFENSE

China dominates the production of minerals critical for security and defense. Reducing the risk of global dependency would require leveraging other sources – DRC, Brazil, Australia.



Note: * Sponge metal.

Source: The Economist. 2023. China controls the supply of crucial war minerals, October 16, 2023. United States Geological Survey.

Why we can't overlook people in addressing climate change

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As an old king from the floodplains of the Kwando River in Angola used to say, “A landscape without people is just a landscape. But a landscape with people, has history and soul.”

Much of the African continent’s natural environment is largely undisrupted for a variety of reasons—including about five centuries of a disrupting colonization process, independence conflicts, and political instability, among others. And while it might seem counterintuitive, one of the most important reasons it remains undisrupted is because of people—and their unique traditions, beliefs, and cultural connections to their own environment and natural heritage.

It is well known that Africa has been the least polluting continent over the past hundred years. The African continent possesses some of the largest and least disrupted ecological regions and natural landscapes in the world. Few places have nearly untouched mosaics of biomes and such vast landscapes with still thriving naturally occurring biodiversity and natural monuments and resources.

And while the developed world has contributed the most to the global climate crisis, the Mother Continent has been acting as the counterweight—nurturing our natural resources, our ecosystems, and our *people*, who are equipped with creative solutions.

The African population’s usage of natural resources and their intrinsic relationship with the natural elements should be considered an example of sustainability at its best. For example, Africa has five of the most important naturally occurring “water towers” of the world—in Ethiopia, Angola, Lesotho, the Lufilian Arc, and the Albertine Rift—elevated surfaces that store large quantities of water. And thanks to local communities, these water towers are largely intact—up until now, at least. In the Angolan Highlands Water Tower (AHWT), we find ourselves in a unique and delicate position.

Water is now becoming the most valued resource in the world. An average of 423 cubic kilometers of rainfall falls over the AHWT each year—which amounts to nearly 170 million Olympic-size swimming pools. This water provides food and water security and sustains the livelihoods of millions of people in seven countries—Namibia, Botswana, Zambia, Zimbabwe, Mozambique, the DRC, and the Congo. It also feeds some of our continent’s most iconic wildlife and ecosystems, including the Okavango Delta, which is home to the largest remaining population of elephants on the planet. While this may seem like an infinite amount of water, we must manage this resource carefully. Angola—like many emerging African economies—faces rapid population growth, which could strain our water resources.

Recent research from the National Geographic Okavango Wilderness Project (NGOWP) has defined the boundaries of the AHWT within academic science for the first time, a much-needed step toward formal protection. NGOWP's data shows that we could better manage our water resources. It also finds the AHWT is surrounded by peatlands covering an initial estimate of 1,634 kilometers squared (around 600 miles).³⁹ Located across Africa's largest miombo forest, these peatlands sequester millions of tons of carbon every year and contribute to climate resilience, which has a positive impact on economic growth.⁴⁰

But that research only builds on what the local communities in the area have known for millennia.

This is a familiar narrative: More and more, scientific research and understanding has been building on traditional knowledge that has been passed from generation to generation for thousands of years. Long before academic scientists were introduced to these landscapes, rural communities in Africa have been acting as Guardians of their own environments—with their own beliefs, traditions, myths, and unique understanding of natural processes and cycles. From our experience, the key is valuing both Africa's natural and *cultural* richness and heritage.

Instead of creating new systems of protection, which are often based on concepts and ideals from a Western worldview, I urge leaders to work within *existing* systems of protection helmed by local communities. The global community can adopt and adapt these intricate and holistic systems that are part of our roots in a way that elevates them and positions local communities as the stewards of their own lands, of their own futures. We must also move away from protection and conservation done in a way that separates people from their ancestral lands and denies them access to their own natural resources and landscapes. These neocolonial approaches to conservation will only exacerbate and aggravate tensions due to scarcity of resources and result in further local conflicts, diverting people from thinking and focusing on the way forward.

The future of conservation is one in which local economies, nature, and people—the soul of these landscapes—can flourish. We can all contribute to the African continent becoming a pillar of this paradigm shift and an exemplar for development in its true sense. It is time to give back to Africa what it has limitlessly given to the rest of the world, as the Mother it is.

The future of conservation is one in which local economies, nature, and people—the soul of these landscapes—can flourish. We can all contribute to the African continent becoming a pillar of this paradigm shift and an exemplar for development in its true sense. It is time to give back to Africa what it has limitlessly given to the rest of the world, as the Mother it is.

39 Lourenco, Mauro, Jennifer M. Fitchett and Stephan Woodborne. 2022. "Angolan highlands peatlands: Extent, age and growth dynamics." *Science of The Total Environment*. <https://www.sciencedirect.com/science/article/abs/pii/S0048969721073915>.

40 Truscott, Ryan. 2022. "Protecting the peatlands and wood-lands in Angola's 'source of life.' Mongabay.

Blue is the new green: The perspective of a small island nation

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Climate change is real for us in Cabo Verde, a large oceanic state but a small archipelagic country. We can see this reality in the rise of sea levels, coastal erosion, and infrastructure damage. It affects our tourism economy and the livelihoods of our population across the country, but also in the specific communities of Maio, Boa Vista, and Sal islands that are more impacted by coastal erosion. The availability of water resources is being affected by changes in precipitation patterns and increased evaporation due to higher temperatures. Droughts are affecting agriculture, food security, and water supply.

Climate change is also affecting coastal ecosystems, fishery, and tourism activities in ways that are real today. Satellite observations already indicate a reduction in net primary productivity linked to reduced ecosystem biodiversity and the abundance of larger marine organisms, such as pelagic and demersal fishes. Of particular concern are the results of the EcoOcean model that suggest a large negative effect of climate change on large pelagics, which constitute 80% of Cabo Verde exports.⁴¹ Other indicators show a significant shift in the stock population of small pelagic fish, a decrease in tuna species, and a reduction in coastal lobsters.⁴²

For us, “Blue is the New Green.” Our climate actions must be based on the sustainable and resilient management of Cabo Verde’s blue economy and the recognition of the interconnectedness of the many climate change challenges we face.

The fishing and tourism facilities and infrastructure of Cabo Verde (harbors, landing sites, and fish markets) were not designed for a changing climate and a rising sea level. They are all highly vulnerable.

Cabo Verde is strongly committed to the global climate change agenda, fully embracing the transition to a green, secure, efficient, and sustainable economy. But we are an island nation. For us, “Blue is the New Green.” Our climate actions must be based on the sustainable and resilient management of Cabo Verde’s blue economy and the recognition of the interconnectedness of the many climate change challenges we face.

For example, in the water sector, Cabo Verde has improved water access, implemented desalination projects, invested in water storage, and enhanced the efficiency of irrigation systems.

41 -20% under RCP 2.6 and -40% under RCP 8.5. Data to be published.

42 Cabo Verde. 2021. “2020 Update to the first Nationally Determined Contribution (NDC).” https://unfccc.int/sites/default/files/NDC/2022-06/Cabo%20Verde_NDC%20Update%202021.pdf.

Our energy strategy is based on ensuring universal access and energy security for all, relying on renewable energy sources. Our ambitious goals are to exceed 50% of electricity production from renewable sources by 2030, and almost 100% by 2040, and to have all vehicles powered by electric motors by 2050.⁴³ This transition will enhance our energy security by reducing the reliance on imported expensive fossil fuels. In Cabo Verde, wind and solar power are more cost-effective than fossil fuels. However, we need easier access to concessional financing, knowledge transfer, and technology to achieve these ambitious goals.

In addition, as an island nation, Cabo Verde has unique options to leverage “blue carbon” opportunities based on sustainable management of blue economy resources, preserving ecosystems, and capturing carbon. The country has some pilot projects to map areas with sea grasses or carbon hotspots and assess the effectiveness of coastal and marine ecosystems in capturing and storing carbon.⁴⁴ These studies will help to implement community-based seagrass bed conservation efforts. They will also bring robust data, crucial for effective blue carbon programs.

By integrating these opportunities into Cabo Verde’s blue economy strategy, the nation can not only preserve its unique ecosystems but also contribute to global efforts in climate change mitigation and sustainable development. However, it is important to emphasize that the implementation of these strategies requires significant investments and cooperation between the government, civil society, and international partners.

I believe that Africa can assist Europe and the world in addressing all their major challenges, both current and future. It is time to view our continent not as a risk factor but as a great opportunity for the world. This opportunity can be achieved by working together on research, knowledge and technology transfer, and access to investment.

43 Ibid.

44 Ibid.

Climate change and food security in the Sahel

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The African Sahel, which is considered a “climate hotspot,” experiences unparalleled rises in temperature, high precipitations variability, and more intense and frequent weather extreme events than the rest of the world.^{45,46} Between the 1961-1990 and 1991-2022 subperiods, the level of warming in the Sahel has increased by 0.1°C, from +0.2 °C to 0.3 °C, which is above the global average increase.⁴⁷ In addition, it is estimated that about 110 million Africans were directly affected by climate change in 2022, out of which, there were more than 5,000 fatalities (48% caused by drought and 43% caused by flooding).⁴⁸ During the monsoon season, Sahelian countries experience extreme flooding. Unsurprisingly, these events and trends have many adverse consequences on levels of growth, poverty, and food security, which are all predicted to further deteriorate in the near and longer term.

According to several estimates, the African Sahel includes countries in the world where food insecurity is the most severe. For more than 10 years, acute food insecurity has been reaching its highest level in Africa. In 2023, about 45,000 people suffered catastrophic levels of hunger in the Sahel, including 42,000 in Burkina Faso and 2,500 in Mali.⁴⁹ Projected annual food imports by African countries are expected to increase by a factor of three, from US \$ 35 billion to US \$ 110 billion by 2025.⁵⁰ This general trend is confirmed by the Global Food Security Index, where Sahelian countries are lagging behind in the ranking: Burkina Faso is (89th), Niger (97th), Chad (103rd), and Nigeria (107th), out of 113 countries included in the ranking.

Considering the many diverse and often intertwined causes of food insecurity, it would not be true to consider climate change as the only driving factor. Clearly other factors, including, high population growth, structurally weak production systems, price distortions, the recent COVID-19 pandemic, and geopolitical turmoil such as the Russia-Ukraine war, all played a role in recent food crises.⁵¹ Notwithstanding, the leading role climate change has played in the longer term is supported by a

45 Omotoso, Abeeb Babatunde, et al. 2023. “Climate change and variability in sub-Saharan Africa: A systematic review of trends and impacts on agriculture.” *Journal of Cleaner Production*.

46 Maino, M. R., & Emrullahu, D. 2022. Climate change in Sub-Saharan Africa fragile states: evidence from panel estimations. International Monetary Fund.

47 World Meteorological Organisation (WMO). 2023. Africa suffers disproportionately from climate change. Press Release Number: 04092023.

48 WMO. 2022. The State of the Climate in Africa.

49 World Food Programme. 2023. Food insecurity and malnutrition in West and Central Africa at 10-year high as crisis spreads to coastal countries. <https://www.wfp.org/news/food-insecurity-and-malnutrition-west-and-central-africa-10-year-high-crisis-spreads-coastal#:~:text=DAKAR%20%E2%80%93%20Acute%20food%20insecurity%20is,Faso%20and%20Mali%20where%20humanitarian.>

50 WMO. 2023. “Africa suffers disproportionately from climate change.”

51 Food Security Information Network & Global Network Against Food Crises. 2021. Global Report on Food Crises. Joint Analysis for better Decisions.

growing body of evidence, including Bello and al. in Nigeria, Masipa in South Africa, and Mariara and Kabaubo-Mariara and Kabara in Kenya.^{52,53,54}

The channels through which climate change affects food security are numerous. First and foremost, climate change accelerates land degradation, mainly through wind and water erosion and droughts.⁵⁵ Agricultural yields, food quality, and availability are all negatively affected by climate change.⁵⁶ In fragile and conflict-affected countries—like most countries in the Sahel—food security is further jeopardized by infrastructure destruction and important climate-induced displacements of large communities.⁵⁷ Sea-level rise and water salinization in coastal zones are also critical factors.

Recommendations

Adaptive policies are key to mitigating the adverse effects of climate change. These include a wide array of practices, investments, innovations, and policies intended to build resilience to climate change. Food production systems can be strengthened in the agriculture, livestock, and fishing sectors through better output pricing, the use of improved inputs, a greater mechanization of production processes, and diversification of crops and activities. Innovation can mainstream climate-smart agriculture and improve coping strategy.⁵⁸ Well-targeted investments in such strategic areas as irrigation, and also building of dikes in coastal zones, are found to have a great impact on agriculture, and in mitigating the effect of sea-level rise.⁵⁹ Crop supplementation is another promising avenue to fight malnutrition and insecurity without further intensifying the use of scarce inputs such as arable land, fertilizers, fresh water, and the like.⁶⁰ In addition, an improvement in government information systems can provide communities exposed to climate change with early warnings about climate extreme and allow them to plan for and adapt to them accordingly.⁶¹ Weather index insurance is also an increasingly recognized tool to mitigate climate

52 Bello, O. B., et al. 2012. "Evidence of climate change impacts on agriculture and food security in Nigeria." *International Journal of agriculture and Forestry* 2.2: 49-55.

53 Masipa, Tshepo. 2017. "The impact of climate change on food security in South Africa: Current realities and challenges ahead." *Jämbá: Journal of Disaster Risk Studies* 9.1.

54 Kabubo-Mariara, J., and M. Kabara. 2015. *Climate change and food security in Kenya: Environment for development*. No. 15-05. Discussion Paper Series.

55 Kumar, Rajesh, and A. Jyoti Das. 2014. "Climate change and its impact on land degradation: imperative need to focus." *J. Climatol. Weather Forecast* 2: 108.

56 Rahal, Imen, and Abdelkarim Elloumi. 2023. "Climate change's effects on food Security in Sub-Saharan Africa (SSA)." *Journal of Environmental and Development* 32.1: 1-15.

57 Muriuki, James, Darren Hudson, and Syed Fuad. 2023. "The impact of conflict on food security: evidence from household data in Ethiopia and Malawi." *Agriculture & Food Security* 12.1: 41.

58 Teklu, Abyiot, Belay Simane, and Mintewab Bezabih. 2023. "Multiple adoption of climate-smart agriculture innovation for agricultural sustainability: Empirical evidence from the Upper Blue Nile Highlands of Ethiopia." *Climate Risk Management* 39: 100477.

59 El-Nashar, Walaa, and Ahmed Elyamany. 2023. "Adapting irrigation strategies to mitigate climate change impacts: a value engineering approach." *Water Resources Management* 37.6-7: 2369-2386.

60 Shiferaw, Bekele, et al. 2011. "Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security." *Food security* 3: 307-327.

61 Pulwarty, Roger S., and Mannava VK Sivakumar. 2014. "Information systems in a changing climate: Early warnings and drought risk management." *Weather and Climate Extremes* 3: 14-21.

Adaptive strategies to climate change are numerous and diverse. An important challenge for their implementation is an accessible financial scheme for rural, and usually poor communities.

risk.⁶² Lastly, a better use of indigenous knowledge is found to be very effective in predicting and adapting to climate variance in rural areas.⁶³

Adaptive strategies to climate change are numerous and diverse. An important challenge for their implementation is an accessible financial scheme for rural, and usually poor communities. The recent COP 28 set-up adaptation fund, if adequately sourced could play a central role in bridging adaptation financial gaps for Africa's vulnerable communities.

62 Singh, Pankaj, and Gaurav Agrawal. 2019. "Efficacy of weather index insurance for mitigation of weather risks in agriculture: An integrative review." *International Journal of Ethics and Systems* 35.4: 584-616.

63 UNESCO. 2018. Report of the UNESCO Expert Meeting on Indigenous Knowledge and Climate Change in Africa, Nairobi, Kenya, 27-28 June 2018. <https://unesdoc.unesco.org/ark:/48223/pf00000374999>.

Informal settlements and climate change in the ‘last mile of urbanization’

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Rapid urbanization and climate change are impacting informal settlements in sub-Saharan Africa. An informal settlement or slum is generally defined as a highly populated urban area that has no infrastructure for human habitation and is densely packed with dwelling units constructed with weak materials of poor quality.⁶⁴ Climate change affects slum communities disproportionately when compared to their formal counterparts. Informal settlements are formed organically by residents who occupy land not planned for residential living. Aside from having no infrastructure, the land is precarious and unwanted, often near industry structures or dumpsites along rivers. Hidden from sight are the impacts of climate change on food insecurity, malnutrition, and disease in these communities. Policy change is urgent: Residents of informal settlements make up over 60% of the urban population on the continent of Africa.⁶⁵

Drought

Since late 2016, drought has plagued the African continent, particularly in East Africa, creating food insecurity and malnutrition. In March 2023, the World Health Organization reported 7,800 cholera cases in Kenya due to drought and 122 deaths. While our minds habitually go to areas in northern Kenya—like Turkana—or eastern Kenya—like Tana River, urban Nairobi was also affected. In Nairobi, the Kenyan Ministry of Health reported 11,181 cholera cases and 196 fatalities in July 2023. A targeted cholera campaign intended to vaccinate 300 Nairobi residents per day was surpassed, reaching 500 residents per day, according to the vaccine organization GAVI.⁶⁶ Effective infrastructure can mitigate disease and health issues related to climate change in informal settlements.

64 Habitat for Humanity. 2017. "What is a Slum?"

65 Amegah, A. Kofi. "Slum decay in Sub-Saharan Africa: Context, environmental pollution challenges, and impact on dweller's health." *Environmental Epidemiology* 5.3 (2021).

66 Joyce Chimbi. 2023. "Averting a cholera disaster in Nairobi's informal settlements." Gavi. <https://www.gavi.org/vaccineswork/averting-cholera-disaster-nairobis-informal-settlements#:~:text=%22The%20number%20of%20people%20vaccinated,City%20County%20department%20of%20health>.

Floods

In 2022, 600 people were killed in Nigeria's worst flood in decades. In the same year, floods in West and Central Africa affected 8.2 million people in 20 countries—killing 1,418, injuring 4,398, and displacing 2.9 million people. While *formally* planned urban areas are zoned in locations safe for habitation, *informal* settlements are in precarious locations, often beside rivers, making residents more vulnerable to floods. For many slum residents, the river becomes a dumping ground for trash and waste. Each year, homes along Kenya's Ngong River float away during rapid flooding due to climate-induced heavy rainfall, after which residents search for their belongings and missing relatives. Excess water lays dormant near homes and attracts mosquitos which may carry malaria or other blood-borne diseases like yellow fever, dengue fever, or West Nile.⁶⁷ Stagnant water breeds more waterborne diseases than running water, including typhoid fever, cholera, giardia, dysentery, e-coli, hepatitis, and salmonella, all of which put residents of informal settlements near excess flood water at risk.

Excessive heat

The realities of increasing urbanization, rising average temperatures, and the population density in informal settlements gained attention during the COVID-19 pandemic.⁶⁸ Living in high-density slums increases heat due to a lack of open space. Heat makes you sweat, causing you to lose the water you have in the body. These effects are heightened for residents of informal settlements who cannot afford the recommended fresh water intake. In high-density slums, dwellings are, on average, approximately 10ft x 12ft with one or no windows at all, occupied by up to six people, and built along narrow 2-3ft mud paths. Slum dwellings are typically constructed of cinder-block, mud, and sticks, or corrugated tin. Some of these materials hold heat, leading to increased human suffering as temperatures continue to increase in urban cities. A study from Johns Hopkins University on climate revealed that Nairobi's slums range from 5 to 10 degrees Fahrenheit hotter than the central business district.⁶⁹

67 Nabatanzi, Maureen, et al. 2022. "Malaria outbreak facilitated by increased mosquito breeding sites near houses and cessation of indoor residual spraying, Kole district, Uganda, January-June 2019." BMC Public Health 22.1: 1898.

68 Mehrolhassani, Mohammad Hossein, et al. 2022. "Health protection challenges of slums residents during the COVID-19 pandemic, according to the social determinants of health framework: A case study of Kerman city in Iran." Journal of Education and Health Promotion 11.

69 Scott, Anna A., et al. 2017. "Temperature and heat in informal settlements in Nairobi." PLoS one 12.11: e0187300.

Policy recommendations:

The reality that over 60% of Africa's urban population live in informal settlements cannot be denied, nor can it be denied that a country's population is its best asset. With the 1.4 billion population boom expected by 2063, informal settlements and climate-based issues must be addressed, lest half the population of Africa be lost due to lack of foresight.⁷⁰ In light of these facts, my recommendations are:

1. Settle land tenure issues in slums. A working model is community tenancy.
2. Change the development approach: Ditch the high-rise model and upgrade slums with water and sanitation, keeping climate-smart ecology at the forefront of design.
3. Enact eco-measures to prevent rivers from overflowing and to capture excessive water to offset droughts.
4. Empower paid community health workers to manage 50 homes each in informal settlements for basic health issues, and to accurately report data linked to climate change.
5. Use micro-carbon credits to incentivize community-led kitchens that use clean gas to deter the use of wood and charcoal for cooking in slums.

Addressing the challenges in informal settlements is key to fostering climate-resilient urban cities.

Addressing the challenges in informal settlements is key to fostering climate-resilient urban cities. The last mile of urbanization can be reached with climate at the forefront of "*Leapfrogging to Settle the Informal Settlement*," that blends African Village Culture with climate-smart urban living as a blueprint for reclaiming the health and resilience of 60% of the continental population.

⁷⁰ Weny, K., R. Snow, and S. Zhang. 2017. "The demographic dividend atlas for Africa: Tracking the potential for a demographic dividend." UNFPA.

Finance for climate adaptation in Africa still insufficient and losing ground

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At COP28, we launched the report [State and Trends in Climate Adaptation Finance 2023](#), where we analyzed the most comprehensive and up-to-date information on climate finance flows, globally and with a deep dive into Africa.⁷¹

The report analyzes climate finance data for 2021-2022, the latest available with consistent quality. The good news is that global climate finance doubled to USD 1.3 trillion annually in 2021–2022 compared to USD 653 billion in 2019–2020. However, finance for global adaptation has, unfortunately, seen a relative decrease, from 7% in 2019–2020 to 5% of total climate finance in 2021–2022.

Africa is one of the most affected regions by climate change and its current and historical greenhouse gas emissions are minuscule at a global scale. However, the region received only 20% of global adaptation finance flows (USD 13 billion) annually in 2021–2022. This is less than half of the finance going to the East Asia and Pacific region, which received about 45% of global adaptation finance flows.

This is clearly insufficient. The report reviews data from the Nationally Determined Contributions (NDCs) prepared by African countries. According to the African NDCs, the region needs about USD 53 billion per year between 2020 and 2035. However, we estimate that the NDCs may low-ball the actual cost of adaptation by as much as 100% for a variety of reasons. This means that the projected trends are not positive. If the current level of adaptation funding flows continues, Africa will only mobilize USD 195 billion by 2035. The adaptation needs of the continent may be as high as USD 1.6 trillion. Africa's adaptation needs are about eight times larger than the funds available.

Furthermore, the balance between climate mitigation and climate adaptation investments continues to be tilted towards the former. On the continent, adaptation finance was only 36% of total climate finance in 2021-2022. This was a decrease from 39% of total climate finance in 2019–2020. Adaptation is losing ground to mitigation financing in the continent.

⁷¹ Global Center on Adaptation (GCA). 2023. "State and Trends in Climate Adaptation Finance 2023." GCA and Climate Policy Initiative (CPI).

We also reviewed the financial instruments used by African countries to mobilize resources for adaptation. Close to 80% of adaptation finance in Africa comes from loans or government budgets. Given the challenging debt situation on the continent, the mobilization of more grants for adaptation is more urgent than ever. It is important to note that African governments themselves invest more resources in climate adaptation than the support provided by bilateral development finance institutions to the region (19% vs 11%).

A missing actor in adaptation action in Africa is the private sector. In Africa and globally, the private sector has consistently financed less than 3% of adaptation activities from 2019–2022. A substantial portion of these funds come from philanthropies. The opportunity for commercial financiers and private enterprises to develop and finance adaptation solutions, products, and services is enormous.

In the report, we compare for the first-time, flows going into public emergency response and climate adaptation flows. In Africa, between 2019-2021, the international funding for public emergency response funding was similar to public adaptation finance (USD 26 billion and USD 28 billion, respectively). The opportunity to reduce the need for emergency funding by investing more in climate adaptation is clear.

Unfortunately, the data shows that the most vulnerable African countries do not receive sufficient resources for adaptation. These countries are instead dependent on emergency response funding to cope with hazards. The top five recipients in Africa in 2019-2021 were South Sudan, the Democratic Republic of the Congo, Ethiopia, Somalia, and Sudan. In this list, only Ethiopia was among the top five recipients of adaptation financing.

The most recent data on climate adaptation finance in Africa shows that Africa is receiving insufficient flows, their governments are investing through debt and their fiscal resources, and adaptation is losing ground to mitigation investments in the continent. It is time to change these trends. The gap is growing. The consequences on economic growth and poverty levels are very serious. African governments are doing their part. Will the world come to support the continent?

The most recent data on climate adaptation finance in Africa shows that Africa is receiving insufficient flows, their governments are investing through debt and their fiscal resources, and adaptation is losing ground to mitigation investments in the continent. It is time to change these trends.