

Roadmap to Africa's COP: A Pragmatic Path to Net Zero

White Paper

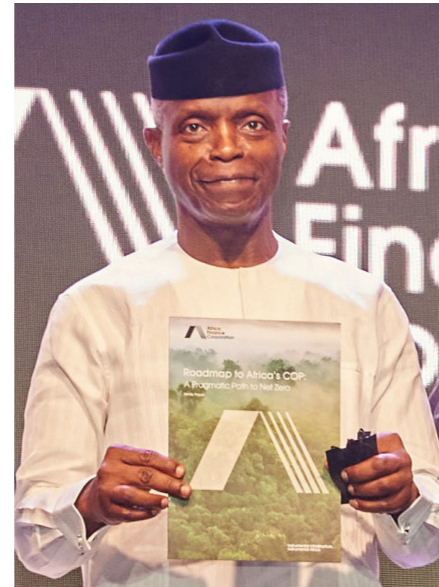


White Paper Endorsements



H.E. Nana Akufo-Addo,
President of the Republic
of Ghana

"I am very excited about the decision of the AFC to produce this document. Before we went to COP26 in Glasgow, we didn't have an opportunity to sit down as the Africa bloc to decide on a common platform that we were going to urge at COP26. I don't think we can afford to do that going to COP27 in Egypt. This document provides us a basis on which we can then go forward to adopt a common position at COP 27. Hopefully we will find an opportunity within the structure of the African Union to use this as a base document for a discussion as to what our common position should be for COP27."



H.E. Yemi Osinbajo,
Vice President of the
Federal Republic of Nigeria

"The whitepaper sets out very clearly and simply the roadmap for success, and I think that the basic elements – localizing, rebuilding and finnovating – are very important and powerful concepts. I was particularly intrigued by the concept of developing a circular economy as opposed to shipping all our commodities and minerals halfway round the world before coming back here. We can actually localise and build local industry; that way we will save on emissions and at the same time develop local industry. I think these are very powerful concepts and I am very impressed with the report."



Tanguy Gahouma,
Chair of the African Group
of Negotiators (AGN) on
Climate Change

"This white paper is really important for Africa. Africa is one of the most important continents for climate change because we are not responsible for the situation, but we suffer the most today from climate change. The white paper from AFC speaks on three pillars - localize, build and finnovate - and we really think this is what Africa needs."



Benedict Oramah,
President and Chairman
of the Board of Directors of
the African Export-Import
Bank (Afreximbank)

"This document will inspire us to do something. The circular economy argument underpins the work we are doing under the AfCFTA to create the regional supply chains that we require."



Dr. Carlos Lopes,
Professor, University of
Cape Town

"This report brings key messages that are very important. The first message is about climate justice: we have been through a period where it has not been recognized and the report tries to bring this issue to the forefront. The second is about climate finance: lots of promises that are not fulfilled, and how we can overcome that gap, particularly with African institutions, and AFC is doing its bit. The third message is about how we negotiate: in an international arena, you don't get what you deserve; you get what you negotiate, and that's a very important message that comes across. Lastly, it's the issue of standard setting, certifications and standardization. All of that is crucial and the report brings that forward."

Executive summary

Global climate change is undoubtedly among the most pressing of challenges facing mankind, with the window for limiting its most devastating impacts rapidly narrowing.

An April 2022 report from the Intergovernmental Panel on Climate Change (IPCC) documented the rapid acceleration of global warming, underscoring the imperative to take drastic action for the world to reach net zero emissions by 2050.

The UN Secretary General summed up the findings as “a litany of broken climate promises” by corporations and governments globally “that put us firmly on track toward an unlivable world”. The report followed a year of unprecedented extreme weather, from heatwaves and hurricanes in North America to flooding in Europe and China, adding to the global sense of urgency for the need to combat climate change and its impacts.

Against this backdrop, Africa’s experience is unique. It has borne the brunt of the most devastating impacts of climate change – from frequent floods to droughts and severe heatwaves, costing lives and livelihoods.

By contrast, the continent contributes less than 4 per cent of greenhouse gas emissions, reflecting Africa’s crippling energy deficit. Four out of five people in the world without energy access live in sub-Saharan Africa, impeding industrialisation and development. Consequently, Africans must balance the need to combat climate change with an urgency to develop the continent’s economies in order to alleviate hunger and poverty, among other UN Sustainable Development Goals. SDG7 – affordable and clean energy – remains out of reach for half of Africa’s people and is key to unlocking the other 16 goals. Development of transport and logistics, and technology infrastructure is also vital.

Thus, as Africans, when we look to the COP27 UN Climate Change Conference in Egypt’s Sharm El Sheikh – the first African COP since Morocco in 2016 – our priority is to secure a pragmatic path to global net zero. Yet, with competing regional agendas, how can world leaders unite to take the steps critical to saving our planet?

For Africa’s COP to be successful in setting the world on a sustainable path to reversing climate change, our continent’s leaders must engage now in a unified narrative with the rest of the world. This begins with driving recognition that – while reducing emissions is a necessity for the more developed and highest polluting wealthier nations – there is a more limited universal impact to be gained from reducing the already far lower emissions of sub-Saharan Africa. African nations will drive a far greater effect in combatting global warming and its impacts by focussing instead on three significant areas of change.

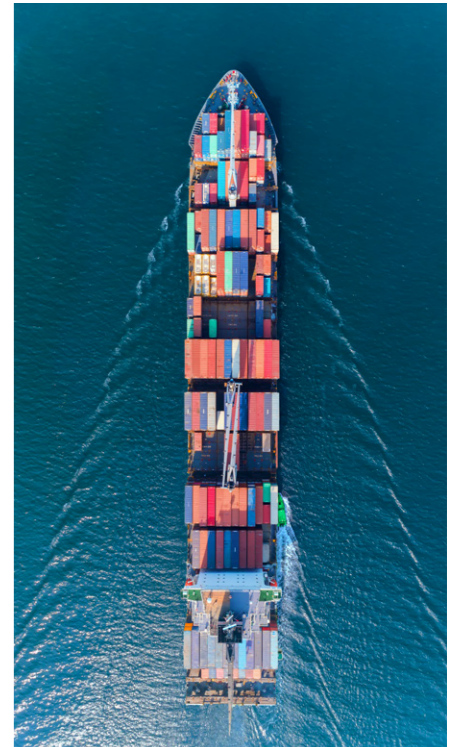
1. Localise

The most significant area in which Africa can effect change in reversing global warming is by offsetting wasteful journeys across our oceans. Africa is the world’s biggest store of minerals and commodities – everything from copper and iron ore to cotton, cocoa and coffee. Most of these commodities and minerals are shipped half way around the world to Asia for manufacturing and processing, before being transported yet again to the consumer marketplace. This is a key reason why shipping is the single biggest CO₂ emitter after China, the US, India, Russia and Japan at 3.1 per cent of global greenhouse gas emissions – about equivalent to all African nations combined.

The first step to reducing wasteful shipping is to build circular local economies. The irony here, of course, is that manufacturing requires electricity. We need the half of Africa’s population that are without access to energy to be switched on. While renewable sources are the ultimate goal, Africa must also exploit its abundant reserves of natural gas as an essential transitional source of energy to support industrialisation – a position backed by the European Commission’s recent decision to classify natural gas as a form of green energy and a vital transition fuel in the path towards decarbonisation. This ruling provides impetus for Africa especially at a time when Europe is seeking non-Russian sources of LNG. African gas production ultimately benefits the environment by turning harmful emissions from flaring into energy, while helping to limit use of coal, diesel and firewood.

Given that significant swathes of Africa are already at net zero, industrial development using natural gas can be accomplished without substantial contributions to global carbon emissions. With resultant job creation and economic growth, African nations can invest further in renewable sources to make the final transition.

In particular, manufacturing the components of renewable energy technology, from electric vehicle batteries to wind turbines, is an essential circular economy for development in Africa. Among the continent’s commodity and mining deposits are the biggest reserves of renewable metals and minerals, such as lithium and cobalt. Growing need for these largely untapped mineral reserves will make Africa a key supplier for global energy transition. In turn, this should drive sustainable economic development. What is critical here is for the metals to be mined in such a way that minimises further environmental pollution and for resource-efficient sustainable mining techniques then to be combined with ecosystems fostering local production centres to manufacture the batteries, vehicles and robots, with efficient transport links to connect with the ultimate consumers.



2. Rebuild

In order to develop sustainable mining and the circular economies that will drive economic growth and job creation, Africa first needs foundational building blocks: strong and resilient infrastructure in transport, construction, electricity grids and off-grid energy.

Africa is the most exposed region to the ravages of global warming largely because its infrastructure – from roads, bridges and seaports to buildings and electricity grids – is ill equipped to withstand climate shocks. Everything must be built with hardier and more sustainable structures and materials. Without intervention, the cost of structural damage caused by natural disasters in Africa will increase to US\$415 billion a year by 2030 from between US\$250 billion to US\$300 billion now, according to the UN Office for Disaster Risk Reduction. These costs are in addition to an infrastructure deficit currently estimated at US\$130 billion to US\$170 billion per year. And with Africa's population increasing at the fastest pace globally, accompanied by rapid urbanisation, the need for resilient building will become ever more urgent.

Therefore, to combat the impacts of global warming, our second area of change is resilient building – to 're-build' Africa's ocean and river defenses, its agriculture and its infrastructure.

3. Finnovate

Key to effecting immediate and significant change in the first two critical realms is ensuring that Africa-based institutions get access to essential climate funds through financial innovation, hence the need to "finnovate". Resilient building ultimately saves on costs of repair and replacement of infrastructure, but vastly inflates expenses at the outset. Investment is needed to mass-scale manufacturing and processing capacity to obviate the need for shipping raw materials to Asia.

Financing is also needed to help preserve Africa's vital carbon sinks: the continent's vast rainforests absorb an estimated 1.1 billion to 1.5 billion tonnes of carbon dioxide annually, more than the Amazon or any other region's rainforests. Yet, without viable alternative energy sources, much of the local population depends on burning firewood for cooking and heating. We need to provide sustainable energy alternatives – and we need to compensate regional governments to offset economic imperatives to deforest for agriculture or industrialisation.

In coordination with development finance institutions, governments and institutional investors, the Africa Finance Corporation's many projects over the course of 15 years have demonstrated that it is possible to mobilise financing at scale through crowding in private sector investment. Leveraging financial input from governments and NGOs, we have the tools to de-risk climate investments and offer strong returns to incentivise funding from institutional investors such as pension funds, sovereign wealth funds and insurance companies. Such tried-and-tested financial innovations include public-private partnerships, blended finance, B-loans, green bonds, first-loss equity, insurance and guarantees.

With global financial institutions having pledged at COP26 to align portfolios worth US\$130 trillion to achieve net zero emissions, dedicated funding is limited only by our ability to innovate. Translating opportunity into reality demands concerted international policy coordination and financial innovation.

To effect definitive progress in reversing climate change and its impacts as we approach COP27, our leaders should focus on these three core objectives: localise, rebuild, finnovate.



Africa and climate in context

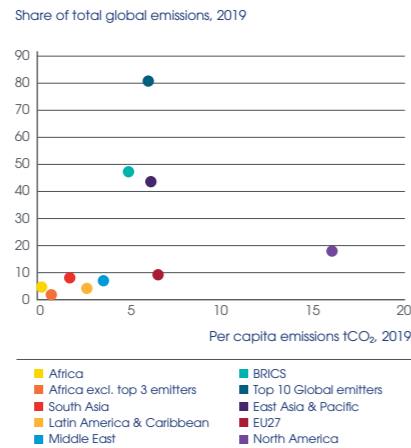
Determining what steps need to be taken at COP27 requires understanding complex and intertwined issues relating to Africa and climate change.

Low emissions, high vulnerability

Africa's carbon footprint is extremely low, with most of the region's emissions driven by a small share of the population. With about 1,449 metric tons of carbon dioxide equivalent (MtCO₂e) emitted in 2019, Africa contributed less than 4 per cent of total global CO₂ emissions. Moreover, excluding South Africa, Egypt and Algeria, the continent's overall contribution to global emissions was just 1.7 per cent in 2019. (See Charts 1 & 2 below).

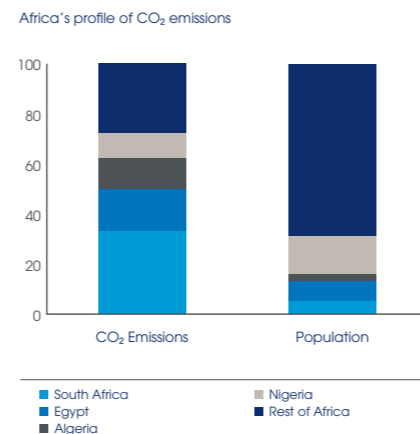
Yet the continent has been disproportionately impacted by the impacts of climate change, with frequent droughts, heavy rains and severe heatwaves. Of the 10 nations in the world deemed by the Global Climate Risk Index to be most threatened by climate change in 2017, three were African countries – rising to five African countries in 2019. The share of Africa's GDP vulnerable to climate change is expected to increase to 50 per cent by 2023 from 38 per cent in 2018, impeding agricultural and labour productivity, and harming economic security and human health. Africa is especially vulnerable in part because its infrastructure has not been built to withstand damage caused by climate change.

Chart 1: Africa contributes the least of any region to global CO₂ emissions...



Source: Climatewatchdata.org. Note, emissions dataset is from the Global Climate Perspectives (GCP) due to its frequency and comparability. Coverage excludes land use change and forestry, as well as waste.

Chart 2...and of those limited CO₂ emissions, most are driven by a small share of the population



Lack of energy access vs. depletion of vital carbon sinks

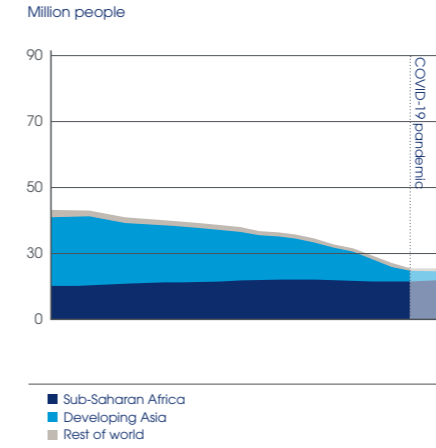
The majority of the population lacks access not only to electricity for lighting, heating and charging, but also the basic energy required for cooking. For that reason, more than any other region in the world, Africa relies predominantly on wood fuel and charcoal for its energy requirements, an inefficient source of fuel that endangers valuable forest cover. (Charts 3 & 4) That reliance has been growing steadily due to the needs of rising population growth. As a result, Africa uses ten times the energy to cook equivalent amounts of food compared with regions using modern technologies.

At the same time, Africa has powerful natural carbon sinks in the form of tropical and montane rainforests, which absorb an estimated 1.1 billion to 1.5 billion tonnes of carbon dioxide annually². That's equivalent to removing all of the motor vehicles on the road in the US, or up to 320 million vehicles annually.

Consequently, Central Africa is one of the few remaining regions of the world that absorbs more carbon than it emits. However, many Africans, with no other access to energy, are forced to use those critical trees for wood fuel. This is the biggest cause of depletion to Africa's forests and other biomass sources, the thinning of its forest canopy and loss of carbon. Unlike Asia and Latin America, where timber and logging are largely responsible for forest depletion, wood fuel is Africa's main driver of tropical forest degradation. The continent has roughly one-sixth of the world's remaining forests, but accounts for 43 per cent of recent annual depletion. While much of the world's attention has been on depletion of the Amazon rainforest in Brazil, Africa's are shrinking at a much faster rate.

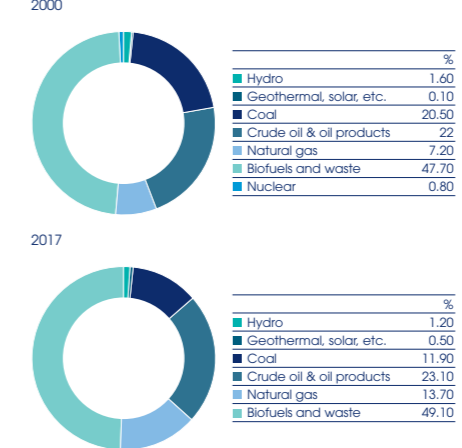


Chart 3: Global population without access to electricity by region, 2000-2021



¹ United Nations, "United Nations Fact Sheet on Climate Change, 2006" https://unfccc.int/files/press/backgrounders/application/pdf/factsheet_africa.pdf.
² University of Leeds, "African rainforests can resist severe heat and drought", 18 May 2021, <https://environment.leeds.ac.uk/faculty/news/article/5413/african-rainforests-can-resist-severe-heat-and-drought>.

Chart 4: Africa's energy supply is dominated by wood fuel – and the share is growing



The natural gas imperative

Africa is endowed with 7.3 per cent of the world’s gas reserves. In order to achieve the targets of the Paris Agreement, various models assume that the continent must forgo burning multiple fossil fuel energy sources, including 34 per cent of known reserves of gas, along with 90 per cent of coal and 26 per cent of oil.

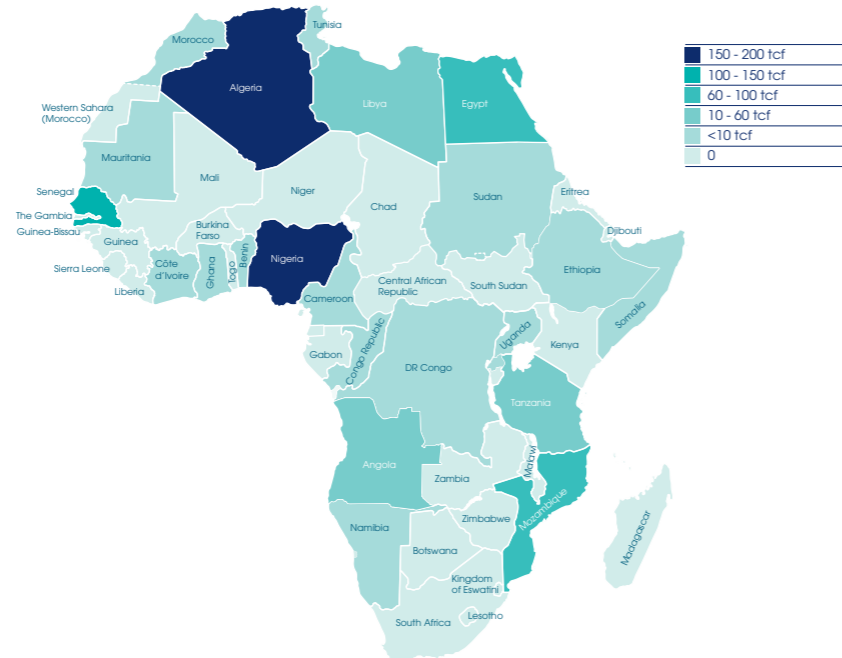
Yet, natural gas offers the cheapest and most attractive alternative as a transitional fuel from more polluting staples including wood fuel, coal and diesel – a position backed by the European Commission’s recent decision to classify natural gas as a form of green energy.

This ruling provides impetus for Africa, especially at a time when Europe is seeking non-Russian sources of LNG. African gas production ultimately benefits the environment by turning harmful emissions from flaring into energy, while helping to limit use of coal, diesel and firewood.

Africa needs stable, reliable and adequate supplies of energy to support uses from clean cooking to fertilizers and industrialisation. For countries with viable reserves, natural gas offers the most cost-competitive and flexible source of electricity, improving the security of supply and balancing the mix of inputs for integrating variable energy. (Chart 5)

Africa is in a unique position. With significant areas of the continent – especially those with extensive forests – absorbing more carbon than they produce, the region is at net zero or lower. For that reason, Africa must have leeway to use a mix of energy sources, including natural gas, as it accomplishes two goals: advancing development of the economy and transitioning to cleaner energy. In other words, industrialisation to lift populations out of poverty and provide jobs can be accomplished without meaningful impact on global carbon emissions.

Chart 5: Distribution of Africa’s natural gas reserves



Source: US Energy Information Administration

Wasteful outsourcing of manufacture and processing to Asia

Africa’s already low carbon emissions could be further reduced by addressing dependence on unprocessed commodities like cocoa, cotton and copper. Currently, the bulk of exports are raw materials that are shipped for processing mainly in China and other Asian countries, where they are then transported again as finished goods. This contributes to the maritime shipping industry producing 3.1 per cent of global greenhouse gas emissions, equivalent to all African nations combined and making shipping the single biggest CO₂ emitter after China, the US, India, Russia and Japan.

While it is difficult to assess precisely what share of total global emissions relate to Africa’s trade, most of the region’s exports go to other continents and, therefore, are disproportionately reliant on shipping and ports. The vessels Africa relies on are three of the highest CO₂ emitters: tankers, bulk carriers and container ships.

The result is that, even though Africa accounts for a small share of world merchandise trade by value – about 2.5 per cent of global exports and 3 per cent of imports in 2020 – the continent contributes a much larger share of globalised maritime trade in terms of volume, according to estimates by UNCTAD. In 2019, African ports loaded close to 7 per cent of world maritime trade in exported goods and unloaded 4.6 per cent of maritime imports. About half of Africa’s goods exported by sea in 2019 was composed of tanker trade, while over two-thirds of imports consisted of dry cargoes (dry bulks and containerized goods). Container ships tend to transit at higher speeds than dry bulk carriers, thus – all other things being equal – emitting more carbon dioxide per ton-mile than the latter.

Restructuring and localising manufacturing could go a long way to reducing these emissions. This requires developing regional processing hubs for value addition to Africa’s raw materials. Such development would effectively cut out all of the GHG emissions resulting from the current practice of outsourcing manufacturing and processing to other regions.



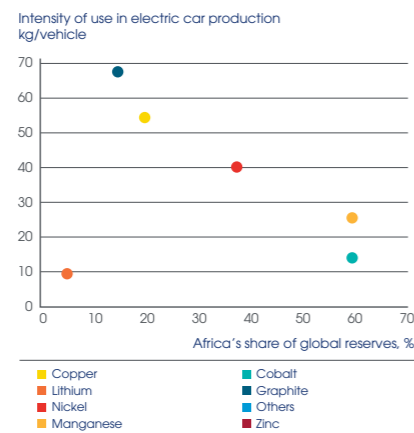
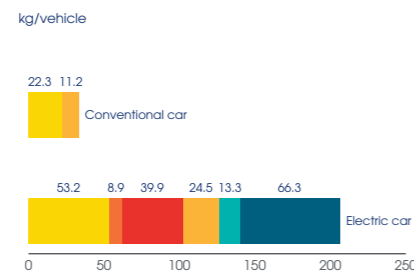
For transition to clean energy, the world needs African resources

Countries around the world are transitioning to electric vehicles and to wind and solar energy. But clean energy technologies require vastly more minerals and metals than fossil-fuel based counterparts (see Charts 6 & 7).

For example, an electric car uses five times more minerals than a conventional car – more than double the amount of copper and manganese. An onshore wind plant requires eight times more minerals and metals than a gas-fired plant of the same capacity. To meet a rapid rise in demand, production of minerals, such as graphite, lithium and cobalt could increase by nearly 500 per cent by 2050, according to the World Bank.

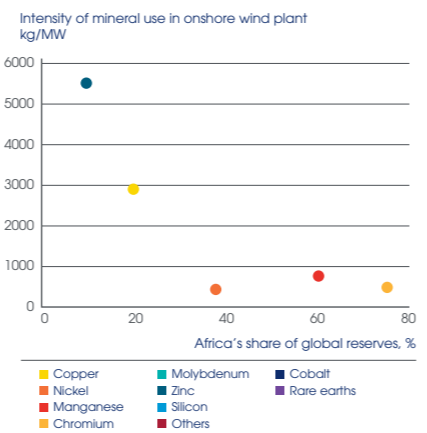
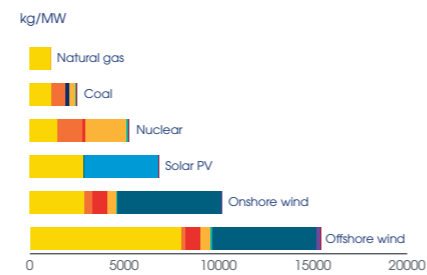
Although accounting for a small proportion of current global production, Africa has a significant portion of untapped mineral reserves: 30 per cent of bauxite, 60 per cent of manganese, 75 per cent of phosphates, 85 per cent of platinum, 80 per cent of chrome, 60 per cent of cobalt and 30 per cent of titanium. One third of all remaining global mineral reserves are in Africa, including many that are required for the global energy transition. In the case of platinum and cobalt, Africa’s current contribution to global output is already substantial. South Africa and Zimbabwe produce 80.5 per cent of the global output of platinum and the Democratic Republic of Congo is rich in lithium, cobalt and nickel, among other resources critical for battery technology.

Chart 6: Mineral Intensity of electric vs. conventional cars



As a result, Africa’s mineral reserves will be needed to meet rapidly growing global demand, turning the continent into a key supplier for the global energy transition³. At the same time, these metals must be mined using sustainable techniques, with processing facilities located in close proximity and regional production centres for manufacturing the cars, wind turbines and other renewable technology on the ground.

Chart 7: Minerals used in selected power generation technologies



Source: IEA, USGS, Fitch, AFC Research

³ African Development Bank, "Catalyzing Growth and Development through Effective Natural Resources Management", African Natural Resources Centre, 2016, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/anrc/AIDB_ANRC_BROCHURE_en.pdf



COP26 Outcomes

Preparing for COP27 requires reflection on the outcome of COP26. While the 11-page Glasgow Climate Pact finalised on 13 November 2021 showed some successes, it also came up short in many areas, especially for Africans. Overall, COP26 left a great deal of work to be done in preparation for the next global gathering.

Where COP26 succeeded

COP26 achieved a significant and unexpected result in managing to preserve the Paris Agreement's 1.5°C ceiling for global warming. The Climate Pact states that carbon emissions will have to fall by 45 per cent by 2030 to keep the 1.5°C goal alive.

Countries also made notable commitments with respect to:

- **Carbon emissions and coal use.**

In order to limit global warming to 1.5°C above pre-industrial levels, countries submitted plans that would nearly halve global carbon output by 2030. In addition, more than 90 governments joined US President Joe Biden in pledging reductions to cut methane emissions collectively by 30 per cent by 2030 vs. 2020 levels. Countries also committed to 'phasing down' coal-fired power generation.

- **Global carbon sinks.** 110 national leaders promised to end and reverse the effects of deforestation by 2030 across 90 per cent of the world's forests, pledging almost US\$19.2 billion of public and private funds. In addition, governments of 28 countries committed to eliminate deforestation in the global trade of food and other agricultural products such as palm oil, soya and cocoa. The UK, European Union and other donor regions created a new £1.1 billion (US\$1.4 billion) fund to protect the Congo Basin.

- **Adaptation and financing.** Thirty-five countries joined the Adaptation Action Coalition, bringing total membership to 40. In addition, the EU announced a new pledge of €100 million (US\$110 million) in finance for the adaptation fund. Countries also agreed to double adaptation funding for developing nations to US\$40 billion by 2025. As for the commitment to mobilise US\$100 billion a year to help the poorest countries mitigate and adapt to the effects of climate change, the EU – the largest donor region so far, accounting for €23.39 billion of climate finance in 2020 – announced an additional €4 billion for climate finance until 2027.

Where COP26 Fell Short

At the same time, in many areas, COP26 produced outcomes for Africa that failed to meet expectations and, in some cases, could have potentially damaging unintended consequences.

- **Inadequate funding for adaptation.**

Africa will need significant amounts of financing – an estimated US\$18 billion to US\$30 billion a year over the next two decades – to adapt to and mitigate the impact of climate change and extreme weather patterns, according to United Nations Economic Commission for Africa (UNECA). But commitments made at COP26 continue a disturbing trend: most of the existing climate finance is going to projects to reduce greenhouse-gas emissions and, therefore, to the more polluting middle-income countries, as opposed to the poorest and most vulnerable nations

that have yet to build up emission-spewing industries. Sub-Saharan Africa receives just 5 per cent of total climate finance outside the OECD.

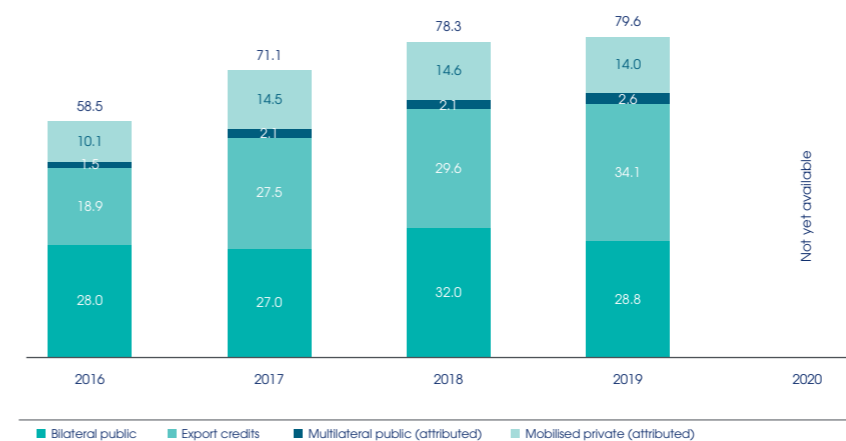
The Adaptation Fund – established in 2001 at COP7 to fund climate adaptation efforts in the poorest countries – received US\$356 million in new support, an amount woefully inadequate against the immense scale of the global challenge. In light of the Glasgow Climate Pact's commitment for rich countries to at least double finance for adaptation by 2025, the amount remains significantly below projected requirements. The UN estimates that developing countries already need US\$70 billion per year to cover adaptation costs and will need US\$140 billion to US\$300 billion by 2030.

- **Foot dragging on other financing.**

Minimal progress was made at COP26 to realise the pledge by wealthy nations 12 years ago to commit \$100 billion a year to help developing nations both to mitigate and adapt to the

impacts of climate change. There was no acknowledgement of this commitment, nor any conclusive further commitments. Since the pledge was first made at COP15 and reinforced in the Paris Agreement, wealthy countries have not followed through – although there is disagreement about the amount of commitments made thus far. The most generous estimate from the OECD for any year is less than US\$80 billion, largely in the form of loans. Africa, it should be noted, received an overall share of the funding that was second only to Asia (see Chart 8). Yet, analysis by Oxfam puts the public financing total at only US\$19 billion to US\$22.5 billion in 2017-18, on the basis that only concessional grants and semi-concessional lending should be counted, rather than lending on non-concessional terms.

Chart 8: Climate finance provided and mobilised by developed countries in 2016-19 (USD billion)



Source: OECD; note, figures for 2020 will not be available before 2022 due to time lags in the reporting of the necessary official activity-level data.

⁴ OECD, "Climate Finance Provided and Mobilized by Developed Countries," 17 September 2021, <https://www.oecd.org/env/climate-finance-provided-and-mobilised-by-developed-countries-aggregate-trends-updated-with-2019-data-03590b7-en.htm>

⁵ Akinwumi A. Adesina, Ngozi Okonjo-Iweala, Vera Songwe, and Ibrahim Assane Mayaki, "The COP26 Africa needs," Africa Renewal, December 2021, <https://www.un.org/africarenewal/magazine/december-2021/cop26-africa-needs>

• **No 'loss and damage' fund.** This would have been a fund financed by industrialised countries with high historic levels of carbon pollution to help compensate other countries for the damage caused. The failure to create such a fund means African countries, on the frontlines of severe climate change impacts, are without recourse to compensation from the wealthy nations most responsible for GhG emissions. While the Glasgow agreement called for a two-year dialogue on a finance mechanism to compensate nations for loss and damage, the lack of concrete funding commitments and weak deliverables fell short, with the potential to slow the overall global climate effort.

• **Tepid action on global emissions.** The agreed-upon pledges did not go far enough. The Glasgow Climate Pact itself notes that under existing emissions-reduction pledges, emissions will be nearly 14 per cent higher by 2030 than in 2010. Other analysis by Climate Tracker suggests that, should countries meet their 2030 targets, global temperatures will still rise by 2.4°C above pre-industrial levels by 2100. Especially noteworthy was China and India's reopening of a vital clause in the agreement that enjoined countries to "phase out" coal-fired power generation. Both countries were opposed to the phrase and were adamant on replacing it with "phase down", implying a longer-term future for the use of at least some coal.

• **The dark side of deforestation pledges.** Despite the clear positive impacts of pledges made by global leaders, there is the potential for these commitments to have unintended consequences in Africa.

Firstly, without access to wood fuel and charcoal to meet their energy requirements, many in Africa would have no other source of energy available, while those clearing the forests are often poor subsistence farmers who contribute little to global emissions and have few alternative sources of income beyond agriculture. A second concern is the potential harm to African countries – particularly poor farmers – that are reliant on the trade of affected commodities. Many small farmers, for example, depend on cocoa farming for additional income and have to clear forested land to grow their crops. Countries like Ghana and Côte d'Ivoire, two of the world's biggest cocoa producers, depend on the trade of cocoa crop to multinationals in developed countries. As of 2019, Ghana and Côte d'Ivoire exported cocoa beans worth US\$1.9 billion and US\$3.6 billion, respectively. Cocoa accounts for 30 per cent of Ghana's foreign revenue and 21 per cent of total exports, and employs two million people.

• **Consequences of portfolio realignment pledges.** More than 450 financial institutions overseeing US\$130 trillion in assets promised to align their portfolios to achieve net-zero emissions by 2050. These pledges could have unintended consequences. An acceleration of divestment could curtail Africa's access to capital for energy transition, especially use of natural gas. That would be counter-productive in the context of the EU's endorsement of natural gas as an important interim transition fuel.



COP27: A roadmap for success

Africa has borne the brunt of the most devastating impacts of climate change, while contributing little to global emissions. Those low emissions reflect the continent's severe energy deficit, which has stymied industrialisation and economic development.

Africa, therefore, needs a pragmatic agenda for addressing climate change while also developing its economies.

Underlying this agenda must be an understanding that emissions reduction in Africa, especially sub-Saharan Africa, is significantly less critical than in industrialised countries which produce the lion's share of GhG emissions.

These three areas are by far the most urgent to address and will have the greatest effect on global warming.

1. Localise

It is critical that Africa focuses on developing local industries by putting processing and manufacturing at the centre of sustainable circular economies. Doing so will offset emission-spewing shipments of Africa's copper, cotton, cocoa and other exports. African economies are dependent on commodities, but the bulk of these are exported in raw form – 74 per cent of cocoa, 70 per cent of cotton, 95 per cent of cashew and 86 per cent of crude oil.⁶ By contrast, a large proportion of Africa's imports are manufactured products, with demand rising on the back of fast-growing populations.

Most of Africa's minerals and commodities are shipped to Asia for manufacturing and processing, and then shipped again as finished goods to consumer markets, including coming back to Africa. Because it relies on transportation modes that are high carbon emitters – tankers, bulk carriers and container ships – this system results in especially high levels of pollution. Once in Asia, the bulk of the raw materials are processed using carbon-intensive coal-fired plants, which make up 56.8 per cent of China's energy mix.

Restructuring those processes and building the necessary manufacturing facilities in Africa for turning raw materials into end products would achieve multiple goals including the creation of viable manufacturing industries and eliminating the carbon emissions that result from the back-and-forth transport of materials.

But achieving this objective will not happen if Africa's energy deficit continues. Creating a circular economy requires electricity. While renewable sources are the ultimate goal, in the near-term, Africa must exploit its abundant reserves of natural gas as an essential transitional source of energy to support industrialisation.⁷ Based on known reserves, there is the potential for approximately 400 gigawatts of gas-generated power in sub-Saharan Africa – almost twice Africa's current total installed capacity.⁸

Given that significant swathes of Africa are already at net zero, industrial development using natural gas can be accomplished without substantial contributions to global carbon emissions. With resultant job creation and economic growth, African nations can invest further in renewable sources to make the final transition.

Especially important in this context is the manufacturing of components of renewable energy technology, from electric vehicle batteries to wind turbines, which comprise an essential circular economy for development in Africa. Among the continent's commodity and mining deposits are the biggest reserves of renewable metals and minerals, such as lithium and cobalt. As established mining of copper dwindles globally, Africa will play an especially important role. Copper, in particular, is one of the most important metals for the transition to a low-carbon economy, both as a key electrical conductor – far more efficient than other metals such as aluminium – and as a crucial component for solar and wind power plants, electric vehicles, and batteries, as well as energy-efficient buildings.

A growing need for these largely untapped mineral reserves will make Africa a critical source of global energy transition. In turn, this should drive sustainable local economic development.

Crucial to this transition is for these metals to be mined in such a way that minimises further environmental pollution, and for resource-efficient sustainable mining techniques to then be combined with ecosystems fostering local production centres to manufacture the necessary batteries, vehicles, robots and other items, along with efficient transport links to connect with the ultimate consumers.

⁶ Food and Agriculture Organization of the United Nations, "FAOSTAT", <https://www.fao.org/faostat/en/#data/TL>, (Accessed on October 2021)

⁷ Yemi Osinbajo, "The Divestment Delusion," Foreign Affairs, 31 August 2021, https://www.foreignaffairs.com/articles/africa/2021-08-31/divestment-delusion?check_logged_in=1&utm_medium=promo_email&utm_source=io_flow&utm_campaign=registered_user_welcome&utm_term=email_1&utm_content=20220420.

⁸ USAID, "Power Africa," June 2018, https://www.usaid.gov/sites/default/files/documents/1860/Power_Africa_Gas_Roadmap_2030.pdf.

2. Rebuild

In order to develop sustainable mining and the circular economies that will drive economic growth and job creation, Africa first needs to undertake resilient building. Re-build means ensuring that oceans and river defences and agriculture can withstand the impacts of global warming. It requires the foundational building blocks of an industrialised economy: strong and resilient infrastructure in transport, construction, electricity grids and off-grid energy.

Africa is the most exposed region to the ravages of global warming largely because its infrastructure – from roads, bridges and seaports to buildings and electricity grids – is ill-equipped to withstand these impacts. While specific challenges vary with location, addressing the problem overall requires climate-proofing existing and new infrastructure. Everything must be built or fortified with hardier and more sustainable structures and materials.

Without intervention, the cost of structural damage caused by natural disasters in Africa will increase to US\$415 billion a year by 2030 from between US\$250 billion to US\$300 billion now, according to the UN Office for Disaster Risk Reduction. These costs are in addition to an infrastructure deficit currently estimated at US\$130 billion to US\$170 billion per year. And with Africa's population increasing at the fastest pace globally, accompanied by rapid urbanisation, the need for resilient building will become ever more urgent.

Specific considerations include:

- **Maintenance.** The first line of defence starts with road maintenance, which is the most efficient way of limiting the impact of a changing climate on the transportation system. That's because the lack of an adequate maintenance regime will inevitably worsen global warming-induced damage. Even with adequate maintenance regimes, climate change will cause substantial disruptions in network connectivity and increases in repairs and rehabilitation costs. But most African countries are well below maintenance standards, which will make these impacts even more severe. This suggests that adequate, climate-resilient maintenance should be a key priority.

- **Cost complexity.** The matter of cost is complex. Research into the potential economic impact of climate change on road infrastructure in Ghana from 2020 to 2100 found that the cost to maintain and repair damages as a result of climate change would be US\$473 million. That's compared to US\$678.47 million if the country were to use resilient measures.⁹ But these figures are deceiving. One reason is the delayed benefits of adaptation-oriented construction. The benefits accrue over time, as the impact of climate change worsens.

Consequently, the cost of adapting roads will be higher in the later years if nothing is done to build more resilient roads. Plus, adaptation methods include paving unpaved roads to better withstand climate damage, a process that is costlier than adapting a paved road.

- **Economic development needs.**

Infrastructure resilience is even more urgent when seen in the context of overall development requirements. A young, rapidly growing, and increasingly urbanised population creates a need for more public infrastructure, from roads to housing. But as cities increase in size, there inevitably will be a greater need for climate resilience. Furthermore, for Africa's economies to develop, they require new infrastructure for industrialisation, as well as a way to capture a much larger share of the value of resources through the processing and transportation of goods and services. For example, while Africa is responsible for about 70 per cent of global cocoa production, it captures only 6 per cent of the approximately \$100 billion value created.¹⁰



⁹ Daniel Kwabena Twerefou, Kwame Adjehi-Mantey, and Niko Lazar Strzepek, 'The economic impact of climate change on road infrastructure in sub-Saharan Africa countries,' February 2014, <https://www.wider.unu.edu/publication/economic-impact-climate-change-road-infrastructure-sub-saharan-africa-countries>

¹⁰ Baudelaire Mieu, 'Cote d'Ivoire and Ghana: Bitter about "conspiracy to undermine farmers" by cocoa traders,' The Africa Report, 4 December 2020, <https://www.theafricareport.com/53311/cote-ivoire-and-ghana-bitter-about-conspiracy-to-undermine-farmers-by-cocoa-traders/>.

3. Finnovate

Key to effecting immediate and significant change in the first two crucial realms is ensuring that Africa-based institutions have access to essential climate funds through financial innovation.

Creative financing methods are needed to address such critical areas as:

- **Manufacturing.** Investment is needed to mass-scale manufacturing and processing capacity to obviate the need for shipping raw materials to Asia.
- **Mining.** While some development finance institutions, donor organisations, impact investment funds and other investors have placed mining activities on negative lists, such reluctance ultimately risks creating the unintended consequence of denying the funds that would enable sustainable mining with proper environmental, social and governance (ESG) safeguards. An increase in mining output to produce the metals needed for global energy transition is of critical importance. But it will need to be done sustainably and with a low-carbon footprint. Crucially for Africa, that requires localising value chains in regions where minerals are being extracted, and increasing the transformation of raw materials to higher value products. African development finance institutions can play a role in creating regional hubs which move processing closer to the producing regions and generate employment opportunities, whilst minimising the costs for individual countries of setting up production operations.

- **Infrastructure.** The cost to maintain and repair damage without adopting climate-resilient design and construction is less than the total price tag for building infrastructure that includes such considerations. But while accurate, this is only part of the story. Even though it vastly inflates expenses at the outset, resilient building ultimately saves on costs of repair and replacement of infrastructure.

Africa's 2020-2028 infrastructure pipeline is worth US\$2.3 trillion, with the majority in the energy and transport sector. But most projects are at an early stage and an estimated US\$1.5 trillion of this is unfunded.

- **Natural gas.** Developing the region's natural gas resources will require significant investment. Based on known reserves, there is the potential for approximately 400 gigawatts of gas-generated power in sub-Saharan Africa – almost twice Africa's current total installed capacity. To turn this potential into production, the gas industry in Africa will require US\$721 billion between now and 2035.

Africa has struggled to attract the funding required to bridge the region's energy access gap and produce the power needed for industrialisation. The situation is exacerbated as global investors increasingly shun fossil fuel sectors and financial institutions cut their exposure to oil and gas to meet their net zero targets without adequate differentiation for natural gas as an essential transition fuel towards renewable energy.

- **Rainforest Protection Financing** is also needed to help preserve Africa's vital carbon sinks, which are being depleted by local populations for firewood for cooking and heating. Clean cooking investment has stagnated, falling critically short of the US\$4.5 billion in annual investment required for universal access. Annual tracked commitments to clean cooking have languished at around US\$130 million (2015-19) except in 2017 when they dropped sharply to US\$50 million, and the overall clean cooking investment portfolio continues to be dominated by a few large projects in a small number of countries, funded by a handful of capital providers. We need to provide sustainable energy alternatives – and we need to compensate regional governments to offset economic imperatives to deforest for agriculture or industrialisation.

The resources of multiple funders, from development finance institutions to private investment firms, are necessary to address these problems. With that in mind, more attention needs to be paid to the development of private markets in Africa. Perhaps most important, Africa has lagged behind other regions when it comes to green bond issuance, according to the Climate Bond Initiative, mostly due to the shallow nature of its domestic capital markets and savings pools. With a cumulative issuance of c.US\$4 billion, Africa has contributed 0.31 per cent to green bond issuance, well below peer regions. Of the small amount that has been issued in green bonds, South Africa and Egypt account for 85 per cent. Excluding these two countries, the total would be US\$594 million, or 0.046 per cent of total global issuance.

At the same time, in coordination with development finance institutions, governments and institutional investors, the Africa Finance Corporation's many projects over the course of 15 years have demonstrated that it is possible to mobilise financing at scale through crowding in private sector investment. Leveraging financial input from governments and NGOs, we have the tools to de-risk climate investments and offer strong returns to incentivise the mobilisation of funding from institutional investors such as pension funds, sovereign wealth funds and insurance companies. Such tried-and-tested financial innovations include public-private partnerships, blended finance, B-loans, first-loss equity, insurance and guarantees.

With global financial institutions having pledged at COP26 to align portfolios worth US\$130 trillion to achieve net zero emissions, dedicated funding is limited only by our ability to innovate. Translating opportunity into reality demands concerted international policy coordination and financial innovation. Global capital has not historically looked to Africa as a destination for significant investment due to issues including perceptions of higher risk and the cost of due diligence. As a result, there is a misallocation of funds that penalises the region where the needs are greatest.

It is of crucial importance that this capital flows to the frontlines of the fight against climate change, namely Africa. In unlocking the \$100 billion-a-year commitment made by developed nations to help developing countries mitigate and adapt to climate change impacts, policymakers should also address how to use those funds to also unlock further private capital and collectively build projects that can weather increasingly severe climate damage.



Conclusion: Three pillars for success at Africa's COP

For the best chance of COP27 producing the resolute and pragmatic plan of action required to avoid the most devastating effects of climate change, countries must engage in considered and extensive preparation before the meeting begins.

This needs to incorporate consideration of Africa's energy deficit and the need to increase levels of industrialisation, as well as climate-proofing built infrastructure and protecting its powerful carbon sinks.

But as worldwide momentum around climate action accelerates, dislocations in the global flow of capital are likely to follow, with unintended consequences for developing countries' access to capital for economic growth. Already, a redirection in capital flows to middle income countries is underway in response to developed country incentives to drive carbon emissions mitigation, bypassing poorer and less polluting regions.

Ultimately, global leaders meeting at COP27 must create a blueprint for a pragmatic transition for Africa – one that balances its historically low emissions and development aspirations, while also ensuring that the region engages in a realistic global net zero agenda.

To that end, leaders should focus on three core objectives to effect definitive progress in reversing climate change and its impacts: localise, rebuild, finnovate.

For Africa, the consequences of inaction would be particularly devastating.

Failure to act is not an option.



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