TONY BLAIR INSTITUTE FOR GLOBAL CHANGE

A Just Transition for Africa: Championing a Fair and Prosperous Pathway to Net Zero

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This paper seeks to share insights and recommendations with policymakers in high-income countries on how they can better partner with their counterparts in Africa, to deliver on development for the continent while mitigating climate change and its worst impacts. It draws on the experience of the Tony Blair Institute in providing advisory support at the political level to 17 countries across Africa, both at the centre of government and to departmental sectors such as energy and agriculture.

Our hope is that this paper will also be of use to African governments that want to work with high-income countries on these issues and come together to agree collective positions through regional bodies such as the African Union.

Foreword by Tony Blair

By the end of this century, half the children born across the globe will be African.[1] For these children, their life prospects will be determined by our success in both addressing the climate crisis and supporting the continent's development. One cannot be delivered without the other. Placing climate-change mitigation and Africa's development in opposition will be counterproductive. As with its development plans, Africa's response to climate change must be Africa-led. For their part, high-income countries (HICs) must support African nations to both deliver their development visions and respond to climate change.

Discussions at COP26 this November will concentrate heavily on mitigation. For HICs, the focus will be the balance between the global need to rapidly cut emissions and the challenges this could create. Across much of Africa, where living standards are considerably lower, this tension is acute. Our paper explores this tension and makes a set of recommendations outlining how HICs – whose cumulative contribution to emissions to date have brought humanity to this crisis point – can better partner with African governments in a way that both supports development in Africa and facilitates the global transition to net zero.

Africa's development challenge is huge. Two in every three Africans rely on subsistence farming for food and basic livelihoods while nearly half (600 million people) still do not have access to electricity. With an average GDP per capita of $2,000 (compared to the global average of $10,500) and a population set to

rise from 1.3 billion to 4 billion in just 80 years, Africa's economy needs to be 16 times bigger than it is today to elevate the quality of life of its citizens to match the global average. [2]

At the same time, climate shocks threaten to derail Africa's development gains. The African Development Bank forecasts that climate change could cost the continent $50 billion annually by 2040 and could lower GDP by up to 3 per cent per year by 2050, [3] meaning that Africa's economy will be around 40 per cent the size of its actual potential.

Research published by the Intergovernmental Panel on Climate Change (IPCC) indicates that the remaining carbon budget for limiting global warming to 1.5°C will be exhausted in a decade at current emission levels. [4] Two-thirds of manmade emissions have come from HICs, which collectively account for just a sixth of the population. With the IPCC warning in its latest report that the 1.5°C limit will be surpassed by 2040 – far sooner than the scenarios projected by and worked towards in the Paris Agreement [5] – the world must act now.

HICs must bear the greatest responsibility for cutting emissions and financing measures globally to adapt to the inevitable consequences of climate change. These countries developed in large part by exploiting their fossil-fuel reserves; as well as bearing the most responsibility, they also have the greatest capacity to act. Yet global climate action and the approach to net zero in Africa often fail to take into account the urgent need to develop and industrialise across much of the continent.

Rather than accept that trade-offs must be made between carbon mitigation and Africa's development, many decision-makers and commentators in HICs talk about the continent "leapfrogging" the need for hydrocarbons. While technological advances such as low-cost solar panels mean that Africa's industrial revolution could look different to and contribute fewer emissions than seen in HICs, such a pathway will require a step change in the way that HICs work with Africa both on climate change and development. To be credible partners, HICs must significantly increase levels of climate finance while equally considering how this finance is deployed, using it to support Africa's vision for development and industrialisation as well as to mitigate carbon emissions.

Africa faces many challenges beyond climate change that are putting its development at risk. The governments and presidents that my Institute supports must deliver against a backdrop of security issues, weak institutions and health crises, among other issues. To develop, they must compete in a challenging global marketplace against regional economies including Asia, where infrastructure and basic utilities such as electricity are already more reliable and much cheaper – electricity costs in Asia are, on average, half those in Africa. Despite technological advances, traditional fossil fuels such as gas remain the least-cost approach to providing the stable power that businesses need in many countries, and they are often half the price of renewable alternatives such as solar-plus batteries. Expecting African countries to prioritise the reduction of carbon emissions above domestic competitiveness is unrealistic.

Ultimately, Africa must achieve net zero, but not at the expense of its development. If HICs attempt to limit development opportunities – for example, by ceasing funding for energy generated by gas, without making provisions for equally affordable alternatives – they risk condemning countries to continuing poverty and food insecurity. Furthermore, such an approach is counterproductive and likely to push African countries towards higher emissions as they identify alternative finance partners, who could turn a blind eye to damaging environmental impacts.

The tools do exist to strike the right balance. But for Africa to prosper and ultimately achieve net zero, it will require more than wishful thinking about "leapfrogging" or simply taking finance for gas off the table. It will need real partnership and real leadership, starting with the agreements reached at COP26.

Seizing Green Development Opportunities: Recommendations

High-income countries (HICs) must become genuine partners to African nations and help them advance their economic transformation and industrialisation plans in a way that minimises damage to the planet. At present, HICs are seen to be prioritising climate mitigation over Africa's development, restricting development choices and "kicking away the ladder" that they themselves have already climbed.

We therefore make the following recommendations to HICs:

1. Partner in the long term with African governments on their transformation visions. This means aligning with the long-term visions of African nations for their development, [6] supporting both this journey and the ultimate goal of phasing out carbon emissions. This could involve accepting that countries may need to make limited investments in fossil-fuel technologies while the alternatives remain too costly or impractical for them. HICs should support such investments while also providing the finance and support to ultimately decarbonise these economies. [7] Our paper, "*Maximising the Green Path to Industrialisation*", provides analysis on viable pathways to greener industrialisation in Africa, and recommendations for how HICs can become strategic and long-term partners in ultimately enabling a green transition on the continent.

It is encouraging that the US and UK governments have recently clarified that they are prepared to continue funding natural gas-based energy generation, provided it is in line with the "country's decarbonisation pathway". This is important because the concessional finance that Western governments can provide is often essential to crowd in additional finance so that projects can be delivered and ultimately drive industrialisation. For these policies to be meaningful, however, and to reassure African countries that they will be consistently implemented, they must not be applied on an ad-hoc basis. Instead, HICs must support African governments to develop long-term decarbonisation pathways that do not jeopardise growth and industrial development while also providing finance for their implementation.

2. Square the circle between the opportunity presented by Africa's fossil-fuel reserves to drive development and industrialisation and the global need to decarbonise. The challenge of Africa's carbon deposits gets to the heart of the climate-justice issue. On the one hand, it is difficult to question the desire and rights of African governments to monetise their countries' reserves as many HICs have done and continue to do so. On the other, the science of climate change is undeniable, and it serves neither the global effort to reduce carbon emissions nor Africa's long-term interests for the continent to be locked into high-carbon pathways.

HICs need to make a firm commitment to support African countries to develop their fossil-fuel reserves in a way that mitigates environmental damage, drives socioeconomic transformation and industrialisation, and avoids locking them into high-carbon futures. Alternatively, they should make a credible, legally binding commitment to compensate African countries for leaving those deposits in the ground and support them to industrialise without fossil fuels. Given the urgent need to phase out fossil fuels, the first option would need to come with additional pledges from HICs to curtail their own fossil-fuel production.

3. Meet climate-finance obligations that are additional to – not in lieu of – development finance. The climate-finance obligations of HICs should not cannibalise their existing development commitments if they are to sincerely partner with African governments. Specifically, HICs must commit to increasing the volume of climate finance, using it to:

Bridge gaps between the least-cost development options and climate-optimal development pathways. African countries should not have to jeopardise their competitiveness by incurring additional costs to address a climate crisis not of their making. Instead, HICs should pay the difference between the cheapest paths available for development and the most climate-friendly alternatives. [8] For example, this could mean providing grant finance to bridge the cost differential between gas and solar-plus storage in order to provide power in the evenings – when it is most needed by African citizens.

Compensate African nations to keep their fossil-fuel deposits underground. Many African nations are yet to monetise their carbon resources. These countries often have average earnings less than a tenth of HICs who already have and continue to profit from their own carbon resources. Rather than moralise and take finance off the table, HICs should instead seek to partner with African countries by offering financial and other incentives to keep their national deposits in the ground.

Build resilience to climate events. Through little-to-no fault of their own, Africans bear the biggest brunt of climate change. It is imperative that HICs, which have developed in large part thanks to their legacy of greenhouse-gas-emitting activities, work with African countries to finance the adaptation measures they need in order to cope with the climate crisis.

Pay African countries the full value of maintaining and preserving forests and wetlands on the continent. There is currently no agreed global architecture for paying countries to preserve their carbon sinks. Africa's rainforests absorb significant carbon emissions, and a reliable framework needs to be established that adequately rewards African governments for maintaining these unique and valuable resources.

4. Invest in and demonstrate the commercial viability of innovative green industrial pathways. In addition to providing climate finance, HICs should invest in the research and development of green technologies that can reduce and sequester emissions from energy production, industry, agriculture,

transport and the built environment. It is only once the technological and commercial viability of greener technologies has been demonstrated that African nations can hope to begin "leapfrogging" and move towards adoption.

5. Create opportunities within global markets to incentivise African economies to take a green path. Many countries in Africa have the potential to produce products in a much less carbon-intensive way than elsewhere in the world; to incentivise this, global markets must be open to these countries. HICs should support the creation of these green supply chains – from power generation through to manufacturing and logistics. However, African economies that have not been supported to transition to green pathways must not be frozen out of markets in advanced economies.

Introduction

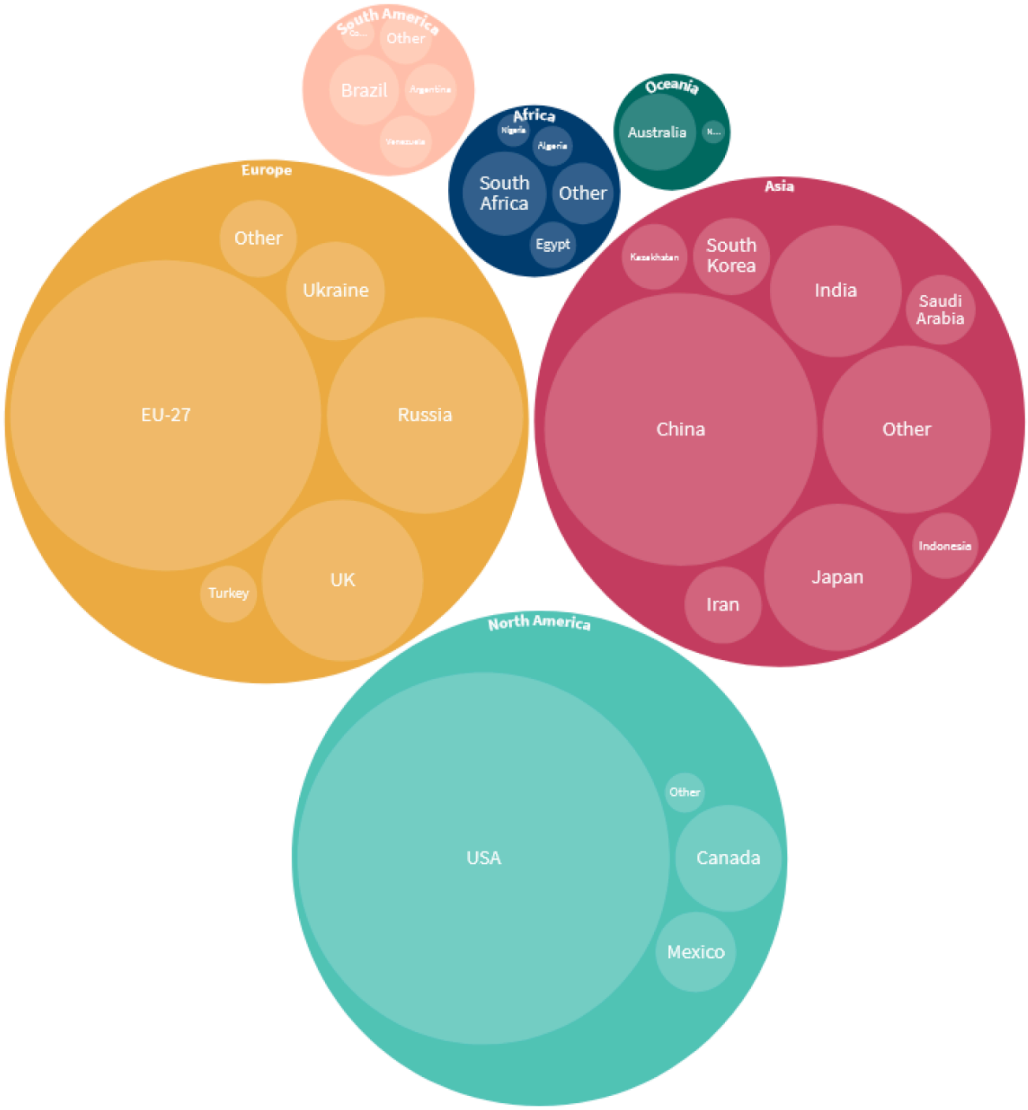
The difference between climate mitigation and adaptation, in the context of Africa's just transition

Climate/carbon mitigation: The avoidance or reduction of greenhouse gas emissions such as CO_2 and methane into the atmosphere, with the intention of *mitigating* against the worst impacts of climate change. As we set out below, Africa's cumulative contribution to these emissions is *disproportionately small*.

Climate adaptation: Building resilience to the negative effects of climate change, such as climate-related natural disasters or food insecurity; in other words, *adapting* to the impact of climate change. The negative impacts of climate change in Africa are *disproportionately large* when set against the negligible contribution that Africa has made to climate change.

Africa accounts for 16.7 per cent of the global population but only 2.9 per cent of cumulative global carbon emissions. [9] Home to 12.7 per cent of the population worldwide, 48 African countries have contributed just 0.55 per cent of these emissions since 1751. Despite this negligible contribution, Africans are carrying a disproportionate burden as a result of the climate crisis, with pronounced impacts on lives and livelihoods. For instance, the Global Climate Risk Index [10] reports that five of the top ten countries most affected by climate change in 2019 were African. They included Mozambique and Zimbabwe, which ranked one and two respectively. In 2019, Cyclone Idai hit these two countries as well as Malawi, prompting UN Secretary-General Antonio Guterres to label the event as "one of the worst weather-related catastrophes in the history of Africa." After the cyclone, poverty rates in affected areas shot up by almost 25 per cent.

Figure 1 – Global contributors to climate change measured cumulatively in GtCO2e from 1751 to 2019



Source: UNEP

African leaders are acutely aware of the continent's vulnerability to climate change.[11] Yet African nations and their governments also aspire to rapid development in order to improve conditions and outcomes for their people. The global climate agenda, combined with rapid technological advances, creates opportunities to accelerate this development. For example, Africa has an abundance of potential renewable-energy resources: beyond solar, the continent contains many of the world's undeveloped hydroelectric projects. This includes the Grand Inga series of dams in the Democratic Republic of the Congo (DRC), which could more than double renewably generated electricity on the continent, displacing existing and planned coal plants, and providing the low-cost and stable power needed to establish green industries in Africa.

Still, climate change presents three major risks to Africa's development:

- In the short term, there is a real possibility that the global response to the climate emergency puts Africa's development at risk.
- In the medium and long term, the consideration is how climate change itself could derail African economies.
- Finally, there is uncertainty about sufficiently effective partnerships between high-income countries and African governments being put into place to tackle the challenges above.

In this paper, we explore these particular risks and set out policy recommendations to mitigate them.

Kicking Away the Ladder: The Risks Posed to Africa by the Global Response

The global response to climate change presents two major threats to Africa's development. The first comes in the form of HICs pulling funding for hydrocarbon projects in Africa – a move regarded on the continent as hypocritical since many of their high-income counterparts developed through the unabated use of fossil fuels, in which they continue to invest. [12] The second is the danger that Africa's export opportunities are reduced as a result of barriers such as carbon taxes on imports. [13] At the same time, the financial commitments already made by HICs to help low-income nations address the transition have been inadequate, particularly in facilitating African nations to bridge the crucial gap between least-cost development routes and sustainable, optimal climate-policy paths.

Developing Africa's Fossil-Fuel Reserves

The future of Africa's fossil-fuel endowments gets to the heart of the climate-justice issue. On the one hand, it is problematic to question the desire and rights of African countries to monetise their reserves as many HICs have done. On the other, the science of climate change is undeniable and it serves neither the global effort to reduce carbon emissions nor Africa's long-term interests for the continent to be locked into a high-carbon pathway.

Africa accounts for around 10 per cent of the world's known fossil-fuel reserves. Many of these are yet to be developed and several African countries consider their exploitation to be crucial to growth and development. The government of Mozambique, for example, has prioritised the development of its gas resources, not only to generate export revenues, but also to stimulate industrialisation at home, with up to a quarter of the gas planned for use in domestic power, fuel and fertiliser production. It is estimated that the gas concessions to date will increase the country's GDP by 40 per cent per annum. In a country where nearly half the population lives beneath the poverty line and the annual income per capita is approximately $500, it is difficult to argue with this approach. This is why climate change and the necessity for reductions in fossil-fuel consumption present major risks to countries, such as Mozambique, that are looking to follow the example of HICs in exploiting carbon deposits to drive their own development.

Put simply, the world needs to phase out carbon emissions but other countries, especially those with advanced economies, have already benefitted from developing their fossil-fuel resources. According to the International Energy Agency's (IEA) "Net Zero by 2050" report, [14] the development of new oil and gas fields is inconsistent with a global pathway to achieving net zero by 2050; if we are to mitigate the

worst effects of climate change, the world's future fossil-fuel needs will need to be met by existing fields. Recent statements made by the UK and US that they will no longer support upstream oil and gas projects through multilateral institutions, including the World Bank (plus through export finance, in the case of the UK), are consistent with this analysis.

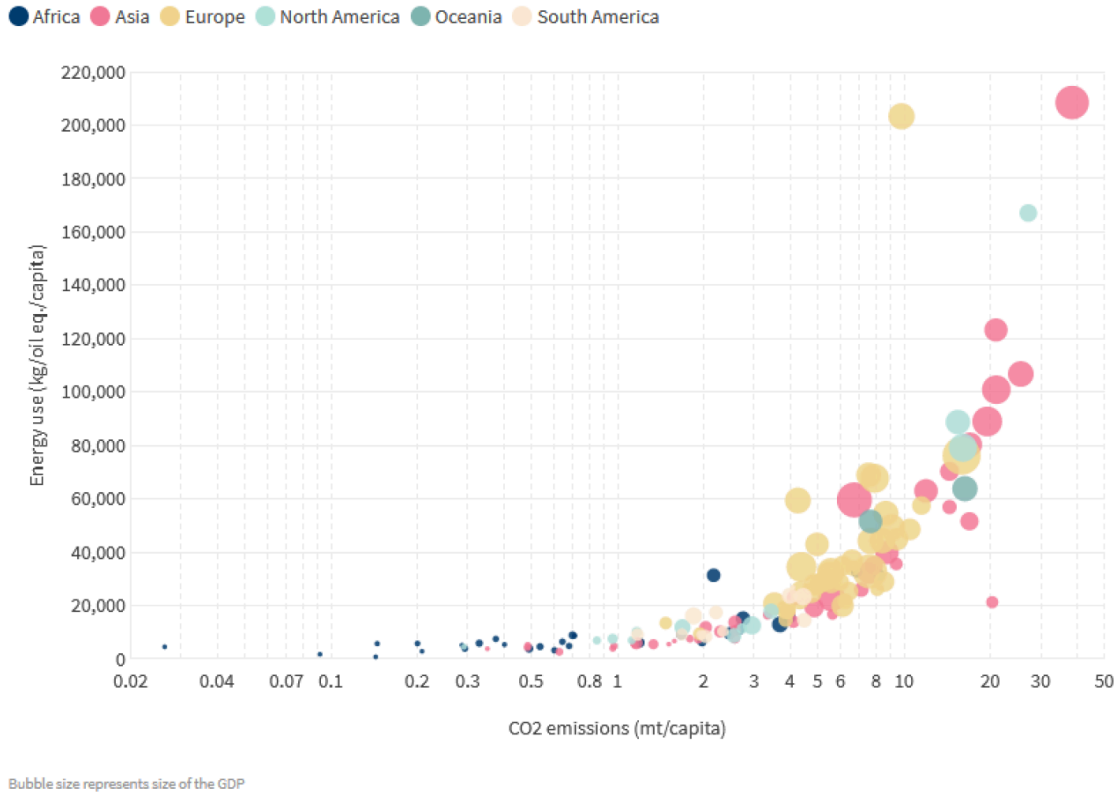
African countries that have development plans underpinned by fossil fuels, or a high percentage of revenues already derived from oil and gas exports (65 per cent for Nigeria), are unlikely to deprioritise development of carbon reserves simply because financing from Western governments is taken off the table. The economic importance of fossil fuels is too vast for that to happen and as long as HICs continue to exploit their own resources, African nations will rightly point out the hypocrisy. This approach additionally risks the West being regarded as an unreliable partner in Africa's development journey, with carbon mitigation prioritised over the continent's need to industrialise. It is also a scenario that could encourage African countries to seek and secure finance from alternative sources, often without the support to mitigate environmental impacts and deliver the broader economic benefits that financing from Western governments typically entails.

Beyond the challenges of securing finance to develop their fossil-fuel reserves, African countries face longer-term risks as global markets respond to climate change. The IEA's latest analysis predicts that global oil prices will drop by a third by 2050 while carbon prices will increase at least fivefold across the world. Decreasing fossil-fuel prices present a clear revenue risk to African countries. Factoring the real cost of carbon emissions into products, meanwhile, means that countries following a high-carbon pathway are at risk of being frozen out of the global economy because their exports can no longer compete with those from nations that have followed a greener path.

Addressing this challenge will require more from HICs than simply removing finance. Instead, there is a need for collaboration, real leadership and tough decision-making. Should African nations harness their fossil-fuel resources with support from HICs in a way that drives national development but does not lock them into a high-carbon future? Or should HICs offer to compensate African countries in return for those countries not developing their fossil-fuel resources? HICs cannot make these decisions in isolation; instead they need to engage in meaningful conversations and establish real partnerships with African nations.

To industrialise, Africa will need to consume more energy. Globally, there exists a direct relationship between GDP and energy consumption – as countries have industrialised, their energy consumption has increased. Historically this relationship has extended to carbon emissions because of HICs' traditional dependence on fossil fuels, which offer low-cost, reliable power.

Figure 2 – Energy use and CO2 emissions per capita versus GDP per capita



Source: Our World in Data

The Short-Term Role of Gas

While few oppose Africa's industrialisation – with a handful of exceptions, the early development of countries has been achieved through manufacturing – there is a growing consensus behind the idea that the continent could be the first to tread an entirely new development path, decoupled from carbon emissions. [15] The danger of being priced out of markets that levy carbon taxes on imports, if African countries pursue a high-carbon pathway, means it is in their interests to pursue alternatives. There is no doubt, therefore, that "green industrialisation" represents a major opportunity for the continent but if carbon mitigation makes African products uncompetitive, this approach will not work. In the short term, however, gas will be critical to support industrialisation, food and power production.

Gas is a vital input into nitrogen-based fertilisers, which are part of the production process that is responsible for feeding around half of the world's population. [16] On average, sub-Saharan Africa uses around 20 kilograms of fertiliser per hectare – less than one-seventh of the rate used in high-income countries [17] – a number that must now increase significantly if the food-security issues that have been caused, in part, by the past century of unabated carbon emissions from HICs are to be mitigated.

Gas is also the most inexpensive way to produce power for many African countries. To develop, these countries must compete at a global level, which requires reliable and low-cost energy. During the industrialisation of advanced economies, this energy was often generated using coal. Today, support from HICs and multinational banks for coal-based generation in the developing world has all but ended. This is understandable: as well as being extremely polluting, coal is very rarely a "least-cost" approach to producing power, and the need to develop relatively large coal plants to achieve economies of scale in combination with the capital investment required make it impractical for many African countries.

We are, however, beginning to witness an increasing push to phase out funding for gas-based power generation, which produces only 50 per cent of the emissions of coal when units of energy produced are compared. This trend seems to be driven by the need to send the right signal to electorates in HICs rather than being based on an appropriate balance between climate needs and development needs. Indeed, recent analysis indicates that tripling sub-Saharan Africa's power supply entirely through natural gas would only increase global emissions by 1 per cent. [18]

CASE STUDY: THE TRANSFORMATIVE POWER OF GAS IN MOZAMBIQUE

Mozambique faces a steep climb to achieve the Sustainable Development Goals and translate Africa's Agenda 2063 into reality. The country offers a stark reminder of persistent global inequalities: nearly half of its population lives below the poverty line and its per capita income of $500 is a mere eighth of the average among HICs. Just over a third of its population has access to electricity, with the country consuming 479 kWh per capita while emitting less than 0.3 metric tons of CO_2 per capita. This compares to electricity consumption of 8,929 kWh and 10.3 metric tons of CO_2 per capita among advanced economies. Despite its negligible carbon footprint, Mozambique ranks among the most vulnerable nations to extreme weather events caused by climate change. Public and private spending on basic services has historically been constrained, health expenditure per capita is less than one hundredth of the average among HICs and the pupils-to-teacher ratio in primary schools is four times higher than in wealthier nations.

The discovery of natural gas in Mozambique's Rovuma Basin has paved the way for unprecedented development pathways that could see one of the poorest nations in the world transform into a thriving middle-income economy within a generation. Projected investments in liquefied natural gas (LNG) of $55 billion – equivalent to four times the size of the country's GDP – constitute the largest foreign direct investment in Africa of recent times. The combined output of the two areas already put out for concession will be the equivalent of 30 million tonnes of LNG per annum, increasing annual GNP in the country by an additional $10 to $14 billion, and positioning Mozambique as a global energy player.

A quarter of Mozambique's future gas has been set aside for domestic use. Investment in the production of gas-based fertilisers, fuel, electricity and petrochemicals holds the promise of industrialisation and jobs, triggering a virtuous circle with far-reaching benefits spanning food security, livelihoods and the economy.

Part of the gas set aside domestically will be for power generation. Although Mozambique currently has one of the cleanest energy mixes in the continent, gas offers the least-cost option in tandem with the least carbon-base load in order to meet the country's pressing goal of universal electricity access by 2030. Simultaneously, the country is developing the 1,500-megawatt (MW) Mphanda Nkuwa hydroelectric facility. The expansion of electricity access to rural areas is expected to facilitate irrigation, promote climate-smart agriculture and improve storage conditions. Most importantly, it will help reduce deforestation and CO_2 emissions from burning firewood and charcoal, which remain the primary energy sources used by Mozambican households.

In the short to medium term, base-load energy from gas will substitute and then facilitate the gradual penetration of intermittent solar and wind into the energy mix. Solar and wind are on track to represent 20 per cent of additional generation capacity fed into the grid over the next 20 years.

Renewables will play an increasingly important role in fulfilling coverage targets, whether via solutions connected to the national network or isolated systems in areas outside the network.

But the bulk of Mozambique's gas is destined to play a bridging role between today's global energy mix (dominated by coal and oil) and a future mix (dominated by renewables and clean sources). Mozambique is geographically well-positioned to supply the growing LNG market in Asia, which includes three of the world's largest current CO_2 emitters: China, India and South Korea. All three have committed to some form of net-zero emission targets. South Korea has announced the shutting down of six coal-fired plants and the switch of a further 24 from coal to gas. India is investing in the expansion of its gas-distribution pipeline and aspires to increase the share of natural gas in its energy mix from 6 per cent to 15 per cent by 2030. China, which accounts for 28 per cent of global CO_2 emissions and relies on coal generation for 70 per cent of its energy needs, has pledged to achieve carbon neutrality by 2060. All three nations will require a reliable supply of LNG to make their transitions towards decarbonisation.

The success of Mozambique's gas projects represents a matter of intra- and intergenerational justice, allowing its citizens to enjoy the fruits of development today while helping the transition to a low-carbon economy tomorrow. Harnessing the transformative power of gas is a developmental imperative that serves people, prosperity and planet, while acknowledging the rightful aspirations of Mozambicans.

Unless HICs are prepared to fund the additional costs of energy storage for renewable alternatives, it is difficult to see how an African nation could deprioritise its gas investment. Gas is – and will likely remain in the medium term – the least-cost option for many African countries' energy generation. The recently developed West African Power Pool masterplan is a detailed technical study of the lowest-cost options for supplying a particular area of the continent in which over half the households have no electricity and where this lack of access has vast economic costs – in Nigeria alone, for example, over $30 billion per year. The masterplan has concluded that more than two-thirds of additional energy on the grid must come from gas, a practical solution due to the relatively low investment costs and because many African countries already have domestic gas resources. Gas can also be used to complement and facilitate greater penetration of renewables – helping to balance the system when variable renewables, such as solar or wind, are unavailable. In the future, batteries may displace gas but, at present, they cost two to three times more. [19] For these same reasons, gas also remains an integral part of the power-generation mix in advanced economies. The UK, for instance, plans to install 14 gigawatts of new gas power plants. [20]

Alternative Ways to Reduce Power-Sector Emissions

While taking funding off the table for gas investments is not the solution, neither is merely increasing the finance available for renewables. The delivery of both low-cost and abundant energy to fuel Africa's development as well as to mitigate carbon emissions will require the continent's energy sector to undergo another transition: a transition away from ad-hoc, project-by-project decisions made within heavily subsidised sectors to a situation where sectors are reformed, investments are made on a long-term basis and delivered through competitive procurement, and regional power trading is optimised to reduce costs *and* emissions. Many African countries face challenges in all these areas and addressing them can deliver major economic and climate benefits, for example:

- *Financial reform:* Nigeria recently reformed its electricity tariff, increasing the incentive for distribution companies to sell power to consumers. The impact was immediate: a 20 per cent increase in power distributed through the grid. While this additional power was generated through a mix of hydro and gas, much of it displaced power that would otherwise have been generated through inefficient domestic diesel generators (owned by one in 12 Nigerian households). Consequently, CO_2 emissions are set to reduce this year by more than 3.5 million tonnes. The environmental benefit is the equivalent of developing 3,000-plus MW of solar-generation capacity [21] – more than has been constructed in sub-Saharan Africa during the past five years.
- *Power trading:* Natural resources, both renewables such as solar or hydro, and non-renewables such as gas, are not distributed equally across the continent. Guinea is considered the "water tower" of West Africa due to its abundant hydro resources, neighbouring Mali has some of the world's best solar potential, and Nigeria and the Côte d'Ivoire have vast gas deposits. Analysis undertaken by the Institute in 2019 identified how effective power trading between West African countries could potentially create a saving of around 23 million tonnes of fuel oil over the next decade – equivalent to taking the UK's diesel cars off the road for a year.
- *Planning:* As important as reform is planning. In many African countries, plans are divorced from investment decisions. Across the continent, we are seeing the consequences in abandoned or underused power-generation investment. Recent analysis undertaken by the Institute in partnership with the RMI estimates that a transition to plan-based investments could save Africa around $180 billion this decade alone – money that would otherwise be paid by taxpayers in the form of government subsidies or electricity bills.

As new technologies that help decarbonise electricity grids, including utility-scale batteries, drop in price, fundamental considerations such as planning and the creation of markets will be critical to accelerating their adoption.

Such reforms are complex, politically challenging and require working with – rather than around – governments in low-income countries. They are also the exact type of reforms that advanced economies should be supporting Africa to deliver if they are serious about addressing both economic development

and climate change. A myopic focus on halting funding for fossil fuels and channelling finance into renewables will serve neither agenda.

The Failings of Climate Finance

Climate finance will be essential in helping African countries industrialise and minimise their carbon emissions, but so far it has been inadequate. Climate finance could be used to address many of the challenges set out above. For example, it could fund the cost difference between traditional fossil-fuel technologies and greener alternatives.

As carbon content is increasingly being factored into products through pricing, there's a possibility that Africa could be frozen out of global markets if countries on the continent fail to develop along a low-carbon pathway. According to the United Nations Conference on Trade and Development, estimates suggest that import revenues in low- and lower-middle-income counties will fall by around $6 billion because of the proposed EU Carbon Border Adjustment Mechanism.

At present, climate finance is simply not performing the role it needs to because it is both insufficient and poorly targeted. The COP16 Accord in 2010 involved a commitment by developed countries to jointly mobilise $100 billion annually by 2020 to address the climate-change needs of developing countries (both for adaptation and mitigation). [22] Despite the latitude that these advanced economies afforded themselves in arranging how the finance could be provided – whether in loans or grants, through private or public sector – in addition to the decade-long timeframe, the commitment has yet to be honoured. [23] To put the annual commitment of $100 billion into perspective, advanced economies have spent more than 200 times this amount (close to $20 trillion) on Covid-19 stimulus packages.

Adequately Valuing Africa's Carbon Sinks

While reducing emissions is one side of the greenhouse gas equation, the absorption of CO_2 by natural carbon sinks such as oceans and forests, otherwise known as sequestration, is the other. Preserving the earth's natural carbon sinks is essential to meeting global climate targets. Many carbon sinks in advanced economies have already been destroyed. Since the first wave of British settlement in 1630, the United States has lost 30 per cent of its forested land [24] and today it is the world's largest cumulative net emitter. Gabon, on the other hand, has rainforest coverage of 85 per cent and is a net absorber of 140 million tonnes of CO_2 per annum; this comes at a sizeable cost with the country potentially foregoing revenues that could be derived from activities such as logging and agriculture. Unlike in Europe, where industry is financially incentivised to reduce emissions through the EU Emissions Trading System (EU

ETS), there is no formal architecture in place to reward African countries like Gabon for their stewardship of these valuable global resources.

In the absence of such an architecture, international organisations such as the Central African Forest Initiative (CAFI) have stepped in to bridge the gap, with payments allocated to countries such as Gabon to maintain their rainforests. While such schemes are extremely valuable, their voluntary nature creates two key challenges: first, the lack of predictability – the current programme, for example, is due to run until 2025 but without a firm international legal underpinning, this revenue stream is by no means secure; second, the methodology used. While the government of Gabon has accepted the money, it rejects the methodology that is based on paying countries to reverse damage to their forests rather than for preserving them. The permanent secretary of Gabon's climate council has stated: **"It's amazing that the world is more interested in stopping deforestation in Brazil than rewarding countries like Gabon that want to keep their forests intact in the first place."** [25] Even if the issues with the approach are set to one side, the payments being offered to Gabon – $10 per tonne – are around one sixth of the equivalent value that an industrial emitter in Europe can save by reducing emissions.

Putting in place a global architecture to adequately reward countries such as Gabon for preserving these unique and valuable carbon sinks must be a global priority.

Derailing Africa's Economies: The Dangers of Climate Change

African nations are highly vulnerable to climate change. The UN estimates that 80 per cent of farmland in the Sahel is degraded [26] while temperatures in the region are rising 1.5 times faster than the global average. Climate change is compounding food insecurity, violence and conflict, with related crises potentially displacing 1.2 billion people by 2050. [27] Communities on the continent are facing recurring climate shocks that threaten to derail crucial development gains.

This impact on Africa creates negative feedback loops for both people and planet. Poverty is both a cause and effect of climate change. As the livelihoods of vulnerable people come under increasing pressure, they are often left with little option other than to exploit resources unsustainably, whether by engaging in illegal logging for charcoal production or by using high-carbon energy sources.

HICs must support Africa to deal with the consequences of climate change through improved funding for adaptation. Over the past decade, however, international finance for climate adaptation in Africa has lagged finance for mitigation. [28] In addition, aid budgets that are supposed to support development are increasingly being allocated to climate mitigation. For example, while the UK's Official Development Assistance is projected to decrease from £14.5 billion in 2020 to £10 billion in 2021, the share of this to be spent as climate finance will increase. The UK prime minister has committed to doubling the UK's international climate finance to £11.6 billion over the next five years. This is a far bigger issue than just

double counting. The best chance of adapting to the inevitable consequences of climate change is by not being poor, so by reallocating aid budgets intended to support economic development in this way, there is double the punishment for African countries: first, through the consequences of climate change; second, in the redirection of development budgets – which are already negligibly small – from HICs.

New funds must be found for adaptation, which is central to ensuring populations are able to manage the risks posed by climate change. Without committed investment in adaptation, coupled with financing for robust and integrated early-warning systems, risk modelling and scenario planning, African nations will be unable to reduce the consequences on their poor and vulnerable populations. As Gabon's President Ali Bongo Ondimba has said: "We have to insist that equal attention be paid to climate adaptation and mitigation in climate finance." [29]

Climate adaptation and mitigation do not have to be mutually exclusive. Investment in nature-based solutions to protect, conserve and enhance ecosystems such as rainforests or peatlands can play a crucial role in *both* sequestering emissions and developing protection against floods.

Partnerships That Work: Forging a Reliable Framework for Collaboration

Continent-wide plans, such as the Africa Union's Agenda 2063, articulate the collective priorities of leaders across Africa: improving quality of life, education, health care, job prospects and food security. These priorities are echoed in national development plans: Ghana's Beyond Aid strategy, Tanzania's National Development Plan, Kenya's Big Four Agenda and Ethiopia's Pathway to Prosperity Plan all prioritise industrialisation and job creation.

These are the plans on the basis of which leaders have been elected, and it is these same development plans that will ultimately steer the decisions of presidents, ministers and other decisionmakers on issues of policy and investment. High-income countries that are serious about both supporting Africa's development and mitigating carbon emissions must partner first and foremost on the delivery of these plans.

Nationally Determined Contributions (NDCs) were intended to be a bottom-up, self-determining innovation of the Paris Agreement, which allowed governments to set themselves voluntary climate commitments and actions. In reality, many of Africa's NDCs are: short-term, running only until 2030; transactional, with a focus on a few specific investments rather than the creation of markets; vaguely costed without sufficient clarity on how much finance is required per sector and in what form; and disconnected from national development plans. Some NDCs seem to have been developed with the intention of placating high-income countries and their donor agencies. [30] For NDCs to truly work, they need to be:

- **Long-term**: this should include a focus on how net zero will ultimately be achieved, even if this a timeframe of 50 years.
- **Strategic**: ensure NDCs are reflected in national strategies, regulations and market designs to create an environment in which innovation, and investment in green technological solutions and business models, can be driven.
- **Clearly costed**: this means setting out the funding needed by sector and emissions-reduction targets in such a way that facilitates the delivery of plans while equally supporting development.
- **Comprehensive and credible**: NDCs should be reflected in national plans with the accompanying architecture in place to track and deliver them.

This disconnect between Africa's NDCs and national development plans is understandable. Without clear commitments from HICs on financial and technical support, it is difficult for African countries to justify

prioritising climate action – and a crisis that was not of their making – among the multitude of other challenges they face.

Charts created with Flourish.

Footnotes

1. ^ https://www.pewresearch.org/fact-tank/2019/06/17/worlds-population-is-projected-to-nearly-stop-growing-by-the-end-of-the-century/
2. ^ This is calculated as: 16x = 10,500/2,000$/person x 4/1.3 billion people.
3. ^ https://gca.org/news/african-presidents-and-global-leaders-support-bold-action-on-climate-change-adaptation-for-africa/
4. ^ IPCC, "Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development" (2018)
5. ^ https://www.ft.com/content/9a11b08c-4fb3-49ec-8939-9d853745bfce
6. ^ In Sierra Leone, this is Human Capital Development. In Ghana, Tanzania, Malawi and Mozambique, this is agro-led industrialisation.
7. ^ This would mean, for example, continued support for gas exploration and production, and continued support for gas-fired power stations, so that African industry can grow with cheap, reliable, climate-resilient and round-the-clock power.
8. ^ For example, pay for the additional design and space required for carbon capture, use and storage (CCUS) retrofitting where applicable.
9. ^ https://www.energyforgrowth.org/blog/infographic-what-is-sub-saharan-africas-contribution-to-global-co2-emissions/
10. ^ Global Climate Risk Index, Germanwatch (2021).
11. ^ https://www.youtube.com/watch?v=-vqma0oRZE0
12. ^ https://www.ft.com/content/91c54cf9-4545-4bfe-9445-92fbf048fbd9
13. ^ Such as the EU's Carbon Border Adjustment Mechanism, which will be phased in from 2023. The mechanism will apply a levy on products imported into the region from countries that do not have a mechanism to price carbon into the cost of production. The levy will apply to energy- and carbon-intensive products such as fossil fuels, steel, aluminium and paper – building blocks of the industrial revolution in the developed world
14. ^ https://www.iea.org/reports/net-zero-by-2050
15. ^ An example of decoupling of economic growth and consumption emissions in 32 countries over the period 2005-2019 has been cited to state that this may prove feasible. See https://thebreakthrough.org/issues/energy/absolute-decoupling-of-economic-growth-and-

emissions-in-32-countries But these 32 countries are either tax havens or nations that have first gone through carbon-intense manufacturing-based industrialisation, before offshoring their production emissions and evolving into service-sector economies.

16. ^ https://web.archive.org/web/20100723223052/http:/www.physics.ohio-state.edu/~wilkins/energy/Resources/Essays/ngeo325.pdf.xpdf
17. ^ https://data.worldbank.org/indicator/AG.CON.FERT.ZS
18. ^ This does not account for upstream methane leakages.
19. ^ https://assets.cdcgroup.com/wp-content/uploads/2021/05/25111607/Decarbonising-Africas-grid-electricity.pdf
20. ^ https://www.theguardian.com/business/2021/feb/25/uks-gas-power-plans-risk-derailing-climate-targets-thinktank-says
21. ^ Assuming the additional energy available from the grid displaced the need to produce power in standalone diesel generators.
22. ^ https://unfccc.int/sites/default/files/resource/climate-finance-roadmap-to-us100-billion.pdf
23. ^ Using OECD data updated in May 2021, we found that $79.6 billion had been committed as climate finance in 2019, which deflating by the US CPI differential between 2019 and 2010, is (2010) $70 billion. OECD data accessed here: https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/climate-change.htm US CPI data accessed here: https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation
24. ^ US Department of Agriculture, “US Forest Facts and Historical Trends” (2001). https://www.fia.fs.fed.us/library/brochures/docs/2000/ForestFactsMetric.pdf
25. ^ https://www.ft.com/content/4f0579ac-409f-41d2-bf40-410d5a2ee46b
26. ^ http://www.fao.org/3/X5318E/x5318e02.htm
27. ^ http://visionofhumanity.org/reports
28. ^ According to 2021 OECD DAC data, climate finance for mitigation in Africa has been $82 billion, compared with $65 billion over the period 2000-2019 in USD 2019 equivalent. Data for Africa, South of Sahara and North of Sahara were aggregated, and duplicated entries were subtracted. https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/climate-change.htm

29. ^ https://gca.org/news/african-presidents-and-global-leaders-support-bold-action-on-climate-change-adaptation-for-africa/
30. ^ https://afripoli.org/aligning-africas-nationally-determined-contributions-with-their-long-term-national-development-plans

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