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Korea and Africa: Partnerships on Climate and Energy

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Abstract

The Republic of Korea (Korea) has experienced one of the most impressive growth trajectories of the 21st century, achieving approximately 5.45% annual gross domestic product growth between 1988 and 2019. In addition, the country has also significantly alleviated poverty and ensured food security, while expanding its export market and transitioning from being an aid recipient to an aid donor. Korea's relationship with Africa has grown steadily since the early 2000s. Currently, mechanisms such as the Korea–Africa Forum, the Korea–Africa Economic Cooperation Conference and the Korea–Africa Foundation support ongoing relationships between governments and the private sector. There are also opportunities to deepen collaborative opportunities between Korea and the region, specifically on climate and energy. On 6 February 2022, the AU endorsed the African Climate Change and Resilient Development Strategy (2022–2032). The strategy seeks to promote a regional response to climate change, building upon the shared challenges and opportunities facing the continent. To broaden its relationship with Africa, particularly for partnerships on climate and energy, Korea needs to ensure its engagements in the region align with the goals of the strategy. This paper unpacks the history of Korea's relationship with Africa and identifies opportunities for collaboration on climate and energy, while considering both Korea's and Africa's climate policy landscape and investment opportunities to aid both their economic growth. Opportunities suitable for collaboration include energy and green minerals, smart cities, infrastructure, knowledge sharing and community development for climate-resilient agriculture.

Introduction

The Republic of Korea (Korea) has experienced exponential economic growth over the past 60 years. Its economy has transformed, going from being predominantly agriculture based to becoming services and technology oriented, with its nominal gross domestic product ranking 10th in the world in 2020.[1] Much of Korea's economic success is the result of its engagement with international partners and markets, in particular the development of its export capacity for manufactured goods and construction services. The country also supports an attractive business market for both local and foreign investment, and encourages innovation across all sectors. Despite its success, Korea has faced competitive challenges in international markets, especially within developing regions outside of Asia, where major global economies such as China and Japan have invested significantly in deepening political and economic relations. Despite this competition, Korea continues to build relationships outside of Asia, with the focus of these now being on shared growth and development opportunities.

In the early 2000s, Korea committed to support Africa's development by providing official development assistance (ODA) and deepening investment and trade relations. Opportunities for public and private investment in African mineral resources, as well as infrastructure and technological developments, have enhanced Korea's formal ties with Africa in recent years. Korea has also presented itself as an important partner in Africa's fight against climate change, which has become a key regional priority for long-term and sustainable economic growth. As a founding member of the G20, and with the headquarters of the Green Climate Fund based in Seoul, Korea has committed itself to the global fight against climate change, which is driven by its advanced low-carbon policy framework and its membership of the UN Framework Convention for Climate Change (UNFCCC).

Opportunities for public and private investment in African mineral resources have enhanced Korea's formal ties with Africa

To ensure African countries can leverage Korean expertise and support, African governments should engage directly with Korean policymakers and its private sector to identify opportunities for collaboration on climate change and sustainable development initiatives on the continent.

1 By Yonhap, "S. Korea Estimated to Have Ranked 10th in 2020 Global GDP Rankings", *The Korea Herald*, March 15, 2021.

The history of Korea's relationship with Africa

With the expansion of Korea's technology and manufacturing industries in the 1990s, the government looked toward developing countries to diversify its business opportunities. Africa's abundance of raw materials for manufacturing inputs, as well as the presence of energy reserves, made the continent an attractive partner. It was not until 2006, however, that Korea formalised its relationship with Africa. The relationship was initiated by then president Roh Moo-hyun's visit to Algeria, Egypt and Nigeria. The aim of this visit was to develop Korean soft power in the region, guarantee the security of Korea's energy supply and increase the country's market share, particularly for construction companies, in the region.[2] Following this visit the 'Year of Friendship with Africa' and the Korea Initiative for Africa's Development were launched, signifying Korea's commitment to provide Africa with financial support and knowledge sharing on developmental growth strategies. Several mechanisms were also established to strengthen the relationship between Korea and Africa. These included the Korea–Africa Forum, which is hosted every three years by Korea's Ministry of Foreign Affairs;[3] the Korea-Africa Economic Cooperation Conference, hosted every two years by the Korean government and the African Development Bank (AfDB);[4] and the Korea–Africa Business Forum. In 2007 the Korea–Africa Economic Cooperation (KOAFEC) Trust Fund was established as a bilateral fund to support project preparation, capacity building and technical assistance in African states, while encouraging knowledge sharing and joint research between Korea and Africa.[5] In 2013 the fund was expanded to support multi-donor projects supported by the AfDB. In 2018 the Korea–Africa Foundation was established under the Korean Ministry of Foreign Affairs, with a key objective being to facilitate knowledge sharing and networking between African and Korean private and public companies. In the same year the Korea Overseas Infrastructure & Urban Development Corporation (KIND) was established, and a year later the first KIND African office was opened in Nairobi.[6]

Korea's ODA has increased dramatically over the years, in parallel with the country's economic growth. In 2004, for example, Korean ODA, most of which is bilateral in nature, totalled $212.07 million, increasing to $2.4 billion in 2017.[7] Historically, much of Korean aid was tied, but in 2010 the government committed to making 75% of its bilateral aid untied by 2015.[8] Korea's trade with Africa has been dominated by imports of raw materials, particularly coal, oil and gas, and Korean exports of manufactured goods, especially shipping equipment, motor vehicle parts and mechanical appliances. South Africa has

2 François Nicolas, *Korea in Africa: Between Soft Power and Economic Interests* (Paris: French Institute of International Affairs, January 2020).
3 The Korea–Africa Forum has been hosted in 2006, 2009, 2012, 2016 and 2021.
4 The Korea–Africa Economic Cooperation Conference has been hosted in 2006, 2008, 2010, 2016 and 2018.
5 African Development Bank, "Korea", https://www.afdb.org/en/countries/non-regional-member-countries/coree.
6 Nicolas, *Korea in Africa*, 12.
7 Nicolas, *Korea in Africa*.
8 Axel Marx and Jadir Soares, "South Korea's Transition from Recipient to DAC Donor: Assessing Korea's Development Cooperation Policy", *International Development Policy* 4, no. 2 (2013): 107–142.

dominated African exports of minerals to Korea, especially coal, with the remainder (mainly oil and gas) coming in most part from Algeria, the Democratic Republic of Congo (DRC), Egypt, Gabon, Libya and Nigeria.[9] Korean foreign direct investment in Africa has mainly been channelled toward natural resources, with major public and private investments being concentrated in the mining sector. Many private Korean investors have also sought to invest in manufacturing sectors in Africa; however, in comparison to the capital needed for investments in mining, these have been relatively small.

Korea's climate policy landscape and implications for Africa

Korea's current climate policy is shaped by its ambition to achieve carbon neutrality and sustainable growth. The 2050 Carbon Neutral Strategy, which is the main policy framework driving these objectives, is implemented through mechanisms such as carbon pricing, sectoral reduction strategies, financial support and investment in the renewable energy sector.[10] The country also has a National Roadmap for Greenhouse Gas Reductio by 2030 and a Carbon Neutral Green Growth framework Act, and has implemented a mandatory emissions trading scheme in the power, construction, industrial, waste and transport sectors. The Carbon Neutrality Commission oversees all efforts toward meeting the goal of achieving carbon neutrality by 2050, as well as the implementation of the country's Nationally Determined Contribution (NDC).[11] In 2020 the government of Korea also launched the Korean New Deal as a post-COVID recovery and transformation road map. The deal consists of three major elements, namely the 'Digital New Deal', the 'Green New Deal' and a 'Stronger Safety Net', focusing on digital transformation, enhanced climate change resilience, and job and livelihood creation. The Green New Deal seeks to invest KRW[12] 73.4 trillion (approximately $60.9 billion) in projects related to green energy and infrastructure, eco-friendly mobility and innovation in green industries. The deal will be implemented over a five-year period from 2020–2025.

Korea's climate policy also addresses climate adaptation, which is driven mainly by its third National Climate Adaptation Plan (2021–2025) (NAP). The NAP seeks to enhance climate adaptation in the country through three key objectives, namely improving climate resilience; strengthening monitoring, forecasting and assessment; and mainstreaming adaptation across society.[13] In 2009 the Korean government also established the Korea Adaptation Centre for Climate Change to support the implementation and development

9 Nicolas, *Korea in Africa*, 20.

10 Lerato Monaisa, "Climate Change and Trade Risk: South Africa's Trade with South Korea" (Policy Brief, Trade and Industrial Policy Strategies, Pretoria, 2020)

11 NDCs are submitted every five years to the UN Framework Convention for Climate Change (UNFCCC) by signatory countries to the Paris Agreement, and outline countries' national commitments to combatting climate change.

12 Country code for the South Korean won.

13 Republic of Korea, "The Republic of Korea's Enhanced Update of its First Nationally Determined Contribution", UNFCCC, NDC Registry, December 23, 2021.

of national adaptation policies, while contributing to ongoing adaptation research in the country. To ensure extensive stakeholder engagement and diverse involvement in adaptation policymaking, the government has also set up the Citizens Evaluation Group, comprising civil society, academia, industry, experts and youth, to engage in adaptation policymaking.[14] In addition, in 2015 a comprehensive climate strategy called The Promise of Seoul was developed by the Citizens Committee for a Green Seoul, which has up to 100 members from academia, government and civil society.[15] The committee emphasises the important role cities and local governments play in responding to climate change.

As Korea continues to strengthen its renewable energy sector, this may translate into increased investment in renewable energy in Africa, which has significant potential for solar, hydro and wind energy generation

While Korea's ambitious approach to meeting carbon neutrality is laudable, this will inevitably impact its relationship with Africa, specifically in terms of demand for African natural resources. According to Korea's Energy Master Plan, the country aims to reduce energy imports (mainly coal) by 18% and increase renewable energy by 30–35% by 2040.[16] Such shifts will have significant consequences for countries currently exporting coal, oil and gas to Korea. Conversely, as Korea continues to strengthen its renewable energy sector, this may translate into increased investment in renewable energy in Africa, which has significant potential for solar, hydro and wind energy generation. With regard to adaptation,

There is significant potential for African countries to leverage Korean expertise to enhance their adaptation planning and NDC implementation

Korea's climate policy framework not only highlights local adaptation priorities but also underscores the importance of international collaboration on climate adaptation. For example, its NDC emphasises the country's commitment to support capacity building in developing countries through an international adaptation training programme, which was established in 2010. The government of Korea has also committed to working with the

14 Korean Adaptation Centre for Climate Change, *Climate Change Adaptation Newsletter* 1 (2021).
15 ICLEI, "The Seoul Connection: One City's Mission to Spread Climate Action", Blog post, October 9, 2021.
16 Monaisa, "Climate Change and Trade Risk", 3.

UNFCCC on the convention's Adaptation Academy under the Climate Action and Support Transparency Training programme, specifically targeted at assisting developing countries to implement the Paris Agreement. In this regard, there is significant potential for African countries to leverage Korean expertise to enhance their adaptation planning and NDC implementation.

Africa's Common Climate Response and Action Plan

The AU endorsed the African Climate Change and Resilient Development Strategy and Action Plan (2022–2032) on 6 February 2022. The strategy seeks to promote a regional response to climate change over the next decade, building on the shared challenges and opportunities facing the continent. It recognises the need for urgent and ambitious climate action and that Africa, while contributing minimally to global carbon emissions, is particularly vulnerable to the effects of climate change, and is an important strategic partner in the quest to achieving carbon neutrality and enhanced climate resilience. To achieve resilient development, and ultimately safeguard African communities from the effects of climate change, the strategy includes plans to leverage natural endowments, renewable energy potential, nature-based solutions, transformative industrial pathways, green and circular economy approaches, and the region's large and active youth demographic.[17] The strategy, which will be reviewed every five years, is informed by individual countries' NDCs, national climate change strategies and adaptation plans, long-term decarbonisation pathways, and regional and continental climate change policies and agreements such as Agenda 2063, the Green Stimulus Programme and the Green Recovery Action Plan. It supports the commitment made under the Paris Agreement to limit temperature rise to below 1.5°C above pre-industrial levels, and seeks alignment with global frameworks such as the UN's Agenda 2030 Sustainable Development Goals, the Sendai Framework for Disaster Reduction and the Convention for Biological Diversity. By positioning Africa's agenda within the broader context of global climate objectives under frameworks such as the Paris Agreement, the strategy identifies an overall goal of 'collective action and enhanced cooperation in addressing climate change issues that improves livelihoods and well-being, promotes adaptation capacity, and achieves low-emission, sustainable economic growth'.[18] The overall objective of the strategy is to 'build the resilience of African communities, ecosystems and economies and [support] regional adaptation'.[19] It also recognises the vulnerability, specific needs and special circumstances of African countries, with a focus on supporting adaptation to climate change and addressing loss and damage.

17 Romy Chevallier, "Africa's Common Climate Response and Action Plan" (Policy Briefing 261, South African Institution of International Affairs, Johannesburg, 2022).

18 AU Commission, *The AU Climate Change and Resilient Development Strategy and Action Plan (2022–2032)* (Addis Ababa: AUC, 2022).

19 AU Commission, *The AU Climate Change and Resilient*, 6.

BOX 1 PILLARS OF THE AFRICAN CLIMATE CHANGE AND RESILIENT DEVELOPMENT STRATEGY AND ACTION PLAN (2022–2032)

To achieve the overall goal and objective of the strategy, and ultimately enhance resilient development across the continent, nine key pillars have been identified:

- **A people-centred approach:** This is based on the idea that the gains and losses from transitioning toward a low-carbon and resilient economy should be shared equitably across the region. The strategy also advocates for a participatory approach, which includes multilevel stakeholder participation and multisectoral engagement, and ensures that the voices of women and youth are represented in Africa's development planning and climate action.
- **Conserving and restoring ecosystems:** The strategy recognises the importance of natural ecosystems in terms of both their adaptation and mitigation potential. To generate a sustainable circular economy, as well as safeguard the livelihoods of many rural communities, investments in conserving and restoring natural ecosystems on the continent needs to be scaled up.
- **Aligning plans and priorities:** Development plans should be aligned to climate change agendas, as well as post-COVID recovery plans, to support national, regional and continental development and resilience.
- **Leave no one behind/a just transition:** The strategy supports equitable and just responses to climate change that ensure the most vulnerable communities adapt to climate change, and that all livelihoods are protected in the transition to a low-carbon and resilient continent.
- **Common but differentiated responsibilities:** The strategy advocates ambitious climate action in line with the principle of common but differentiated responsibilities and respective capabilities on the continent.
- **Intersectionality:** Integrated responses to resilience building are necessary to efficiently address overlapping vulnerabilities such as climate, gender, age and poverty.[a]
- **Evidence and practice:** The strategy should continue to draw on scientific evidence and best practice within the international, regional and national context.
- **African-led and African-owned:** Agenda 2063 lays the foundation to ensure Africa invests in its own technological, entrepreneurial and scientific capabilities, while ensuring the continent's cultural and social values are upheld. The identification and development of new innovative funding opportunities to respond to climate change is promoted to ensure an African-owned response to climate change.

- **Whole of economy approach:** The strategy acknowledges the intersectionality of climate change across all sectors of national economies. A cross-sectoral approach to climate change adaptation and mitigation is advocated for both national and regional economic planning.

a AUC, *The AU Climate Change and Resilient*, 17.

The strategy identifies four strategic intervention axes that outline the priorities, interventions and action areas for enhanced climate adaptation and mitigation in the continent. These axes are meant to serve as broad themes to drive socioeconomic transformation, while leveraging multiple sustainable development benefits for Africa. Key sectoral themes aligned to each intervention axes are identified, and interventions related to each are explained in detail. Sectors include, but are not limited to, climate-resilient agriculture, infrastructure, low-carbon energy and transport, blue economy and land-based ecosystems, water systems and digital transformation. The axes are:

- **strengthening policy responses and governance systems** to enhance climate-resilient development, including through enhanced institutional coordination, policy coherence, climate knowledge systems and climate literacy, as well as anticipatory planning;
- adopting cross-cutting pathways towards transformative **climate-resilient and low-emissions development**, which includes identifying key sectors where systemic transitions are required, such as agriculture and land use, oceans, food systems, water systems, urban and transport systems, industry and energy;
- enhancing Africa's capacity to respond to climate impacts by strengthening the **means of implementation** towards climate-resilient, low-emission development, including through climate finance and resource mobilisation, technology transfer and development, capacity development, and safety nets for loss and damage; and
- **leveraging existing regional flagship initiatives and programmes** to generate political buy-in for collective action from African countries and external partners. This serves as the foundation for partnerships, information exchange and resource mobilisation.[20]

The strategy comes at an important strategic time for Africa, with the 27th Conference of the Parties (COP) of the UNFCCC (the 'Africa COP') to be held in Egypt in November 2022. The Africa COP is an important policy window to establish partnerships and secure climate finance for the strategy's implementation. It is crucial that the AU Commission, negotiating bodies and the Egyptian COP presidency work together prior to COP27 to ensure Africa is prepared to garner support for the strategy's implementation. The AU should also begin to prioritise the development of a resource mobilisation plan for the strategy to

20 Chevallier, "Africa's Common Climate Response", 7.

ensure sufficient funds are mobilised and channelled to where they are needed most. To successfully operationalise and implement the intervention areas and priority actions identified, strong partnerships between state and non-state actors are essential. Specific entry points for these partnerships need to be identified, particularly for grassroot-level actors, for inclusion in policy design, research and implementation.[21]

To enhance its strategic relationship with Africa, particularly for partnerships on sustainable development and climate, Korea needs to ensure that its investment priorities on the continent are aligned with the key priority areas identified in the strategy

Ultimately, whether the strategy succeeds or fails will depend on whether its intentions can be transformed into meaningful action. While the strategy identifies key priorities and interventions to enhance Africa's developmental resilience, many African countries face implementation challenges relating to capacity and financial constraints. The AU will thus need to call on partners from both the international community and the local private sector to help operationalise the strategy within its set timeframe. To enhance its strategic relationship with Africa, particularly for partnerships on sustainable development and climate, Korea needs to ensure that its investment priorities on the continent are aligned with the key priority areas identified in the strategy.

Opportunities for Korea–Africa collaboration on sustainable development and climate resilience

Energy and green minerals

Africa holds significant potential for renewable energy generation. A just energy transition will ensure that it has a climate-resilient future, and help to alleviate poverty and inequality across the continent. In 2018 approximately half of Africa's total population did not have access to electricity, and 900 million people relied on traditional biomass as their primary source of energy for cooking.[22] In addition, approximately two-thirds of existing grids are

21 Chevallier, "Africa's Common Climate Response", 7.

22 International Renewable Energy Agency, *The Renewable Energy Transition in Africa: Powering Access, Resilience and Transparency* (Frankfurt: KfW Development Bank, 2020).

considered unreliable.[23] There is significant potential to increase energy access through solar, wind, hydro and geothermal energy, but this requires commitment from both the public and private sector to operationalise funding for large-scale renewable energy production. Despite only 2% of global renewable energy investment going to Africa over the past two decades, renewable energy generation and investment have increased significantly. Average annual investment in renewable energy on the continent has grown from $0.5 billion in 2000–2009 to $5 billion in 2010–2020, with hydropower contributing the most to renewable energy generation.[24] Solar energy generation, in particular, has seen significant growth in recent years, with Egypt, Ghana, Kenya, Namibia and South Africa driving this investment. Morocco is also a leader in renewable energy generation, with a third of its energy coming from renewable sources.[25] Smaller countries such as Cape Verde, Djibouti, Eswatini and Rwanda have also set ambitious renewable energy targets.

In 2019, 20% of installed energy generation in Africa was renewable. Despite hydropower contributing the most toward renewable energy generation on the continent, it currently has the highest untapped hydropower potential in the world, with only an estimated 11% of its potential being used.[26] Regionally, Southern Africa holds the most installed renewable capacity on the continent. Table 1 indicates recent figures on installed renewable energy capacity on the continent, as well as renewable energy projects under construction. Southern Africa and East Africa are clear standouts in terms of both installed capacity and potential additional capacity in the near future.

TABLE 1 RENEWABLE ENERGY PROJECTS IN AFRICA, 2021 (MW)

African region	Operating renewable projects (capacity)	Renewable projects under construction (capacity)
Southern Africa	24 840	10 095
East Africa	10 402	15 201
North Africa	13 111	100
West Africa	6 298	5 481
Central Africa	4 253	2 209

Source: Adapted from PwC, *Africa Energy Review 2021* (London: PwC, November 2021)

The African Climate Change Strategy acknowledges renewable energy as a key strategic intervention to achieve developmental resilience. The strategy emphasises the importance of leveraging regional initiatives for an African-led and African-owned response to achieving energy security. For example, the African Renewable Energy Initiative is a flagship initiative mandated under the AU and endorsed by the Committee of African Heads of State and

23 PwC, *Africa Energy Review 2021* (London: PwC, November 2021).
24 IRENA and AfDB, Renewable Energy Market Analysis: Africa and Its Regions (Abu Dhabi and Abidjan: IRENA and AfDB, 2022).
25 Raphael Obonyo, "Push for Renewables: How Africa Is Building a Different Energy Pathway", *Africa Renewal*, January 6, 2021.
26 PwC, *Africa Energy Review 2021.*

Government on Climate Change. It aims to achieve at least 300GW of renewable energy by 2030. While regional and African-owned renewable energy initiatives and projects are essential to the continent's long-term developmental resilience and economic growth, a lack of institutional capacity, technical skills and finance continues to hinder large-scale renewable energy projects. Climate finance contributions and investments from developed countries are thus essential to ensure Africa successfully transitions away from fossil fuels to renewable energy generation. In addition, a supportive regulatory environment will ensure that funds are channelled toward renewable energy initiatives, while incentivising foreign direct investment in renewable energy generation.

A lack of institutional capacity, technical skills and finance continues to hinder large-scale renewable energy projects

Korea has increased its aid to Africa, including support to renewable energy initiatives, with the government investing in green energy projects in the region. For example, in 2021 Korea committed to provide $600 million in co-financing for renewable energy projects implemented by the AfDB, which was formalised through the signing of the Korea–Africa Energy Investment Framework pact.[27] The investment agreement aims to finance projects related to energy generation, transmission and distribution, as well the development of off-grid and mini-grids throughout the continent. In addition to financing renewable energy production and technologies, the Korean government also aims to finance AfDB projects focusing on capacity building, project preparation and knowledge-sharing activities through the KOAFEC Trust Fund. Around the globe, energy policies, investment and trade are shifting rapidly, partly through global climate response measures, but also in the shorter term in response to the Ukraine conflict and efforts by many countries to reduce their dependence on Russia as a source of fossil fuel imports. These shifting dynamics are creating new opportunities that should also be explored in the context of Korea–Africa relations.

Africa has an abundance of 'green' minerals such as lithium, cobalt, manganese and graphite, which are needed to manufacture batteries for renewable energy storage and electric vehicles. For example, the DRC holds approximately 70% of the world's cobalt and Zimbabwe has the largest lithium deposit in Africa.[28] Zambia and Namibia also hold large lithium reserves. While countries accelerate the transition to achieving net-zero emissions, investments in renewable energy technologies are expected to increase demand for green minerals. The World Bank predicts that the extraction of these minerals is likely to

27 AfDB, "Korea to Channel $600 million into Energy Investments Alongside the African Development Bank", June 29, 2021.
28 Matthew Goosen, "Sourcing Minerals for Africa's Energy Transition", *Energy Capital and Power*, January 11, 2022.

increase by 500% by 2050.[29] African countries are thus in a position of power to leverage their reserves of green minerals through exports, as well as through local manufacturing of renewable energy technologies. Countries with advanced carbon-neutrality policies, such as Korea, could form beneficial trade agreements with green mineral-rich African counties. This would allow Korea to achieve energy security through renewable energy generation while boosting its already advanced battery manufacturing industry – South Korean company LG Chem is among the top three lithium battery manufacturers in the world. Increasing Korea's trade relations with Africa for green mineral supplies will help to sustain and potentially grow Korea's dominance in the global battery value chain. The growth in green mineral extraction in Africa also poses an opportunity for industrialised countries to develop and supply underground mining machinery and infrastructure for green mineral extraction. Table 2 lists the African countries with the highest share of battery minerals on the continent, as well as their share of global production.

Countries with advanced carbon-neutrality policies, such as Korea, could form beneficial trade agreements with green mineral-rich African counties

TABLE 2 AFRICAN BATTERY MINERALS, BY COUNTRY: GLOBAL RESERVES VS. GLOBAL PRODUCTION

Mineral	Country	Share of global reserves	Share of global production
Bauxite	Guinea	24%	15%
Copper	DRC	2%	5%
	Zambia	2%	4%
Cobalt	DRC	51%	57%
Graphite	Mozambique	8%	<1%
Iron ore	South Africa	1%	3%
Manganese	South Africa	30%	31%
Nickel	South Africa	4%	2%
Phosphate rock	Morocco	72%	12%
Titanium	South Africa	8%	5%

Source: Adapted from Gaylor Montmasson-Clair et al., *Opportunities to Develop the Lithium-Ion Battery Value Chain in South Africa*, Research Report (Pretoria: Trade & Industrial Policy Strategies, January 2021)

29 World Bank Group, "Climate-Smart Mining: Minerals for Climate Action", https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action.

The role of green minerals in electric vehicle manufacturing will be crucial in future Korea–Africa trade negotiations

The Korean government has announced plans to lower the cost of electric vehicles by KRW 10 million (approximately $9 000) by 2025, with domestic battery manufacturing playing a major role in this reduction.[30] Korean motor vehicle companies such as Hyundai and Kia will thus need to increase their imports of green minerals in order to increase their battery manufacturing output. The role of green minerals in electric vehicle manufacturing will be crucial in future Korea–Africa trade negotiations. While exports of green minerals can be an important source of investment and revenue for African states, the continent is also likely to prioritise local battery manufacturing. This will ensure Africa's place in the competitive market for alternative energy generation, while creating new local employment opportunities. For instance, lithium-rich countries could explore local manufacturing of lithium-ion batteries to tap into local, regional and global electric vehicle and solar industry markets.[31] However, significant risks and barriers to investment continue to hinder the entry of new firms. To avoid disincentivising investment in the region, African governments need to develop local and regional policies to improve market conditions for industrialisation and manufacturing. The Zimbabwean National Industrial Development Policy (2021), for example, aims to drive industrialisation in the country through value addition, increased employment, and the facilitation and promotion of inclusive and globally competitive industrial enterprises.[32]

To avoid disincentivising investment in the region, African governments need to develop local and regional policies to improve market conditions for industrialisation and manufacturing

Regionally, the African Continental Free Trade Area (AfCFTA), which was launched in 2019, aims to create the largest free trade area in the world, with the potential to generate up to $3.2 trillion in intra-African trade and increase African exports by $560 billion.[33] A supportive regulatory and political environment to facilitate intra-African trade and Africa-owned investment in industrialised sectors can help to ensure that Africa participates competitively in the global market for batteries and renewable energy technologies.

30 Scooter Doll, "South Korea to Halve Electric Vehicle Prices by 2025", *Electrek*, February 19, 2021.
31 Daisy Mukarakate, "The Role of Extractives in Africa's Inclusive Green and Resilient Recovery", *Africa Renewal*, October 12, 2021.
32 Goosen, "Sourcing Minerals for Africa's".
33 Goosen, "Sourcing Minerals for Africa's".

A supportive regulatory and political environment can help to ensure that Africa participates competitively in the global market for batteries and renewable energy technologies

Smart cities

Korea has played a key role in the transformation of several African cities into sustainable urban hubs through public and private investments in smart city technologies and collaborations with governments. In 2018, for example, the Korean government and Korean private sector actors helped the Nigerian government to develop sustainable and low-carbon infrastructure for the city of Suleja. This included the development of a metropolitan system, solar plants and a feasibility study for the development of the smart city master plan.[34] Korea's smart city, Busan, has also gained considerable international recognition as an example of a successful city development model with replication potential. In 2019 the Busan Metropolitan City and Busan Techno Park collaborated with the AfDB to launch a pilot project in Tunisia using drone technology to monitor and analyse key climate impacts on the country's agricultural sector.[35] Korea's vast knowledge of, experience in, and success at implementing smart city governance thus hold significant opportunities for technology cooperation with local African governments, while contributing to enhanced climate resilience.

Korea's vast knowledge of, experience in, and success at implementing smart city governance thus hold significant opportunities for technology cooperation with local African governments

Korea's success in expanding technological cooperation among African countries is further demonstrated by the World Smart Sustainable Cities Organisation (WeGO). With a secretariat based in Seoul, WeGO is an international association of local governments, national and regional institutions, and smart-tech problem solvers, dedicated to transforming cities to become smart and sustainable. WeGO launched the Smart Africa Alliance/Korea partnership in 2018, with the objective of effectively supporting and developing smart city initiatives in Africa. Considering the rapid urban population growth

34 Boris Ngounou, "Nigeria: South Korea Supports Suleja's Green Smart City Project", *Afrik21*, November 26, 2019.
35 AfDB, "South Korea Ready to Partner with Africa on Technology", February 7, 2021.

in Africa, technology and smart city solutions are necessary to advance the delivery of public services and improve overall quality of living. Given this, the Smart Africa Alliance/Korea partnership focuses on 'contributing to the construction of the single digital market of community in Africa'.[36] The partnership is a commitment by 32 African heads of state to place technology at the forefront of Africa's socio-economic development by ensuring affordable access to broadband and the use of information and communication technological services. Thus far, the Smart Africa Alliance/Korea partnership has launched in Benin, Ghana, Rwanda and Tunisia.

It is important for Africa to decentralise digital transformation and ensure locally appropriate solutions to the challenges surrounding sustainable cities

The African Climate Change Strategy recognises that digitalisation is key to build resilience to climate variabilities. This is well aligned with the Smart Africa Alliance/Korea partnership, which aims to accelerate digitisation on the continent, using technology and smart city solutions to improve public engagement and encourage economic growth. However, it is equally important to highlight that digital transformation narratives have largely been shaped by perspectives from the global North. It is important for Africa to decentralise digital transformation and ensure locally appropriate solutions to the challenges surrounding sustainable cities. To achieve this, the African Climate Change Strategy identifies expanding African knowledge and skills development, targeting the specific needs and demands of African people and communities. The strategy also promotes inclusivity, as well as taking the necessary steps to ensure that digitalisation is in alignment with African policies and regulations.

Infrastructure developments

Korean companies have played a pivotal role in infrastructure development in Africa. Examples of such projects are the construction of the largest floating petroleum production storage and offloading facility in Nigeria by Samsung Heavy Industries, and the construction of a highway in Ethiopia and a bridge over the Zambezi by Daewoo Engineering and Construction.[37] Historically, infrastructure investments by Korean companies in Africa have been secured through formalised loan agreements whereby the Korean government will finance large-scale government infrastructure projects, based on an agreement that these will be managed by an established Korean company. More recently, however, much of Korean financing of infrastructure development in Africa has been untied and established

36 WeGO, "WeGO and Smart Africa Partner to Advance Smart Cities in Africa", SMART Africa, August 1, 2021.
37 Nicolas, *Korea in Africa*, 28.

through partnerships between African and Korean development institutes. In 2019, for example, KIND and the Eastern and Southern African Trade and Development Bank signed a memorandum of understanding to collaborate on infrastructure development projects in the region. This includes the implementation of pilot projects, as well as capacity-building initiatives and impact studies to develop bankable infrastructure project proposals. Korea has also successfully implemented many infrastructure projects through the establishment of public–private partnerships (PPPs). Through supportive initiatives by institutes such as KIND, African countries can leverage PPPs to unlock additional capital and expertise to execute long-term, sustainable and climate-resilient infrastructure projects.

Through supportive initiatives by institutes such as KIND, African countries can leverage PPPs to unlock additional capital and expertise to execute long-term, sustainable and climate-resilient infrastructure projects

In addition, Korea has supported innovative infrastructure developments in Africa through formalised loan agreements. The government of Kenya, for example, borrowed KES[38] 6.4 billion ($54 million) from the Korean Export-Import Bank to finance a Bus Rapid Transport (BRT) system in Nairobi, upgrading the city's public transport system from a traditional bus network.[39] These six BRT corridors are envisaged to reduce travel time and bring down travel costs by up to 70% by increasing the capacity of the road system.

This is a unique opportunity for Korea to leverage its influence and share lessons learnt on industrialisation that contributed to its own socio-economic growth and expansion into the global economy

The Programme for Infrastructural Development in Africa (PIDA) is an initiative that advances sustainable infrastructural development across the continent. The programme specifically recognises the need to establish cross-border infrastructural partnerships. Achieving this will further Africa's socio-economic development and incorporation into the global economy. Korea's role in providing Africa with the financial capacity to develop regional infrastructure aligns well with PIDA's priorities, as it will help Africa to expand its

38 Currency code for the Kenyan shilling.

39 Edwin Mutai, "State Borrows Sh6.6bn from Korea for BRT", *Business Daily*, October 12, 2021.

economic growth and the competitiveness of businesses, which in turn will encourage foreign direct investment flows to the continent. Furthermore, this is a unique opportunity for Korea to leverage its influence and share lessons learnt on industrialisation that contributed to its own socio-economic growth and expansion into the global economy.

Knowledge sharing, capacity building and community development for climate-resilient agriculture

To support other developing states, the Korean government has launched several initiatives focusing on capacity building, knowledge generation and community development. In 2004 it initiated the Knowledge Sharing Program (KSP) to assist developing states in achieving sustainable economic growth. Projects implemented through the programme cover a range of topics, including technological development and capacity-building initiatives in public service delivery and management. In Ghana, for example, the programme helped to improve the government's public finance management system, while in Ethiopia a range of e-government implementation strategies have been developed.[40] In 2010 the Korean government also launched the Korea-Africa Food and Agriculture Cooperation Initiative (KAFACI), which aims to increase food security in Africa through capacity building on sustainable agricultural best practices and technologies. The initiative currently includes 20 African countries, with recent projects focusing on post-harvest support in Kenya, development of mould-resistant maize in Uganda, and chick-hatchery implementation in Comoros.

Korea's community development model, known as the *Saemaul Undong* movement (the 'new village' movement), has influenced community development projects in several African countries, including Côte d'Ivoire, the DRC, Ethiopia, Kenya, Rwanda, Tanzania and Uganda.[41] The model was piloted in 1970, and encourages community development through income diversification, poverty alleviation, entrepreneurship and community collaboration. In Korea, the movement facilitated the 'green revolution' in rice production in the 1970s, which helped to alleviate the risk of food insecurity among the growing population. The movement also advocates for the empowerment of women, with the management of communities often being overseen by female leaders. Organisations such as the AfDB are leveraging lessons from the *Saemaul Undong* movement through the implementation of pilot projects to empower African rural communities to overcome poverty and food insecurity.[42]

The Africa–Korea Disruptive Agricultural Technology (DAT) is another initiative launched by the Korean government to develop capacity building, knowledge generation and community development. DAT is an online platform to connect business start-ups in

40 Vincent Darracq and Daragh Neville, "South Korea's Engagement in Sub-Saharan Africa: Fortune, Fuel and Frontier Markets" (Research Paper, Chatham House, London, 2014).

41 Nicolas, *Korea in Africa*, 33.

42 AfDB, "How the African Development Bank and Korea Are Transforming African Villages and Boosting Rural Economies", July 17, 2018.

Korea and Africa seeking solutions to and collaboration on climate-resilient agriculture. In Africa, there has been an accelerated increase in the number of digital agri-tech start-ups. However, as a result of financial constraints and limited infrastructure and human resources, it is challenging for innovative African farmers to make progress in this sector.[43] DAT is an excellent platform to connect agri-tech businesses in Korea and Africa. It is sponsored by the Korea–World Bank partnership facility and Korea's Ministry of Economy and Finance, and currently partners with farmers in Kenya and Uganda, with ambitions to expand to other African countries. Given that Korea's agri-tech sector is highly developed, this is a valuable opportunity for Africa to develop partnerships and adopt best practice.

Under the African Climate Change Strategy, the importance of achieving climate targets within the agricultural sector is recognised. One of these climate targets is implementing a continent-wide exchange platform on best practices in climate change and agriculture. In addition, the African Resilient Landscape Initiative calls on African countries to mobilise financial and technical resources through various mechanisms to create and apply country-specific climate approaches suitable to their context. DAT is well suited to these climate-resilient agricultural goals with its agri-tech platform, which allows African agricultural businesses to be nurtured and scaled up so that they can contribute meaningfully and effectively to knowledge sharing and community development for climate-resilient agriculture.

Conclusion

Korean experience and expertise in economic diversification, sustainable growth and climate resilience should be leveraged by African partners to accelerate the continent's transition to resilient and sustainable development. While much of Korea's presence in climate change and sustainable initiatives in Africa is facilitated by donor funding and organisations such as the AfDB, there is still scope for the Korean private and public sector to collaborate with African governments to expand business opportunities while contributing to sustainable development. Renewable energy investments, partnerships for green mineral extraction and trade, large-scale infrastructure development, smart-city

> Renewable energy investments, partnerships for green mineral extraction and trade and sustainable agriculture are some examples of where these opportunities may be leveraged for the benefit of both parties

43 World Bank Group, "Africa-Korea Disruptive Agricultural Technology (DAT) Knowledge Exchange Series", https://olc.worldbank.org/content/%E2%80%98africa-korea%E2%80%99-disruptive-agricultural-technology-dat-knowledge-exchange-series.

technology innovation and sustainable agriculture are some examples of where these opportunities may be leveraged for the benefit of both parties. This requires continued engagement from both sides, which may be facilitated through established institutions such as the Korea–Africa Forum and the Korea–Africa Foundation, multilateral organisations such as the UNFCCC, and formalised PPPs. These partnerships are particularly important for large-scale infrastructure and smart city-innovation projects, which should be aligned to African national development priorities. Opportunities for Korea–Africa partnerships on renewable energy and green minerals also need to be identified and pursued as key opportunities in African countries' climate finance strategies and plans. There is also considerable scope to leverage Korean knowledge-sharing initiatives on community development models and agricultural management best practice to capacitate rural communities on sustainable and profitable livelihood generation and food systems.

the African Climate Change Strategy should continue to inform Korea's strategic interests in Africa for partnerships on climate and energy

In addition, the African Climate Change Strategy should continue to inform Korea's strategic interests in Africa for partnerships on climate and energy. The strategy was only launched earlier this year, and there are still opportunities for Korea to partner with Africa in its implementation at both the national and regional level. African governments should identify the necessary expertise and correct implementing partners for various climate-related initiatives. Korea's successful development model, as well as its ambitious carbon-neutrality policy landscape, should not be overlooked when considering strategic partnerships for initiatives in energy, smart cities, resilient infrastructure and agriculture.

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The Korea–Africa Foundation (KAF) was established in June 2018 as an affiliation of the Ministry of Foreign Affairs of Korea, with the mission of promoting genuine partnership with the African continent in political, economic, cultural, academic and other areas.

By pursuing comprehensive research and fostering professionals on Africa, KAF aims to serve as a platform for collaboration between the private and public sectors, strengthen exchange and cooperation with African countries and enhance mutual understanding so that Korean youth, businesses and organisations can explore a new dimension of possibilities together with the African continent that is dynamically unfolding its boundless potential.

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