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AFRICA CENTER

Developing Green Banking Ecosystems

A Solution to Better Finance Green Challenges
and Address Climate Change in Africa

Jean-Paul Mvogo



The Mission of the Atlantic Council's Africa Center is to prepare policy makers and investors for the onset of the African Century by supporting dynamic geopolitical partnerships with African states and multilateral institutions.

This report was completed by the Atlantic Council's Africa Center, with special thanks to Princeton University's Jessie Press-Williams provided critical research and analysis in this effort.

It also benefited from the support, assistance and insights of Mrs. Audrey-Cynthia Yamadjako and Mr. Charles Wilfried Abedier (African Development Bank), Mr. Matteo Ferrazzi and Mr. Colin Bermingham (European Investment Bank), Mrs. Jacqueline Musitwa and Mr. Lucas Isakowitz (United States Agency for International Development), Mrs. Devin Case-Ruchala (Coalition for Green Capital), Mrs. Carolina Herrera and Mrs. Sarah Dougherty (Natural Resources Defense Council), Mr. Papa Madiaw Ndiaye (Advanced Finance & Investment Group), and Mr. Bienvenu Ngandu Wa Ngandu.

December 2023

Cover photo: Lake Kivu is seen in the Democratic Republic of Congo, November 25, 2016. REUTERS/Therese Di Campo

ISBN: 978-1-61977-310-3

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Introduction: A Tale of “Two Cities”

Africa is home to considerable reserves of critical minerals, which are essential for the production of electric batteries and sectors that will be at the heart of the transition to a low-carbon economy. The continent’s natural ecosystems provide many essential economic services to the planet, with the forests of the Congo Basin storing as much carbon as their counterparts in Asia and Amazonia. During the Summit for a New Global Financial Pact in June 2023, African heads of state unanimously requested a financing agreement for the Grand Inga Dam, which has a potential of 40,000 megawatts (MW) and could turn Africa into a key player in future sustainable-energy highways. The continent is also enjoying a substantial demographic dividend as, by 2050, its working-age population will have tripled to 1.25 billion people.¹ Its environmental legacy is weak in terms of production methods, infrastructure, and institutions, and can easily allow a transition to an even greener economy.

The combination of these factors could make the continent an attractive destination for investors who look for new classes of promising financial assets, in a global green finance market whose flows were multiplied by one hundred between 2012 and 2021.²

Therefore, two paths are possible for the African continent. One is the status quo of relative inaction, which yielded bleak developmental outcomes and under which Africa will remain a raw-commodity exporter and the main victim of climate change. The other is a resolute and vigorous commitment to a green and inclusive transition, which is capable of unleashing Africa’s potential. From a smart, integrated conservation project in the Virunga National Park in the Democratic Republic of Congo to solar-panel manufacturing in South Africa to agricultural activities affected by hydrocarbon production in Nigeria, all the pictures illustrating this report point to those two ends.

One of the fundamental differences between them lies in access to finance. Whereas combined global fixed-income market outstanding and equity-market capitalization were worth \$231 trillion in 2022, Africa is struggling to finance its green transition.

Financing mobilized to face Africa’s climate challenges represented roughly one-tenth of its needs, fueling a feeling of climate injustice and also depriving Africa of a growth capable of providing work for the hundreds of millions of young people who will enter the labor market in the next two decades.

One solution to increase green financing for Africa lies in the implementation of strong and proactive policies that: address systemic constraints hindering the absorption capacity of African countries in terms of green projects and their financing; attract new categories of national and international investors; and ensure the optimal allocation of these new resources.

A specific category of actors is at the heart of these policies: green banking intermediaries (GBIs). These are banks and actors carrying out banking operations—including, notably, microfinance institutions—that have decided to devote themselves, entirely or partially, to the financing of the green transition.³

GBIs, thus, belong to a group of systemic players within African financial systems. GBIs might be the corner bank, but they stand out from other local banks by their decision to engage in green banking, a process through which banks and quasi-banks decide to contribute directly and indirectly to the transition to a green-inclusive economy. They do so by promoting its financing and urging their customers to adopt practices that are sustainable and more respectful of the environment.

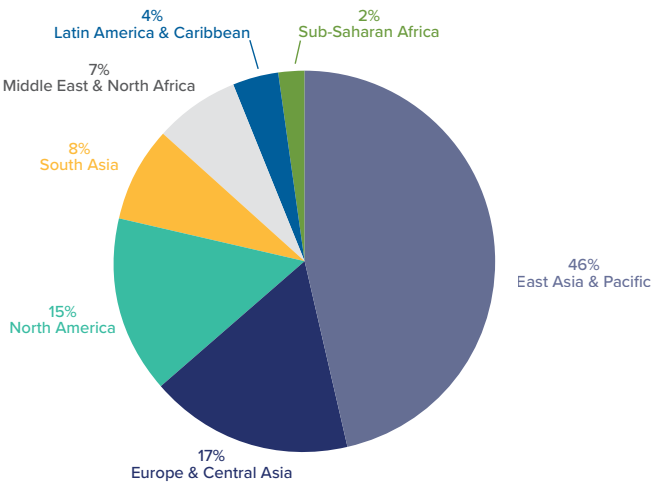
1 “How Can Sub-Saharan Africa Harness the Demographic Dividend?” International Monetary Fund, 2015, https://www.imf.org/-/media/Websites/IMF/imported-flagship-issues/external/pubs/ft/reo/2015/afr/eng/pdf/_chap2pdf.ashx.

2 “Green Finance: A Quantitative Assessment of Market Trends,” TheCityUK, March 2022, <https://www.thecityuk.com/media/101hcnctn/green-finance-a-quantitative-assessment-of-market-trends-1.pdf>.

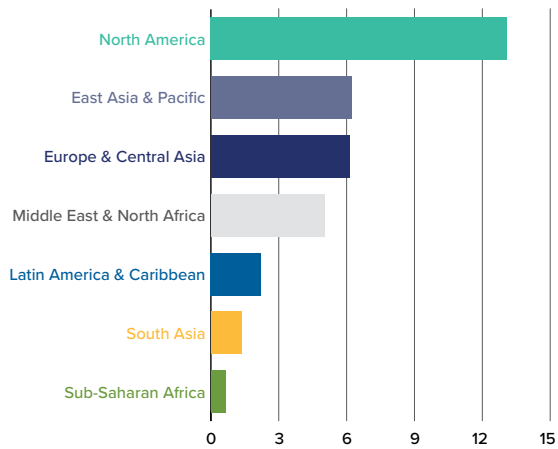
3 This includes stakeholders such as microfinance institutions, municipal banks, post offices, or electronic-money institutions.

Graph 1 | The African Triple Climate Change Paradox: Limited Responsibility, High Exposure, and Weak Financial Support

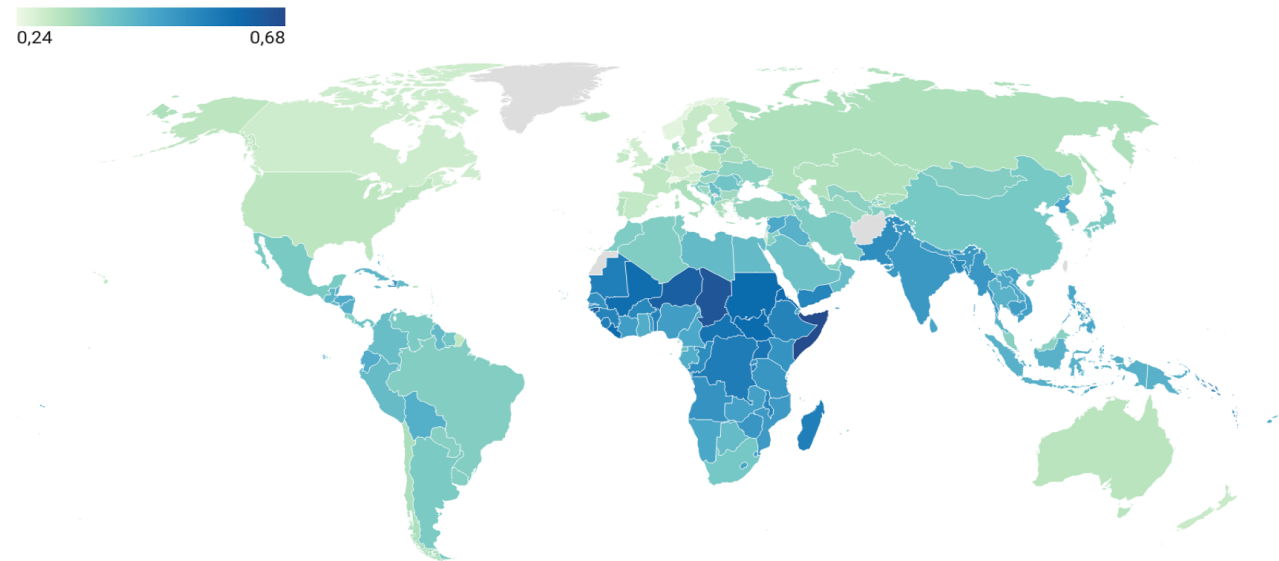
(a) Share of total CO₂ emissions in 2020 (in percentage)



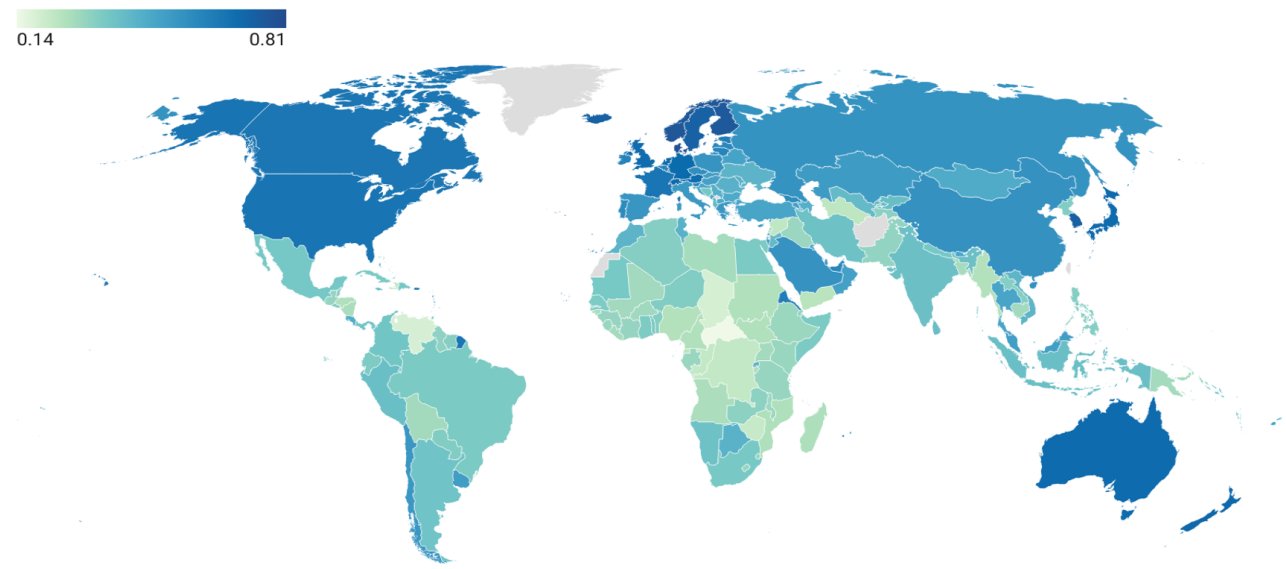
(b) CO₂ emissions per capita in 2020 (in metric tons)



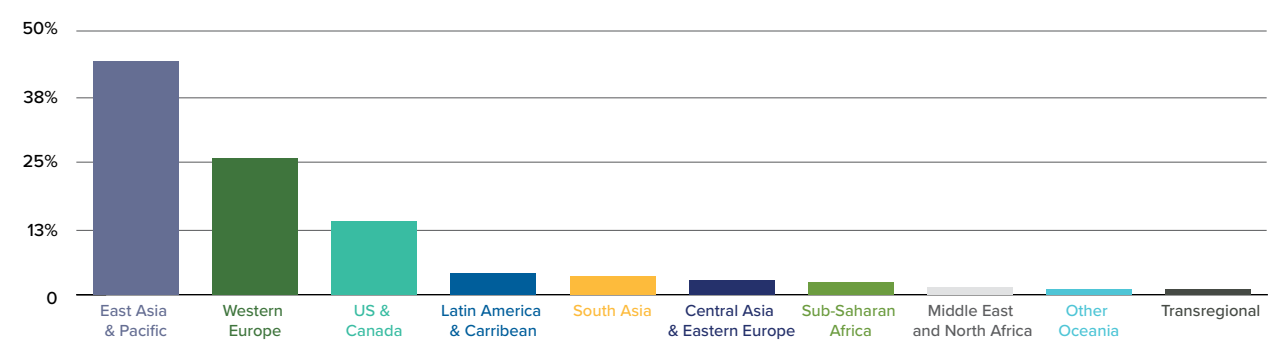
(c1) Climate Change Vulnerability Index Score. Darker shades are associated with higher climate change vulnerability



(c2) Climate Change Readiness Index Score.
Darker shades are associated with a higher level of readiness to climate change



(d) Destination region of climate finance (in % of global flows)



Source: (a) and (b) Author, based on data from World Bank Development Indicators; (c) Author based on data from Notre Dame Global Adaptation Initiative processed with Datawrapper; (d) Author, based on Climate Policy Initiative Global Landscape of Climate Finance 2023.



A park ranger carries orphaned female mountain gorillas Ndeze and Ndakasi at a protected location at Rumungabo in Virunga National Park just north of the eastern Congolese city of Goma, August 17, 2010. REUTERS/Finbarr O'Reilly.

Over the next few decades, the African continent's capacity to mobilize funds, allocate them, and monitor their use toward green projects, particularly in the "last mile" and with a focus on small and medium enterprises (SMEs) and households, will depend on the performance of the GBIs—and that of their green banking ecosystem (GBE).⁴

This report presents green banking ecosystems, why they matter so much for Africa's green transition, their current challenges, and their main stakeholders.

Because the green transition, in both the real and financial spheres, cannot be achieved spontaneously by market forces alone, this report advocates for green banking ecosystem policies (GBEPs). By promoting risk reduction, coordination, standardization, training, and more active intervention from African central banks, those policies are capable of moving GBEs from low to higher levels of intermediation and unleashing the promise of African green financial markets and economies.

⁴ The term Green Financial Ecosystem could also have been used but Green Banking Ecosystem was preferred to highlight the prominence of banks in African financial intermediation.

I. Why Do Green Banking Ecosystems Matter for the Green Transition?

*I dream of our vast deserts, of our forests, of all our great wildernesses.
We must never forget that it is our duty to protect this environment.*

Nelson Mandela

Poor access to finance has always been one of the most pressing constraints curbing African SMEs' and households' contributions to growth. It could also jeopardize their efforts to move to greener practices. Hence, the multiplication of proposals to mobilize more green financing through green-bond markets or green investments banks—entities established specifically to catalyze public resources to facilitate private investment in green projects.⁵ Yet, addressing green financial challenges cannot be done only upstream, as bottlenecks also undermine the green intermediation pipeline downstream. Far from scattered actions, these issues require a systemic approach aimed at developing subcompartments of African financial systems dedicated to the financing of the green transition: green banking ecosystems.

A. Green Banking Ecosystems: Drivers of the Green Transition within Financial Systems

A common framework is required to map and understand the stakeholders and policies needed to achieve greater levels of green financial intermediation in Africa. This report defines a GBE as a conceptual canvas that brings together all the actors contributing to the development of green banking. GBEs exist de facto in all African countries and worldwide, have a broad financing mandate—which includes climate, biodiversity and conservation, pollution, deforestation, and circular economy—and are both segments of the banking system and compartments of green finance, which belongs to the large family of sustainable finance.⁶

Green banking ecosystems allow us to clarify the role of the various actors involved in green financial intermediation, their interactions, and their respective expectations and objectives. More specifically, five categories of actors gravitate within a GBE: GBIs, their customers (households, companies, public institutions), regulators, environmental external-opinion institutions, and institutional investors and the financial markets in which they operate.

Along with regulators, GBIs are destined to drive green African intermediation in the upcoming years. Because GBIs are a particular type of bank or quasi-bank, they will catalyze the unparalleled network and weight of that subcategory of financial actors, and influence individual and collective social-utility functions.

B. Dimensions and Objectives of GBEs Contribute to a Green and Inclusive Economy

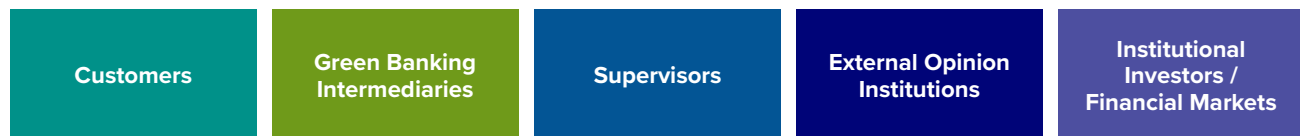
GBEs are characterized by their functions, and also by underlying dimensions that measure their contributions to green intermediation in specific domains. Capitalizing on the existing financial intermediation ecosystem and new solutions, they mobilize resources, allocate them to actors in need of green financing, monitor green projects, and manage risks. These functions are inherent in any financial system and, hence, specific criteria or dimensions are needed to distinguish GBEs and define their specific role as subcompartments specialized in the financing of the green transition. Given the requirement that no one should be left behind in the green transition, GBEs must be inclusive. All economic actors should

⁵ "Green Investment Banks," Organisation for Economic Co-operation and Development, last visited September 27, 2023, <https://www.oecd.org/environment/green-investment-banks.htm>.

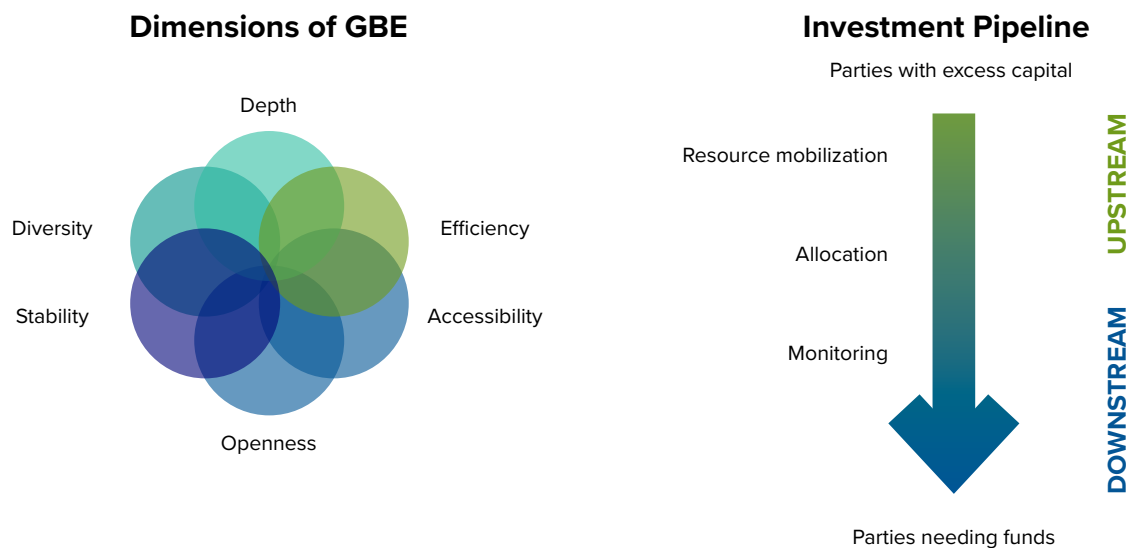
⁶ Green finance brings together a set of standards and mechanisms that facilitate intermediation between green project leaders and players with capital and integrate the potential environmental impact of investment in financial decision-making, while aiming to promote environmental and social sustainability.

Graph 2 | The Stakeholders and Dimensions of a GBE

(a) The Stakeholders of a Green Banking Ecosystem



(b) The Dimensions of Green Banking Ecosystems Influence the Investment Pipeline



Source: Author.

be able to access them, whatever their location, income, sector of activity, gender, social class, or size (for companies and institutions). GBEs should also contribute to financial deepening and diversity, through a wide range of financial solutions and institutions. They must also ensure affordable financing costs for all actors, as well as effectiveness and efficiency. And, they must promote financial stability and transparency. As private financial flows represent a promising source of green financing, GBEs should encourage openness to international financial flows.

All in all, GBEs are characterized by their overall level of green banking development and their underlying six dimensions, which influence the green intermediation pipeline: depth, diversity, efficiency, stability, accessibility, and openness. It is, therefore, the collective commitment of the international community and African stakeholders, through policies capable of fostering those dimensions, that will decide whether African GBEs will be capable of financing the green transition.

C. Levels of Green Banking Development Will Decide Whether African Countries Experience More Poverty Traps or Become Green and Inclusive Economies

As Africa is at a crossroads as far as green transition is concerned, the quality and levels of green intermediation will either shrink or expand what is possible, individually or collectively. They will decide whether Africa engages in a green, inclusive developmental model or remains in a status quo, with already weak socioeconomic performances that could be further undermined by financially constrained stakeholders making suboptimal decisions, direct and indirect costs of environmental degradations, and domestic or international green policy measures adopted without support packages to assist losing groups and sectors.



A woman empties a plastic bowl filled with tapioca, which is derived from cassava paste, on sewn sacks laid on the ground close to a gas flaring furnace in Ughelli, Delta State, Nigeria September 17, 2020.

1. Developed GBEs Can Attract and Process the Resources Needed to Achieve Africa's Green Industrialization

If financial pledges are met, Africa could fulfill commitments made under the Paris Agreement and other international treaties regulating efforts to stop deforestation, biodiversity loss, and pollution. Given its low environmental footprint, and with additional resources and a holistic approach to human needs—under which the green dimension would be included in programs to achieve the Sustainable Development Goals (SDGs)—the continent could rapidly become home to many green-inclusive economies.

With even more developed GBEs and by tapping into its rich natural endowment, Africa could mobilize the foreign direct investment (FDI) and domestic resources needed to achieve more prosperous

trajectories, based on higher levels of industrialization and participation in the green economy's global value chains. In the coming decades, given its unparalleled and untapped potential in renewable energies, the continent could achieve universal access to electricity and attract energy-intensive industries looking for alternatives to fossil energies.⁷ To date, and beyond its well-known hydropower capacities, it is home to 60 percent of the world's resources with the best solar potential, but only accommodates 1 percent of photovoltaic solar capacity.⁸ It also ranks first in the promising segment of green hydrogen, with potential generation capacities estimated at 2,715 exajoules by 2050.⁹

Africa could also leverage deposits of cobalt and manganese—which amount to 48 percent and 47 percent, respectively, of global reserves—

7 In 2023, 600 million people or 43% of African population did not have access to electricity. An annual investment of \$25 billion is required to achieve universal access by 2030 to modern energy, according to the Africa Energy Outlook.

8 "Africa Energy Outlook 2022," International Energy Agency, 2022, https://iea.blob.core.windows.net/assets/b13a74ac-e8f1-400e-9d37-c984ca3710bf/AEO2022Executivesummary_French.pdf.

9 "African Economic Outlook 2022," African Development Bank, May 25, 2022, <https://www.afdb.org/en/documents/african-economic-outlook-2022>.

Box 1 | Financing Is Needed to Address the Already-Felt and Dire Consequences of Climate Change in Africa

Extreme climatic disorders and their consequences—such as super cyclone Freddy ravaging Madagascar, dramatic floods in West Africa and Central Africa, or the invasion of locusts that affected East Africa between 2019 and 2022—have displaced tens of millions of inhabitants or jeopardized their living since 2020. More generally, Africans have been suffering more than others from the consequences of climate change. According to the International Monetary Fund, deviations in recorded temperatures and rainfalls—two of the direct consequences of climate change—have an impact on economic activity twice as high in Africa as elsewhere in the world.¹ Climate change also caused Africa to lose between 5 and 15 percent of gross domestic product (GDP) per capita, depending on the country. With an acceleration of warming—temperatures in Africa have risen 0.2 degrees Celsius between 1960 and 1990, and 0.3 degrees Celsius from 1991 to 2021—and sea levels expected to increase by 50 centimeters and endanger twelve million people in Cameroon, Nigeria, and Egypt by 2100, climate change will continue to dampen key economic, social, and health indicators through material losses, agricultural-productivity decline, food crisis, increased mortality, and unemployment.² As highlighted by research, it may increase intercommunal conflicts by up to 38 percent and fuel migration, leading to eighty-six million internally displaced people (IDPs) in sub-Saharan Africa by 2050.³

1 “Adapting to Climate Change in Sub-Saharan Africa,” International Monetary Fund, April 2020, <https://www.imf.org/-/media/Files/Publications/REO/AFR/2020/April/English/ch2.ashx>.

2 “Chapter 9, Africa” in Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation, and Vulnerability* (Cambridge: Cambridge University Press, 2023) <https://www.cambridge.org/core/books/climate-change-2022-impacts-adaptation-and-vulnerability/161F238F406D530891AAAE1FC76651BD>.

3 Yoro Diallo and René Tapsoba, “Climate Shocks and Domestic Conflicts in Africa,” International Monetary Fund, December 2022, <https://www.imf.org/en/Publications/WP/Issues/2022/12/16/Climate-Shocks-and-Domestic-Conflicts-in-Africa-527038>; Viviane Clement, et al., “Groundswell Part 2: Acting on Internal Climate Migration,” World Bank, September 2021, <http://hdl.handle.net/10986/36248>.

and significant ore bodies in copper, lithium, and aluminum, which are essential for the production of electric-vehicle batteries, smartphones, solar panels, and more parts of the digital economy and decarbonization technologies.¹⁰ The market potential is enormous, be it in the local transformation of ores into precursors, intermediate products, or capital goods. As an illustration, car purchases in Africa are estimated at nearly ten million vehicles annually by 2030, with continental production covering just 1.2 percent of demand, while demographic growth is driving the smartphone market, with a penetration rate to increase from 49 percent in 2021 to 61 percent in 2025.¹¹

2. Conversely, Weak GBEs Will Be Synonymous with Trade Marginalization, Poverty Traps, and Suboptimal Choices in Favor of Brown Sectors

The lack of significant financing for the greening of African economies could amplify financial-linked poverty traps.¹² Over the few next decades, millions of households and African enterprises will need financing to hedge against environmental risks, adopt greener production techniques, and move to more responsible housing, cooking, waste-management, and transportation practices (see Box 1). High costs, low volume, lengthy processes, complex conditions to access resources, and limited choice among instruments mean maturity will not be neutral. These factors may create powerful poverty traps, for people and entire sectors, by reducing the

10 “Economic Development in Africa Report 2023,” United Nations Conference on Trade and Development,” 2023, <https://unctad.org/publication/economicdevelopment-africa-report-2023>.

11 Smartphones represented 49 percent of connections made in 2021, a figure expected to reach 61 percent in 2025. “The Mobile Economy: Sub-Saharan Africa 2022,” GSMA, 2022, <https://www.gsma.com/mobileeconomy/wp-content/uploads/2022/10/The-Mobile-Economy-Sub-Saharan-Africa-2022.pdf>; “African Economic Outlook 2022,” African Development Bank, May 25, 2022, <https://www.afdb.org/en/documents/african-economic-outlook-2022>.

12 Nadia Ameli, et al., “Higher Cost of Finance Exacerbates a Climate Investment Trap in Development Finance,” *Nature* 12 (2021), <https://www.nature.com/articles/s41467-021-24305-3>.

level of investment necessary for the green transition, postponing investment programs, or excluding vulnerable categories, leading to greater exposure to shocks and loss of productivity, competitiveness, and income. Lower income will, in turn, constrain the capacity of economic actors—notably, the most marginalized households and enterprises—to invest and meet their needs, creating the conditions for self-sustaining vicious poverty circles. A surge in resources, especially concessional ones, will be needed to achieve an inclusive green transition and avoid deepening poverty in Africa.

Financing gaps can also fuel tradeoffs between growth and environment, and can foster a discourse preaching the prioritization of economic growth at all costs. Many African leaders will need to make a difficult choice over the next few years, one between committing to the transition toward a green and inclusive economy—a path that requires currently unavailable large funding—or, alternatively, deciding to maintain the status quo.

That last option includes developing activities that are potentially harmful to the environment, but which can quickly generate income to meet pressing social and infrastructure needs, such as hydrocarbon projects. Limited dedicated green funding and policy shifts in many Organisation for Economic Co-operation and Development (OECD) countries toward fossil energy create the ground for a discourse advocating the replication in Africa of the traditional development model—grow and redistribute first, and then preserve the environment. To prevent politicians from sinking into these political economy traps, the international community must assume its responsibilities to either compensate for the loss of income associated with projects in carbon-intensive sectors or support alternative, greener projects that have a similar or greater impact.

Environment-related trade measures and standards in partner countries may endanger entire African sectors, given weak domestic and international solutions to finance their modernization and compliance. As highlighted by the literature, there is a strong nexus between exporting firm performances and their capacity to tap their domestic financial systems to upgrade, grow, and meet foreign-market standards.¹³ The rise of green supply chains led by multinationals, more green-conscious habits among consumers, and the adoption of environment-related trade measures by Africa's main trading partners—such as European and US carbon taxes—may erode the trade competitiveness of many African systemic value chains.¹⁴ Those trends put the burden of adaptation on African countries, manufacturers, and small farmers affected by regulations on deforestation. If they cannot rapidly access financing to adapt to those new standards, they could be replaced on those markets by Asian and Latin American counterparts that have more institutional support to upgrade to green-friendly techniques.¹⁵ Alternatively, they could also choose to trade with partners with lower green standards.

As many countries acknowledge the need to develop strategic partnerships with African nations, the transition to green standards likely to impact African key sectors should be adopted after consultation, not unilaterally, and with progressive enforcement over a reasonable horizon and with consistent support from international partners. This is in line with the United Nations Rio Conference on Sustainable Development outcome document.¹⁶ Such a transition should be preceded by a sector green-transition strategy—adopted inclusively, backed by key performance indicators (KPIs), and sequentially implemented—provided enough resources are available to finance institutional building and equipment for each phase.

13 Michael D. Bordo and Peter L. Rousseau, "Historical Evidence on the Finance-Trade-Growth Nexus," *Journal of Banking and Finance* 36, 4, (2012), <https://www.sciencedirect.com/science/article/abs/pii/S0378426611003232>; "Trade Finance and SMEs: Bridging the Gaps in Provision," World Trade Organization, 2016, https://www.wto.org/english/res_e/booksp_e/tradefin_sme_e.pdf.

14 Carlos Lopes, "How Europe's Carbon Border Tax Could Help Africa," *Project Syndicate*, May 1, 2023, <https://www.project-syndicate.org/commentary/how-the-eu-can-mitigate-negative-impact-of-carbon-border-tax-on-africa-by-carlos-lobes-4-2023-05>; <https://www.sciencedirect.com/topics/engineering/green-supply-chain>.

15 Lopes, "How Europe's Carbon Border Tax Could Help Africa"; "Trade and Environment," World Trade Organization, last visited September 28, 2023, https://www.wto.org/english/tratop_e/envir_e/envir_e.htm; Audrey Garric, "EU Adopts Carbon Border Tax to Fight Polluting Imports," *Le Monde*, December 13, 2022, https://www.lemonde.fr/en/environment/article/2022/12/13/eu-adopts-carbon-border-tax-to-fight-polluting-imports_6007589_114.html; "Cote D'Ivoire-Ghana Initiative," Ghana Cocoa Board, press release, February 18, 2022, <https://cocobod.gh/news/press-release-cote-divoire-ghana-initiative>.

16 For capital-intensive sectors, the timeframe may correspond to the generally agreed-upon time for depreciation of capital goods in these sectors, in order not to burden their profitability or competitiveness. "Implications for African Countries of a Carbon Border Adjustment Mechanism in the EU," African Climate Foundation and Firoz Lalji Institute, 2023, <https://www.lse.ac.uk/africa/assets/Documents/AFC-and-LSE-Report-Implications-for-Africa-of-a-CBAM-in-the-EU.pdf>; Laurence Caramel, "L'Afrique du Sud se Fâche contre la Taxe Carbone Européenne," *Le Monde*, July 21, 2023, https://www.lemonde.fr/afrique/article/2023/07/21/l-afrique-du-sud-se-fache-contre-la-taxe-carbone-europeenne_6182889_3212.html.

II. Without a Big Push, African Green Banking Ecosystems Will Struggle to Finance Continental Green Transition

Government cannot close its eyes to the pollution of waters, to the erosion of soil, to the slashing of forests any more than it can close its eyes to the need for slum clearance and schools.

Franklin D. Roosevelt

African GBEs' low performances affect green intermediation value chains, be it upstream for resource mobilization or downstream for allocation and monitoring activities. With mounting environmental imbalances, these poor performances plead for a rapid change in strategies and commitments among development partners and domestic stakeholders to increase concessional resources, develop mechanisms to attract more private financial flows in green sectors, and reform green banking ecosystems.

A. Upstream, the African Environmental Sector Suffers from Chronic Resource Under-mobilization

1. Current Estimates and Pledges Are Far Below What Is Needed to Deal with Environmental Challenges in Africa

Obtaining data on green financing is not easy, whether regarding deforestation, climate change, the preservation of biodiversity, or different forms of pollution. The exercise is a little simpler for climate change, given the global interest around it. Yet, these shortcomings are likely to slow efforts to mobilize resources, particularly from the private sector, and to undermine accountability toward populations.

According to the United Nations Development Programme (UNDP), needs to achieve the green transition for climate change are underestimated.¹⁷ This reality may also apply to other environmental areas. The African Development Bank considers that \$1.3–1.6 trillion is needed to finance African climate-change needs over the 2020–2030 period, while the Climate Policy Initiative places the number at \$2.3 trillion, for an annual average of \$277 billion.¹⁸ Based on Nationally Determined Contributions—NDCs—these numbers actually underestimate needs, for several reasons.¹⁹ First, they suffer from challenges in modeling climate change and its costs. Second, they were compiled through highly centralized national processes, which did not account for specific technological-sector requirements. As an illustration, President Cyril Ramaphosa, in a speech devoted to South African feedback on just energy transition, estimated that initial cost assessments would need to be multiplied by eight to meet currently estimated needs.²⁰ For other environmental dimensions—such as deforestation, biodiversity, and pollution—estimates are scarce and fragmented, but highlight comparable issues.²¹

17 Tiangouna Kone, "For Africa to Meet Its Climate Goals, Finance Is Essential," United Nations Development Programme Climate Promise, June 20, 2023, <https://climatepromise.undp.org/news-and-stories/africa-meet-its-climate-goals-finance-essential>.

18 "African Economic Outlook 2022"; "New Study Finds that Climate Finance for Africa Needs to Grow 9x from USD 30 Billion to USD 277 Billion to Meet 2030 Climate Goal," Climate Policy Initiative, press release, September 21, 2022, <https://www.climatepolicyinitiative.org/press-release/new-study-finds-that-climate-finance-for-africa-needs-to-grow-9x-from-usd-30-billion-to-usd-277-billion-to-meet-2030-climate-goal>.

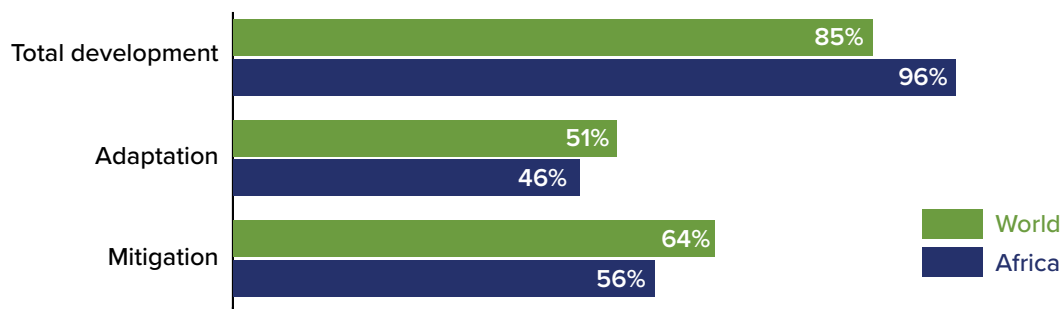
19 "Nationally Determined Contributions (NDCs)," United Nations Climate Change, last visited September 28, 2023, <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs#NDC-registry->; Courtney Lindwall, "Rich, Polluting Nations Still Owe the Developing World," National Resources Defense Council, January 22, 2022, <https://www.nrdc.org/stories/rich-polluting-nations-still-owe-developing-world>.

20 "Remarks by President Cyril Ramaphosa on the Occasion of His Participation in the Round Table Discussion on Green Growth Partnerships at the Summit for a New Global Financing Pact," Presidency of the Republic of South Africa, June 22, 2023, <https://www.thepresidency.gov.za/speeches/remarks-president-cyril-ramaphosa-occasion-his-participation-round-table-discussion-green-growth-partnerships-summit-new-global-financing-pact>.

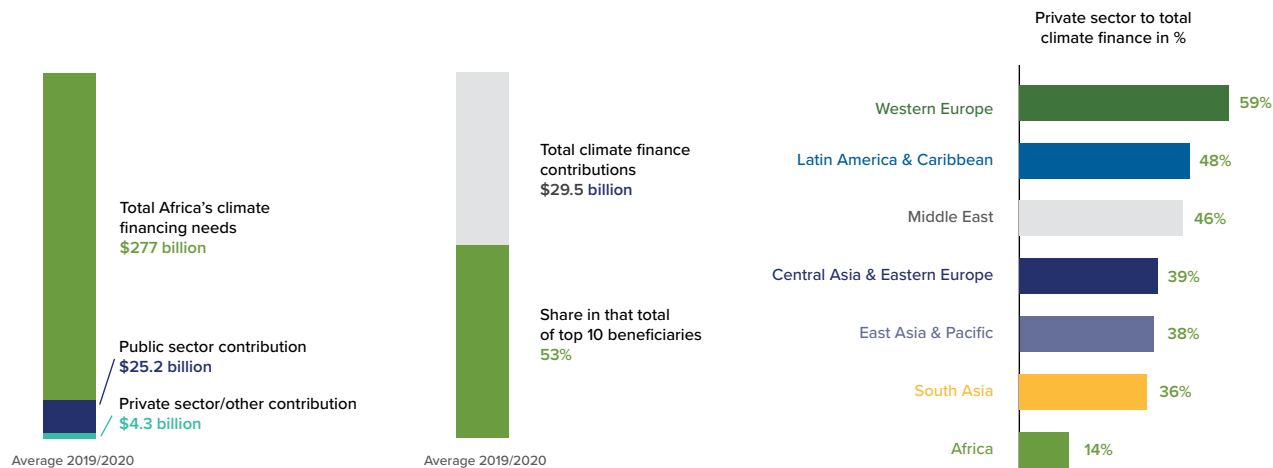
21 "What Is REDD+?" United Nations Climate Change, last visited September 28, 2023, <https://unfccc.int/topics/land-use/workstreams/redd/what-is-redd>; "Deforestation Is a Critical Problem Affecting People, the Environment and the Climate," United Nations Framework Convention on Climate Change, last visited September 28, 2023, https://redd.unfccc.int/media/redd__infographic.pdf; "Annual Report," UN-REDD Programme, August 10, 2023, <https://www.un-redd.org/document-library/annual-report-2022>.

Graph 3 | Overview of Resource Mobilization for Climate Change

(a) Disbursement Ratios for Africa to Global Average



(b) Climate Financing: Needs vs Public- and Private-Sector Contribution, Concentration



Source: (a) Source: Savvidou, et al., 2021; (b) Author, based on data from the Climate Policy Initiative.

2. Resources Mobilized to Green Africa Represent a Tiny Part of the Need, and Fuel Climate Injustice

According to Climate Policy Initiative data, Africa only managed to mobilize \$29.5 billion out of the \$277 billion needed to deal with climate change in 2020, or 10.5 percent of the need listed in the NDCs—the lowest mobilization rate of any continent. That figure fuels a feeling of climate injustice in more than one way, as Africa, with 18 percent of the world's population, accounted for only 4.5 percent of the global funding destined for climate change.

Resource-mobilization data also reveal worrying patterns: weak private financing, disbursement rates for green projects twenty to thirty points lower than those for other development priorities, and high sector concentration. For many environmental issues, financing per capita and disbursement ratio are not always aligned with levels of climate vulnerability or eco-environmental potential, revealing a misalignment with green priorities.²²

The public sector—bilateral partners, multilateral development banks, and domestic African public stakeholders—provides nearly 86 percent of climate

22 Georgia Savvidou, et al., "Five Ways Climate Adaptation Finance Falls Short in Africa," Stockholm Environment Institute, October 1, 2021, <https://www.jstor.org/stable/resrep38155?seq=5>.

financing in Africa. Private-sector contributions—14 percent of total financial flows, or \$4.2 billion—are much lower than those observed in other regions like South Asia (37 percent) or Latin America and the Caribbean (49 percent). Combined with their concentration in energy and in advanced African countries, these figures call for comprehensive strategies to attract more private funds in all African green sectors.²³

The resulting state of resource under-mobilization upstream is compounded by powerful constraints downstream that fuel financing gaps, credit rationing, and redlining, and prevent GBEs from fully contributing to the financing of the African green transition.

B. Downstream Constraints Inherited from Traditional Intermediation and Shallow Dedicated Green-Financing Value Chains Dampen the Development of Green Intermediation

Financial development is the result of a subtle combination of interactions between the financial and real spheres. Current levels of macroeconomic governance, business climate, and infrastructure slow project planning and implementation in the real sphere. In the financial sphere, despite the multiplication of innovative solutions, strong aversion to risk, overcautious management, powerful information asymmetries, limited guarantees, low levels of competition, and regulation are often cited as constraining financial players and dampening their capacity to serve customers.²⁴ Once associated to factors specific to green financing value chains, those general drivers hinder the capacity of GBEs to leverage existing financial institutions and to connect national or international investors with financing

capacities to households, businesses, and public institutions.²⁵

1. Dedicated Green Financing Value Chains Suffer from Many Shortcomings

Project Size, and Long and Complex Procedures Hinder Africa's Access to Green Concessional Resources

Existing green financing value chains remain weak and difficult for African stakeholders to navigate. Their projects are sometimes marginalized, given their small size, and also suffer from governance issues and complex procedures to access green financing.

Tapping international green concessional resources is an obstacle course. Bilateral cooperation, multilateral development banks, or climate funds represent various channels to mobilize green concessional financing.²⁶ Yet, climate funds, their financiers, and implementing entities have difficulties financing small African green projects given their transaction costs, and prefer larger-scale projects from other regions.²⁷ Tapping green resources is also difficult due to numerous financing windows, which are often specialized for one environmental issue. Each of these windows has its own criteria and processes for accreditation and disbursement, which are often complex and expensive, and applicants are often required to mobilize their own resources to finance studies and capacity-building mechanisms.²⁸ As a result, though they could choose to access international climate funds through direct access procedures, only twelve sub-Saharan African countries used that channel by the end of 2022, showcasing the impact of onerous and long processes that can take up to two years for accreditation and one year for project approval. Moreover, according to the Green Climate Fund Independent Evaluation Unit, time to receive an

23 "New Study Finds that Climate Finance for Africa Needs to Grow 9x from USD 30 Billion to USD 277 Billion to Meet 2030 Climate Goal."

24 Montfort Mlachila and IMF Staff, "Financial Development in Sub-Saharan Africa," International Monetary Fund, Africa Department, 2016, <https://www.imf.org/external/pubs/ft/dp/2016/af1605.pdf>.

25 Cesar Calderon and Lin Liu, "The Direction of Causality between Financial Development and Economic Growth," *Journal of Development Economics* 72, 1 (2003), 321–334, <https://www.sciencedirect.com/science/article/abs/pii/S0304387803000798>.

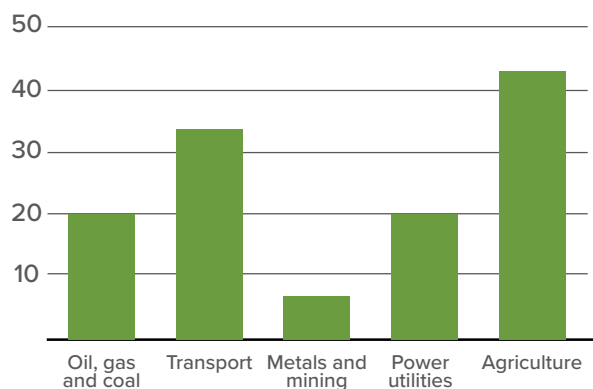
26 Access entities to those funds can be international, regional, or national.

27 Anna Belianska, et al., "Climate Change and Select Financial Instruments: An Overview of Opportunities and Challenges for Sub-Saharan Africa," International Monetary Fund, November 1, 2022, <https://www.imf.org/en/Publications/staff-climate-notes/Issues/2022/10/28/Climate-Change-and-Select-Financial-Instruments-An-Overview-of-Opportunities-and-Challenges-525195>.

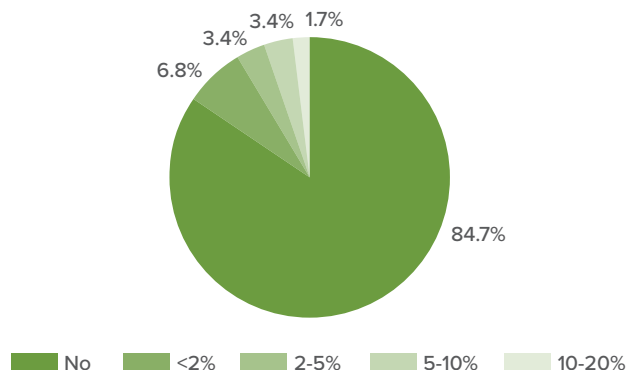
28 Applicants must prove their compliance with the fiduciary standards of each partner, their previous experience in green project management, and their ability to apply environmental and social safeguards (ESS). "Regional Economic Outlook Analytical Note: Sub-Saharan Africa," International Monetary Fund, April 2023, <https://www.imf.org/-/media/Files/Publications/REO/AFR/2023/April/English/ClimateNote.ashx>; "Accessing Climate Finance: Challenges and Opportunities for Small Island Developing States," United Nations, July 20, 2022, https://www.un.org/ohrrls/sites/www.un.org.ohrrls/files/accessing_climate_finance_challenges_sids_report.pdf; Jewel Andoh and Yohan Lee, "National REDD+ Strategy for Climate Change Mitigation: A Review and Comparison of Developing Countries," *Sustainability*, 2018, <https://www.mdpi.com/2071-1050/10/12/4781>; Jewel Andoh, "Towards REDD+ Implementation: Deforestation and Forest Degradation Drivers, REDD+ Financing, and Readiness Activities in Participant Countries," *Frontiers in Forests and Global Change*, October 2022, <https://www.frontiersin.org/articles/10.3389/ffgc.2022.957550/full>.

Graph 4 | African Banks, Green Products, and Assets Invested in Climate-Exposed Sectors

(a) Percentage of Interviewed Banks with More than 10 Percent of their Portfolio Invested in the Sector



(b) Percentage of Portfolio Invested in Products Capable of Meeting Green Financing Opportunities



Source: Author, based on data from the EIB Banking in Africa survey, 2022; "Finance in Africa: Navigating the Financial Landscape in Turbulent Times," European Investment Bank, 2022, https://www.eib.org/attachments/lucalli/finance_in_africa_2022_en.pdf.

answer has been increasing.²⁹ Those constraints call for a simplification and harmonization of procedures, in order to decrease unaffordable transaction costs and increase resources aimed at increasing readiness and national absorption capacity.³⁰

Projects emerging from green value chains could ramp up if the governance of green ecosystems is improved. The lifecycle of green projects and their yields are undermined by the limited number of green national and sector implementation strategies, clear roadmaps, and collaborative implementation platforms. Delays in the adoption of much-needed regulations, lack of coordination and cooperation among GBE stakeholders, high centralization, limited participation of communities, institutional complexity, and red tape represent factors that must be addressed to develop a large pipeline of green bankable projects.

Asymmetries in Technical Expertise between Domestic and Foreign Stakeholders Prevent Africa from Harnessing the Full Potential of Green Financing

Green financing value chains suffer from significant asymmetries in institutional capacity and technical expertise between African stakeholders and international suppliers of green financial resources. Indeed, if large international financial institutions have an excellent knowledge of green standards, techniques, and reporting guidelines, this is far from being the case for African public institutions, financial intermediaries, communities, SMEs, and households that are often unaware of the possibilities and rules of green financing. Green finance is still considered specialist finance, which is a problem as initiatives such as REDD+ require strong participation from local communities.³¹ As major development experiences are based on technical appropriation, better matching the supply and demand of green financing requires capacity building for African stakeholders.

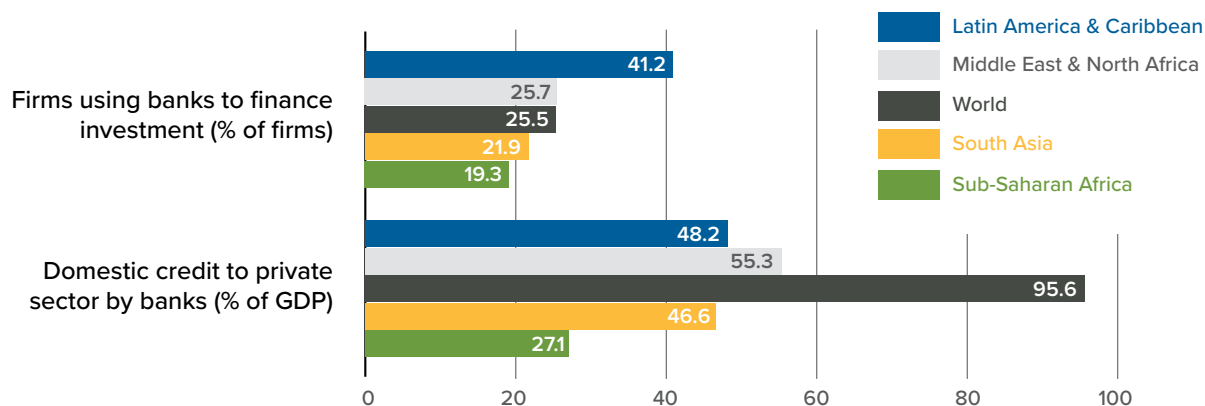
²⁹ "Accessing Climate Finance."

³⁰ Andoh, "Towards REDD+ Implementation"; "All Roads Lead to Rome: Finding Pathways through the Complexity of REDD+ Finance," UN-REDD Programme, December 15, 2022, <https://www.un-redd.org/post/all-roads-lead-rome-finding-pathways-through-complexity-redd-finance>.

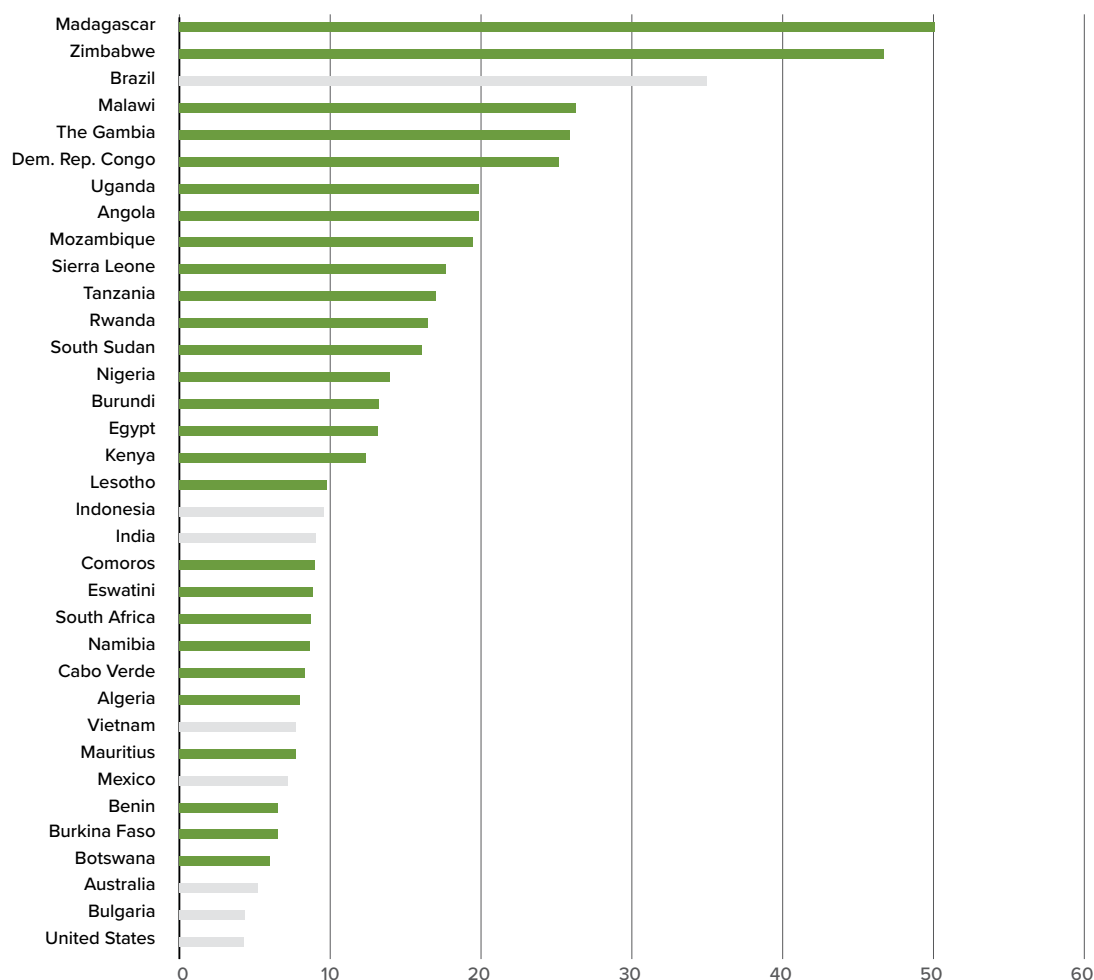
³¹ "Enhancing Green Finance Access for Green Growth: Policy Landscape Paper Uganda 2022," SEED Practitioner Labs for Policy Prototyping, 2022, <https://www.acode-u.org/uploadedFiles/enhancing-green-finance-access-for-green-growth.pdf>.

Graph 5 | Some Indicators of Financial Constraints in Africa

(a) Percentage of Firms Using Banks to Finance Investment and Domestic Credit as a Percentage of Gross Domestic Product (GDP)



(b) Domestic Lending Rate (%)



Source: Author based on data from World Bank, Development Indicators, 2023.



Egyptian volunteers arrange sacks with plastic wastes to build a Plastic Pyramid for The VeryNile NGO as part of a project to erect the largest plastic pyramid in the world, weighing 7,500 kg and made of plastic bottles collected by fishermen and volunteers from the Nile River, in Giza, Egypt, September 17, 2022. REUTERS/Mohamed Abd El Ghany.

For domestic banks, the limited number of staff members mastering green finance constitutes one of the main limits to the development of green intermediation. As an illustration, only 15 percent of African banks interviewed had green financial products, whereas more than 50 percent considered green finance a major business driver for investing or mobilizing resources.³² Those banks cited lack of technical capabilities and the novelty of green finance as strong constraints to process financing requests or create green financial products.

Domestic financial intermediaries should strongly ramp up their capacity in this area, as they are said to be more exposed to climate change than their global counterparts given greater vulnerability to climate change and lower readiness for dealing with it, and a sizable share of their portfolios is invested in

climate-exposed sectors such as agriculture, energy, transportation, hydrocarbons, and coal.³³ Without these steps, the impact of climate and environmental risks may be amplified for financial intermediaries through several channels, reducing their ability to finance the rest of the economy.

2. Underdeveloped Financial Systems and a Strong Legacy Undermine the Rise of Green Financial Intermediation

Underdeveloped African financial ecosystems—as characterized by their subdimensions below—are already struggling to finance “classic” projects. Without extensive reforms, they will struggle to process large amounts of green financial resources, manage more complex green financial products, and navigate the subtleties of green impact.

32 “Green, Smart and Inclusive Finance,” European Investment Bank, November 11, 2021, <https://www.eib.org/en/essays/africa-green-lending>.

33 Emele Onu and Jennifer Ryan, “African Banks Face \$218 Billion of Climate Change Risk,” Bloomberg, March 22, 2021, <https://www.bloomberg.com/news/articles/2021-03-22/moody-s-flags-environmental-risk-on-218-billion-of-africa-loans#xj4y7vzkg>.

Shallow Depth Must Be Addressed to Meet Africa's Significant Green Financial Needs

Depth and accessibility indicators, which rank well below those of other developing regions, must be improved before Africa's banking system can use domestic resources to finance the transition of hundreds of millions of Africans toward greener transport, energy, housing, and productive solutions. Tapping into the continent's high excess liquidity represents another promising solution.³⁴

The Rise of Green Financial Intermediation Is Hindered by High Interest Rates and a Limited Range of Institutions, Products, and Maturity

The limited diversity of financial instruments fails to address the needs of green projects. Long-term loans with a maturity of ten years or more represent less than 10 percent of the portfolio of a sample of banks surveyed by the European Investment Bank.³⁵ Such a level is insufficient to finance environmental projects whose horizons are longer. As climate risks multiply, and climate insurance is set to play an increasing role, Africa has an insurance premium-to-GDP ratio of 2.7 percent, compared to a world average of 6.9 percent, with premium per capita almost eight times lower than the Asian average.³⁶

Draconian financing conditions—notably, high interest rates—may curb the emergence of green ventures, whose returns may be lower than those of traditional projects and do not take environmental externalities into account. Despite improving macroeconomic performances, which are often better than those of leading emerging countries, the premiums and rates African players use to finance themselves on domestic or international markets are two to three times as high as those observed in the OECD.³⁷ High rates are likely to slow or delay investment decisions to transition to greener alternatives, reduce the profitability and competitiveness of companies, and create poverty traps.

With 57 percent of Africans living in a country that spends more on servicing its debt than on basic social needs (education and health) in January 2022, high rates can increase indebtedness and fuel tradeoffs among debt service, social expenditures, and environmental spending.³⁸ Countries' debt sustainability and borrowing conditions—especially the “Africa risk-perception premium”—are now at the heart of the agenda of environmental negotiations.³⁹ Principles underlying climate justice—notably, common but differentiated responsibilities—and commitments taken by major polluters fuel demand for more concessional financing of the African green transition, especially grants.⁴⁰

34 Magnus Saxegaard assessed that African banks had excess reserves amounting to 13.2 percent of total deposits, with a median value of 8.3 percent. In the Economic and Monetary Community of Central Africa, the ratio of excess reserves to mandatory reserves amounted to 400 percent in 2014–2015 against a norm of 30 percent. See: Magnus Saxegaard, “Excess Liquidity and Effectiveness of Monetary Policy: Evidence from Sub-Saharan Africa,” International Monetary Fund, May 1, 2006, <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Excess-Liquidity-and-Effectiveness-of-Monetary-Policy-Evidence-from-Sub-Saharan-Africa-18899>; “Microfinance et Surliquidité Bancaire dans la Cemac,” Banque des Etats de L'Afrique Centrale, 2019, https://www.beac.int/wp-content/uploads/2022/03/ST3_ET2019_F0.pdf.

35 “Finance in Africa.”

36 “Marché de L'Assurance en Afrique,” FANAF, February 13, 2023, http://fanaf.org/index.php/ova_doc/marche-de-lassurance-en-afrique/; “Insurance Market in Africa: Outcomes from the Long-Term Finance Survey,” Making Finance Work for Africa, last visited September 28, 2023, https://www.mfw4a.org/sites/default/files/resources/ltf_survey_snapshot_insurance_market.pdf; “Coverage of Social Insurance Programs (% of Population,” World Bank, last visited September 28, 2023, https://data.worldbank.org/indicator/per_si_allsi.cov_pop_tot.

37 William Gbohoui, Rasmane Ouedraogo, and Yirbehogre Modeste Some, “Sub-Saharan Africa's Risk Perception Premium: In the Search of Missing Factors,” International Monetary Fund, June 23, 2023, <https://www.imf.org/en/Publications/WP/Issues/2023/06/23/Sub-Saharan-Africas-Risk-Perception-Premium-In-the-Search-of-Missing-Factors-534885>.

38 “Debt Sustainability Analysis (DSA),” World Bank, last visited September 28, 2023, <https://www.worldbank.org/en/programs/debt-toolkit/dsa>; “Regional Economic Outlook Analytical Note”; Ameli, et al., “Higher Cost of Finance Exacerbates a Climate Investment Trap in Development Finance.”

39 Hippolyte Fofack, “The Ruinous Price for Africa of Pernicious ‘Perception Premiums,’” Brookings, Africa Growth Initiative, October 2021, https://www.brookings.edu/wp-content/uploads/2021/10/2110.07_Perception-premiums.pdf; “Sub-Saharan Africa's Risk Perception Premium: In the Search of Missing Factors,” International Monetary Fund, June 2023, <https://www.imf.org/-/media/Files/Publications/WP/2023/English/wpia2023130-print-pdf.ashx>; “Financing for Sustainable Development Report 2022, United Nations, Inter-Agency Task Force on Financing for Development, 2022, <https://financing.desa.un.org/iatf/home>.

40 John Irish, “Ahead of Financing Summit, France Lobbies G7 over Africa Debt, Climate Impact,” Reuters, May 19, 2023, <https://www.reuters.com/markets/ahead-financing-summit-france-lobbies-g7-over-africa-debt-climate-impact-2023-05-20/>.

III. How to Effectively Combine the Stakeholders of Green Banking Ecosystems

It doesn't matter if a cat is black or white, so long as it catches mice.

Deng Xiaoping

Domestic African financial stakeholders, as highlighted, struggle to access green financial flows, especially those from international environmental funds. On the other hand, their end customers, despite being increasingly aware of environmental crises, cannot obtain green financial solutions. Those mismatches, fueled by deep and polymorphic constraints plaguing African green intermediation, call for resolute policies targeting key stakeholders of GBEs to develop trust-building institutions, promote a diversified and pragmatic network of GBIs to meet various customers' expectations, foster new financing mechanisms—notably by central banks—and create the conditions for more resource mobilization on financial markets.

A. Priority Number One: Develop Green External-Opinion Institutions to Avoid Market Manipulations

Greenwashing, resulting from misleading practices about how eco-friendly and sustainable a product or service is, represents one of the main obstacles to the development of green finance in Africa. Market manipulations have recently affected the voluntary carbon-credit market, and several European regulators—alarmed by the reputational risks associated with greenwashing—have presented reports on the subject.⁴¹ Developing dynamic African GBEs is, therefore, impossible without addressing that trust issue—first, by adopting comprehensive regulation and, second, by developing independent

domestic external-opinion organizations like those used in more developed green financing ecosystems. The latter have emerged as solutions to reassure investors and other stakeholders. Organized around four types of activities—second opinions, verifications, certifications, and ratings—they assess the environmental impact of funded projects and verify compliance with principles throughout the financial cycle.⁴²

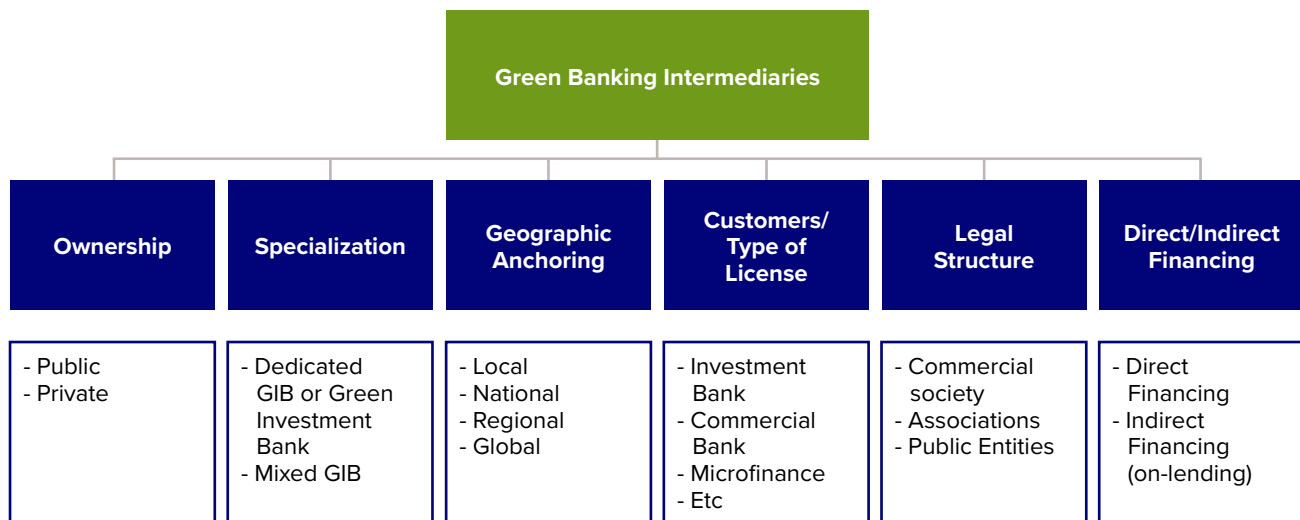
B. Green Banking Intermediaries: Far from a One-Size-Fits-All Model, Diversity Will Be a Plus to Develop Green Finance in Africa

Green banking intermediaries are at the heart of GBEs. Without them, international funds raised for greening Africa will not reach companies that need financing to acquire cleaner production technologies. Without them, households will not be able to benefit from microcredit to access solar lighting solutions. Far away from international markets, green intermediation will struggle to reach the ultimate customers, those of the “last mile.”

This report defines GBIs as banks and actors carrying out banking operations that have decided to devote themselves, entirely or partially, to financing the green transition, to render their operations more sustainable, and to encourage their customers to adopt green-friendly practices. Microfinance institutions, credit unions and credit cooperatives, merchant banks, post offices, rural banks and agricultural banks, some electronic-money institutions, finance companies,

41 “ESA Present Common Understanding of Greenwashing and Warn on Related Risks,” European Banking Authority, June 1, 2023, <https://www.eba.europa.eu/esas-present-common-understanding-greenwashing-and-warn-related-risks>; Patrick Greenfield, “Carbon Credit Speculators Could Lose Billions as Offsets Deemed ‘Worthless,’” *Guardian*, August 24, 2023, <https://www.theguardian.com/environment/2023/aug/24/carbon-credit-speculators-could-lose-billions-as-offsets-deemed-worthless-aoe>; “EBA Progress Report on Greenwashing Monitoring and Supervision,” European Banking Authority, May 31, 2023, https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2023/1055934/EBA%20progress%20report%20on%20greennwashing.pdf.

42 Second-opinion experts provide an external view of the selection process and eligibility criteria for financial intermediaries. Before financing, they ensure the alignment of the project and asset objectives with green standards and principles. After the financing, they verify that these objectives were respected. Verification is made by audit professionals, who have expertise in environmental matters and who provide a third party with more comprehensive assessment in line with national or professional standards. Certification allows a third party to validate the investment or financial service or product against an environmental standard. Finally, a specialized agency rates and evaluates environmental credentials according to a rating methodology.

Graph 6 | Taxonomy of Green Banking Intermediaries According to Several Criteria

Source: Author.

financial leasing companies, investment banks, and some specialized financial intermediaries could, therefore, achieve the status of GBIs.

GBIs' capacity to positively influence green intermediation stems from their affiliation with banks and quasi-banks. The latter account for more than half of financial assets in the majority of African countries. The strengths of GBIs also lie in their proven capacity to adapt to complex operational conditions and their ability, as producers of information, to use accumulated customers' data for new financial operations.⁴³ Their great diversity represents another advantage.

Green banking-development strategies can leverage the heterogeneity among GBIs to best respond to the green financing needs of customers with heterogeneous profiles, in order to build buoyant GBEs. As explained below, GBIs can be differentiated by their ownership, level of green specialization, geographic anchoring, types of customers, or levels of direct financing.

Such strategies should try to foster cooperation between dedicated green banking intermediaries and mixed green banking intermediaries. GBIs can either entirely devote their activities to the supply of

green financing solutions or combine traditional and green intermediation activities. The second model corresponds to mixed green banking intermediaries, while the first model is that of dedicated green banking intermediaries. Popularized by recent reports, green investment banks, often referred to as "green banks," are a subcategory of GBIs that use public resources to leverage and mobilize private finance for the benefit of green projects.⁴⁴ GBEs would benefit from stronger cooperation between the two, as dedicated green banking intermediaries could tap the networks and customer bases of mixed green banking intermediaries to expand their outreach.

Policymakers should combine the advantages of pan-African, regional, and national geographical anchorage for GBIs. Each level has its advantages and disadvantages, which can be found in the classic literature on the link between size and financial services.⁴⁵ The pan-African anchor corresponds to the model of large green banking intermediaries, often green investment banks, covering all of Africa or a region. Its main advantage lies in the ability to mobilize large volumes of capital, provided that GBIs have a clear mandate and develop a solid reputation, or benefit from that of their founding members (e.g.,

43 Stefania Cosci, Valentina Meliciani, and Valentina Sabato, "The Role of Banks as Producers of Information: Can It Survive Competition and Cross-Selling Initiatives," IDEAS, 2015, <https://ideas.repec.org/a/bap/journal/150404.html>.

44 "African Development Bank Launches Model for Deploying Green Financing across the Continent," African Development Bank Group, November 29, 2022, <https://www.afdb.org/en/news-and-events/african-development-bank-launches-model-deploying-green-financing-across-continent-56903>.

45 Jong-Kun Lee and Biaggio Bossone, "In Finance, Size Matters," International Monetary Fund, June 1, 2002, <https://www.imf.org/en/Publications/WP/Issues/2016/12/30/In-Finance-Size-Matters-15884>.

states or development partners). Large national or regional GBIs can benefit from lower financing costs offered to customers, due to economies of scale.⁴⁶ The credibility of their internal fiduciary processes make access to international markets easier as skilled teams, well versed in complex financial products, mobilize resources on advantageous terms.

While lower costs are a benefit of large green banking intermediaries, higher costs apply to banks with a national or more local anchorage. Conversely, local GBIs are supposed to be more responsive and capable of meeting the needs of their customers, given greater proximity and knowledge.⁴⁷ The African Development Bank represents an example of a pan-African GBI, while the Green Fund deployed by the Development Bank of South Africa illustrates the potential of national green banking.⁴⁸ Several green-loan programs—developed by microfinance institutions—represent the extreme end of the green finance pipeline, the one that needs to be strengthened to cover micro, small, and medium enterprises (MSMEs), 96 percent of which were credit constrained in Sub-Saharan Africa (SSA) in 2017, with a financing gap estimated at nearly \$331 billion.⁴⁹ In terms of policies, large financial needs for African greening plead for an ecosystem of mixed GBIs, associating pan-African, regional, national, and local actors to combine their advantages.

Green banking-development policies should mobilize on-lending to balance difficulties African stakeholders face in accessing international green financing windows. GBIs can offer their services directly, or go through another financial player to reach the end customer. This second model, known as on-lending, is used by many development actors to finance certain priorities (e.g., sectors, populations, or maturity). It combines the field knowledge of the second intermediary with the resource contribution

of the first. In such schemes, financial resources are cheaper, or they fill gaps in certain market segments (e.g., long-term financing, financing of SMEs, or social categories). Those credit lines have variable use ratio, given poor communication about the existence of these products and poor training of financial institutions' employees, as well as the difficulty of mobilizing a critical mass of bankable projects. Reaping the full benefits of green on-lending programs requires tailored communication channels that have proved their capacity to reach specific customer groups, as well as training programs for both customers and GBIs' staff.

Leveraging various business models and licenses among GBIs allows them to better serve different clienteles. The taxonomy of the International Monetary Fund's "Monetary and Financial Statistics Manual and Compilation Guide" is precious to map the great galaxy of GBIs that can be licensed under three main categories: "deposit-taking corporations except the central bank," "other financial intermediaries except insurance corporations and pension funds," and some public institutions. They essentially differ in their mode of financing, with the first category collecting deposits from customers, the second type of institutions mainly raising funds from markets, and public institutions benefiting from public resources.

To unleash the green transition, the question of regulatory capital injections needed by green financial institutions should be addressed. Green financial intermediation can be done either through the creation of special-purpose entities or the use of existing financial institutions. New institutions, building on fintech innovations, can improve often-criticized quality of service and reduce biases toward certain clienteles and red tape. The disadvantage is that greenfield GBIs need fresh capital, which is not always obvious given high regulatory capital

46 Warapatr Todhanakasem, et al., "Economies of Scale and Organization Efficiency in Banking," *Managerial and Decision Economics* 7, 4 (1986), 255–261, <https://www.jstor.org/stable/2487555>; David C. Wheelock and Paul W. Wilson, "The Evolution of Scale Economies in U.S. Banking," Federal Reserve Bank of St. Louis, 2015, <https://research.stlouisfed.org/wp/more/2015-021>; Sean Campbell, "When Bigger Is Beneficial: Scale Economies in the Banking Industry," Financial Services Forum, August 16, 2018, <https://fsforum.com/news/blog-when-bigger-is-beneficial-scale-economies-in-the-banking-industry>.

47 Allen N. Berger, Christa H. S. Bouwman, and Dasol Kim, "Small Bank Comparative Advantages in Alleviating Financial Constraints and Providing Liquidity Insurance over Time," World Bank Group, November 2, 2016, <https://thedocs.worldbank.org/en/doc/499021478640912380-0050022016/original/SmallBankComparativeAdvantagesBerger.pdf>; Jith Jayaratne and John Wolken, "How Important Are Small Banks to Small Business Lending? New Evidence from a Survey of Small Firms," *Journal of Banking and Finance* 23, 2–4 (1999), 427–458, <https://www.sciencedirect.com/science/article/abs/pii/S0378426698000855>.

48 "African Development Bank Launches Model for Deploying Green Financing across the Continent"; "Climate Change and Green Growth Strategic Framework: Operationalising Africa's Voice—Action Plan 2021–2025," African Development Bank Group, March 21, 2023, <https://www.afdb.org/en/documents/climate-change-and-green-growth-strategic-framework-operationalising-africas-voice-action-plan-2021-2025>; "Green Fund," Development Bank of Southern Africa, last visited September 28, 2023, <https://www.dbsa.org/solutions/climate-financing/green-fund>.

49 "Assessment of Green Financing Mechanisms for MSMEs in Africa," United Nations Environment Programme, Switch Africa Green, and European Union, August 2022, <https://www.greenfinanceplatform.org/sites/default/files/downloads/resource/Assessment%20of%20Green%20Financing%20Mechanisms%20for%20MSMEs%20in%20Africa%20%281%29.pdf>; "Comprehensive New Data Reassesses the MSME Finance Gap in Developing Countries," International Finance Corporation, November 2017, <https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=18268>.



A group of impala graze near the elevated railway line that allows movement of animals below the Standard Gauge Railway (SGR) line linking Nairobi and Naivasha inside the Nairobi national park in Nairobi, Kenya October 16, 2019. REUTERS/Njeri Mwangi.

requirements.⁵⁰ On the contrary, existing institutions benefit from their reputations, which is useful for raising funds—but also a good knowledge of operational constraints, which limits learning time and increases risk assessment. They also have established fiduciary systems and procedures that can meet the requirements of financial partners.

Policymakers will need to create an incentive framework for green fintechs, including tax incentives and mechanisms to facilitate equity injections during early stages. That framework should be expanded to all GBIs, as both the financing of the green transition and the potential implementation of climate-adjusted

capital requirements will require substantial increases in equity.⁵¹

Public green banking intermediaries should leverage their resources to support key green market infrastructure. Public or private ownership status seems not to influence performance, as there are private or public green banks with comparable levels of performance. In the United States, thirty-nine green banks were active in 2022. Defined as “public, quasi-public, or nonprofit financing entities that leverage public and private capital to pursue goals for clean energy projects that reduce emissions,” they belong to a sector that experienced strong growth, and have mobilized \$10.6 billion of private

50 “WAEMU Banks Face Struggle to Meet New Capital Rates,” Fitch Ratings, August 1, 2017, <https://www.fitchratings.com/research/banks/waemu-banks-face-struggle-to-meet-new-capital-rules-01-08-2017>.

51 Todd Phillips, “What Are Climate-Adjusted Capital Requirements?” Green Central Banking, February 21, 2023, <https://greencentralbanking.com/2023/02/21/climate-adjusted-capital-requirements>.

capital thanks to \$4.2 billion of public capital for green projects.⁵² The Green Investment Group—which was created as the UK Green Investment Bank in 2012 by the government before being privatized and renamed—and Crédit Agricole Corporate and Investment Banking (CIB) are examples of large and dynamic private green banking intermediaries. Yet, public GIBs have a comparative advantage: easier access to public resources and international green windows, thanks to state guarantees. In a catalytic role, public green banks should invest resources to develop critical components of green markets (e.g., education and regulation) for the greater benefit of other GIBs.

D. Reforms and Capitalizing on Large African GIBs as Entry Points May Help Africa Tap Green Investments in Capital Markets

As highlighted in many reports, capital markets, both domestic and international, could represent an important source of financing for GIBs, states, and companies seeking green financing. As an illustration, the African Development Bank (AfdB) raised more than \$3 billion since 2013 from top-tier investors through its green-bond program, while a few African states have mobilized a wide range of instruments to tap international markets.⁵³ However, African deals remain small relative to those in other regions, and Africa still accounts for less than 1 percent of global green-bond issuance despite its needs and potential.

African policymakers must consider mechanisms capable of attracting international capital-market institutions and domestic institutional investors—such as insurance companies, which have sizable technical reserves. Several avenues can be explored, starting with a review of the root causes explaining the “Africa risk-perception premium.” Beyond a better communication effort on the part of African states, such an exercise should include a collective reflection on the methodology of rating agencies. Second, African nations and development partners could lower borrowing conditions by improving the liquidity of African bond markets, particularly through the development of repurchase markets.

As green financial intermediation is, first and foremost, about data processing, African countries will need to narrow the green-data gap. Environmental risk assessment, monetization of green economic services, and pricing of green assets rely on environmental, climate, and social data—which remain scarce, irregular, incomplete, and focused on macro data in Africa. At the strategic level, African countries will need to create national environmental data-collection frameworks. The latter should include roadmaps to gradually prepare companies, especially large ones, for the need to carry out entrepreneurial reporting. As in the European Union, environmental reporting should be phased out, based on a sustainable horizon and correspond to the financial and technical capacities of African economic actors, particularly SMEs.

The international community needs to quickly address issues plaguing African carbon markets, as the development of numerous green financial products and fair monetization of the services provided by the communities are based on their proper functioning and a fair valuation of the carbon ton. Yet, the current functioning of African voluntary carbon markets is the subject of criticism, particularly due to doubts about carbon-removal benefits of some projects, the lack of transparency, and weak revenues redistributed to communities.⁵⁴ African heads of states have been complaining about carbon pricing for African projects—less than \$5 per ton of carbon-dioxide (CO₂) equivalent, whereas the International Monetary Fund (IMF) estimates that carbon pricing should be between \$50 and \$100 to limit global warming to two degrees Celsius. Cheap carbon prices represent an incentive to pollute, but they also dampen the participation of local communities in conservation efforts, given the limited compensatory income for them.

52 “Green Banks,” US Environmental Protection Agency, last visited September 28, 2023, <https://www.epa.gov/statelocalenergy/green-banks#ref8>; Jeff Turrentine, “How Green Banks Are Financing the Fight Against Climate Change,” National Resources Defense Council, December 12, 2022, <https://www.nrdc.org/stories/how-green-banks-are-financing-fight-against-climate-change>; “NEW REPORT: American Green Bank Consortium Partners Caused Record \$4.6B in Investment in 2022,” Coalition for Green Capital, press release, March 14, 2023, <https://www.nrdc.org/stories/how-green-banks-are-financing-fight-against-climate-change>.

53 “Investor Presentation June 2023,” African Development Bank Group, June 7, 2023, <https://www.afdb.org/en/documents/investor-presentation-june-2023>.

54 David Njagi, “African Initiative Aims to Bring Transparency to Carbon Markets,” Devex, April 25, 2023, <https://www.devex.com/news/african-initiative-aims-to-bring-transparency-to-carbon-markets-105121>.

E. Support Institutions and Central Banks as Pioneers of Green Banking Ecosystems Policies

Achieving African transition to an inclusive and green economy will require strong coordination of the interactions between the stakeholders of the real and financial spheres. Market forces alone are incapable of achieving such a feat, just like standalone GBIs or scattered support programs developed here and there. Only strong and coordinated green banking ecosystems policies (GBEP), underpinned by good governance, can develop dynamic African GBEs. Policies, incentives, standards, obligations, coercion, and financing are needed to modify individual and collective preference functions. Beyond those universal strategies, African special vulnerability may plead in favor of a more proactive role for central banks.

1. Building Strong Regulatory and Support Institutions Will Be the First Step to Develop a Higher Level of Green Financial Intermediation in Africa

Coordination and signaling among green-market stakeholders and investments to create green markets—through regulations, standards, and data-sharing frameworks—are the rationale to build strong green support institutions. Theoretically, the rationale for green public policies is provided by the numerous imperfections that plague nascent green financial markets, hindering the optimal allocation of capital and penalizing the green transition. Private financial institutions may refuse to assume costs of developing new green markets and products, as they are too high or associated with uncertain returns. Secondly, green intermediation may stall in the absence of endogenization mechanisms—e.g., carbon taxes, incentives, or obligations—needed to account for green-sector externalities and align environmental returns with private returns. As returns may be lower than standard market conditions, the dissemination of green financial products requires state support through compensation, tax exemption, financing, or obligation. Finally, numerous information asymmetries around environmental projects and certification schemes may dishearten investors. The development of green projects and financial products cannot be done without the adoption of regulations explaining methods for calculating energy

performance, environmental standards applicable to certain sectors (urban planning code), or presenting targets for gas or pollution reduction in different sectors. Coordination among stakeholders requires signaling through clear national and sector long-term transition strategies to anchor expectations and foster private-sector investment.

Alongside sectoral ministries, GBEPs in each country should strongly rely on the central bank and ministry of finance, for several reasons. Coordination and collaboration between them should be strong for the definition and implementation of GBE development policies and standards, as they are the actors most listened to by the financial community due to their expertise and credibility. Furthermore, their collaboration will avoid the production of multiple taxonomies and standards, with different philosophies, formats, and methods.

2. Given the Systemic Impact of Climate Change on Africa, African Central Banks Should Adopt More Interventionist Approaches

As losses linked to climatic hazards and adjustment costs associated with regulatory changes become more precise with a high likelihood to destabilize major macroeconomic variables, global warming has become an essential dimension in the strategic and operational matrix of central banks. African central banks joined that movement, as they created pan-African working groups and set up dedicated in-house teams. They also participate in the activities of several international financial task forces.

Instruments mobilized by central banks to participate in the global climate coalition can schematically be grouped into two approaches: one using non-financial tools to influence financial and real-sector stakeholders' behaviors, and the other favoring direct intervention, with monetary and prudential policy instruments. Under the first approach, central banks have developed their membership of networks working on sustainability issues, created conducive regulatory corps for green financial operations, included ESG criteria in central-bank portfolio management, integrated climate risk into their macro prudential framework, deployed guidelines on environmental risk management, and pleaded for stronger environmental disclosure requirements and stress tests for financial institutions.⁵⁵

55 "On the Role of Central Banks in Enhancing Green Finance," UN Environment, February 2017, [https://wedocs.unep.org/bitstream/handle/20.500.11822/16803/Role_Central_Banks_Green_Finance.pdf?sequence=1&%3BisAllowed=](https://wedocs.unep.org/bitstream/handle/20.500.11822/16803/Role_Central_Banks_Green_Finance.pdf?sequence=1&%3BisAllowed=;); Simon Dikau and Ulrich Volz, "Central Bank Mandates, Sustainability Objectives and the Promotion of Green Finance," *Ecological Economics* 184 (2021), <https://www.sciencedirect.com/science/article/pii/S092180092100080X#s0015>; Pierpaolo Grippa, Jochen Schmittmann, Felix Suntheim, "Climate Change and Financial Risk," International Monetary Fund, December 2019, <https://www.imf.org/en/Publications/fandd/issues/2019/12/climate-change-central-banks-and-financial-risk-grippa>.

Several African central banks are now following the first approach. Nigeria, for example, has developed the Nigerian Sustainable Banking Principles, while South Africa adopted a green taxonomy quite similar to that of the European Union.⁵⁶ Several countries have joined the Network for Greening the Financial System (NGFS).⁵⁷ It strives to integrate climate risks into its strategy, to better understand their impact on macroeconomic variables and the conduct of monetary policy.⁵⁸

The second approach, which is more interventionist, is based on the mobilization of monetary policy tools to directly influence the financing conditions of economic actors and foster the green transition. It includes central-bank support for green-bond programs, the implementation of green lending guidelines, interest rates, or preferential green refinancing conditions for financial institutions and corporations. This type of policy is often considered with suspicion, but has proven its worth in China, where outstanding green loans in the twenty-one Chinese major banks represented \$2.37 trillion at the end of 2021—or 10.6 percent of their total loans—and were said to have helped reduce carbon-dioxide emissions by nearly 700 million tons.⁵⁹

With Africa the continent hardest hit by the consequences of environmental degradation, its central banks should continuously benchmark their most advanced counterparts and opt for a more ambitious approach. The latter could be based on three precedents. First, as during the COVID-19 or subprime-mortgage crises, the systemic nature of environmental crises pleads for new solutions. Second, many OECD and emerging central banks have used subsidized rates to develop priority sectors, such as real estate, industry, and technology. Finally, statutory provisions of many African central banks mandate that they support their governments'

economic or development policies—including the fight against environmental crises.

African central banks could first opt for an experimental deployment of those interventionist instruments, with a focus on solutions that present limited challenges to central-bank market neutrality. That approach will limit the risk in the event of failure, and allow to quickly scale in the event of success. As far as instruments are concerned, African central banks could implement financing and refinancing windows for green projects, with preferential discount rates, in order to reduce financial costs for green projects. They could also stimulate the local and regional green-bond market by integrating green bonds into their repurchase (repos) programs. Quotas or green financing targets could also be enforced. The first solution is often considered radical, but has proven successful in China, though green credit quotas are the subject of debate in the literature, given the distortions they could create or their ineffectiveness in the face of a low supply of green projects.⁶⁰ A less radical solution, but one which has proven itself, might be the adoption of voluntary green credit objectives. Leveraging prudential rules—such as differentiated reserve and capital requirements, higher risk weights for carbon-intensive sectors and dependent sectors, lower exposure concentration ratios to carbon-intensive industries—represents another path to explore. Yet, to avoid sudden financing gaps for sectors with a weak environmental footprint, with likely negative consequences for employment and revenues, mobilizing enough financial resources to finance the transition to green technologies and practices will be a prerequisite to the deployment of such tools.

56 "South African Green Finance Taxonomy," National Treasury of South Africa and International Finance Corporation, March 2022, https://www.treasury.gov.za/comm_media/press/2022/SA%20Green%20Finance%20Taxonomy%20-%201st%20Edition.pdf.

57 "BEAC, African Central Banks Brainstorming on Financing Agriculture, Green Economy," Association of African Central Banks, May 22, 2023, <https://aacb.org/en/top-news-all-news/beac-african-central-banks-brainstorming-financing-agriculture-green-economy>.

58 "Membership," Network of Central Banks and Supervisors for Greening the Financial System, last visited September 28, 2023, <https://www.ngfs.net/en/about-us/membership>; Dikau and Volz, "Central Bank Mandates, Sustainability Objectives and the Promotion of Green Finance."

59 "China's Green Credit Balance Tops 15 Trillion Yuan," Xinhua, March 27, 2022, <https://english.news.cn/20220327/b2cfb0c9ce324d26ac929581a64901e5/c.html>; Jian Bao and Meiling He, "Does Green Credit Promote Green Sustainable Development in Regional Economies? Empirical Evidence from 280 Cities in China," PLOS ONE, November 10, 2022, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0277569#pone.0277569.ref003>; Christoph Nedopil Wang and Song Ziying, "Green Finance Trends in China (I): China's Green Finance Policy Landscape," Green Finance and Development Center, February 8, 2023, https://greenfdc.org/green-finance-trends-in-china-1-chinas-green-finance-policy-landscape/#_ftn27; "China's Green Credit Guidelines," Green Finance Platform, 2012, <https://www.greenfinanceplatform.org/policies-and-regulations/chinas-green-credit-guidelines>; Christoph Nedopil Wang and Xue Bing, "Interpretation: New CBIRC 'Green Finance Guidelines for the Banking and Insurance Industry,'" Green Finance and Development Center, July 14, 2022, <https://greenfdc.org/interpretation-new-cbirc-green-finance-guidelines-for-the-banking-and-insurance-industry>.

60 Jian and Meiling, "Does Green Credit Promote Green Sustainable Development in Regional Economies?"

IV. Training, Research and Development, and Risk Reduction Will Be the Cornerstones of Green Banking Ecosystem Policies

Education is the most powerful weapon which you can use to change the world.

Nelson Mandela

In order to unleash African green potential and smooth its green intermediation pipeline, a big push, advocated by economist Paul Rosenstein-Rodan, will be necessary to reduce the levels of risk perceived by green banking ecosystem stakeholders upstream.⁶¹ Downstream, GBIs will need to adopt more customer-centric approaches to build a pipeline of bankable projects—hence, the pivotal role of policies aimed at promoting innovation, training, and risk reduction.

A. A Massive R&D Effort Is Needed to Tailor Green Financing Solutions to the Challenges and Needs of Customers

1. Special Conditions Call for Tailored Solutions

Over the next few decades, African GBEs should be able to offer green financing solutions to local municipalities, millions of households, and small informal businesses that live on the margins of financial systems.

Financing the green transition of the informal sector will be challenging. On average, it represents 38 percent of gross domestic product (GDP) in sub-Saharan Africa—65 percent in Nigeria—and access to financing remains the main constraint for its actors.⁶² The informal sector accounts for nearly 60 percent of non-agricultural employment, with peaks

of more than 80 percent in Mali and Madagascar. The productivity of informal firms remains low (a quarter that of small formal firms), and needs to be increased to ramp up development. Yet, just after their South Asian counterparts, African microenterprises were the most credit constrained worldwide, according to the World Bank, with SMEs' financing gap representing 82 percent of the potential demand.⁶³

Products to meet the green-transition needs of urban dwellers will need to be created. As a reminder, 1.5 billion people will live in African cities in 2050, which are already congested, have poor infrastructure, and are threatened by rising waters and pollution.⁶⁴ Nearly 56 percent of African urban residents live in slums, and 300 million in urban areas will be exposed to fifteen-day heat events with temperature above 42 degrees Celsius in 2100.⁶⁵ This demonstrates the need to address the demand for solutions capable of solving their energy, transport, food, habitat, and infrastructure needs.

The future of millions of African small farmers depends on tailored financing solutions to buy more resilient seeds, provide weather insurance and develop resilient and more environmentally friendly farming methods, respectful of local cultures.⁶⁶ More than a billion Africans—i.e., 65 percent of the population—who live directly or indirectly from agriculture

61 Kevin M. Murphy, Andrei Shleifer, and Robert W. Vishny, "Industrialization and the Big Push," *Journal of Political Economy* 97, 5 (1989), https://scholar.harvard.edu/files/shleifer/files/indust_big_push.pdf.

62 Rafael La Porta and Andrei Shleifer, "The Unofficial Economy and Economic Development," Brookings, Fall 2008, https://www.brookings.edu/wp-content/uploads/2008/09/2008b_bpea_laporta.pdf.

63 "MSME Finance Gap: Assessment of the Shortfalls and Opportunities in Financing Micro, Small and Medium Enterprises in Emerging Markets," International Finance Corporation, 2017, <https://documents1.worldbank.org/curated/en/653831510568517947/pdf/121264-WP-PUBLIC-MSMEReportFINAL.pdf>.

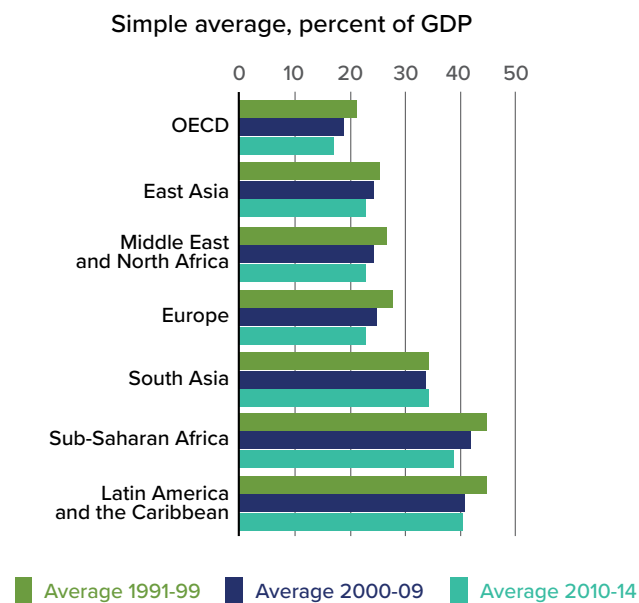
64 Brandon Finn and Patrick Brandful Cobbinah, "African Urbanisation at the Confluence of Informality and Climate Change," *Urban Studies* 60, 2 (2022), <https://cnxus.org/wp-content/uploads/2022/07/Published-Africanurbanisationattheconfluenceofinformalityandclimatechange.pdf>.

65 Peter J. Marcotullio, Carsten Keßler, and Baláz M. Fekete, "The Future Urban Heat-Wave Challenge in Africa: Exploratory Analysis," *Global Environment* 66 (2021), <https://www.sciencedirect.com/science/article/abs/pii/S0959378020307731#>.

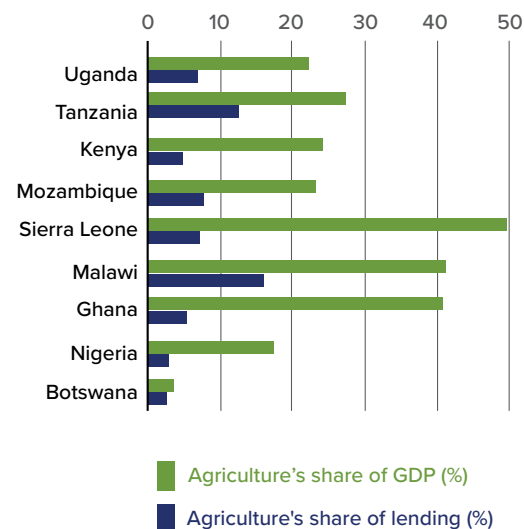
66 Dominique Fayad, "Food Insecurity and Climate Shocks in Madagascar," International Monetary Fund, June 5, 2023, <https://www.elibrary.imf.org/view/journals/018/2023/037/article-A001-en.xml>.

Graph 7 | Structural Factors Affecting the Green Banking Ecosystem Development

(a) Size of Informal Economy by Region, Income Level, and Type of Economy



(b) Share of Commercial Banks' Lending to Agriculture Relative to Share of Agriculture to GDP



Source: (a) International Monetary Fund; (b) Making Finance Work For Africa.

depend on policies aimed at strengthening green financial ecosystems. Thus, if GBEs manage to provide solutions to those financing gaps, they will pave the way for a market estimated at \$1 trillion by 2030. Otherwise, continental food security could be destabilized, as could major political, social, and migratory equilibria.

2. New Technologies and Business Models Will Need to Be Explored to Achieve African Green Transition

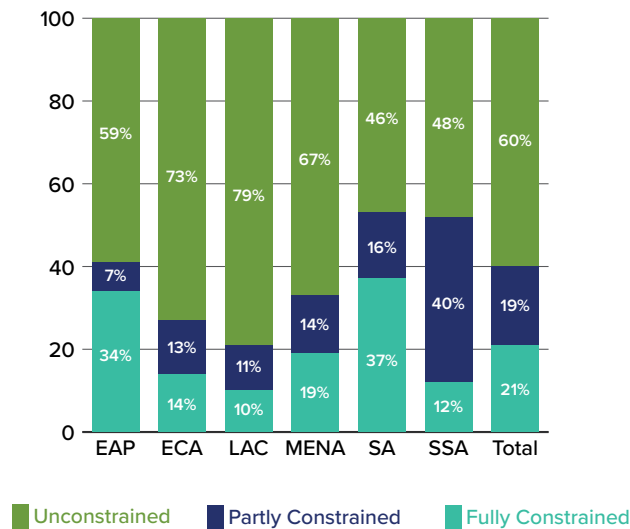
GBIs will need to offer complex green products. On the asset side, GBIs should be ready to offer green loans, equipment loans, technology leases, equity contributions, guarantees, and environmental and climate insurances. Public investment banks will need to adapt to grant subsidies and blended-financing solutions to encourage other financial players to develop green financing. GBIs will also need to master technical solutions, such as green bonds, municipal green finance, and green asset-securitization financing. New frontiers will have to be explored to propose financial products based on the monetization of nature-based solutions (such as the trading of carbon credits). The financial

conditions of all these products being aligned with energy performance, the reduction of pollution, the use of materials that do not threaten ecosystems, or, more broadly, activities favorable to the environment (particularly responsible consumption and planting of trees), digital solutions will be needed to collect data and monitor payments for green infrastructure or nature-based services to communities—for example, through blockchain.

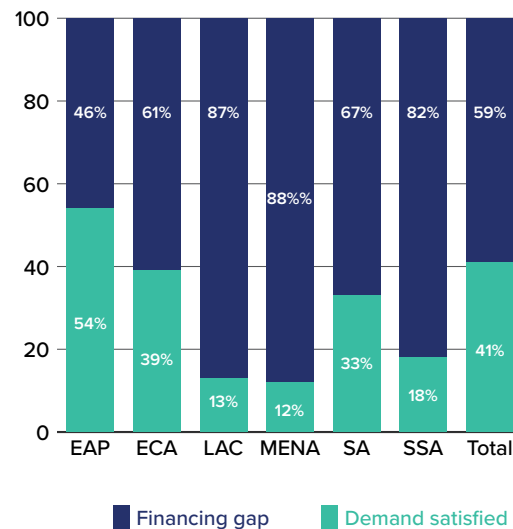
New business models will need to be explored to respond to the green-transition needs of various customers. In a people-focus approach, GBIs will need to develop business models that account for still-high green and general illiteracy rates and day-to-day income as the main forms of revenue. All sectors of the economy will be affected, from agriculture to transport (reduction of pollution levels), energy (rise of renewables and waste efficiency), green infrastructure (notably, waste-management systems), industry (acquisition of production equipment with a better environmental footprint), or the construction/renovation of housing and buildings meeting green standards.

Graph 8 | An Overview of the African Financing Gap

(a) Distribution of Microenterprises by Financial Constraint Level (%)



(b) MSME Finance Gap as a Proportion of Potential Demand (%)



Notes: EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SA = South Asia; and SSA = Sub-Saharan Africa.

Source: Author, based on data from IFC, MSMEs Finance Gap 2017.

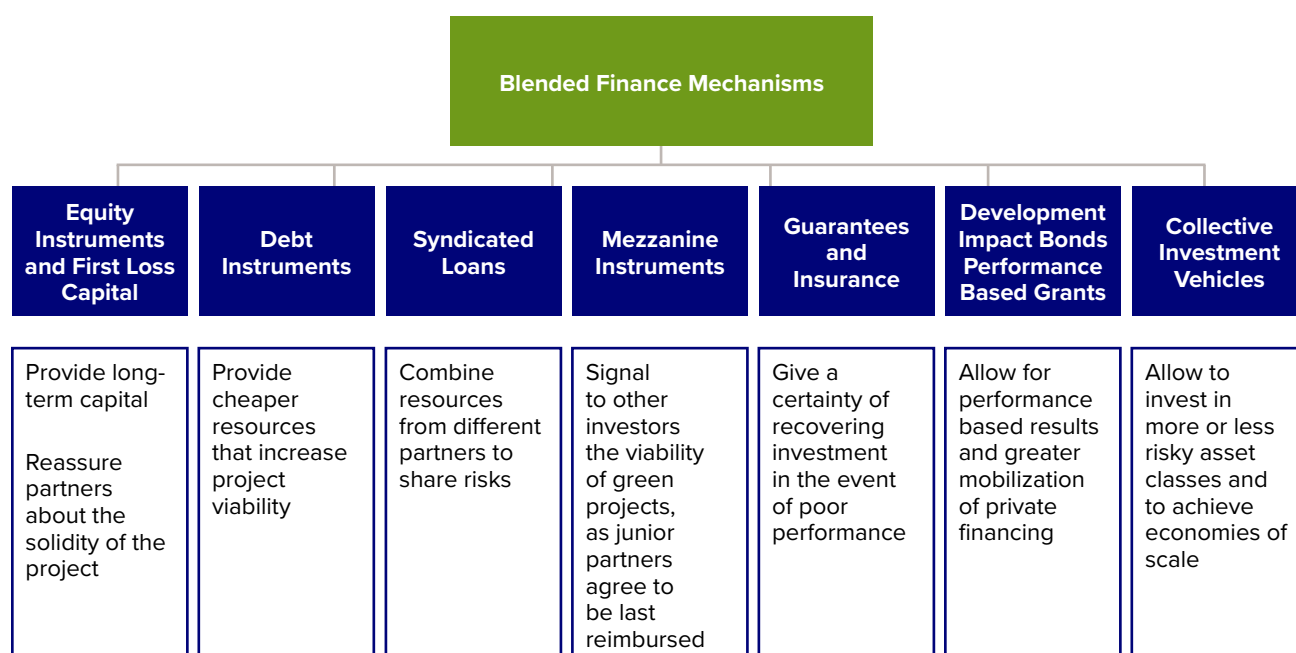
More generally, the implementation of a greener economy in Africa cannot be completed without a substantial boost to research and institutional capacities in environmental matters and green financing techniques. Yet, environmental research is underdeveloped and underfunded on the continent, with only two African countries (Kenya and South Africa) appearing in the top-ten countries receiving funds for climate research in Africa over the 1990–2020 period, while financing for Africa has been outpaced by the rest of the world. Research highlighted the impact of institutional capacity building on Africa's performances in mobilizing green financing.⁶⁷ Thus, it advocates for structural reforms to create regional green technical institutes, include green finance in the curricula of tertiary academic institutions, and also secure enough resources to build strong national institutions to support green projects over the long term and staff them with experts.

B. Risk Reduction and Market Attractiveness Must Be at the Heart of Green Intermediation Development Strategies

Investors are eager for new classes of ESG assets, and the reduction of the risk profile of African green sectors or projects is likely to increase their enthusiasm. African governments will, therefore, need to prioritize strategies for reducing perceived or real risk and strengthening the attractiveness of their green sectors.

More direct financing by public actors will be needed to develop green markets. Prerequisites for the development of GBEs include increases in green technologies and financial-instrument research and development (R&D), training for more specialized green skills, and adoption of regulatory frameworks capable of reassuring investors about the quality of green projects. Yet, the private sector seldomly finances those activities, given the limited return and high risk. Concessional financing by development partners and domestic public authorities is likely

67 Ademola A. Adenle, Dale T. Manning, and Joseph Arbiol, "Mitigating Climate Change in Africa: Barriers to Financing Low-Carbon Development," *World Development* 100 (2017), 123–132, <https://www.sciencedirect.com/science/article/abs/pii/S0305750X17302620>.

Graph 9 | Blended Finance Instruments that Can Be Used to Reduce Risk in Green Projects

Source: Author.

to foster more private financing for green projects, thanks to grants, low-tenor loans, reduced interest rates, or grace periods.

African risk reduction strategies could take two paths: risk-reduction solutions in the real sphere, and financial instruments able to mitigate, share, or transfer risk (e.g., co-financing or risk-transfer techniques such as securitization). In the real sphere, risk reduction can target the frictions that generally penalize the African business climate and/or seek to curb constraints specific to green value, with a focus on stable business climates, macro policies, contractual arrangements, regulations, reduction of bureaucratic constraints, and more accessible data and information. In the financial sphere, various instruments can be mobilized to increase the appetite of private investors for green projects. To promote their greater use, African countries should create specific incentive schemes, or even review or create appropriate regulations.

In that realm, blended finance—i.e., the use of development-finance tools, notably concessional finance and grants—to mobilize private capital, at market rate, should be leveraged to finance environmental projects. Blended-finance options represent a win-win situation for African green-sector stakeholders, as they allow scarce concessional resources to mobilize larger volumes of private investment, thanks to the multiplier effect. For private-sector stakeholders, this represents an excellent option to share and mitigate risk while earning financial returns. For beneficiaries, it allows mobilizing larger volumes of financing. As an illustration, blended finance has been a catalytic fundraising tool for US green banks. Between 2011 and 2022, they succeeded in financing projects worth \$15 billion, thanks to an initial contribution of \$4 billion.

V. Recommendations

To halt the decline of an ecosystem, it is necessary to think like an ecosystem.

Douglas P. Wheeler

As powerful domestic or foreign, micro and macroeconomic drivers dampen green financing in Africa, a systemic approach is necessary to unleash the potential associated with the green financial transition; hence, recommendations that target these different levels of action or stakeholders.

A. Recommendations to Increase Green Public Financial Resources

Through blended finance, public partners could play a catalytic role in mobilizing more private financial investments. Hence, the following recommendations are intended to increase concessional resources and expand the fiscal space in favor of green market-development activities.

For International Partners

1. **Create a simplified dashboard capable of monitoring funding for climate change, pollution, deforestation, and biodiversity conservation.** At various summits, African heads of states have been calling for greater monitoring of financing commitments from the international community. This is because the respect of commitments, notably for concessional resources, is essential to create conducive domestic frameworks capable of attracting private investments. Such a dashboard should include the needs, commitments, disbursement rates, and contributions to local R&D and capacity building. It would also increase transparency and limit the fungibility between resources earmarked to finance the green transition and those dedicated to achieve other sustainable development goals. It would also increase transparency and limit the fungibility between resources earmarked to finance the green transition and those dedicated to achieve other sustainable development goals.

2. **Operationalize ongoing reflection on debt reduction and Special Drawing Rights (SDRs) allocation to free more resources for public financing of green objectives in Africa, through more concessional and blended financing.** African countries, strangled by rising debt, are faced with painful choices between social and environmental objectives. Debt cancellation, reduction, or swaps programs could help expand the fiscal space and provide African countries with more resources to deal with multifaceted environmental crises. Issues of Special Drawing Rights have often been used to address global systemic challenges and finance the cost of severe crises, such as the subprime-mortgage or COVID-19 crises.
3. **Generalize a green tax on financial transactions and airline tickets to increase the volume of green public financing.** African leaders advocated the principle of such a tax during the African Climate Summit held in Nairobi in September 2023. In countries where they have been deployed, such taxes—which are based on an infinitesimal levy—seem not to have created friction in the markets, and have yielded substantial amounts for development programs.⁶⁸

For Local Stakeholders

4. **Encourage African central banks to explore the use of direct intervention tools, such as green interest rates and green refinancing windows with preferential conditions, to finance the greening of their economies, with an emphasis on good governance.** Africa will be the continent most affected by global warming. Beyond fostering the publication of their green footprint by economic stakeholders, integrating climate risks in prudential ratios and fostering decarbonization strategies for the banking sector, central banks should benchmark foreign practices and test direct and indirect tools capable of influencing the collective and individual preferences toward greener behavior, including the use of monetary policy instruments.

⁶⁸ For example, the air-passenger levy that finances health program in developing countries through the UNITAID program.

5. **Mobilize resources to create an African green industrialization facility aimed at building African integrated value chains in strategic sectors, including critical minerals, whose revenues could be harnessed to finance more green activities.** Resources from that capacity will enable African countries to access financing and technical expertise to build segments of key value chains in batteries, solar panels, or information-technology (IT) precursors and components. With taxes and dividends generated by those promising industries, African countries could allocate more domestic resources to the green transition.
6. **Develop African countries' institutional capacity to manage the reallocation of a fraction of their subsidies to fossil-energy sectors to renewable energies.** Fossil-energy subsidies increased to \$7 trillion worldwide in 2022. Although Africa accounts for a small share of that total, subsidies often exceed social expenditures in domestic budgets and are the subject of much criticism given climate commitments, the distortions they create, and the problems surrounding their governance.⁶⁹ Allocating a fraction of those subsidies to the renewable-energy sector could enable African countries to move to cleaner energy. However, new financing to the green sector should be managed under two principles: good governance and the identification of green projects with high externalities.

B. Recommendations to Mobilize More Private Financing

Exciting opportunities for investment exist in African green sectors. Materializing them may require conducive and stable policies from Africa's main trade partners to foster investment in green African value chains, notably in critical minerals. Local strategies should aim at encouraging "last mile" domestic reforms in the financial and real sectors.

For International Partners

7. **Finance the adoption and dissemination of long-term national and sector green-transition strategies to stabilize anticipations and attract investors.** Developing green banking ecosystems requires information on potential demand. Hence, there is a need to assess and

cost the needs of African economic sectors to achieve their green transition. Prepared as part of a bottom-up approach, coupled with resource-mobilization plans, those strategies would define a coherent transition path. This would allow stakeholders to anchor their expectations and modify their preferences functions, and investors to position themselves. As no one should be left behind in building green-inclusive African economies, sector strategies would ensure that enough financing is available for each phase and category of stakeholders.

8. **Convene a summit to address structural issues plaguing African carbon markets.** Recent international meetings (Nairobi Climate Summit, Paris Summit for a New Global Financing, and COP27) have not delivered conclusive and operational results on that issue, which are essential for the development of green financial instruments. Hence, a dedicated high-level summit is needed.
9. **Encourage the development of green special economic zones in high-potential environmental areas.** Special economic zones are used on all continents as a risk reduction tool to create an attractive framework for investors in terms of infrastructure, taxation, and regulation. Creating green special economic zones in key green areas would create sanctuaries where representatives from communities, public actors, environmental specialists, and green-finance experts could test and develop new business models capable of promoting environmental preservation and generating resources for communities.
10. **Revise trade agreements with Africa to grant long-term privileged access to markets for African green value-chain products.** Long-term and stable preferential access granted to products from African green value chains would attract investors, increase the solvency of exporting companies, and encourage domestic GBIs to finance them. As Africa becomes unavoidable because of its endowments, its trade partners should recognize that strategic dimension and facilitate the local transformation of critical minerals and green industrialization, two drivers of much-needed, inclusive growth. Amendments to current regulations could also be

⁶⁹ Simon Black, et al., "IMF Fossil Fuel Subsidies Data: 2023 Update," International Monetary Fund, August 24, 2023, <https://www.imf.org/en/Publications/WP/Issues/2023/08/22/IMF-Fossil-Fuel-Subsidies-Data-2023-Update-537281>; "A Guide to Carbon Pricing and Fossil Fuel Subsidy Reform: A Summary for Policymakers," United Nations Development Programme, October 26, 2021, <https://www.undp.org/publications/guide-carbon-pricing-and-fossil-fuel-subsidy-reform>.

needed. As an illustration, some of the measures contained in the US Inflation Reduction Act provide tax exemptions for US manufacturers of electric vehicles, provided that more than 40 percent of critical minerals contained in batteries have been extracted or processed in countries with which the United States has a free-trade agreement (FTA). That provision is a constraint, as a sizable part of those minerals are in African countries not covered by an FTA. Beyond the memorandum of understanding signed with the Democratic Republic of Congo (DRC) and Zambia, the question of African green value-chain products in general should be addressed in the realm of the ongoing review of the African Growth Opportunity Act (AGOA), with rules of origin propitious for African development.

- 11. Avoid deploying unilateral environment-related trade measures that may weaken African key systemic sectors, and opt for a collaborative and sequential approach with substantial trade finance to upgrade sectors to more environmentally friendly techniques.** Trade performances and access to finance are intertwined. That explains why, without significant access to trade finance, environment-related trade measures adopted by some of Africa's largest trading partners could affect millions of African producers, which have limited financing to upgrade to new standards. Collaboration should focus on providing those stakeholders timely and appropriate support, and should be based on the Rio 2012 United Nations Conference on Sustainable Development outcome document.⁷⁰ On the contrary developing access to trade finance for African stakeholders, especially SMEs, would enable them to upgrade to meet green standards and insert themselves in international green value chains.
- 12. Encourage the central banks of OECD countries to take certain African green bonds as collateral within the framework of their refinancing windows.** Such a decision would stimulate the African green-bond market, improve its liquidity, and send an additional signal to international markets. Bonds, selected for the quality of their issuer after a rigorous process, could be used by large institutional investors for repo agreements with major central banks.

- 13. Provide long-term budgetary support for administrative units in charge of the green transition.** Weak institutional capacities among green support institutions are one of the root causes explaining the limited number of green projects and the constraints to developing new ones. Development partners could address these shortcomings by providing long-term budgetary support aimed at strengthening institutions, recruiting staff and securing competitive wages for them.

- 14. Increase and focus concessional resources on activities likely to contribute to the development of green markets—notably, adoption of regulations tailored to local realities, R&D guarantees, and risk reduction strategies.** These activities develop public goods, and will thrive thanks to market interactions. Yet, they are traditionally underfunded due to market imperfections.

For Local Stakeholders

- 15. Complete energy-market reforms to benefit from the potential of green investments in renewables.** Balanced partnerships, quick decision-making, and strong governance could improve the conditions to access and share electrical national grids, set pricing rules and payment mechanisms capable of satisfying all market stakeholders, and attract more renewable-energy developers.
- 16. Implement incentives and the regulatory framework to develop credit and leasing solutions to foster the acquisition by households and businesses of capital and consumption goods with a better environmental footprint.** Those incentives and well phased-out obligations will allow African enterprises and households to switch to less-polluting technologies while satisfying enormous needs.

⁷⁰ "The Future We Want," United Nations Conference on Sustainable Development, June 19, 2012, <https://wedocs.unep.org/bitstream/handle/20.500.11822/13662/N1238164.pdf?sequence=1&%3BisAllowed=>.



A woman looks at a solar panel, at a factory called Ener-G-Africa, where high-quality solar panels made by an all-women team are produced, in Cape Town, South Africa, February 9, 2023. REUTERS/Esa Alexander.

C. Recommendations to Create Buoyant Green Banking Ecosystems

For International Partners

17. Conduct a reflection aimed at improving procedures for African actors to access the resources of major global environmental funds.

When they try to access resources in those institutions, African stakeholders complain of complex procedures in realms such as fiduciary management, compliance with environmental and social safeguards, and eco-certification, whereas they operate in nascent green ecosystems. Beyond the adoption of programs aimed at financing large-scale upfront capacity building in the green sector for all African countries, reflection should focus on the long-term financing of the processes necessary for eligibility, especially budget support for staff and operating expenses.

18. Deploy massive training programs for green finance for financial-sector practitioners and customers. Green finance remains a novelty in Africa. African households and businesses are unfamiliar with techniques for structuring green projects, while banks have few employees who master green financial techniques. With such training programs, deployed in academic institutions or through vocational training, financial institutions could be supplied with a large pipeline of bankable green projects, and would be able to tap more financing from large GBIs, major global green funds, and the private sector.

For Local Stakeholders

19. Foster the development of high-level green-sector steering committees to accelerate reforms and improve the governance of the green sector. Green issues are now systemic, and call for rapid action—hence, the need to strengthen the financial and technical capacities

of inclusive green-sector platforms capable of coordinating all stakeholders. Thanks to an anchorage at the highest institutional level, fast decision-making and intensive follow-up would foster the implementation of long-term sector-transition strategies and key regulations, and would improve data collection and dissemination. Those result-based steering committees would focus on reducing bureaucratic constraints, improving green value-chain efficiency, and addressing green-data gaps.

- 20. Develop a pan-African green taxonomy that would include eligibility rules for projects in the biodiversity, deforestation, pollution, climate, and circular-economy sectors.** Instead of a multitude of green domestic regulations, a pan-African taxonomy would limit transaction costs and create a more integrated green Africa, in which financial markets would take advantage of the 2.5 billion inhabitants of the African Continental Free Trade Area (AfCFTA).

- 21. Strengthen national and pan-African financial-sector platforms dedicated to green finance, and foster their participation in the works of key global green financing alliances.** The participation of African banks in major global alliances working on the future of green finance is still weak, limiting Africa's capacity to share its opinion on the global governance of green finance. African financial intermediaries should develop associations to better understand green issues and anticipate regulatory change. Thanks to those networks, Africa would be able to better prepare propositions and have a stronger level of participation in international green finance consortiums, such as the Task Force on Climate-related Financial Disclosures, the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), the Glasgow Financial Alliance for Net Zero (GFANZ), and the Net-Zero Banking Alliance.

Conclusion

Throughout history, it has been the inaction of those who could have acted; the indifference of those who should have known better; the silence of the voice of justice when it mattered most; that has made it possible for evil to triumph.

Haile Selassie

If there is only one thing to take away from this report, it is that Africa can succeed in its transition to a green and inclusive economy, and look for stable and balanced strategic partnerships to achieve that ambition. That includes: ramping up its green banking ecosystems; mobilizing the resources needed to finance its needs in terms of mitigation and adaptation; addressing deforestation, pollution, and biodiversity loss; and developing green sectors and industries capable of giving a bright future to the millions of young Africans who will enter the job market in the coming decades.

This requires an increase in concessional financing and rapid reforms, listed in this report, to create green banking ecosystems capable of channeling private investments attracted by the prospects of a continental economy that will shelter one-quarter of the world's population in 2050, is rich in critical minerals essential to the global green transition, and is home of a promising African Continental Free Trade Area spanning fifty-three countries.⁷¹

⁷¹ "Economic Development in Africa Report 2023," United Nations Conference on Trade and Development," 2023, <https://unctad.org/publication/economic-development-africa-report-2023>.

About the Author



Jean-Paul Mvogo is a nonresident senior fellow with the Atlantic Council's Africa Center.

He has been working as an economist for almost twenty years for major development partners (IMF, UNDP) or private actors on projects aimed at promoting the emergence of strong financial, Tech and entrepreneurial ecosystems in Africa.

A passionate ecosystem builder, he worked in those various capacities on sustainable and green urban development strategies in Africa, led efforts to develop innovation policies and financial architecture but also managed programs to improve the functioning of African job markets. With the support of the Mastercard Foundation, Jean-Paul is currently leading the AIMS-Sciences Po's Bettering Entrepreneurial

Training in Africa research project whose aim is to turn the next generation of Africans into more successful entrepreneurs.

A graduate of Sciences Po Paris and holder of a Ph.D in Economics from Paris Dauphine University, Jean-Paul has been teaching Development strategies in many academic institutions including Paris Sorbonne, Sciences Po or the African Institute of Mathematics. He consistently contributes to the debate concerning opportunities of African markets, with featured pieces in *La Tribune*, *Jeune Afrique*, TV5, African Banker, the IMF, and more.

As he strongly believes in the promises of African entrepreneurship, he has also coached or accompanied dozens of startups on African markets in sectors ranging from AgriTech to CleanTech.



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