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In Africa, "climate-smart" conservation must be coupled with poverty alleviation

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Railway carriages transport bauxite ore in Guinea, Africa. Rents the country receives from mining green minerals, as well as conservation rents accrued from private organizations, could encourage governments to sideline developmental priorities focused on, for example, poverty alleviation. Image credit: Shutterstock/Igor Grochev.

In August, the Seventh Assembly of the Global Environment Facility (GEF) concluded in Vancouver, Canada, with a pledge. A total of 185 countries agreed to protect 30% of land and coastal areas by 2030 (known as the "30 by 30 pledge"). This will be accomplished through a $100 billion "Global Biodiversity Framework Fund" first announced in December 2022 under the auspices of the Convention on Biological Diversity (CBD). Domestic public- and private-sector sources will contribute some $200 billion per year to conservation initiatives by 2030. Developed countries agreed to contribute at least $20 billion of this every year by 2025 (1).

But while this surge of conservation funding is heartening, there are serious concerns. Projects and programs that appear to produce both environmental and developmental goals could actually obscure the continuing marginalization of poor and vulnerable populations. "Climate-smart" conservation efforts by well-intentioned public-sector international donors and private nonprofit organizations could thus be "greenwashing" underdevelopment, as ostensible environmental benefits may still reinforce old colonial relationships and structures that produce poverty and vulnerability (2). Such risks include, for example, population displacements from conservation and mining activities or the misallocation of mineral or biodiversity rents.

A focus on "smart" conservation, coupled with localized extractive investments in the Global South, is creating a "green rentier state" phenomenon. Rentier states generally derive a large part of their revenues and international power from the sale of their resources or the leasing of their mineral rights. In the case of "green rents," states seek to derive authority and revenues through conservation schemes. Unfortunately, they often do so while maintaining or even justifying mineral extraction through biodiversity protection and decarbonization (3). Here, we suggest that such coupling of conservation and extraction needs to pay greater attention to

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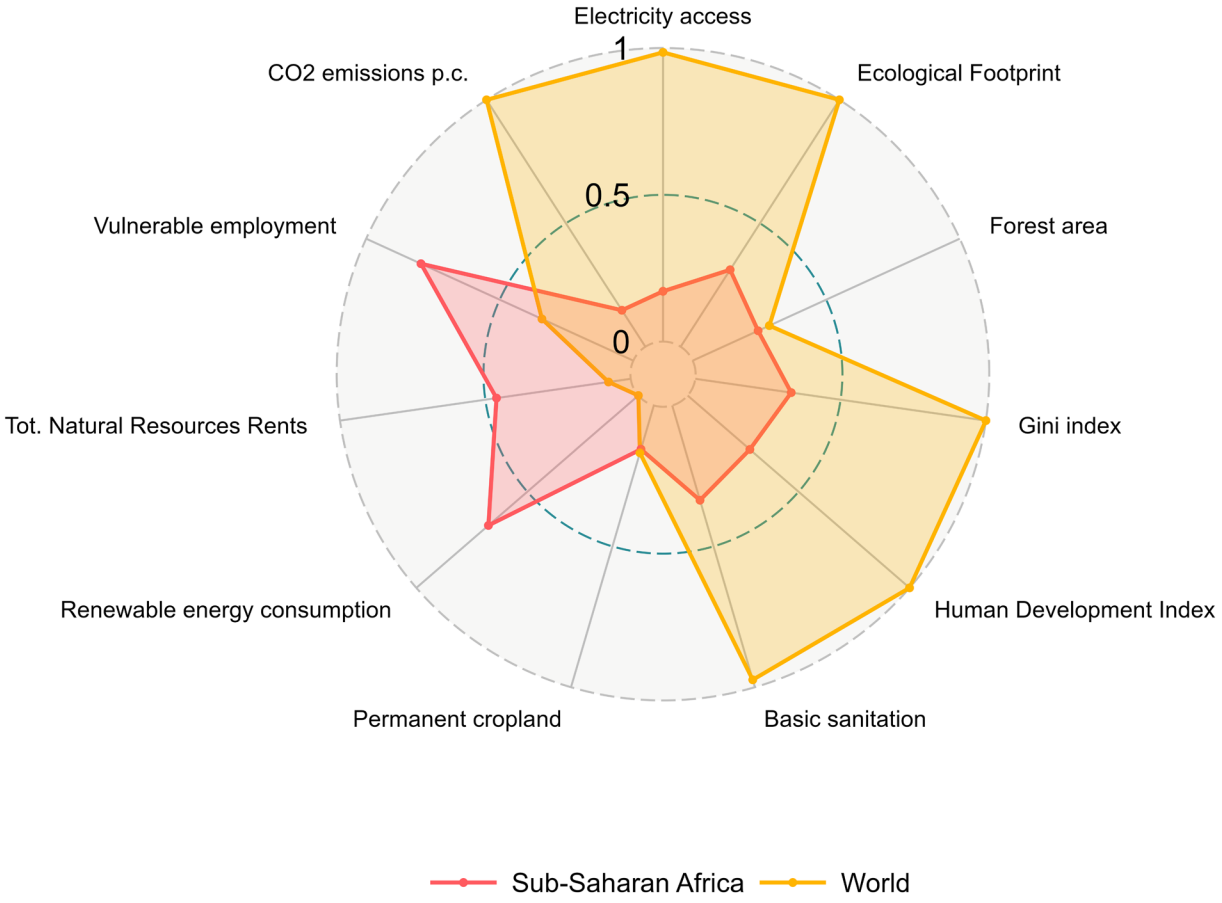

Fig. 1. A systems view of a range of ecological and development indicators for sub-Saharan Africa. The region's performance on most ecological indicators exceeds global metrics, but is worse for poverty-related indicators. See *SI Appendix* for further details on data sources and methodology.

poverty alleviation. Otherwise, it risks further marginalizing vulnerable populations, while boosting environmental and economic indicators—thereby giving a false sense of progress toward sustainable development.

There are two facets of this dynamic that deserve immediate attention from scientists and policymakers. First, the drive for technology-related minerals for the green transition is leading to rushed and opportunistic alliances with African countries, part of a geopolitical struggle between the West and China (4). With about a trillion dollars being invested annually into the energy transition (5), there's an even greater risk of fast-tracked climate-smart extraction projects abusing the rights of local populations (6). (See also How to fuel an energy transition with ecologically responsible mining, https://www.pnas.org/doi/10.1073/pnas.2307006120.)

Second, the opportunity to use large land areas for conservation and the creation of carbon offsets is incentivizing government to seek out revenues from conservation- and climate-related projects, rather than by focusing on broader development goals (7). This could perpetuate effects of the recent drive for large-scale private land acquisitions in Africa (part of what has been termed the "global land rush") and its negative impacts on the livelihoods and natural resource access of existing local land users.

Africa is particularly vulnerable to such a co-opting of the conservation agenda, where the sheer number of countries and scale of development challenges can complicate the task of donors (Fig. 1). It's a particular concern for countries such as Gabon and Guinea that will not only receive additional rents from green minerals, but also "conservation rents" accruing from private philanthropists and conservation organizations. These well-meaning conservationists are eager to advance biodiversity and the climate agenda. But, in doing so, they are also giving governments an opportunity to sideline developmental priorities focused on poverty alleviation, favoring constituencies that may stand in the way of such projects. This, we suggest, could result in a dual "green rentier economy"—from "green minerals" extraction and biodiversity/climate conservation—that not only obscures and further marginalizes the poor, but also potentially undermines long-term conservation objectives.

Smart and "Transparent" Extraction

Infrastructure needed for decarbonization is increasing demand for so-called green minerals (8). The World Bank initiated the "Climate Smart Mining" program in 2017 (9) with the aim of encouraging foreign direct investment in African mining economies. Notably, the Democratic Republic of Congo (DRC) has received attention for its vast supplies of cobalt, tungsten, and tantalum—all metals needed for the green transition. The United States has included the DRC within several of its energy-transition minerals policies, such as the "Minerals Security Partnership" (10). Given the major role played by the Congolese rainforest in global carbon

accounting, the World Bank has also included the region in its "Forest-Smart Mining" program (11).

On one level, such developments are positive signs of an interest in African investment, which has been neglected over the years. Climate-smart and forest-smart mining provide opportunities for win–win resource-extraction outcomes. However, such efforts remain highly focused on the mining governance itself, with little conditionality associated with the maximization of actual development outcomes.

Similarly, there have been myriad calls for improved "mineral resource governance," and efforts such as the "Extractive Industries Transparency Initiative" (EITI) shed light on resource revenue flows through greater disclosure and auditing. Unfortunately, the EITI did not have the mandate to tie investment to clear development outcomes (12). Even its revised "outcomes" category merely has criteria such as "data access" and "work plans," rather than actual development indicators.

Without appropriate domestic and international safeguards to ensure that resource rents contribute to achieve development targets, this latest mineral rush may deepen rural poverty and increase conflicts over biodiversity and climate projects (13). At the same time, many of these countries may also reap the rewards of "collateral conservation," whereby environmentally focused donors reward the underdevelopment status quo of pristine preservation, resulting in low levels of investments into industrial sectors.

A way forward would be to frame conservation around the crucial importance of reduced emissions and better sequestration in wealthy countries, together with the promotion of cleaner development trajectories in lower-income countries.

Biodiversity Conservation

The linkage between biodiversity conservation and climate conservation is complex, but, under most circumstances, conserving forests can help to decarbonize the atmosphere and sustain greater species and habitat diversity. Yet, the capacity of forests to store carbon is not a true offset for the extraction and combustion of fossil fuels. This false equivalency can serve to justify the use of oil and mineral revenues and occasionally incentivize forest conservation by reducing immediate demand for timber, as observed already in countries like Gabon (14), or by reducing overall forest loss (via subsurface mining) relative to prevailing drivers of land-use change (15). As an oil-producing country for the past several decades and home to large reserves of manganese (a metal used for a range of green technologies), Gabon has prioritized these low-land-intensity sectors to maintain 88% forest cover and set aside more than 30% of its land for protected areas. Hence, Gabon's government has been heralded as a "conservation leader," despite potentially problematic carbon-offset equivalencies between forests and fossil fuels. The Norwegian government has pledged over $150 million for the country's programs through the Central African Forest Initiative (CAFI). Private donors, such as tycoon Jeff Bezos, have given the country lavish donations ($35 million from the Bezos Earth Fund) and plans for upscaling carbon-credit programs (16).

The recent coup d'état in Gabon, which unfolded in late August, further highlights how local discontent can pave the way for social upheaval. Gabon's ostensibly benevolent dictatorship, led by deposed president Ali Bongo, which was ranked 128th out of 180 on the Transparency International Corruption Perceptions Index in 2022, capitalized on this green allure. To build international confidence in the country's conservation efforts, Lee White, who is a British citizen and former country director of the Wildlife Conservation Society (an American nonprofit), was granted naturalized Gabonese citizenship and had served as the Minister of Water, Forest, the Sea and Environment until the coup. While such technocracy is laudable at one level, the rise in international funding sent to Gabon since his appointment in 2019 suggests a potential dual purpose for his role—to not only provide biodiversity expertise, but also attract international donors (17, 18). Yet, the long-term trajectory of conservation can only be sustainable if the population itself feels palpable impacts of poverty alleviation (19). Soon after the coup, White was ousted from his post, and public statements reflected strong discontent with the way conservation had trumped poverty alleviation.

Although most conservation initiatives claim to have some form of "win–win" poverty alleviation as part of their mission, they lack tangible targets for improving the quality of life and livelihood of rural and local communities. For example, CAFI, which spans six sub-Saharan African countries, now has over $835 million committed and claims that it will "enhance livelihoods" for 10 million people (20). Yet, importantly, there is no clear metric indicating what such an enhancement would entail. Further, there is no coupling of funds disbursement with broader macroeconomic reforms for poverty alleviation. Organizations and governments need a far tighter coupling of conservation and development indicators.

Green-Growth Policy Targets

A way forward would be to frame conservation around the crucial importance of reduced emissions and better sequestration in wealthy countries, together with the promotion of cleaner development trajectories in lower-income countries. Although proponents of "degrowth" and consumption reduction have denounced the term "green growth" in the context of developed economies (21), there is little doubt that for developing countries, some level of economic growth will be necessary in order to alleviate poverty (22). Green-growth metrics should thus not only be used by donors as a precondition for funds disbursement, but also to hold donors accountable in their own countries.

We would also recommend a set of policies that use the Green Growth Index (23) for delivering development cobenefits of conservation. This index tracks conservation and development indicators to assess progress toward sustainability targets, including the Sustainable Development Goals, the Paris Climate Agreement, and the Aichi Biodiversity Targets. This could perhaps be combined with other quality-of-life indicators and included in output metrics through synergies with the World Happiness Report prepared by the United Nations. The evaluation programs that most donors have for impacts must more closely account for such indicators.

Furthermore, metrics measuring environmental health and economic health could be disaggregated to ensure that trade-offs and synergies are visible. For example, countries should not be aggregating indicators of health across environmental sectors, as the net outcome can obscure highly problematic trends driven by localized extractive efforts. By linking economic growth metrics to sectors, and those sectors to environmental impacts, problematic trade-offs and obfuscations become more visible and, therefore, easier to address.

Apart from the use of such macro-metrics, we also recommend five broad policy-reform plans:

1. Extraction must not take place in areas that will jeopardize the long-term well-being (24) of the population and health of the environment. In short, a government must consider if there are "no-go areas" for potential green minerals projects, such as key watersheds, high-biodiversity protected areas, or places where Indigenous populations have clearly expressed their rejection of resource extraction, despite compensation. Local populations and ecosystems should not be sacrificed for the sake of a green transition that will often mostly benefit the domestic ruling class and foreign interests. Such no-go areas will have the advantage of clearly focusing investments on industrial-scale mining projects that receive local consent from, and deliver cobenefits for, Indigenous Peoples and local communities. Such projects will be easier to implement, result in fewer negative impacts, and face fewer delays or cancellations due to lawsuits.
2. Funding schemes are often inaccessible to local and rural mining communities. Rather than perpetuate problematic framings of Indigenous and local communities as only serving as recipients of preplanned projects, these groups must be included in the design of projects to ensure that any support will address their needs. Such participation can ensure that extractive and conservation projects aiming to contribute to poverty alleviation emphasize building equity, such that local and Indigenous women and youth benefit from development schemes. For example, mining schemes should increase local livelihood opportunities and poverty alleviation, such as through cocreation of small-scale ventures, such as local cooperatives, which can be provided with direct access to funding, training, and mineral markets.
3. Multilateral investors and guarantors, such as the International Finance Corporation, should promote the coexistence and coordination of small- and large-scale operations designed to maximize rural employment and distribute revenue. However, governments should prevent mining rushes, especially when involving destructive modes of extraction—such as the in situ chemical-leaching methods used in the case of rare earth elements. When cleaner at-scale mining options exist, governments should support local development through such ventures.
4. Extractive and conservation projects, along with rent allocation, should foster economic diversification and broad forms of development. To achieve this, countries should be prepared to negotiate and monitor agreements from the best possible position—that means, for example, conducting mineral surveys, recruiting local participation in the identification of conservation-based development opportunities, building institutional capacity (e.g., prior consultation, mining audit, community-based development organization), reforming policies and legislation (e.g., consent process, local content requirement, integrity of financial management, economic diversification), and strengthening the workforce and domestic companies that are able to capture some of the project revenues (e.g., ecotourism, maintenance).
5. If the country is a fossil-fuel producer, the ramping up of green rents should happen in concert with a winding down of hydrocarbon production and rents. Nations can achieve this by refraining from issuing new fossil-fuel exploration and production contracts, as has been done in Colombia. Lag times between decisions and rent effects, as well as the impacts of such decisions on investor confidence, should be carefully assessed by both international donors and target governments to avoid negative economic shocks. Countries should also pay attention to the effects of rent generation from conservation and mining on both local and global environmental impacts (e.g., climate impacts of increased tourism).

The GEF, which is tasked with administering the new $100 billion biodiversity fund (25), should incorporate these policy recommendations into their project-development tools with all of their implementing agencies. The GEF Council, which comprises all the major donors, is well-placed to mandate such a mechanism. Further, the Independent Evaluation Office of the GEF, which comprises technically trained professionals, should employ clearer metrics on Green Growth. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services also prioritizes a systems-science approach that couples conservation to poverty alleviation. Such an approach will ensure that the recommendations set forth in the most recent Intergovernmental Panel on Climate Change Sixth Assessment Report Synthesis Report on "climate resilient development" are properly operationalized toward a just green transition (26).

The bottom line: Through tighter coupling of conservation and human well-being, we have a golden opportunity to reset the trajectory of sustainable development in Africa.

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1. Global Environment Facility, New global biodiversity fund launched in Vancouver. https://www.thegef.org/newsroom/press-releases/new-global-biodiversity-fund-launched-vancouver. Accessed 24 August 2023.
2. C. B. Barrett, A. J. Travis, P. Dasgupta, On biodiversity conservation and poverty traps. *Proc. Natl. Acad. Sci. U.S.A.* **108**, 13907–13912 (2011).
3. P. LeBillon, Crisis conservation and green extraction: Biodiversity offsets as spaces of double exception. *J. Polit. Ecol.* **28**, 854–888 (2021).
4. S. Kalantzakos, Ed., *Critical Minerals, the Climate Crisis and the Tech Imperium (Archimedes*, Springer Nature, Cham, Switzerland, 2023), vol. 65.
5. BloombergNEF, Global low-carbon energy technology investment surges past $1 trillion for the first time. https://about.bnef.com/blog/global-low-carbon-energy-technology-investment-surges-past-1-trillion-for-the-first-time/ (2023). Accessed 10 August 2023.

6. J. R. Owen *et al.*, Energy transition minerals and their intersection with land-connected peoples. *Nat. Sustain.* **6**, 203–211 (2023).
7. K. F. Davis, M. C. Rulli, P. D'Odorico, The global land rush and climate change. *Earths Future* **3**, 298–311 (2015).
8. S. H. Ali *et al.*, Closing the infrastructure gap for decarbonization: The case for an integrated mineral supply agreement. *Environ. Sci. Technol.* **56**, 15280–15289 (2022).
9. I. M. Jiskani *et al.*, Green and climate-smart mining: A framework to analyze open-pit mines for cleaner mineral production. *Resour. Policy* **71**, 102007 (2021).
10. D. Parker, Minerals Security Partnership advocates for ESG in critical minerals mining. *Mining Weekly*, 8 February 2023. https://www.miningweekly.com/article/minerals-security-partnership-advocates-for-esg-in-critical-minerals-mining-2023-02-08. Accessed 10 August 2023.
11. T. Maddox, P. Howard, J. Knox, N. Jenner, *Forest-Smart Mining: Identifying Factors Associated with the Impacts of Large-Scale Mining on Forests* (World Bank, Washington, DC, 2019). https://openknowledge.worldbank.org/handle/10986/32025. Accessed 15 August 2023.
12. E. Rich, J. Moberg, *Beyond Governments: Making Collective Governance Work–Lessons from the Extractive Industries Transparency Initiative* (Routledge, Abingdon, UK, ed. 1, 2017).
13. L. Temper *et al.*, Movements shaping climate futures: A systematic mapping of protests against fossil fuel and low-carbon energy projects. *Environ. Res. Lett.* **15**, 123004 (2020).
14. S. Wunder, W. D. Sunderlin, Oil, macroeconomics, and forests: Assessing the linkages. *World Bank Res. Observer* **19**, 231–257 (2004).
15. K. F. Davis *et al.*, Tropical forest loss enhanced by large-scale land acquisitions. *Nat. Geosci.* **13**, 482–488 (2020).
16. S. W. Adhya, *Inspiring the world through action: Determined to protect 30 percent of its terrestrial, freshwater and marine habitats*, Gabon is emerging as a conservation leader. The Nature Conservancy (2022). https://www.nature.org/en-us/what-we-do/our-insights/perspectives/gabon-30-30-leading-conservation/. Accessed 15 August 2023.
17. Le Gabon rétribué pour la protection de ses forêts. *Le Monde*, 22 June 2021. https://www.lemonde.fr/afrique/article/2021/06/22/le-gabon-retribue-pour-la-protection-de-ses-forets_6085208_3212.html. Accessed 29 August 2023.
18. P. Dvorak, Gabon targets a huge payday with carbon credits. *Wall Street J.*, 10 November 2022. https://www.wsj.com/articles/gabon-targets-a-huge-payday-with-carbon-credits-11668088188. Accessed 15 August 2023.
19. S. Foerster *et al.*, Human livelihoods and protected areas in Gabon: A cross-sectional comparison of welfare and consumption patterns. *Oryx* **45**, 347–356 (2011).
20. Central African Forest Initiative (CAFI). https://www.cafi.org/. Accessed 29 August 2023.
21. D. W. O'Neill, A. L. Fanning, W. F. Lamb, J. K. Steinberger, A good life for all within planetary boundaries. *Nat. Sustain.* **1**, 88–95 (2018).
22. L. A. Mandle, Z. Ouyang, J. E. Salzman, G. C. Daily, Eds., *Green Growth That Works: Natural Capital Policy and Finance Mechanisms Around the World* (Island Press, Washington, DC, 2019).
23. Global Green Growth Institute, Green Growth Index 2022: Measuring performance in achieving SDG targets. https://greengrowthindex.gggi.org/. Accessed 29 August 2023.
24. R. Gloaguen *et al.*, Mineral revolution for the wellbeing economy. *Glob. Sustain.* **5**, E15 (2022).
25. S. H. Ali, *The Global Environment Facility (GEF) aspires for greater impact*. Forbes, 21 August 2023.https://www.forbes.com/sites/saleemali/2023/08/21/the-global-environment-facility-gef-aspires-for-greater-impact/?sh=20adff80aba2. Accessed 29 August 2023.
26. Intergovernmental Panel on Climate Change, AR6 Synthesis Report: Climate Change 2023–IPCC. https://www.ipcc.ch/report/sixth-assessment-report-cycle/. Accessed 22 August 2023.