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Recommended Citation

Perrine Toledano, Martin D. Brauch, Karan Bhulwaka & Kojo Busia, *The Case for a Climate-Smart Update of the Africa Mining Vision*, (2021).

Available at: https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/194

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The Case for a Climate-Smart Update of the Africa Mining Vision



Columbia Center
on Sustainable Investment

April 2021

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Karan Bhuwalka, and Kojo Busia

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Mining sector investments in Africa can be structured so that the continent may benefit from climate policy in developed countries that puts a global price on carbon. Current supply chains rely on complex, specialized networks where different parts of the production process are located in different regions of the world. This system of global value chains⁵ leads to greenhouse gas emissions through cross-border transportation and excess waste (especially in electronics and plastics). There is some evidence that border tariffs harm vertical specialization, where different regions are specialized in a very specific task.⁶ Therefore, carbon pricing, including carbon border tax, could lead to the localization of value chains. Multinational companies may move intermediate stages of production closer to the source of mineral extraction, providing a boost to foreign investment across Africa. The incentive for companies to shrink these value chains is even higher in the aftermath of the COVID-19 pandemic, which exposed some of the risks of relying on extensive global supply networks.⁷ These global trends sit within a broader and relatively recent context of soaring environment, social, and governance (ESG) investment affecting companies, shareholders, and governments alike.

The 2009 Africa Mining Vision (AMV)⁸ provides guidance for the industrialization of African countries by leveraging their mining sector. However, the global context has changed since its crafting and, consequentially, it does not include guidance on how governments should embrace the climate change agenda as an opportunity for better and further industrialization, deeper linkages, and sustainable development. Its neglect of climate change does not mean that the AMV is no longer relevant. On the contrary, its focus on skills and technology development is more important than ever to seize the opportunity of the localization of the global value chains, a trend that is still weak in many jurisdictions where critical minerals for the energy transition are produced. Moreover, the AMV's focus on harmonizing mineral policies across sub-regional blocs and the continent would also serve countries well, given that the global energy transition would be determined not so much by national endowments of critical resources, but by the regional and continental dynamics of technology, skills, and governance systems.

There are many ways to look at the implications of international climate change policy for Africa, including through the increased extraction of minerals needed in clean energy application⁹ and the greening of mines.¹⁰ The localization of global value chains—induced by a rising carbon cost and by the desire to build resilience in supply chains in light of increased pandemic risks—provides another set of opportunities. Seizing this momentum will require policy guidance to ensure that the relocation of industries in global value chains occurs upstream (closer to mineral sources) rather than downstream (closer to final consumers). An open acknowledgment of the impact of climate change on the shifting global value chains for critical minerals and the need to broaden the governance framework to include the emerging role of sustainability and ESG requirements should form the foundation for a revised and revitalized AMV.

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5 United Nations Conference on Trade and Development et al., *World Investment Report 2013: Global Value Chains: Investment and Trade for Development* (New York and Geneva: United Nations, 2013), https://unctad.org/system/files/official-document/wir2013_en.pdf.

6 Kei-Mu Yi, "Can Vertical Specialization Explain the Growth of World Trade?" *Journal of Political Economy* 111, no. 1 (February 2003): 52-102, doi:10.1086/344805.

7 Jason Sappor, Thomas Rutland, Gregory Rodwell, Ronnie Cecil, Alice Yu, and Luke Nickels, "COVID-19 Impacts to Metals Prices - The End of the Beginning," *S&P Global Market Intelligence* (May 11, 2020), <https://www.spglobal.com/marketintelligence/en/news-insights/research/covid-19-impacts-to-metals-prices-the-end-of-the-beginning>.

8 *Africa Mining Vision* (African Union, 2009), https://au.int/sites/default/files/documents/30984-doc-africa_mining_vision_english.pdf.

9 Perrine Toledano, Martin Dietrich Brauch, Solina Kennedy, and Howard Mann, *Don't Throw Caution to the Wind: In the Green Energy Transition, Not All Critical Minerals Will Be Goldmines* (Columbia Center on Sustainable Investment, 2020). https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/7.

10 Nicolas Maennling and Perrine Toledano, *The Renewable Power of the Mine: Accelerating Renewable Energy Integration* (New York: Columbia Center on Sustainable Investment, 2018), https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/77.

Evidence for rising carbon prices and its effect on value chain localization

There are currently 64 regional carbon pricing initiatives, covering over 22% of global emissions,¹¹ up from 16 initiatives covering less than 5% of emissions since the AMV was adopted in 2009. The largest scheme so far, by revenue, is the European Union's (EU) internal cap-and-trade system, the Emissions Trading System (ETS) but other countries and sub-national regions are following suit.¹² China, for instance has made forward moves towards carbon prices, working on draft regulations, conducting regional pilots, and implementation a national cap-and-trade system starting trading this year.¹³ Carbon prices and the scope of the carbon pricing schemes are on the rise everywhere and in particular in Asia. The EU ETS has undergone reforms that stabilized its carbon price at USD 27/CO₂e in 2019; it might be further reformed this year in the context of the EU's commitment to reach carbon neutrality by 2050.¹⁴

Despite these increases in carbon prices globally, some policymakers continue to object to them due to their effects on domestic competitiveness. To address this, a key component of the EU Commission's new agenda is a Carbon Border Adjustment Mechanism (CBAM); the Commission submitted the idea to public consultation and plans to adopt a proposal for an EU directive in the second quarter of 2021.¹⁵ The CBAM would impose a tariff on any product imported from a country without a carbon pricing plan.

Given that freight transportation accounts for 7% of the global CO₂ emissions, and the total CO₂ emissions from freight transportation are estimated to quadruple by 2050,¹⁶ there is a strong incentive for regulators to include the carbon cost of transportation, packaging, and waste in the final product carbon footprint that is subject to tax. While the complexity of carbon accounting along the value chain complicates its implementation,¹⁷ game theory research suggests that even the threat of border taxes could lead to a waterfall effect with other nations applying and increasing domestic carbon prices, so that they capture the revenue domestically.¹⁸ Moreover, research is already on the way to harmonizing carbon accounting methods.¹⁹ In light of these developments, a border-adjusted carbon tax system, accompanied by an increase in global carbon prices, can fundamentally reshape global value chains.

Companies have been serious about reducing the emissions in their operations in response to the threat of rising carbon costs. Some companies, like Apple, Microsoft, Shell, and Volvo, have decided to reduce emissions from their entire supply chains, not just their own direct emissions. Apple's carbon neutrality pledge puts specific emphasis on reducing the emissions in their materials supply chain.²⁰ More than 1,200 companies worldwide are either

11 "Carbon Pricing Dashboard," The World Bank (website), The World Bank, <https://carbonpricingdashboard.worldbank.org>.

12 Patrick Bayer and Michaël Aklin, "The European Union Emissions Trading System Reduced CO₂ Emissions Despite Low Prices," *Proceedings of the National Academy of Sciences* 117, no. 16 (April 2020): 8804-8812, doi:10.1073/pnas.1918128117.

13 Reuters Staff, "China's National Emissions Trading May Launch in Mid-2021-SecuritiesTimes," *Reuters*, January 11, 2021, <https://www.reuters.com/article/us-china-climatechange-ets-idUSKBN29G083>.

14 World Bank, *State and Trends of Carbon Pricing* (Washington, DC: World Bank, 2020), <https://openknowledge.worldbank.org/bitstream/handle/10986/33809/9781464815867.pdf>.

15 Bentley B. Allan, "The E.U.'s Looking at a 'Carbon Border Tax.' What's a Carbon Border Tax?" *The Washington Post*, October 23, 2019, <https://www.washingtonpost.com/politics/2019/10/23/eus-looking-carbon-border-tax-whats-carbon-border-tax-eu-green-deal-carbon-border-adjustment-mechanism/>; European Commission (website), European Commission, <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism>.

16 World Bank, *World Development Report 2020: Trading for Development in the Age of Global Value Chains* (Washington, DC: World Bank, 2020), <https://www.worldbank.org/en/publication/wdr2020>.

17 Samuel Kortum and David Weisbach, "The Design of Border Adjustments for Carbon Prices," *National Tax Journal* 70, no. 2 (2017): 421-446, <https://doi.org/10.17310/ntj.2017.2.07>; Oliver Schenker, Simon Koesler, and Andreas Löschel, "Taxing Carbon along the Value Chain. A WIOD CGE Application" (2012), http://www.wiod.org/conferences/groningen/slides/Schenker_slides.pdf; Tomasz Koźluk and Christina Timiliotis, "Do Environmental Policies Affect Global Value Chains?," *OECD Economics Department Working Papers*, No. 1282, (Paris: OECD Publishing, 2016), <https://doi.org/10.1787/5JM2HH7NF3WD-EN>.

18 Dieter Helm, Cameron Hepburn, and Giovanni Ruta, "Trade, Climate Change, and The Political Game Theory of Border Carbon Adjustments," *Oxford Review of Economic Policy* 28, no. 2 (Summer 2012): 368-394, doi:10.1093/oxrep/grs013.

19 The Coalition on Materials Emissions Transparency (COMET) aims to provide visibility into supply chain emissions of materials industries, including aluminum, cement, copper, iron ore and steel, and plastics. See "The Coalition on Materials Emissions Transparency (COMET)," Columbia Center on Sustainable Investment (website), CCSI, <http://ccsi.columbia.edu/work/projects/the-coalition-on-materials-emissions-transparency-comet>.

20 Apple's carbon neutral pledge puts spotlight on metals. Ellie Saklatvala, "Apple's Carbon Neutral Pledge Puts Spotlight on Metals," *Argus*, July 22, 2020, <https://www.argusmedia.com/en/news/2125291-apples-carbon-neutral-pledge-puts-spotlight-on>.

pursuing internal carbon pricing or preparing to do so.²¹ Notably, BP has recently revised its carbon prices for the period to 2050, and these now include a price of US\$ 100/tCO₂e in 2030.²² More than 2,000 companies have joined “We Are Still In,” a group of businesses, cities, states and universities that commit to the Paris Agreement. Together, they compose half of the U.S. carbon emissions and represent 68% of U.S. GDP as well as 65% of the U.S. population.²³ Self-interest is one contributing factor furthering this movement: climate change constitutes a real ESG risk to the operations of these large companies. In January 2020, Larry Fink, the CEO of BlackRock, the largest asset manager in the world, declared that “climate risk is investment risk”²⁴ Climate Action 100+, a nonprofit group of over 300 large investors, helped persuade three of the world’s largest mining and steel companies, ArcelorMittal, Thyssenkrupp and BHP, to commit to becoming carbon neutral by 2050.²⁵ As of February 2021, nearly 80 global companies have pledged to reach carbon neutrality by 2050.²⁶ The significantly increased focus from global capital and financial markets on climate- and ESG-related issues tends to induce structural changes in many productive sectors, particularly affecting mining and energy investments in Africa

that are connected to global supply chains.²⁷

Moreover, there is not much evidence in literature to support the argument that companies are looking to avoid carbon taxes by moving their operations to less regulated countries. Several research projects, including by the World Bank,²⁸ conclude that carbon costs do not lead to the exploitation of carbon havens, suggesting that multinationals will take the rise in carbon cost seriously. They should further adapt their production process, including reducing the carbon bill coming from the reliance on transportation to freight intermediate products from site to another. Evidence from Chile already demonstrates how large emissions reductions can be achieved through the localization of the copper value chain.²⁹ Multinationals are therefore likely to consider supply chain localization in response to the pressure to reduce their upstream emissions. This localization trend will be amplified as companies respond to COVID-19, as noted by the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development.³⁰

[metals](#); Apple, *Environmental Progress Report: Covering Fiscal Year 2019* (Apple, 2020), https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2020.pdf.

21 “Internal Carbon Pricing,” Center for Climate and Energy Solutions (website), Center for Climate and Energy Solutions, <https://www.c2es.org/content/internal-carbon-pricing>.

22 BP, “Progressing Strategy Development, BP Revises Long-Term Price Assumptions, Reviews Intangible Assets and, as a Result, Expects Non-Cash Impairments and Write-Offs,” June 15, 2020, <https://www.bp.com/en/global/corporate/news-and-insights/press-releases/bp-revises-long-term-price-assumptions.html>.

23 Rebecca Henderson, “The Unlikely Environmentalists: How the Private Sector Can Combat Climate Change,” *Foreign Affairs* 999, no. 3 (May/June 2020), <https://www.foreignaffairs.com/articles/world/2020-04-13/unlikely-environmentalists>.

24 Larry Fink, “Larry Fink’s Letter to CEOs,” BlackRock, BlackRock, Inc, 2021, <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.

25 Climate Action 100+, Asia Investor Group on Climate Change, Ceres, Principles for Responsible Investment, Investor Group on Climate Change, and The Institutional Investors Group on Climate Change, “Climate Action 100+ Investors Seek Net Zero Business Strategies Through Company Engagement,” October 2019, <https://www.iigcc.org/media/2019/10/Press-release-for-CA100-progress-report-300919.pdf>.

26 Grace Melville, “Following the UK Government’s Announcement to Be Net Zero by 2050 Many Businesses Have Set Their own Ambitious Targets to Tackle Climate Change,” Carbon Intelligence, Carbon Credentials Energy Services Limited, February 5, 2021, <https://carbon.ci/insights/companies-with-net-zero-targets>.

27 Lindsay Delevingne, Will Glazener, Liesbet Grégoir, and Kimberly Henderson, “Climate Risk and Decarbonization: What Every Mining CEO Needs to Know,” McKinsey and Co., Sustainability, January 28, 2020, <https://www.mckinsey.com/business-functions/sustainability/our-insights/climate-risk-and-decarbonization-what-every-mining-ceo-needs-to-know>.

28 Carbon Pricing Leadership Coalition, *Report of the High-Level Commission on Carbon Pricing and Competitiveness* (Washington, DC: World Bank, 2019), <https://openknowledge.worldbank.org/handle/10986/32419>; Ben McWilliams and Georg Zachmann, *A European Carbon Border Tax: Much Pain, Little Gain* (Bruegel, 2020), <https://www.bruegel.org/2020/03/a-european-carbon-border-tax-much-pain-little-gain>; Warwick J. McKibbin, Adele C. Morris, Peter J. Wilcoxon, and Weifeng Liu, “The Role Of Border Carbon Adjustments In A U.S. Carbon Tax,” *Climate Change Economics* 9, no. 1 (2018), doi:10.1142/S2010007818400110; Helene Naegele and Aleksandar Zaklan, “Does the EU ETS Cause Carbon Leakage in European Manufacturing?” *Journal of Environmental Economics and Management* 93, (2019): 125-147, doi:10.1016/j.jeem.2018.11.004; Antoine Dechezleprêtre and Misato Sato, “The Impacts of Environmental Regulations on Competitiveness,” *Review of Environmental Economics and Policy* 11, no. 2 (Summer 2017), doi:10.1093/reep/reep013.

29 Gino Sturla-Zerene, Eugenio Figueroa B., Massimiliano Sturla, “Reducing GHG Global Emissions from Copper Refining and Sea Shipping of Chile’s Mining Exports: A World Win-Win Policy,” *Resources Policy* 65 (March 2020), doi:10.1016/j.resourpol.2019.101565.

30 The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IFG), Isabelle Ramdoo, “The Impact of Covid-19 On Employment In Mining,” Covid-19 Response Series (Ottawa: International Institute for Sustainable Development (IISD), 2020), <https://www.iisd.org/system/files/publications/covid-19-employment-mining-en.pdf>.

There is a need for research on how Africa can make the most of this trend

Africa is a major source of many minerals that are likely to face large demand growth in the future, especially in the clean energy sector. The World Bank's Climate-Smart Mining report published in 2020 claims that the green transition will be mineral intensive and that the demand for graphite, cobalt, and lithium may increase by 500% by 2050. A large proportion of these minerals are found in many African countries such as the Democratic Republic of Congo (cobalt), Gabon (manganese), Madagascar (graphite), Zambia (copper), and Zimbabwe (lithium).³¹ The localization of mineral-based global value chains presents an opportunity for Africa to industrialize. There is some evidence supporting a high localization potential in Africa for solar photovoltaic and wind energy value chains, given the right conditions.³²

Despite these reasons to believe that there might be opportunities for Africa arising from increases in carbon prices, there is limited knowledge about the effects of carbon costs on supply chain localization. There are also gaps in knowledge about how likely it is for Africa to benefit from this shift and which industries have high localization potential in Africa. Filling these knowledge gaps is crucial to developing an updated industrialization plan for Africa.

Moreover, there is a need to understand roles that stakeholders can play that the AMV had not envisaged. For the longest time possible, mineral resource governance in Africa has played out within the arena of public sector institutions and private companies negotiating concessions for resource exploitation and management. Little attention has been paid to the role of company boards, shareholders, and private sector regulators (such as the stock market

regulators), whose interests, often wrongfully, are equated with those of the corporate entity in the forefront of attaining sustainable mining. Moreover, impact investing capital allocated to solving sustainable challenges is on the rise too.³³ Climate change, the COVID-19 pandemic, and the ESG wave have catalyzed a new set of investor actions (to which board of directors should be accountable to) that can positively and directly impact people and planet.

To inform the update of the AMV or African's industrialization policies in general, extensive consultations must be undertaken with boards of directors and strategists at mining companies and along their value chains, operation managers in Africa, institutional investors, industrialization and business development experts, as well as with international institutions accompanying policy developments in Africa, such as UNECA, UNIDO, AfDB and AU. CCSI's view is that research on four fronts should serve as the basis for a climate-smart update of the AMV:

1. Understanding the extent to which the rise in carbon costs, the COVID-19 crisis, and the rising pressure of institutional investors has already reshaped and may reshape global value chains.
2. Identifying the extent to which Africa is well-positioned to take advantage of any trends toward regionalization of minerals-based global value chains.
3. Providing policy recommendations to governments, the mining industry, directing boards, and institutional investors in Africa to help maximize the benefit from trends resulting from climate policy by supporting the participation of African countries in the global supply chains of critical minerals, thus contributing to achieving SDGs and the AMV.
4. Fostering a new governance framework that engages all stakeholders—comprising governments, mining companies, mining company boards, shareholders, impact investors, and affected communities—in a constructive dialogue to create sustainable supply chains adaptable to shifting ESG-related demands.

31 Kirsten Hund, Daniele La Porta, Thao P. Fabregas, Tim Laing, and John Drexhage, *Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition* (World Bank, 2020), <http://pubdocs.worldbank.org/en/961711588875536384/Minerals-for-Climate-Action-The-Mineral-Intensity-of-the-Clean-Energy-Transition.pdf>.

32 Department of Energy of the Republic of South Africa, "Integrated Energy Plan," *Staatskoerant*, November 25, 2016, <http://www.energy.gov.za/files/IEP/2016/Integrated-Energy-Plan-Report.pdf>; Zaid S. AlOtaibi, Hussam I. Khonkar, Ahmed O. AlAmoudi, and Saad H. Alqahtani, "Current Status and Future Perspectives for Localizing The Solar Photovoltaic Industry in The Kingdom Of Saudi Arabia," *Energy Transitions* 4, no. 1 (June 2020); 1-9, doi:10.1007/s41825-019-00020-y; Thomas Hebo Larsen and Ulrich Elmer Hansen, "Sustainable Industrialization in Africa: The Localization of Wind-Turbine Component Production in South Africa" *Innovation and Development* (January 27, 2020), doi:10.1080/2157930x.2020.1720937.

33 Yasemin Saltuk Lamy, Christina Leijonhufvud, and Nick O'Donohoe, "The Next 10 Years of Impact Investment," *Stanford Social Innovation Review* (March 2021), https://ssir.org/articles/entry/the_next_10_years_of_impact_investment.

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