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Examining Integrated Chinese Mining–Energy Investments in Zimbabwe

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Abstract

China is the world's leading supplier of refined critical minerals. Its substantial investments in mining and infrastructure in African countries have allowed it to consolidate this position. China's direct investments and mine ownership in Africa have increased steadily over the years, making it an important source of foreign investment for mineral-rich African countries. Furthermore, its role in infrastructure financing has made it a valuable partner for energy-poor African countries. This paper assesses Chinese investments in Zimbabwe's mining and energy sectors and shows that they provide identifiable economic value to the Zimbabwean economy, particularly in the country's lithium mining sector. These investments simultaneously give China access to beneficiated lithium concentrate, lowering the transportation costs of its mineral imports from Zimbabwe. While China has a strategic interest in acquiring these minerals for its own industrial development, the investments were also triggered by the Zimbabwean government's export ban on unprocessed lithium ores with the aim of fostering investment in downstream value addition. As Chinese companies increase their investment in Zimbabwean mining projects, they also invest substantially in the country's energy infrastructure to ensure the mines have adequate energy availability. Such integrated mining–energy investments are helping to develop Zimbabwe's mining industry in general, and its lithium sector in particular. Yet, there are valid concerns about how these projects are implemented. These include issues around inadequate community consultation, significant environmental degradation and limited socio-economic value and/or opportunities for local communities. Given the development opportunities and challenges, this paper critically considers China's integrated mining–energy investments in Zimbabwe as a potential model for other mineral-rich, energy-poor African countries.

Introduction

The African continent holds crucial supplies of many of the minerals required for the global energy transition, including large reserves of cobalt, manganese, copper, nickel and lithium.[1] Yet, many African countries have historically been unable to harness this mineral wealth effectively to foster long-term sustainable development, with a few exceptions such as South Africa and Botswana. For the most part, the continent's mineral resources have been exported to the rest of the world in the form of unprocessed or semi-processed mineral ores. As a result, many African countries have failed to leverage their mineral resources as a catalyst for wider socio-economic transformation. African countries have long sought to change this situation. The new global energy transition, coupled with growing demand for critical minerals, provides a new window of opportunity for these countries to pursue resource-based industrialisation. However, to realise these ambitions, African countries will have to address many of the long-standing challenges associated with natural resource governance, as well as investment barriers that predate the current global focus on critical minerals.[2]

In response to this predicament, the AU, the UN Economic Commission for Africa and the African Development Bank have developed mineral governance frameworks aimed at increasing the benefits of mineral extraction for Africa's socio-economic development.[3] The principal framework is the Africa Mining Vision (AMV) of 2009, which provides a continental blueprint for all AU member countries. However, there are several challenges with the AMV's implementation, including a lack of awareness among key stakeholders and limited political will from some African governments to implement AMV principles. This has hampered the framework's full implementation.[4] Despite the challenges associated with the AMV's implementation, it nevertheless provides an overarching framework that has spurred engagement on mineral sector development and governance. It also informs related frameworks such as the African Minerals Governance Framework, the African Commodities Strategy, the SADC Regional Mining Vision[5] and the African Green Minerals Strategy (AGMS).

The AMV and related frameworks argue for an approach that stresses greater mineral value addition as a means of realising equitable resource-based industrialisation. This can be accomplished by enhancing both upstream and downstream linkages to promote local mineral beneficiation and economic diversification, thereby increasing the value of mineral

1 Tyron Theessen and Megan Jarvis, "Mining Indaba 2025 Insight: Energy Transition Brings Mining Beneficiation into Focus. Who Wins?", *African Mining*, March 10, 2025.

2 James Cust and Albert Zeufack, eds, *Africa's Resource Future: Harnessing Natural Resources for Economic Transformation during the Low-Carbon Transition*, Report (World Bank Group, Africa Development Forum, 2023).

3 Paul Jourdan, *Continental Frameworks for Mineral Resource Governance in Africa: Strategies for Enhanced Beneficiation* (International IDEA, 2025).

4 Vanessa Ushie, "From Aspiration to Reality: Unpacking the Africa Mining Vision" (Oxfam, 2017); Jourdan, *Continental Frameworks*.

5 SADC Business Council, "Status of Mining in SADC", accessed November 25, 2025, https://sadcbc.org/status-of-mining-in-sadc/; Jourdan, *Continental Frameworks*.

exports and providing more opportunities for socio-economic development.[6] The AMV also stresses the importance of promoting mutually beneficial partnerships between the state, civil society, private sector and local communities, to ensure that reforms and investments are socio-economically equitable and economically viable.[7] Moreover, both the AMV and AGMS note the importance of creating attractive environments for investments in mineral value chains, with the AGMS placing a particular focus on green mineral value chains (the AGMS argues that the term 'green minerals' is preferrable to 'critical minerals').[8] In part, these proposals attempt to provide a more coherent policy approach at the continental level in the context of increasing geopolitical competition among foreign actors to secure or expand their access to Africa's critical minerals.

Despite the plethora of policy frameworks, several factors have prevented African countries from moving up the value chain toward greater domestic mineral value addition. One of the key challenges is the continent's limited access to sufficient and reliable energy supplies. The mining sector is energy intensive, and Africa's limited energy availability not only affects the quality of life of its people but also hampers its ability to develop its mining and mineral beneficiation capacities. In addition, investments in renewable energy within Africa are comparatively low. The 2023 Nairobi Declaration stemming from the first African Climate Summit noted that, despite the fact that Africa holds approximately 40% of the world's renewable energy resources, it has received only 2% of global renewable energy investments over the past two decades.[9] Given this reality, the declaration underlined the importance of creating an enabling environment for renewable energy investments.[10]

One country that has invested substantially in the continent's mining and energy sector over the past two decades is China. China's footprint in resource-rich countries is significant and continues to expand. For example, it has made several investments in Zimbabwe's mining and energy sectors, with a particular focus on providing more stable energy supplies to support mining and refining projects.

This paper critically assesses China's investments in Zimbabwe's mining and energy sectors and the benefits and challenges they have generated thus far. In addition, it analyses the multiple socio-economic and ecological consequences of these investments and mining operations for local communities. The paper attempts to provide a balanced perspective on both the potential and pitfalls of Chinese mining–energy investments in Zimbabwe. In doing so, it explores some of the opportunities and risks mineral-rich African countries should consider when seeking to encourage foreign investment into their mining and energy sectors, whether from China or elsewhere.

6 AU, "Africa Mining Vision" (AU, 2009); AU, "Africa's Green Minerals Strategy" (African Minerals Development Centre, 2024).
7 Jourdan, *Continental Frameworks*.
8 Jordan Mc Lean and Adrian Joseph, "The Geopolitics of Energy Minerals: How Africa Can Lead the Green Energy Transition", South African Institute of International Affairs, July 15, 2024.
9 AU, "The Africa Leaders Nairobi Declaration on Climate Change and Call to Action" (African Development Bank Group, September 8, 2023).
10 AU, "Africa Leaders Nairobi Declaration".

China's involvement in Africa's mining industry

No discussion of critical minerals is complete if it does not come to terms with China's commanding global position in the production and processing of critical minerals. In recent decades, China has developed its critical mineral production and processing capacity, establishing a quasi-monopoly over the midstream sector of global mineral supply chains. To put its dominance of this sector in perspective, the International Energy Agency's *Global Critical Minerals Outlook 2025* says that China refines 33.6% of nickel, 83.2% of copper, 72.8% of lithium, 96.5% of cobalt, 97.8% of graphite and 96.3% of rare earths globally.[11] Its position as the key player in global supply chains for critical minerals and clean energy products has been established through a unique mix of state-led planning and market intervention over the course of decades. Apart from national policies focused on developing its domestic mining sector, China has also made significant efforts to secure overseas supplies of natural resources.[12] Since the early 2000s, it has pursued large-scale investments in the mining sectors of resource-rich countries in Africa, Latin America and South-East Asia. These investments and policies are aimed at securing mineral resources that are strategically important to the country's industrialisation efforts and support its rapidly expanding renewable energy technologies sector.[13] As a result, China now has significant access to, and control of, mineral reserves in resource-rich countries through its state-owned and private sector companies.

China has developed its critical mineral production and processing capacity, establishing a quasi-monopoly over the midstream sector of global mineral supply chains

Focussing on Africa specifically, China's foreign direct investment (FDI) in the continent's mining and beneficiation sectors has increased steadily since the 1990s. In 2022, Chinese FDI in Africa's mining sectors came to just under $10 billion and represented approximately 23.8% of its total FDI in the continent, surpassed only by its investments in Africa's construction sectors.[14] Between 2019 and 2024, China increased its ownership of Africa's mines by 21.3%, while companies from Australia, Canada and the US saw decreases

11 International Energy Agency, *Global Critical Minerals Outlook 2025*, Report (IEA, 2025); IEA, "Executive Summary", *Global Critical Minerals Outlook 2025*.

12 Jane Nakano, *The Geopolitics of Critical Mineral Supply Chains*, Report (Center for Strategic and International Studies, 2021).

13 Jiayi Zhou and Andre Månberger, *Critical Minerals and Great Power Competition: An Overview*, Report (Stockholm International Peace Research Institute, 2024).

14 Development Reimagined, *Africa-China Cooperation in Critical Minerals: Centering Africa's Development in a Global Race*, Report (Development Reimagined, 2024).

in their mine ownership during the same period.[15] China's focus has also been on specific minerals in Africa. Between 2000 and 2022, 34.9% of China's FDI in Africa's non-energy mining sectors went to the copper sector, 19.7% to aluminium, 15.1% to iron, 5.7% to uranium and 5.1% to lithium respectively.[16] Its involvement in Africa's mining sector is thus substantial and it is a major player in many resource-rich African countries.

China's involvement in Zimbabwe's mining sector

In 2022 Zimbabwe's mining sector contributed approximately 11% of its GDP and accounted for around 60% of its export earnings.[17] The country's mining and mineral sector is diverse, encompassing almost 40 minerals, including gold, diamonds, chrome, platinum group metals and lithium, as well as coal.[18] Lithium has become increasingly important to renewable energy production and has attracted large investments, as demonstrated by the country's lithium production figures, which have grown significantly in recent years. In 2024 Zimbabwe produced approximately 22 000 metric tonnes of lithium, an increase of nearly 50% from the previous year.[19] This brought its global share of extracted lithium to approximately 9% in 2024, up from just under 2% in 2021.[20] Revenues from lithium exports reached about $600 million in 2024, up from about $209 million in 2023 and $70 million in 2022.[21]

China's ascendancy in Zimbabwe's mining sector has partly been encouraged by the hesitancy of Western mining companies, which cite various governance issues related to the country's policy inconsistencies and risk profile.[22] Apart from these concerns, there are also structural bottlenecks, such as a lack of adequate infrastructure and human capital, hindering FDI in the country's mining sector. The misgivings on the part of Western investors, in conjunction with the greater risk appetite of Chinese investors, have allowed Chinese companies to rapidly expand their engagement in Zimbabwe's mining sector.

More recently, however, the growing global demand for critical minerals and the desire to limit Western dependence on China's critical mineral supply chains have spurred greater levels of US and European engagement in Africa's mining sectors. Examples of such initiatives are the Lobito Corridor and support for a Memorandum of Understanding

15 Anthony Barich, "China, UK Expand Mining Presence in Africa; US, Canada, Australia Lose Ground", S&P Global, September 16, 2024.
16 Development Reimagined, "Africa–China Cooperation".
17 Yao Wang et al., "Advancing Mineral-Energy Nexus for Development (MEND) in Africa: A Case Study of Chinese Lithium Mining Project in Zimbabwe", *The Extractive Industries and Society* 20 (2024): 5.
18 African Mining Development Centre, "Zimbabwe", accessed November 15, 2025, https://www.africangreenminerals.com/countries/zimbabwe.
19 Madhumitha Jaganmohan, "Mine Production of Lithium in Zimbabwe from 2010 to 2024", Statista, July 10, 2025.
20 IEA, *Global Critical Minerals Outlook 2025*.
21 Nyasha Chingono, "Zimbabwe Lithium Export Earnings Treble as Projects Take Off", *Reuters*, November 1, 2023; Sikhululekile Mashingaidze and Stephen Buchanan-Clarke, "Lithium Rush a Crossroads for Zim's Future", Good Governance Africa, June 23, 2025.
22 "US Investment in Zimbabwe's Mining Sector Stalled by Policy Inconsistency and Currency Volatility?", *Mining Zimbabwe*, October 22, 2024.

on a Zambia–Democratic Republic of Congo (DRC) battery value chain.[23] Under the second Trump administration, the US has prioritised minerals security through a range of domestic and foreign policy actions, including a prospective 'minerals-for-security' agreement with the DRC.[24] Many other countries have also made inroads into Africa's mining sectors, including Russia, South Korea, Australia, Canada, Saudi Arabia, India and the UK.[25] For example, investments by Australian mining companies in Africa's mining sectors reached approximately $60 billion in 2024, with Australian-listed Lindian Resources having already raised about $59 million for the development of a rare earths project in Malawi.[26] India has also ramped up its engagements on the continent, with Africa a focal point of its $4 billion National Critical Mineral Mission, which aims to secure greater access to the global critical minerals supply.[27]

Chinese investments in Zimbabwe's lithium industry

Lithium has become central in attracting foreign investment in the expansion of Zimbabwe's mining sector. Since 2021 Chinese firms have invested more than $1 billion in developing Zimbabwe's lithium mining and processing facilities.[28] In 2023 China's Sinomine Resource Group, which bought the Zimbabwean Bikita Minerals lithium mine in 2022 for $180 million, announced the completion of the construction of a spodumene concentrate plant at Bikita.[29] Spodumene concentrate is the processed version of spodumene ore, from which lithium is extracted. The Bikita Minerals mine is expected to produce about 300 000 metric tonnes of spodumene concentrate, which will be processed abroad. In 2024 Sinomine also pledged to build a $500 million lithium refinery in Zimbabwe in three to five years, increasing the country's domestic lithium processing capacity.[30] In mid-2025 Sinomine invested an additional $400 million in Zimbabwe to develop the world's second caesium smelting plant at Bikita Minerals.[31] Caesium is a key metal in technologies related to navigation, resource drilling and aerospace, among others. With Sinomine now the operator of the only two active caesium plants globally, Bikita Minerals reinforces China's centralised production and processing role in the global supply of caesium.[32]

Other Chinese companies have also invested heavily in Zimbabwe's lithium processing industry. For example, Zhejiang Huayou Cobalt acquired Zimbabwe's Arcadia mine for

23 Geraud Neema and Cobus van Staden, "Africa's Critical Minerals: Boosting Development Amid Geopolitical Challenges" (Policy Insight 155, SAIIA, August 2024).
24 Adrian Joseph and Mandira Bagwandeen, "The Art of the Deal: How Africa Should Play Its Cards in a New Era of Minerals Diplomacy", SAIIA, April 24, 2025.
25 Sarah Way, "The Strategies Driving the Players in Competition for Africa's Critical Minerals", Atlantic Council, September 9, 2024.
26 African Mining Week, "CMA to Unpack Australia's Growing Role in African Mining", September 19, 2024; "Lindian Secures $59m Commitments for Kangankunde Rare Earths Project in Malawi", Mining Technology, August 21, 2025.
27 "From Lithium to Cobalt, India Joins $1T Global Race for Africa's Minerals Alongside Major Powers", *Business Insider Africa*, September 18, 2025.
28 "Sinomine Completes $300 Million Zimbabwe Lithium Projects", *Reuters*, July 10, 2023.
29 "Sinomine Completes $300 Million".
30 "Sinomine to Build $500m Lithium Refinery in Zimbabwe", *Miningmx*, October 1, 2024.
31 Obert Bore, "China Corners the Market on a Little-Known but Crucial Tech Mineral", China Global South Project, July 30, 2025.
32 Bore, "China Corners the Market".

$422 million in April 2022.[33] In June 2023 Prospect Lithium Zimbabwe, a subsidiary of Zhejiang Huayou Cobalt, commissioned and opened a $300 million lithium processing plant capable of processing 4.5 million metric tonnes of hard-rock lithium into concentrate annually.[34] This plant is intended to process approximately 450 000 tonnes of lithium concentrate per year, to be further processed into battery-grade lithium overseas.[35] In May 2023 Chengxin Lithium Group commissioned a lithium concentrator at Zimbabwe's Sabi Star mine, run by Chinese subsidiary Max Mind Investments, capable of providing 300 000 metric tonnes of lithium concentrate a year.[36]

Chinese mining–energy investments in Zimbabwe

While China has made significant investments in Zimbabwe's mining and energy sectors over the years, one relatively new development is its pursuit of such sectoral investments as a combined approach to improving mining production and processing. For context, while Zimbabwe's total energy supply is diverse, its electricity generation capacity is largely tied to hydropower and coal. According to the International Energy Agency, as of 2022, hydropower made up 67.6% of the country's total electricity generation, while 31% came from coal, 1.1% from biofuels and 0.3% from solar photovoltaic.[37] One of the primary issues preventing Zimbabwe's industrialisation has been its energy crises. In 2023 Zimbabwe's electricity generation capacity hovered at around 1 000MW, despite an electricity demand of approximately 1 750MW.[38] Electricity generation problems have included insufficient power generation, the retirement of old coal mines and lower water levels affecting hydropower generation.[39]

While China has made significant investments in Zimbabwe's mining and energy sectors over the years, one relatively new development is its pursuit of such sectoral investments as a combined approach to improving mining production and processing

In terms of Chinese investments, one of the many examples of the mining–energy focus is Kamativi Mining Company's (KMC) lithium mine. KMC is a joint venture between Sichuan

33 "Sinomine Completes $300 Million".
34 Charné Hollands, "Zimbabwe Commissions $300m Lithium Processing Plant", *Energy Capital & Power*, July 10, 2023; Farai Mutsaka, "A Chinese Mining Company Has Opened a Giant Lithium Processing Plant in Zimbabwe", *AP News*, July 5, 2023.
35 Katlong Alex, "Zimbabwe Opens $300m Lithium Plant", African Energy Council, July 12, 2023.
36 Sinomine Completes $300 Million".
37 IEA, "Zimbabwe", accessed November 15, 2025, https://www.iea.org/countries/zimbabwe/energy-mix.
38 Wang et al., "Advancing Mineral–Energy Nexus", 5.
39 Njenga Hakeenah, "Chinese Company Targets Zimbabwe's Solar Power Generation Amidst Crippling Blackouts", China Global South Project, April 20, 2023; Joseph Akpan, Hagreaves Kumba and Olanrewaju Oludolapo, "Sustainable Energy in Zimbabwe: Status, Challenges and Solutions", *Renewable Energies* 2, no. 2 (2024): 1.

Yahua PD Technology Group (a subsidiary of Chinese-listed Yahua Group) and Kamativi Mines Limited (owned and controlled by the Zimbabwean government's sovereign wealth fund, Mutapa Investment Fund, through Defold Mine [Private] Limited).[40] KMC reopened the previously defunct tin mine in 2019 and began operations to mine and process lithium ore. In 2024 it pledged to invest $249 million in the mine for lithium exploration, mining and processing, with over $100 million already deployed.[41] The company has also developed two processing plants, with annual processing and production capacities of 300 000 tonnes of raw spodumene and 50 000 tonnes of spodumene concentrate. This is expected to generate approximately $50 million per year while creating 1 200 jobs.[42] In order to provide an adequate and stable supply of electricity for the mine's operations, KMC has invested in the construction of a power line from Hwange to Kamativi. The initial plan was for the power line to allow the transfer of 33kV of power, but that has since been expanded to 88kV.[43] Power line investments were also promoted by Sinomine for the Bikita Minerals mine's 132kV power transmission and transformation project.[44] Completed in a record-setting 10 months between May 2023 and March 2024, 112km of power lines now connect Zimbabwe's Tokwe 330kV substation with the Bikita Minerals mine, significantly improving power availability and production.[45]

Another notable Chinese mining–energy project is the collaboration between the Zimbabwean government and Xintai Resources, a local Chinese subsidiary, which has committed to develop a $3.6 billion energy industrial park in Beitbridge, Zimbabwe.[46] The construction of this 5 100ha project, known as the Palm River Energy and Metallurgical Special Economic Zone, will take 12 years, spread over two phases.[47] The aim is to establish a plant capable of producing approximately 1 million tonnes of coke annually, as well as a ferro-chrome smelting plant capable of generating approximately 100 000 tonnes of high-carbon ferro-chrome.[48] This project also aims to develop a 1 200MW coal-fired thermal power plant to provide sufficient electricity to the mineral processing plant, with excess power fed into Zimbabwe's national grid. The plant has already created 400 jobs and is projected to provide more than 2 000 jobs as the project advances.[49]

Tsingshan Holding Group, another Chinese company active in Zimbabwe's ferrochrome, coke and lithium sectors, has built a $1 billion steel plant in central Zimbabwe.[50] Steel production began in June 2024, and the plant is meant to produce 600 000 metric

40 "Kamativi Lithium Mine Set to Start Production", *Mining Zimbabwe*, January 11, 2024; Rudairo Mapuranga, "Defold, Bravura Strengthen Partnership with Focus on Community Involvement and Project Progress", *Mining Zimbabwe*, August 19, 2024.
41 Dyton Mupawaenda, "Zim Marches On Despite Sanctions, Drought: President … Kamativi Mine Creates 1 200 Jobs", *Herald Online*, April 12, 2024.
42 Mupawaenda, "Zim Marches On Despite Sanctions".
43 "Kamativi Lithium Mine Set".
44 "Sinomine Resources Unveils Groundbreaking 132kV Power Project at Bikita Mine", *Mining Zimbabwe*, May 27, 2024.
45 "Sinomine Resources Unveils Groundbreaking".
46 "Beitbridge's Industrial Revolution Begins with Palm River Energy Park", *Herald Online*, September 20, 2025.
47 Shalom Maurukira, "Zimbabwe Launches $3.6 Billion Industrial Park Project", Equity Axis, February 25, 2025; "President Unveils $3.6b Palm River Energy Industrial Park", *Positive Eye News*, February 25, 2025.
48 "President Unveils $3.6b".
49 "President Unveils $3.6b".
50 Philimon Bulawayo, "China's Tsingshan $1 bln Steel Plant in Zimbabwe Starts Production", *Reuters*, June 20, 2024.

tonnes of carbon steel per year.[51] This investment includes the development of a 50MW thermal power plant to provide energy to the steel plant, with the latter also capable of producing additional power through its furnace, which can meet around 20% of its energy requirements.[52] More investments of this kind have occurred at Zimbabwe's Sabi Star mine, which is owned by Max Mind Investments Private Limited, a subsidiary of Chinese firm Chengxin Lithium Group.[53] A total of $25 million was allocated to develop a thermal power plant – construction began in 2023 and it was officially commissioned in September 2025.[54] The plant is expected to provide 12MW to stabilise the mine's power supply, with an additional 3MW to be fed into Zimbabwe's national grid.[55] Renewable energy investments have also been made by Chinese companies active in Zimbabwe's mining sector. In early 2025 the JinAn Group, a Chinese ferrochrome mining company, announced investments worth $75 million to develop solar plants in the Zimbabwean city of Gweru to support the company's chrome mining activities.[56] JinAn intends to invest another $50 million to build a 100MW solar power plant about 16km outside of Gweru. These investments aim to improve JinAn's mining outputs, as power cuts and limited energy supplies have led to shortfalls.[57]

Many recent investments in Zimbabwe's energy sector can also be attributed to the government's 2024 announcement that mining companies, particularly high energy-consuming ones, must develop their own power sources by 2026. The aim is to reduce the impact of mining and mineral beneficiation on Zimbabwe's already strained national grid.[58] Edgar Moyo, Zimbabwe's Energy and Power Development Minister, has noted that the mining sector is expected to consume approximately 2 600MW daily going forward, and that the country continues to have daily shortfalls of between 200MW and 500MW.[59] The government also hopes to encourage private sector investment in renewable energy.

Environmental, social and governance concerns related to Chinese investments

Chinese investments in Zimbabwe's mining sector are significant. As a result, it is crucial to assess how these mining operations affect local communities and the environment in order to evaluate their long-term developmental utility for the country. The Southern Africa Resource Watch (SARW) conducted a study focused specifically on the Bikita community near the Bikita Minerals project. The study revealed several

51 Bulawayo, "China's Tsingshan $1 bln Steel Plant".
52 Bulawayo, "China's Tsingshan $1 bln Steel Plant".
53 Business and Human Rights Resource Centre, "Zimbabwe: Chinese-Owned Sabi Star Lithium Mine Linked to Education Disruption, Displacement, Unfulfilled Compensation Agreements", May 7, 2024.
54 Daniel Chigunwe, "Sabi Star Thermal Power Plant 90pc Complete", *Herald Online*, October 14, 2024; China Railway Group Limited, "Zimbabwe Sabi Star Lithium Mine Thermal Power Plant Officially Commissioned", September 10, 2025.
55 Chigunwe, "Sabi Star Thermal Power Plant".
56 ESI Africa, "Zimbabwe: Ferrochrome Miner from China to Turn to Solar Energy", February 19, 2025.
57 ESI Africa, "Zimbabwe: Ferrochrome Miner".
58 "Zimbabwean Mines Given 2-Year Window to Set Up Power Plants", *Bulawayo 24 News*, June 10, 2024.
59 "Zimbabwean Mines Given 2-Year Window".

concerns regarding the management of the mining project, including transparency and accountability issues. It also highlighted the adverse socio-economic and environmental impacts of lithium mining on the local community. The SARW found that only 6.2% of the local community was employed at the mine,[60] and that 40.8% of respondents had reported incidents of sexual and gender-based violence related to the mine.[61] Many also reported greater levels of environmental degradation and claimed that, owing to the mine's considerable water requirements, it had used and polluted the Matezva Dam. This dam is a crucial water source for the surrounding Gutu and Bikita communities.[62] In addition, 75.3% of respondents felt that the Bikita community had received insufficient information about those operating and investing in the area.[63]

Another example of the challenges associated with Chinese mining operations in Zimbabwe is the relocation of communities near the Sabi Star mine, in eastern Zimbabwe. A Zimbabwean high court order allowed the Chinese company operating the mine, Max Mind Investments, to enter into relocation and monetary compensation agreements with local communities.[64] However, many community members have reportedly complained of being pressured by local officials and traditional leaders into accepting the relocation agreements.[65]

At the Gwanda lithium mine, owned by a subsidiary of China's Tsingshan Holdings Limited Group, local communities claim it has contaminated and depleted water sources, and contributed to high levels of dust pollution.[66] A non-governmental organisation reported that the mining company did not consult meaningfully with local communities and failed to address the social, cultural and climate-related impacts of its operations.[67] Furthermore, when transporting lithium ore to the Gwanda processing plant, the mine's trucks reportedly spill lithium ore rubble, endangering motorists and damaging road and bridge infrastructure.[68]

In general, many Chinese mining operations in Zimbabwe use open-cast mining methods, resulting in significant environmental damage. This includes the destruction of forests and agricultural land, as well as the pollution of rivers and water sources.[69]

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60 Southern Africa Resource Watch, *Critical for Who? Lithium and Society in Zimbabwe, The Case of Bikita Community*, Report (SARW, 2024).

61 SARW, *Critical for Who?*.

62 Tatenda Chitagu, "Zimbabwe's Lithium Liability", *Oxpeckers*, accessed November 15, 2025, https://oxpeckers.org/2024/05/zimbabwe-lithium-liability/.

63 SARW, *Critical for Who?*.

64 Owen Gagare, "Zimbabwe: Families Displaced Say Compensation Agreements Remain Unfulfilled as Global Giant Continues to Exploit Lithium", Business & Human Rights Resource Centre, May 7, 2024.

65 Gagare, "Zimbabwe: Families Displaced".

66 Adriano Nuvunga, Farai Mutondoro and Obert Bore, eds, *Emerging Human Rights Implications of Transitional Minerals Extraction and Processing: Case Studies from Democratic Republic of Congo, Mozambique & Zimbabwe*, Report (Zimbabwe Environmental Law Association, 2024); Senzeni Ncube, "Gwanda Villagers Cry Foul: Mine Polluting Water, Ruining Lives", *CITE*, March 5, 2024.

67 Nuvunga, Mutondoro and Bore, *Emerging Human Rights Implications*.

68 Senzeni Ncube, "Lithium Haulage Trucks Chaos: Villagers at Risk as Mine Neglects Road Safety", *CITE*, April 9, 2024.

69 Centre for Natural Resource Governance, *Investments or Plunder?: An Assessment of the Impacts of Chinese Investments in Zimbabwe's Extractive Sector*, Report (CNRG, 2024).

Overall, the above cases show that while Chinese investments in Zimbabwe's mining sector provide noticeable macroeconomic value to both Chinese companies and the Zimbabwean economy, there seems to be little regard for their effects on local communities. The economic benefits of China's mining investments thus need to be assessed against the social, cultural and environmental degradation that they can inflict on local communities. This raises the question of who ultimately benefits from these investments.

The economic benefits of China's mining investments thus need to be assessed against the social, cultural and environmental degradation that they can inflict on local communities

Zimbabwe's lithium export restrictions

To reshape value chains towards greater domestic value addition in line with its National Development Strategy (2021–2025), the Zimbabwean government banned the export of unprocessed lithium ore in 2022. This was meant to attract foreign investment in the country's mining sector and improve its resilience to volatile commodity prices.[70] Historical data indicates that large price swings in critical minerals are more frequent than in metals such as iron and steel, with lithium showing particularly high volatility.[71]

Zimbabwe's export ban was largely implemented as a reaction to the recognition that it was losing about $1.8 billion in annual revenue by exporting unprocessed lithium.[72] In response to Zimbabwe's restrictions on lithium exports, Chinese companies have set up local processing plants to process ore and produce lithium concentrate, which is exported to China for further processing. On 10 June 2025 Winston Chitando, Zimbabwe's Minister of Mines, announced a ban on the export of lithium concentrate by 2027.[73]

While the ban has triggered investments in lithium processing within Zimbabwe, it has come under criticism for not having been implemented in tandem with a clear,

70 "Base Minerals Export Control (Lithium Bearing Ores and Unbeneficiated Lithium) Order, 2022, Statutory Instrument 213 of 2022", Veritas, 2022; "Zimbabwe Bans Raw Lithium Exports to Curb Artisanal Mining", *Reuters*, December 21, 2022.

71 UN, "Harnessing the Potential for Critical Minerals for Sustainable Development", in *World Economic Situation and Prospects 2025* (UN Department of Economic and Social Affairs, 2025).

72 Farai Mutondoro, "Navigating Zimbabwe's Lithium Industry: Opportunities, Challenges, and the Conundrum of a Shifting Global Landscapes" (Paper, Zimbabwe Environmental Law Association, July 24, 2024).

73 Euan Sadden, "Zimbabwe to Ban Lithium Concentrate Exports from 2027 to Boost Refining", S&P Global, June 11, 2025.

formalised guide or long-term strategy.[74] A formally articulated critical mineral strategy could support more informed governmental decision-making by allowing future mineral policies to be assessed based on economic feasibility, market outlooks and investment potential, with a more accurate and long-term assessment of the trade-offs involved.[75]

Another source of criticism has been the ban's impact on artisanal and small-scale miners selling raw lithium ore.[76] Furthermore, unlike other lithium-producing countries, which extract lithium from continental brine deposits (eg, Chile and Argentina), Zimbabwe's lithium is extracted from hard-rock ore. Extracting lithium from hard-rock ore requires substantially more energy and water to mine and process, and the question of water scarcity was not adequately considered when instituting the ban.[77] Yet, the ban has accomplished a central goal of encouraging Chinese mining companies to increase their investments in Zimbabwe's lithium processing capacity.[78] In the past, the country also experimented with export restrictions on other minerals such as chrome, but the results were relatively mixed.[79]

It is too soon to say whether Zimbabwe's use of export restrictions to promote greater downstream beneficiation has been an outright success or failure. However, there is some early evidence to suggest that the country has succeeded in using the policy to attract greater investment in its mining sector, as evidenced by the substantial jump in its lithium revenue – from $70 million in 2022 to over $600 million in 2024.[80]

As previously mentioned, policymakers can look at case studies elsewhere to assess the potentials and risks of similar policy approaches. Indonesia is a useful case study for mineral-rich African countries given its relatively successful use of export restrictions to encourage investment in the downstream beneficiation of minerals such as nickel. In 2014 Indonesia banned the exportation of unprocessed nickel and bauxite ores in an attempt to encourage foreign investment in its domestic mineral beneficiation capacities. Despite initial obstacles such as declining mining revenues, job losses and the closure of some mining companies, Indonesia's policies eventually showed positive results, with its nickel

74 Mutondoro, "Navigating Zimbabwe's Lithium Industry".

75 Suneeta Kaimal, "Value Addition, Governance and Global Responsibility: A Roadmap for Equitable Mineral Supply Chains", Natural Resource Governance Institute (blog), February 4, 2025; Rudairo Mapuranga, "Zimbabwe Lacks Critical Mineral Strategy, Mutondoro Warns", *Mining Zimbabwe*, November 1, 2024.

76 The Zimbabwe Mail, "Zimbabwe: Artisanal Miners' Association Raises Concerns About Lack of Consultation on Decision to Ban Exports of Raw Lithium Arguing It Will Fuel Smuggling of the Mineral", Business and Human Rights Resource Centre, January 9, 2023.

77 Lithium for Future Technology, "Global Lithium Deposit Map", November 2021; Rudairo Mapuranga, "Electricity, Water and Capital Crises Endanger 2030 Vision after US$12 Billion Target Failure", *Mining Zimbabwe*, January 14, 2025.

78 Sadden, "Zimbabwe to Ban".

79 Anna Perry, Samantha Schreiber and David Guberman, "Export Restrictions on Minerals and Metals: Estimation and Analysis of Supply Chain Effects from Zimbabwe's Chromium Ore Export Ban" (Working Paper ICA-103, US International Trade Commission, 2024).

80 Rosa Luxemburg Stiftung, *Zimbabwe's Lithium Mining Sector: Energy Transition and Prospects for Socio-Economic Development*, Conference Report (RLS, 2024); Obert Bore, "Chinese Lithium Investors in Zimbabwe Raise Critical Concerns for Policymakers", China Global South Project, June 4, 2025.

exports rising from $6 billion in 2013 to $30 billion in 2022.[81] For nickel, Indonesia assessed the growing global demand for the mineral and leveraged its position as one of the largest nickel suppliers to strategically implement export restrictions and subsequently attract foreign (mostly Chinese) investments in its downstream capacities.[82] However, while its policy approach succeeded in this case, the outcome for other minerals such as bauxite was less successful and even detrimental to its ultimate policy objectives.

The Indonesian experience underscores the importance of undertaking rigorous cost-benefit analyses of value addition strategies before implementation

The Indonesian experience underscores the importance of undertaking rigorous fcost-benefit analyses of value addition strategies before implementation, guided by market feasibility, economic outlook, commodity violability and existing global competitors.[83] This should be supported by investing in research and development to inform policymaking and help governments identify the most competitive downstream stages.

Assessing China's integrated mining–energy investment model

Positive implications of this model

The integrated mining–energy investments in Zimbabwe are a model that resource-rich, energy-poor African countries could consider. An insufficient and unreliable energy supply has been a key barrier to achieving Africa's resource-based industrialisation ambitions. Mining and mineral beneficiation investments, coupled with corresponding energy investments, have the potential to increase mining outputs and support value addition. In addition, they can also increase economic activity and energy availability in mining sectors, which could have positive spillover effects for surrounding communities and for the country's electricity grid in general.[84]

81 Farai Mutondoro, "Navigating Zimbabwe's Lithium Industry.

82 Bradford Simmons and Julien Marcilly, *Resource Nationalism and Downstreaming: Lessons for African Producers of Critical Minerals from Indonesia*, Report (Atlantic Council, 2024).

83 Thomas Scurfield, Matthieu Salomon and Silas Olan'g, "Six Keys to Unlocking Equitable Value Addition in Mining" (Briefing, Natural Resource Governance Institute, November 25, 2024).

84 AU, "The African Leaders Nairobi Declaration on Climate Change and Call to Action" (Africa Climate Summit, September 8, 2023).

Mining and mineral beneficiation investments, coupled with corresponding energy investments, have the potential to increase mining outputs and support value addition

In this sense, China's integrated mining–energy investments in Zimbabwe allow it to promote greater mineral value addition while giving mining companies active in Zimbabwe greater access to sufficient and stable energy. Despite commodity price fluctuations, Zimbabwe's mining sector generated $5.34 billion through greater value-added mineral exports in 2024, exceeding initial targets of $4 billion, with its mining sector growing by 2.3%.[85] China's integrated mining–energy investments have contributed to the improved performance of Zimbabwe's mining sector. China's recent pledge at the 2024 Forum on China–Africa Cooperation, with commitments to provide $50.7 billion in financial support to Africa over the next three years, underscores its continued commitment to promote greater avenues for economic development within Africa more generally.[86]

As such, it appears as though China's mining–energy investments strengthen Zimbabwe's capacity to pursue its resource value addition strategy and move up the lithium value chain. This is particularly interesting given its political history and current political climate, which has seen many risk-averse investors divest from the country over the past two decades. This has meant that FDI from traditional investment avenues or loans from multilateral development banks have been limited, compounding the challenge of financing new or existing mining projects.

Emerging challenges

While China's integrated energy–mining investments provide noticeable value to Zimbabwe's mining sector, three challenges need to be addressed.

The first challenge is the prioritisation of energy investments for specific mining and refining projects over the energy needs of the broader economy and citizenry. Here the issue lies in ensuring that mining does not become the only privileged, energy-secure section of Zimbabwe while the rest of the country continues to deal with high levels of energy insecurity. Zimbabwe struggles with its energy generation capacity and often resorts to importing energy from neighbouring countries such as South Africa,

85 Dyton Mupawaenda, "Mining Sector Earns Zimbabwe US$5bn", *Herald Online*, April 5, 2025.
86 Christian-Géraud Neema, "What FOCAC 2024 Reveals About the Future of China-Africa Relations", Carnegie Endowment for International Peace, November 21, 2024.

Mozambique and Zambia.[87] The government has tried to address this issue by having large mining companies ensure their own energy generation. However, investments in energy for mining operations are largely still viewed as a private good that predominantly benefits mining companies, providing relatively little benefit to local communities.[88] While mining and mineral beneficiation investments are crucial, they need to be balanced with energy investments that bolster to the broader economy and society. While certain Chinese mining–energy investments allow excess energy to be fed into Zimbabwe's energy grid, these investments nonetheless appear to prioritise the mining, rather than the energy, side of the equation. Put differently, the focus is less on providing avenues for greater national energy availability and more on providing avenues for mining endeavours in particular. There is a need to ensure that energy investments do not focus on a single sector but rather form part of an integrated approach to improve energy access and support development.

The second identifiable challenge is related to the environmental, social and governance aspects of these mining–energy investments. In the Zimbabwean case, large-scale mining projects mostly take place without adequate consultation with local communities, with many experiencing socio-economic and environmental degradation as a result. The high energy, land and water resources required by mines, coupled with the privileging of large-scale mining companies and the sidelining of artisanal and small-scale mining, mean that foreign mining–energy investments risk sidelining the concerns of those directly affected by such activities. Without strong governance frameworks, these mining–energy investments may undermine the creation of local value for local communities while exacerbating their environmental, social and cultural impacts. There is a real danger that the increased demand for critical minerals such as lithium will not benefit the wider Zimbabwean population but rather entrench existing inequalities and injustices.

> There is a risk of this new model of investment merely perpetuating a slightly altered version of the historical pit-to-port model of extraction in Africa

The third identifiable challenge relates to the longer-term vision of mineral-based industrialisation in Africa. In the Zimbabwean case, most of the mineral beneficiation done by Chinese companies involves processing raw ore into refined concentrate, most of which is then exported to China for further refining. The bulk of value addition activities thus remains in China, which maintains considerable competitive advantages in the

87 Nyasha Chingono, "Zimbabwe Aims to Double Power Output by 2025 to Meet Mining Demand", *Reuters*, July 1, 2023; OEC, "Electricity in Zimbabwe", accessed November 15, 2025, https://oec.world/en/profile/bilateral-product/electricity/reporter/zwe.

88 Daniel Limpitlaw and Hilton Johnson, "No Mine Is an Island: Shared Infrastructure for Social Benefit in the African Extractives Industry", (Policy Briefing 248, SAIIA, August 2021).

production of green technologies. On this point, some analysts caution that, unless African countries bargain from a position of unity and leverage, greater downstream mineral beneficiation beyond relatively basic processing does not appear likely for the foreseeable future.[89] In short, there is a risk of this new model of investment merely perpetuating a slightly altered version of the historical pit-to-port model of extraction in Africa, with only minor adjustments to the model in terms of basic value addition to meet regulatory requirements.

Conclusion

While not exclusively Chinese, much of the investment in Zimbabwe's mining and mineral beneficiation sectors, coupled with investment in energy capacity, has come from Chinese companies. These investments have allowed Zimbabwe to expand its mining and mineral beneficiation sectors, particularly its lithium sector. China's investments in Zimbabwe's mining, mineral beneficiation and energy sectors have shown that the strategic pursuit of integrated mining–energy investments in resource-rich, energy-poor African countries to promote greater domestic mineral beneficiation is a potential model for further exploration and study.

The strategic pursuit of integrated mining–energy investments in resource-rich, energy-poor African countries to promote greater domestic mineral beneficiation is a potential model for further exploration and study

However, in considering this kind of investment model, mineral-rich African countries also need to be cognisant of the substantial impacts that these foreign mining investments can have on local communities. It is crucial that they ensure such projects are implemented with the informed consent of, and to the benefit of, affected communities. Recalling Principles 1 and 3 of the UN Guide to Critical Energy Transition Minerals, human rights, justice and equity should be at the core of mineral value chain developments.[90]

Resource rich, energy-poor countries should ensure that measures are in place to protect communities living near proposed mines. This includes ensuring that these communities are able to reap socio-economic benefits from such investments and are protected

89 Obert Bore, "Ignoring China Won't Help African Countries Move Up the Critical Mineral Value Chain", China Global South Project, May 14, 2025.

90 UN, "Resourcing the Energy Transition: Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice" (UN Secretary-General's Panel on Critical Energy Transition Minerals, September 11, 2024).

from their potential negative sociocultural and ecological consequences. In the case of integrated mining–energy investments, governments should encourage investments in shared-use infrastructure to provide tangible value for local communities. Moreover, developments in mining and mineral beneficiation capacities in Africa, as promoted by the AMV and AGMS, need to take place in a context that is explicitly sensitive to the global just energy transition. While China's integrated mining–energy investments in Zimbabwe could serve as a valuable case study for future investments in resource-rich, energy-poor African countries, these need to be promoted strategically to ensure that not only macroeconomic but also local value is actualised.

Finally, while China has invested significantly in mineral-rich countries such as Zimbabwe, African countries need to be aware of China's strategic ambitions. While investments in new energy infrastructure and mining projects can be positive for the local economy, they are only likely to benefit citizens if they are governed effectively and with the interests of the citizenry in mind.

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Arcadia Lithium Mine in Goromonzi, Zimbabwe

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