

POLICY PAPER

RECLAIMING THE RED EARTH

PATHWAYS TO A JUST TRANSITION IN GUINEA

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SUMMARY

Guinea controls 25% of the world's economically viable bauxite reserves and is the world's largest producer.

Yet it has historically captured only a marginal share of the value generated along the global bauxite-aluminium chain. Decades of foreign-dominated extraction, enclave-style infrastructure, weak institutional enforcement, and minimal domestic linkages have produced a dualistic economy: a high-value mining enclave operating alongside a low-productivity, largely informal sector. While the economy has grown, most Guineans continue to face limited access to electricity, basic services, decent employment, and opportunities for social mobility.

Guinea's situation can be framed as a paradox of mineral wealth amid persistent poverty, shaped by infrastructure built for extraction rather than national development, foreign ownership models that restrict domestic control, and limited beneficiation capacity.

Social upgrading has been similarly unrealised – employment is limited, supply chains are overwhelmingly import-dependent, and community development efforts remain fragmented and insufficient to meet the need. Moreover, mining operations have generated documented environmental and social harms, including water contamination, air pollution, and land degradation, with inadequate mitigation or remediation. Critically, over 90% of Guinea's bauxite exports are destined for China, creating a structural dependency that exposes the country to significant risk should Chinese demand decline.

A turning point has emerged after the 2021 political transition as the government has begun aggressively enforcing mining conventions, revising legal frameworks, and asserting sovereignty over natural resources. Key reforms include:

- the enforcement of long-ignored obligations to build alumina refineries;
- the introduction of a reference pricing system to counter transfer mispricing and revenue leakage; the cancellation of non-compliant mining licences;
- and the ambitious pursuit of comprehensive transformation through the Simandou 2040 Vision, which links mining, infrastructure development, industrial diversification, public investment, and human capital development, as a pathway to middle-income status by 2040.

New refinery clusters, particularly in Boké and Boffa, signal a potential shift from raw ore export to domestic alumina production. However, none are yet operational, and the future trajectory remains uncertain due to financing, regulatory, and political complexities.

To analyse Guinea's strategic direction systematically, this paper develops an analytical framework that categorises strategic upgrading options, identifies specific policy levers, and examines implementation mechanisms. These proposed interventions are propositional rather than prescriptive, intended to catalyse strategic dialogue and action. They include:

- Value chain, industrial, and economic upgrading (e.g., mineral rent maximisation, alumina/aluminium development, economic diversification, infrastructure mutualisation);
- Social upgrading (e.g., employment quality, enterprise development, skills, community benefits, ownership models); and
- Environmental upgrading (e.g., regulation, harm reduction, regenerative approaches, green supply-chain standards).

Across all dimensions, upgrading requires strong state capability, coherent policy implementation, and coordinated engagement between government, private sector, communities, and international partners. No single intervention can deliver transformation; progress depends on aligning multiple levers over time.

Guinea now stands at a decisive moment. If current reforms are sustained, the country could shift from decades of extractive dependency toward a just transition that embeds beneficiation, diversified industrialisation, improved social outcomes, and stronger environmental stewardship. Success, however, hinges on institutional strength, political stability, and the country's ability to renegotiate power.



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1

INTRODUCTION



The red earth of the rolling plateaus of Guinea's north-western Boké region is at the heart of the global aluminium industry. This soil is rich in bauxite, the raw ore from which aluminium is produced, underpinning a Global Value Chain (GVC) that manufactures products ubiquitous in contemporary life. The relatively small West African nation has emerged as a giant in the global market for this 'red gold'. As a case study, Guinea is important for understanding the socio-economic risks and opportunities associated with transition minerals, including country-level political and economic ambitions and actions.

Guinea spans 245 857 km², roughly the size of the United Kingdom, Ghana or Oregon in the United States. Despite this modest geographic footprint, its location is strategically significant. Positioned on the Atlantic coast and bordered by six countries, Guinea-Bissau, Sénégal, Mali, Ivory Coast (Côte d'Ivoire), Liberia and Sierra Leone, it serves as a geographic hinge between coastal trade routes and inland corridors extending toward the Sahel and Central/West Africa.

Guinea's high-quality, low-silica bauxite has become indispensable to various supply chains fabricating products spanning construction, machinery, equipment, and packaging. In the machinery and equipment sector, aluminium derived from Guinean bauxite is used in industrial machine casings and frames, machine-tool components, conveyor systems, agricultural machinery parts, and the heat exchangers and cooling systems that underpin modern manufacturing. In packaging, it enables the widespread production of beverage cans, food containers, aerosol canisters, pharmaceutical foils, and the laminated pouches essential for long-shelf-life goods. Aluminium also forms a critical input into household and industrial

electrical appliances, from refrigerators, air conditioners, washing machines, ovens, and microwaves to laptops, smartphones, and small domestic devices, where its lightweight, conductivity, and heat-dissipation properties are essential for performance. Bauxite is also essential to the global energy system, including electricity infrastructure and transportation, both of which are crucial for achieving global net-zero greenhouse gas emission pathways.

Yet, for decades, Guinea's relationship with its bauxite wealth has been characterised by a stark paradox: abundant natural resources coupled with limited domestic value capture.

From colonial extraction through the early years of independence to the present, the country's bauxite economy has relied on successive waves of foreign investment that followed extractive patterns, maximising value extraction with minimal benefits retained domestically.

Despite articulating ambitions for local beneficiation since the 1950s, Guinea has never succeeded in developing operations that span the value chain from mining to aluminium smelting. As in many resource-rich countries in the Global South, the potential industrial, economic, and social dividends of value chain upgrading have seldom materialised in practice, whereas the social and environmental harms linked to extractive activity have been both long-standing and persistent (Barrientos et al., 2011; Krishnan et al., 2023; Montmasson-Clair et al., 2024b).

Following a military coup in September 2021, Guinea's government has embarked on an ambitious programme to attain increased local value creation. The country has expressed determination to control and derive benefit

from its natural resources, taking concrete steps to enforce existing regulations, review mining conventions, and discipline non-compliant operators. New plans for local bauxite beneficiation include the development of alumina refineries and a more integrated industrial ecosystem. These domestic changes intersect with shifting international dynamics. A global competition for minerals, driven by 'green', digital, and military demand, is playing out in a volatile geopolitical arena where major powers seek influence and market access.

This is a pivotal moment for Guinea: after decades of aspiring to upgrade the value chain without fully capturing the benefits of its mineral wealth, the question now is whether meaningful progress can finally be achieved. If this is within reach, an equally important question follows: whether broader industrial, social, and environmental investments can set the country on a just transition trajectory. Answering these questions requires navigating a complex and often opaque opportunity context, making it essential to disentangle overlapping objectives and competing interests.

This paper addresses both questions, aiming to contribute to the evidence base that informs the development of 'just transition' pathways for the bauxite-aluminium value chain. It establishes a baseline of current developments and plans for upgrading, while identifying additional opportunities for economic, social and environmental progress.

The analysis commences by outlining Guinea's economic structure, highlighting the pivotal function of bauxite in shaping it. It then examines recent policy initiatives aimed at securing more domestic value. It subsequently presents an 'option bank' of strategic levers to generate and retain greater in-country benefits.

This paper draws on both quantitative data from official administrative records, economic databases, and secondary sources, and qualitative evidence found in policy documents, secondary literature, stakeholder interviews and fieldwork. It builds on the authors' related work on minerals across other value chains and geographies, as well as the development of international guidance. This report ultimately seeks to unpack how Guinea – and by extension, other resource-rich nations navigating the global minerals transition – might chart a more equitable path forward.¹

2

GUINEA'S PARADOX: MINERAL WEALTH AND PERSISTENT POVERTY



Guinea's natural endowment should be a bounty for its people. Yet poverty and exclusion from formal economic structures is widespread. A dualistic economic structure, combined with captive infrastructure networks, has not delivered

any meaningful social improvements for Guinea's people. This section outlines Guinea's key socio-economic contours, spanning macroeconomic trends, infrastructure development, and relevant social dynamics.

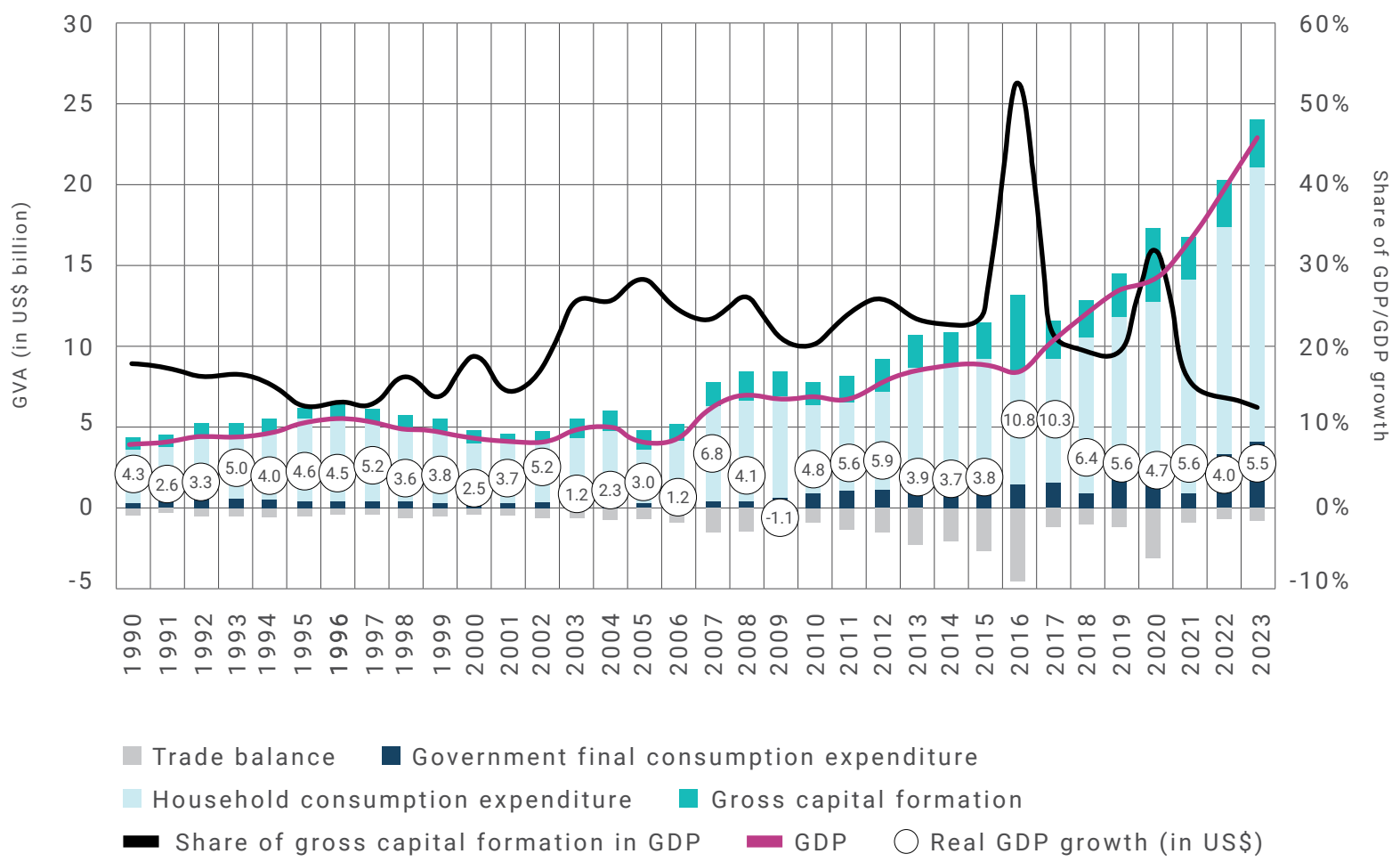
A DUALISTIC ECONOMIC STRUCTURE

Guinea's economy is dependent on mining and agriculture. Besides bauxite, the country hosts vast reserves of gold and iron ore, as well as notable deposits of diamonds, uranium, nickel, manganese, cobalt, and lithium. Its land is fertile, supporting diverse ecosystems, from mangroves to rich forests, and capable of sustaining agricultural production at scale.

In reality, Guinea's economy is dualistic in nature. On the one hand, the domestic mining sector has benefited from significant foreign direct investment, driving progress in key macroeconomic indicators, such as gross domestic product (GDP), but with few links to the rest of society. On the other hand, a largely survivalist economy, rooted in low-value-added agriculture, retail trade and personal services, provides a scant livelihood to the majority of Guinea's people. As highlighted in Figure 5 the economy is dominated by the informal sector (UNIDO & Global Policy Incubator, 2021).

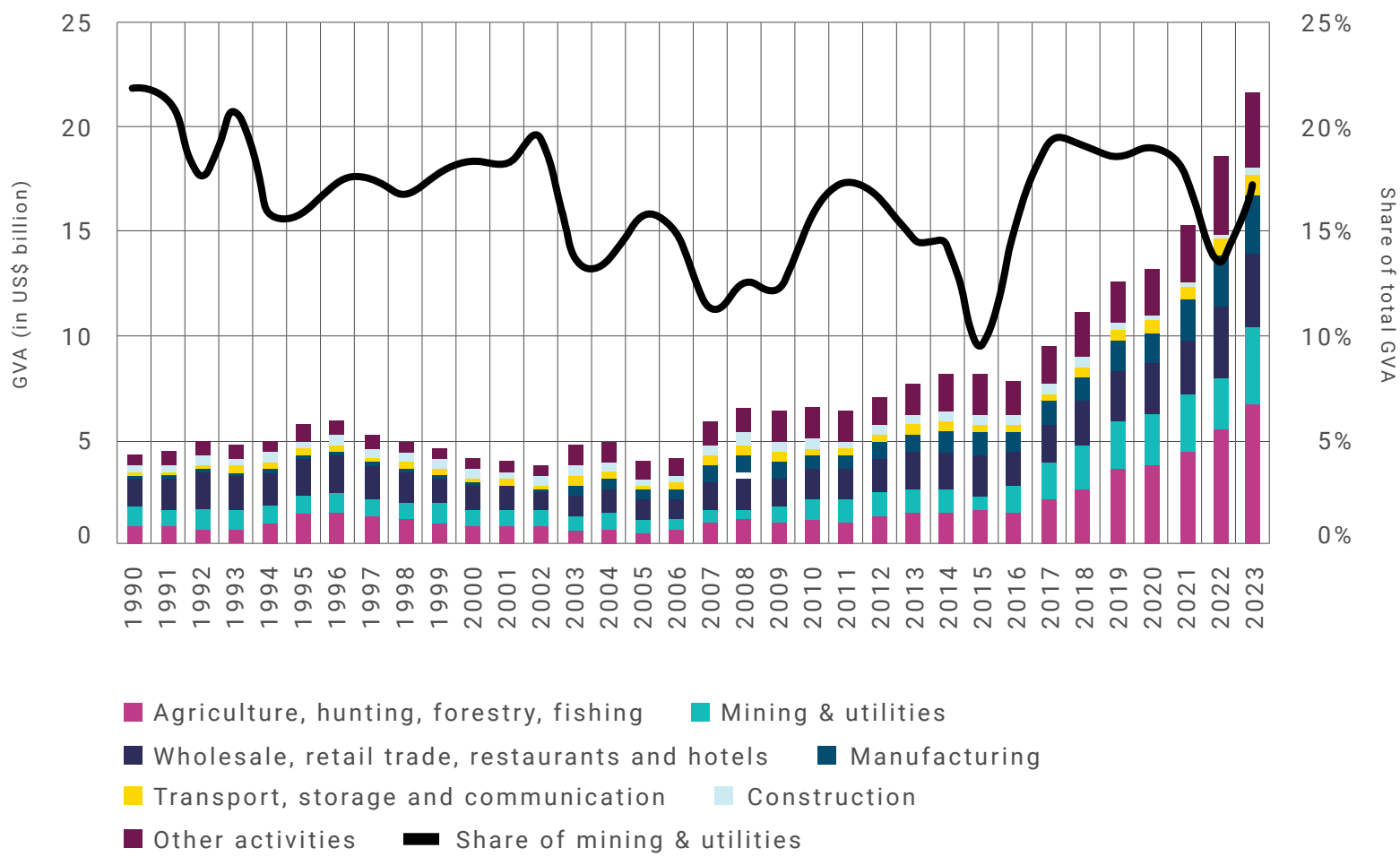
After decades of fragmented development, Guinea has entered a period of steadier economic performance, with GDP increasing consistently in recent years. Figure 1 illustrates that, in 2024, GDP stood at US\$ 25.3 billion, a 5.7% increase (in real terms) from 2023. Foreign direct investment, primarily in the mining sector, has spurred bursts of accelerated economic expansion. In addition to mining-driven economic growth, government spending has increased steadily from its former low base. However, local household consumption, which generates marginal to no value added, remains a key anchor of the domestic economy.

FIGURE 1: GUINEA'S GROSS DOMESTIC PRODUCT AND GROSS VALUE ADDED BY TYPE OF EXPENDITURE



Source: Authors, based on data from UNdata

FIGURE 2: GUINEA’S GROSS VALUE ADDED PER SECTOR



Source: Authors, based on data from UNdata

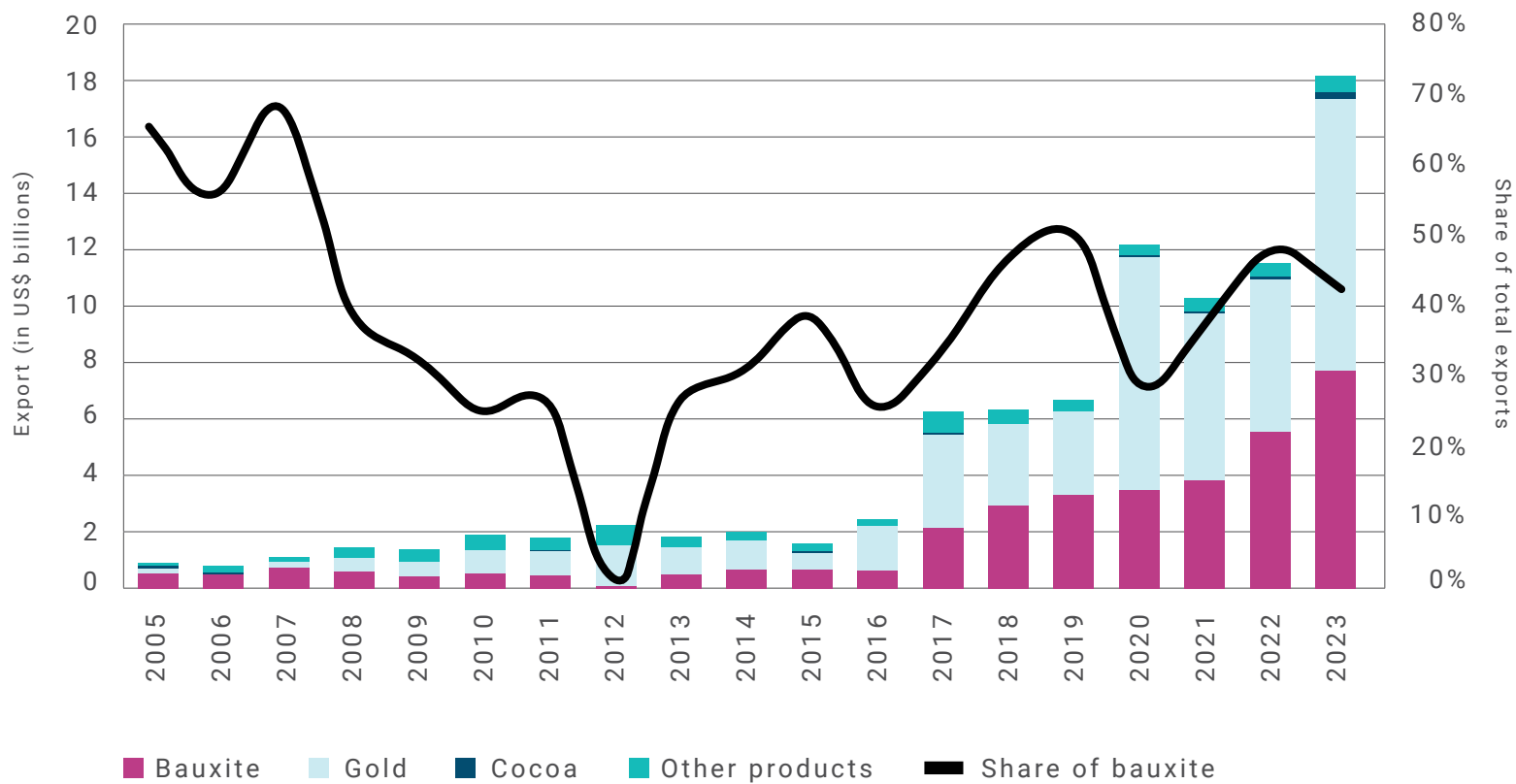
More broadly, the continued dominance of household-based demand, notwithstanding extensive mining investment, points to an extractive economy in which mineral resources yield only modest local economic gains.

This reinforces a pattern in which household consumption, rather than productive economic output, drives the economy. Despite its economic weight, mining only generated 17% of the country's value added in 2023, the same as the wholesale and retail trade sector (see Figure 2).

Mining, notably illustrated by the case of bauxite production (see Section 3), functions as an economic 'enclave' (Baldé, 2025). The mining sector is not connected to other local activities, displaying only minimal backwards, forward, or side-stream linkages with the rest of the economy (Gereffi & Lee, 2016a; Humphrey & Schmitz, 2002; Pipkin & Fuentes, 2017). Key inputs in the mining sector, including heavy machinery (such as trucks and excavators), the supply chains supporting these (e.g., oil and tyres), and infrastructure development inputs (e.g., iron and steel, as well as a large amount of cement), have historically been imported. Where local manufacturing is present, it is similarly minimal, totalling just 12% of Gross Value Added (GVA) to the economy in 2023. By comparison, primarily low-value-adding agricultural activities accounted for about a third (31%) of national output in the same year.

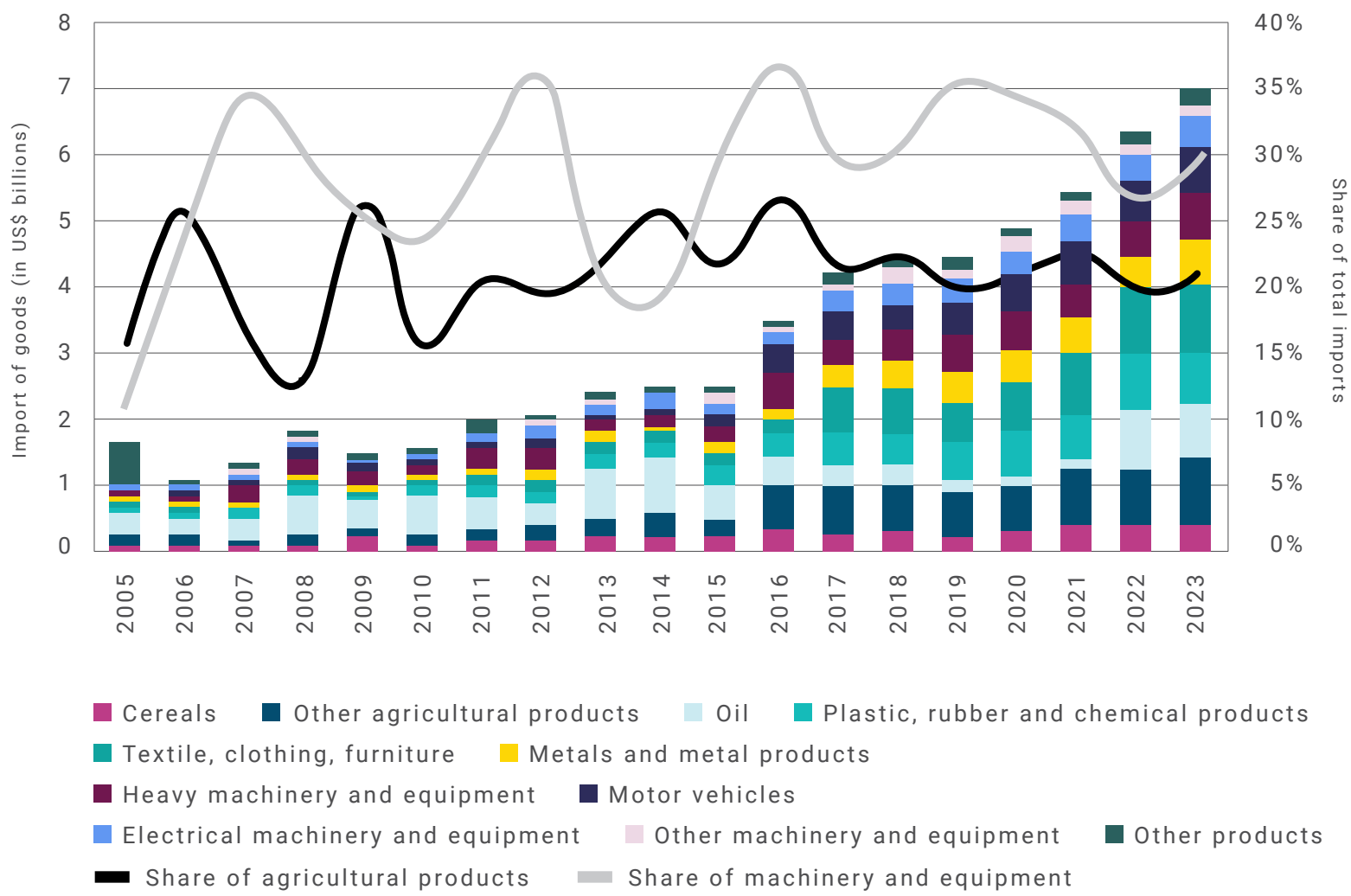
Guinea's trade balance also reflects the outlying position of mining in Guinea's economy. Exports are highly concentrated in gold and bauxite, which jointly accounted for 96% of export value in 2023, as shown in Figure 3. The only other notable exports are cocoa beans and coconuts. Imports (see Figure 4) are likewise driven by the mining industry and associated infrastructure development. A notable share of imports comprises machinery and equipment (38% in 2024) and iron and steel (12%). Agricultural goods (20%), dominated by rice, sugar, palm oil, and chicken, and household and general consumption products, such as textile, clothing and furniture (13%), complete the picture.

FIGURE 3: GUINEA’S EXPORT OF GOODS



Source: Authors, based on data from TradeMap

FIGURE 4: GUINEA'S IMPORT OF GOODS



Source: Authors, based on data from TradeMap

LIMITED, CAPTIVE INFRASTRUCTURE NETWORKS

The enclave-style development of Guinea's expanding mining sector is evident in the distribution and quality of the country's infrastructure networks. Constrained infrastructure networks not only limit economic productivity but also pose substantial challenges for the processing and value-addition activities that Guinea seeks to develop in the mineral sector.

Guinea's road network spans over 45 000 kilometres (km), but only about 6% (under 2800 km) of national roads are paved, creating significant barriers to market access and economic integration for the population, mostly excluded from the mining sector. For instance, the quality of the 270-km national road that stretches from the capital, Conakry, to the bauxite mining region of Boké, varies over this distance, but is generally poor, and struggles to accommodate the capacity of passenger and freight moving between the two regions.

Juxtaposed with the slow-moving road traffic, the rail infrastructure (approximately 1000 km) is better maintained than the roads, but inaccessible to most (Tietz, 2022). With the historic Kamsar-Kankan rail passenger line no longer operational, the lack of economic linkages between different regions hinders the mobility of people and goods. Railways, like other key value-extraction-enabling infrastructure, such as ports and power plants, are privately owned assets. As illustrated in Section 3, in the case of bauxite mining, this has led to the emergence of multiple parallel networks of infrastructure, utilised exclusively by mining companies for their own needs. Fria, the town that emerged from the site of alumina refining (see section 3), is a case in point. It was conceived as a 'company town' with

almost all infrastructure and economic activities in some way linked to bauxite and alumina production (Knierzinger, 2018).

In terms of large-scale electricity infrastructure, two-thirds of power generation was from hydroelectric sources in 2022. Guinea, known as the water tower of Africa for being the source of the Gambia, Niger and Senegal rivers, possesses substantial hydropower potential. Key hydroelectric power plants include Souapiti (550 MW), Kaléta (240 MW), and Garafiri (75 MW), and a range of projects are under development, such as the Amaria dam (300 MW) (AfdB, 2021).

The two largest hydroelectric plants (Souapiti and Kaléta) are operated by China International Water and Electric (CWE), which also owns shares in the two Special Purpose Vehicles that operate the human-made dams (51% and 49% respectively, along with public utility Électricité de Guinée). Smaller dams are owned and operated directly by the national power company. Guinea also has noteworthy solar energy potential. Several projects are under development, including the Khoumagueli power plant (40 MW) and the twin Kankan and Siguiri solar parks (of 42 MW each) (AfdB, 2021).

Yet the country remains reliant on imported heavy fuel oil, especially for commercial and industrial use. A total of 12 thermal power stations, mainly operated by independent power producers, supply electricity to the grid, together with various mining operations (AfdB, 2021). In 2023, the government signed an agreement with the American company West Africa LNG to construct gas-based power generation infrastructure with a capacity of 1800 MW (Klein, 2024).

Looking forward, Guinea aims to position itself as a key energy exporter in the region through the West African Power Pool.² In addition to

the construction of domestic transmission infrastructure, the country is part of three major regional interconnector projects, namely a) the Organisation pour la Mise en Valeur du fleuve

Gambie (Gambia River Basin Organisation - OMVG) and Guinea, Guinea-Bissau, The Gambia and Senegal interconnection project; b) the Côte d'Ivoire, Liberia, Sierra Leone and Guinea interconnection project; and c) the Guinea-Mali interconnection project (AfdB, 2021).

UNREALISED SOCIAL UPGRADING

The dual economy described above, combined with captive infrastructure networks, has not created the conditions for any meaningful 'social upgrading'³ domestically. While most of

the population remains locked in low-value-add, survivalist activities, access to modern services continues to be extremely constrained and insufficient to lift the population out of poverty.

Employment follows the economic structure described in Section 2.1. A largely survivalist economy, rooted in low-value-added agriculture, retail trade, and personal services, provides a livelihood to the majority of Guineans.

As highlighted in Figure 5, the economy is dominated by the informal sector, which produces most jobs (>95%) and about half of GDP (UNIDO & Global Policy Incubator, 2021).

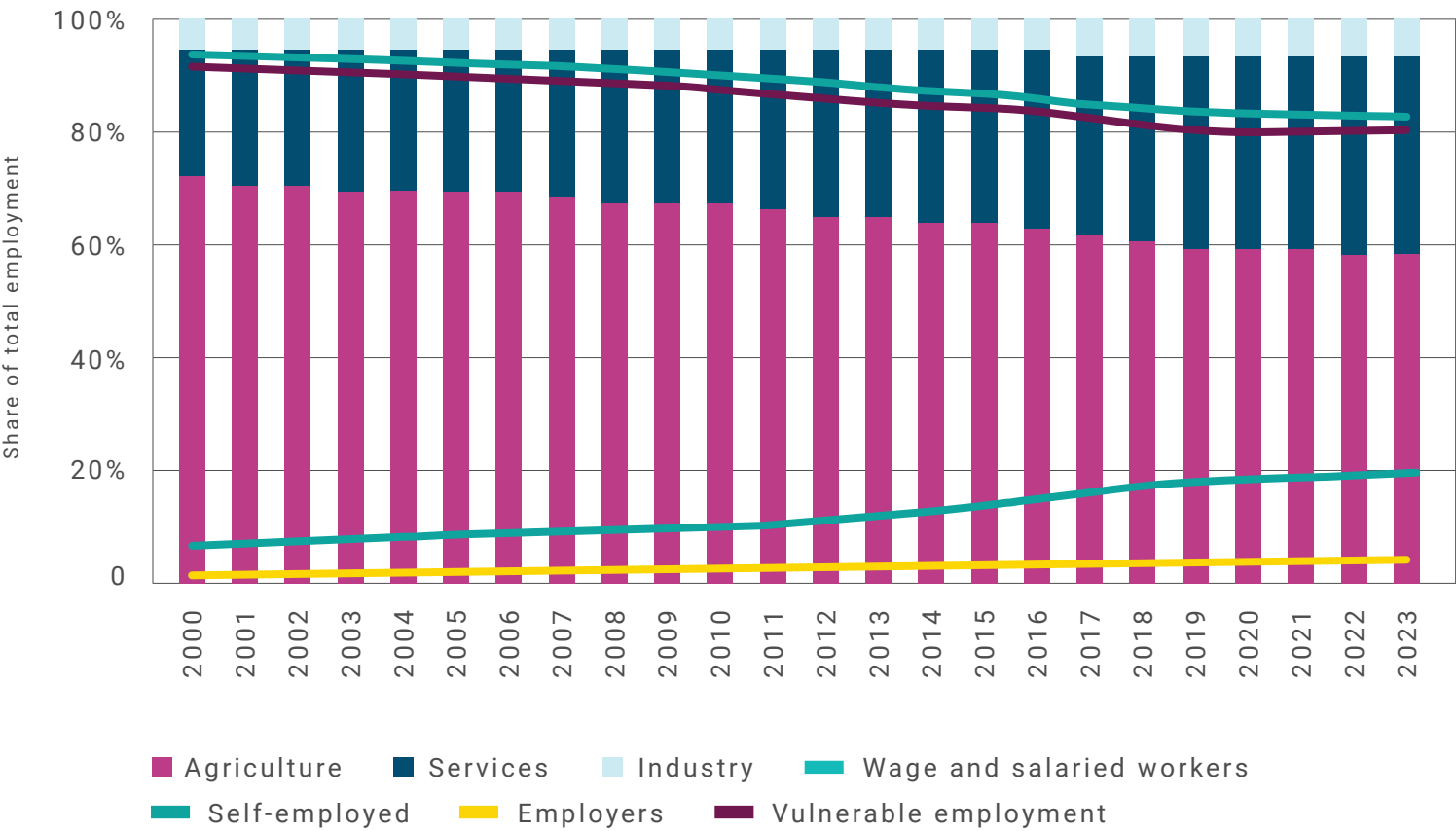
About four in five jobs in 2023 were categorised as vulnerable. Wage and salaried workers accounted for 18% of employment in 2023. In the same year, agriculture accounted for more than half (58%) of employment. Overall, industrial activities accounted for just 7% of employment in 2023, compared to 35% for services.

Despite this challenging employment landscape, after a prolonged period of stagnation, Guinea's gross national income per capita has risen since 2014. This led the country to elevate from low-

income to lower-middle-income status, according to World Bank classifications, with a gross national income per capita of US\$ 1350 in 2023 (World Bank data, Atlas method).

This figure conceals a more complex reality for Guineans. The recent growth trajectory has yet to translate into broad-based improvements in living standards for the country's 14.5 million inhabitants. Multidimensional poverty stood at 46% of the population in 2018, down from 64% in 2012 (World Bank data⁴).

FIGURE 5: GUINEA’S EMPLOYMENT DYNAMICS



Source: Authors, based on data from the World Bank

While progress is notable, deprivation rates and infrastructure deficits represent one of the most significant constraints to social progress.

Only about half (51% in 2023) of the population has access to electricity. Substantial disparities exist between urban (93%) and rural (26%) contexts. In addition, even with formal electricity access, the vast majority of Guineans lack access to clean cooking facilities (96% according to the IEA), forcing most households to rely on traditional biomass for energy needs. Households rely on firewood for 85% of domestic energy needs. While access to basic drinking water services (72% in 2022) is more advanced, access to basic sanitation services (31%) and basic handwashing facilities (21%) remains similarly behind expectation (WHO-UNICEF data⁵). Broadband coverage reaches only 27% of the population (International Telecommunication Union data for 2023⁶). The absence of infrastructure to manage waste in an environmentally safe manner generates significant social (health and safety) and environmental (water, land, and air pollution) impacts (Barry et al., 2024; Diallo et al., 2025).

Guinea's Human Development Index (UNDP data⁷) of 0.5 in 2023 ranks among the lowest globally (179 out of 193 countries), placing it in the 'low human development' category and reflecting poor outcomes across health, education and living standards. Life expectancy remains critically low at approximately 61 years (2023), with significant gender disparities (59.5 years for men, 62.3 years for women), while maternal mortality stands at 494 deaths per 100 000 live births and infant mortality at 62 per 1000 live births (2023 UNICEF data), one of the highest rates globally.

Educational outcomes are equally concerning.

Adult literacy was only 45% in 2021, dramatically below the global average of 87%, with particularly acute gender disparities affecting female educational attainment. In the same year, primary school completion rates stood at 70% for boys and 56% for girls, while lower secondary completion rates were only 39% for boys and 31% for girls (UNESCO data⁸).

3

GUINEA'S BAUXITE SECTOR: PRODUCTION WITHOUT TRANSFORMATION



This section unpacks past and ongoing dynamics in the domestic value chain, laying the foundation for identifying opportunities for upgrading. The above social inequities have been intrinsically linked to the bauxite value chain. Guinea is the world's largest producer.

Historically, however, the country has remained locked in the upstream stage of the value chain. Backwards linkages are near non-existent, while forward linkages are limited to one perpetually underperforming alumina refinery. New alumina refinery developments aim to change this picture.

FROM MARGINAL PLAYER TO GLOBAL GIANT

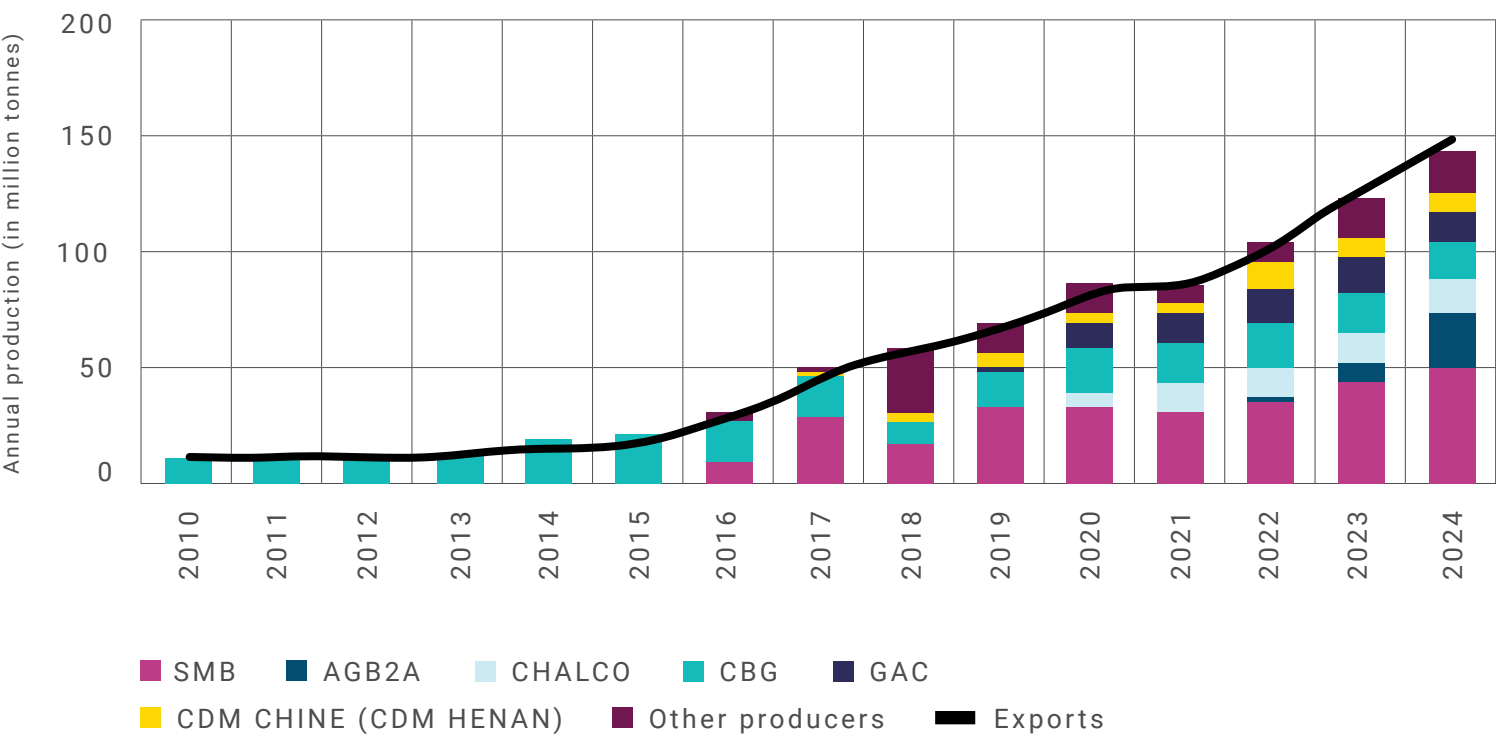
Guinea has the largest reserves of bauxite (7.4 billion tonnes), with 25% of global deposits considered economically viable as of 2025, ahead of Australia (12%) and Vietnam (11%) (Montmasson-Clair & Hermanus, 2025).

After trailing Australia for many years, Guinea has been the world's largest bauxite miner since 2023. That year, Guinea produced over a quarter (28%) of the world's bauxite, ahead of Australia (24%). China followed, along with Brazil, Indonesia and India. Guinea's bauxite production has steadily increased over the past two decades. From about 13 million tonnes in 2010 (only 6% of global output), production grew to over 140 million tonnes in 2024, rising strongly since 2016. As showed in Figure 6, in the space of a decade, Guinea's bauxite production has been multiplied by seven. Production is furthermore expected to continue increasing in 2025.

Similarly, Guinea's position as the world's leading bauxite exporter has been cemented over the past decade. Rising from 2% in 2012, Guinea accounted for 80% of global exports (in value) in 2022. This reflects a dual reality: Guinea does not have meaningful beneficiation capacity locally, while all other key bauxite producers host notable downstream industries domestically (Montmasson-Clair & Hermanus, 2025).

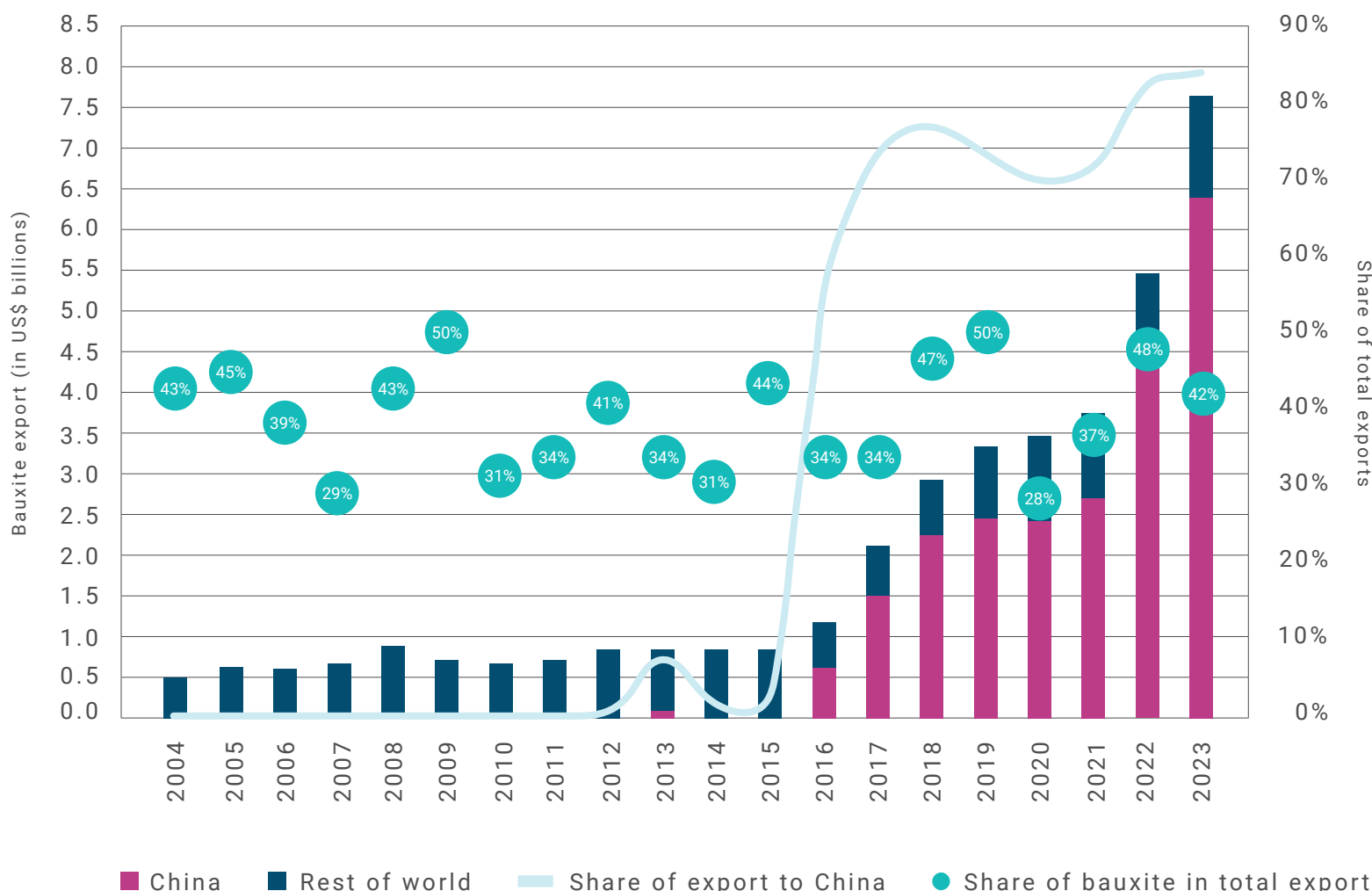
The rapid expansion of bauxite mining and exports has created a two-leg dependency for Guinea. First, the country's export structure is heavily concentrated in aluminium ore: bauxite accounted for 42% of total exports in 2023, matching gold. Although the government expects to begin exporting substantial volumes of iron ore in the near future (see Box 2 on the Simandou programme), this will not dilute the reliance on mineral commodities. Second, Guinea's bauxite sector is structurally tied to Chinese demand. In 2023, 92% of Guinean bauxite exports were destined for China's aluminium industry (see Figure 7). While this demand has driven remarkable growth over the past decade, and is projected to continue in the short to medium term, it also exposes Guinea to significant risk should Chinese demand decline for any reason.

FIGURE 6: GUINEA’S BAUXITE PRODUCTION



Source: Authors, based on data from the Institut National de la Statistique de Guinée

FIGURE 7: GUINEA'S EXPORT OF BAUXITE



Source: Authors, based on data from TradeMap

A FOREIGN-DOMINATED MINING LANDSCAPE

The bauxite production landscape in Guinea is characterised by a few dominant players. In 2024, as depicted in Figure 6, Société Minière de Boké (SMB) was the largest producer in the country, followed by Alliance Guinéenne de Bauxite, d'Alumine et d'Aluminium (AGB2A), Aluminium Corporation of China Limited (Chalco), Compagnie des Bauxites de Guinée (CBG) and Guinea Alumina Corporation (GAC).

As detailed in Table 1, along with local state-owned enterprises and private investors, leading investors in the Guinean bauxite sector originate from China (SMB, AGB2A, Chalco, CDM, SPIC), the UAE (GAC), Russia (COBAD, CBK), Singapore (SMB), the United Kingdom/Australia (CBG) and India (Ashapura).

TABLE 1: MAJOR BAUXITE ACTORS IN GUINEA IN 2024

COMPANY	SHAREHOLDING	PRODUCTION (IN MILLION TONNES)	LOCATION
Société Minière de Boké (SMB)	Jointly owned by Winning International Group, a privately held Singaporean company (40.5%); United Mining Supply, a privately held company (27%); Shandong Weiqiao Aluminium and Power, owned by China Hongqiao Group, a publicly traded Chinese aluminium company) (22.5%); and the Guinean state (10%)	49.6	Boké
AGB2A (Now AGB2A-SMD and AGB2A-GIC)	Initially jointly owned by private Chinese company Sunda Mining (42%) and private Guinean company Guinea International Corporation (GIC) (58%). The two partners split ways in 2022, each pursuing their own projects.	23.9 (Sunda Mining: 20.4; GIC: 3.5)	Boffa
CHALCO	Partly owned by Aluminum Corporation of China (Chinese state-owned company) (36%), and publicly traded on the Shanghai and Hong Kong Stock Exchanges (64%)	15.8	Boffa
CBG	Jointly owned by Halco Mining (51%), owned by Rio Tinto (British-Australian firm listed on the London Stock Exchange and the Australian Securities Exchange) and Alcoa (US firm listed in the NYSE) and the Guinean State (49%)	15.5	Kamsar
GAC	Subsidiary of Emirates Global Aluminium (EGA), equally owned by the Mubadala Investment Company of Abu Dhabi and the Investment Corporation of Dubai, United Arab Emirates	12.4	Boké

CDM Chine (Henan Chine)	Subsidiary of China Henan International Cooperation Group, Chinese state-owned enterprise owned by the Henan province	7.7	Telimele
Compagnie des Bauxites de Dian-Dian (COBAD)	Subsidiary of Rusal, a Russian company owned by EN+ Group (56.9%), SUAL Partners (25.5%) and publicly traded (17.6%) on the Hong Kong and Moscow Stock Exchanges	4.3	Boké
State Power Investment Corporation (SPIC)	State-owned Chinese company	3.3	Boffa
Compagnie des Bauxites de Kindia (CBK)	Subsidiary of Rusal (see above)	2.9	Kindia
Ashapura	Subsidiary of Ashapura Minechem Ltd, publicly listed on the National Stock Exchange of India	2.9	Dubreka

Source: Authors, based on data from Institut National de la Statistique de Guinée and various company websites

AN ENCLAVE ECONOMY: THE ABSENCE OF DOMESTIC LINKAGES

Besides bauxite mining, the local value chain remains embryonic. Backwards, forward, and side-stream linkages are virtually non-existent domestically, except for a lacklustre alumina refinery and tokenistic local procurement of non-core goods and services.

Backward linkages in machinery and equipment, construction materials, engineering services, energy and transport are minimal (UNIDO & Global Policy Incubator, 2021). Most of the industry's material inputs are imported, primarily from China. Despite legal requirements under the Mining Code and the Local Content Law (as detailed below in Section 4), localisation remains low, primarily for low-value-added goods and services. This is reflected in the small share of people employed in industrial activities overall (as previously illustrated in Section 2).

Forward linkages are not much more developed.

As alluded to earlier, Guinea does not host any meaningful downstream industry generating material added value from bauxite. Downstream beneficiation would require significant investment in energy generation, especially given the country's current energy security and energy access challenges. Producing alumina from bauxite necessitates about 10 000 MJ (equivalent to 2800 kWh) per tonne, while smelting a tonne of aluminium from alumina requires over 50 000 MJ (14 000 kWh) (Montmasson-Clair & Hermanus, 2025).

No aluminium production has ever taken place domestically, and contemporary plans for aluminium smelting and the large-scale power generation needed to run it have not materialised (Jégourel, 2015).

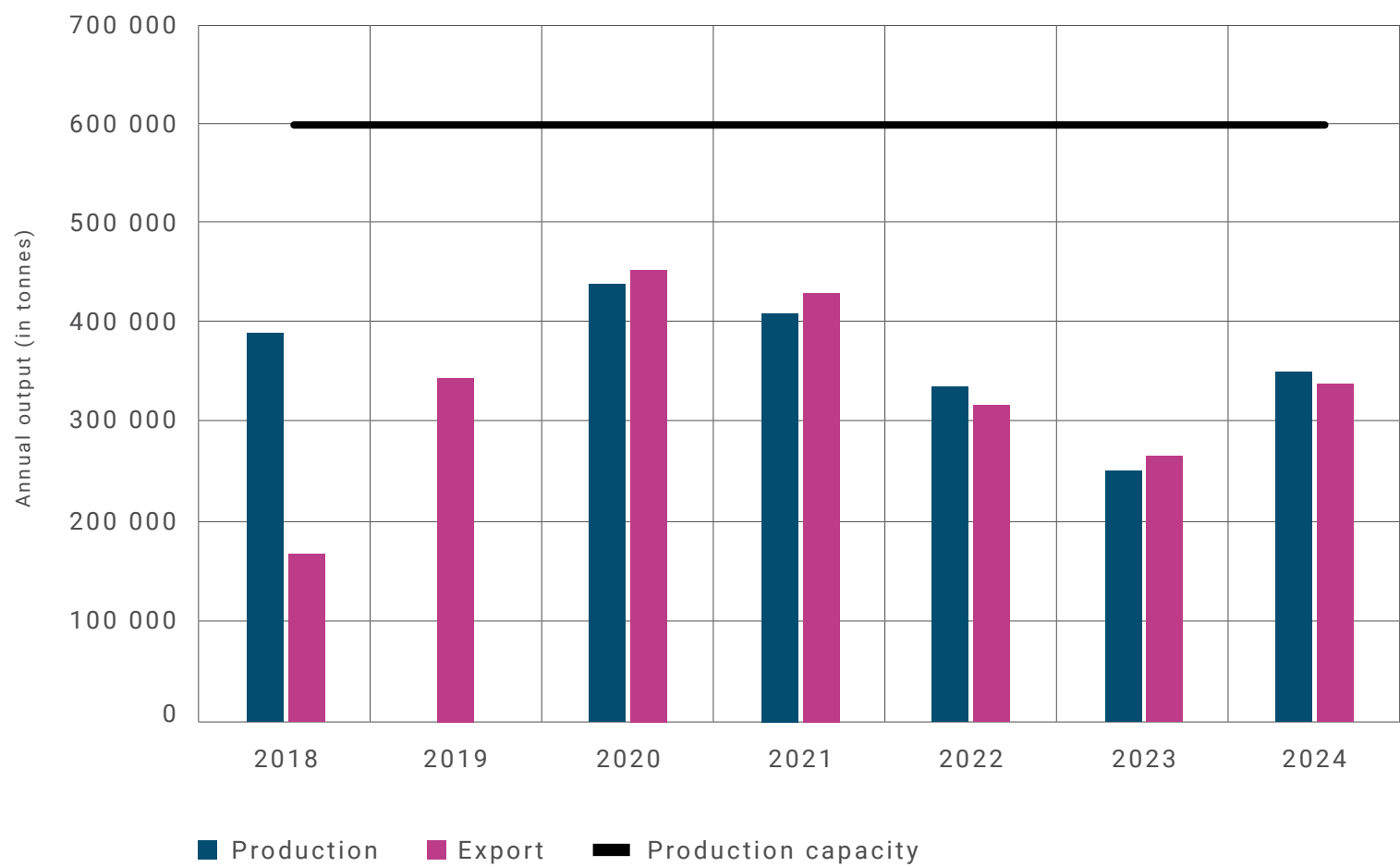
Alumina refining in Guinea has been uncoordinated. The construction of Guinea's only alumina plant dates back to the cusp of independence in 1957. Initiated under French rule, the plant changed ownership several times over its existence. Following France's destructive political and economic retreat in 1958, French company Pechiney returned in 1960 to form a partnership with the independent Guinean government (holding a 49% stake) to operate Africa's first and only alumina refinery at Fria (Grinberg et al., 2016).

In 1973, the Fria refinery project was restructured as a semi-public joint venture between the state and a holding company, Frialco (Jégourel, 2015). In 1998, foreign interests sold their share to the government, and the national Alumina Company of Guinea was established (Grinberg et al., 2016).

Russian company RUSAL took over management in 2002 and acquired 100% ownership in 2006.

The plant was shuttered from 2012 to 2016 due to prolonged labour disputes, resulting in production plummeting. The Russian company then recommenced production, setting out a plan to reach more than one million tonnes of production annually by 2026 (Reuters, 2018). In 2024, RUSAL produced approximately 350 000 tonnes of alumina. As depicted in Figure 8, due to the above dynamics and a persistent lack of investment in maintenance and upgrades, the plant has consistently operated below its full capacity of 600 000 tonnes annually.

FIGURE 8: ALUMINA PRODUCTION AND EXPORT IN GUINEA



Source : Authors, based on data from the Institut National de la Statistique de Guinée

Side-stream linkages in education, health, transport, R&D, housing and community structures are virtually non-existent. As mentioned in Section 2, the mining industry has so far operated mainly as a private, autonomous economic enclave with limited links to the rest of the domestic economy. Infrastructure development is essentially privatised and captive. Power plants, railways, and ports required for bauxite exports are owned, operated, and utilised solely by private mining companies. In the Kamsar region, for instance, three private, captive railways, each linking to separate ports, are operated by three different bauxite mining companies, without any linkages or benefits to the rest of the region.

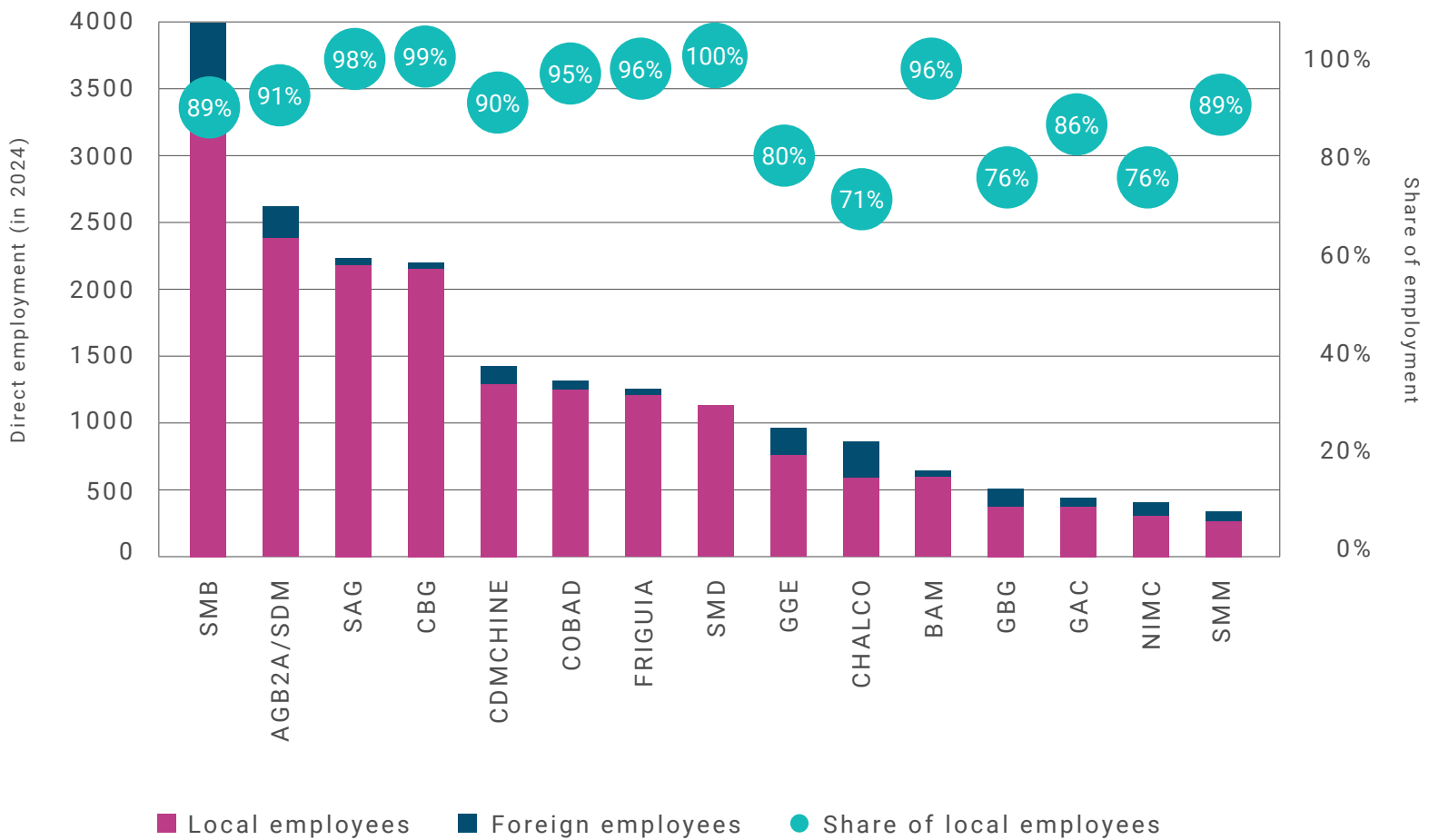
Community infrastructure is almost absent outside privately owned installations, with only sporadic, haphazard public provision, mostly limited to mining companies' Corporate Social Investment (CSI) projects. Development finance through donor funding, corporate grants and CSI positively contribute to social infrastructure, but remains too insubstantial to make a meaningful social impact. As illustrated in Box 1, in the case of the Chinese State Power Investment Corporation (SPIC), CSI contributes to the construction of public infrastructure, the provision of education and training, and the development of local supply chains. Another example is the partnership between the United Nations Industrial Development Organisation (UNIDO) and French company Alteo to establish an Alumina Centre of Excellence. The Ecole de Formation Professionnelle des Métiers de l'Alumine en Guinée, which will be located in Boké, is designed to offer training in a range of alumina-related occupations in production and maintenance (Karkare et al., 2024). These

include industrial mechanics, industrial electricity, automated systems, welding, boiler-making, piping and associated requirements such as carpentry, lifting, scaffolding, and masonry.

Overall, the lack of local beneficiation, along with the absence of a broader industrial ecosystem, has deprived Guinea of significant value creation. As shown by Montmasson-Clair et al. (2025), alumina and aluminium fetched export prices about 13 and 115 times higher than bauxite over the 2021-2023 period, respectively. Globally, employment is primarily found in fabrication activities as well as industries servicing the value chain, both directly and indirectly – activities which are absent in Guinea. Despite legal requirements and company-specific conventions, the lack of company adherence and regulatory enforcement has historically allowed mining companies to largely ignore their commitments.

As such, the absence of meaningful local backwards, forward, and side-stream linkages translates into underwhelming domestic employment and benefits. High levels of mechanisation (trucks, conveyor belts, railways) have significantly constrained employment in mining operations. As illustrated in Figure 9 the overall quantum of employment directly generated by mining companies has been marginal, even though most employees are Guinean. While challenging to measure, indirect employment in the value chain is similarly minimal.

FIGURE 9: DIRECT EMPLOYMENT IN GUINEA’S BAUXITE AND ALUMINA INDUSTRY



Source: Authors, based on data from the Institut National de la Statistique de Guinée
Note: average employment numbers for 2024

FIGURE 10: MAP OF THE MAIN ALUMINA REFINERY CLUSTERS UNDERWAY OR PLANNED IN GUINEA



MOVING UP THE VALUE CHAIN: NEW REFINERY DEVELOPMENTS

A number of alumina refinery projects are planned or underway, with different levels of maturity and progress. In addition to the historical refinery in Fria, the Guinean government aims to develop four main refinery clusters⁹, with up to six refineries, corresponding to bauxite deposits and ore evacuation corridors in Boké, Boffa and Dabola-Tougué. This strategy intends to incentivise mining companies to collaboratively develop a limited number of large-scale alumina refineries.

As of June 2025, none of the clusters had commenced with construction. Their projects are at various stages of implementation, ranging from early conceptualisation and design to navigating regulatory authorisation. The status of each project remains fluid and difficult to assess, even with site visits and interviews with key informants and stakeholders.

The Boffa cluster, backed by a Chinese investment of about US\$ 1 billion (see Box 1 below) and led by the Chinese state-owned enterprise SPIC, appears to be the most advanced initiative. The Boffa cluster boasts a refinery with a capacity of 1.2 million tonnes per year, supported by a large infrastructure complex. Following the laying of the 'first stone' in March 2025, the construction of the refinery is set to start later in 2025. The first export train is scheduled to depart the refinery for its allocated coastal port in January 2028. Within the same cluster, CHALCO is also in discussion with Guinean authorities about the construction of a separate refinery.

The second-most-advanced cluster appears to be the one in the Boké region. Guinea's largest bauxite-mining company, SMB, predominantly owned by Singaporean company Winning International Group, announced in late 2025 initiating the construction of a refinery of 1.2 million tonnes per year in the coastal town of Dobali. Then, CBG has made significant inroads in obtaining environmental authorisations for a separate refinery in the same region, according to the Guinean Agency for Environmental Assessments (Agence guinéenne d'évaluations environnementales). In January 2025, at an extraordinary meeting of the Board of Directors, the head of CBG reiterated the company's commitment to local value addition in the country and the development of the alumina refinery (Vision Guinée, 2025).

Within the Boffa alumina cluster, French speciality alumina company Alteo (acquired by UMS Group in 2021) has announced an ambitious one-million-tonne refinery in collaboration with SMB, Guinea's largest bauxite miner. The company targets high-quality mineral processing, including the production of speciality alumina used in the manufacturing of electric vehicle batteries and smartphone screens (Energy Capital Power, 2023). Alteo would have already selected its refinery site and would be at the stage of identifying construction-affected populations.

The other two clusters appear more uncertain.

The second Boké cluster (in Sangaredi), led until recently by GAC, appears in limbo following the demise of the Emirati company (see Box 3 for more details). The proposed central Guinea cluster, under the leadership of the Société des Bauxites de Dabola-Tougué (SBDT), appears to remain largely conceptual at this stage.

With a 2024 refining percentage of 0.6%, the current pipeline of refineries could enable Guinea to locally beneficiate about 8% of its bauxite in 2030.

Assuming a production of 160 million tonnes in 2030, the realisation of planned refinery projects to the tune of 5 million tonnes of alumina per year would still leave significant room for growth.¹⁰



BOX 1: ZOOM ON THE SINO-GUINEAN PARTNERSHIP FOR THE CONSTRUCTION OF GUINEA'S FIRST ALUMINA REFINERY SINCE INDEPENDENCE

MARCH 2025

Start of construction work

MAY 2025

Preliminary design

OCTOBER 2025

Start of foundation work for alumina plant

OCTOBER 2026

Completion of water reservoir

AUGUST 2027

Completion of power plant

DECEMBER 2027

Completion of alumina plant

SPIC-Guinea, a subsidiary of China's state-owned enterprise State Power Investment Corporation Limited (SPIC), is a relatively new player in Guinea, only starting bauxite-related operations in the country in 2021. In 2024, the company was the eighth-largest bauxite miner in the country, producing 3.3 million tonnes.

Yet, SPIC appears to be leading the most advanced project in the country towards meaningful local beneficiation of bauxite resources. The company has unveiled an ambitious multi-component project, centred on the construction of an alumina refinery with a capacity of 1.2 million tonnes per year. The complex is part of a broader vision to build and operate an integrated industrial cluster in the Verga Industrial Park, located in the Boffa prefecture, about 200 km from Conakry.

In addition to a high-efficiency alumina production system, the complex is projected to include a 250 MW power supply, based on a mix of thermal and renewable energy sources, along with cogeneration energy facilities, including 100 MW to be supplied to the national grid, an advanced landfill site for red mud, and a modern seaport with a water catchment system.

The project aims to support local employment and supply chains. According to SPIC, over 70% of eligible contracts (bauxite transport, construction of resettlement housing, fishing port work) have been awarded to local SMEs, generating over 1000 direct jobs. The company also pursues a range of CSI initiatives, notably the modernisation of local water infrastructure, roads and public spaces such as schools, clinics, mosques, markets and football

BOX 1: ZOOM ON THE SINO-GUINEAN PARTNERSHIP FOR THE CONSTRUCTION OF GUINEA'S FIRST ALUMINA REFINERY SINCE INDEPENDENCE

itches (SPIC, 2025). Over five years, 100 scholarships to support Guineans studying at Chinese universities are also targeted. Training and equipment are further distributed to more than 500 smallholdings.

This project is part of the implementation of a state-to-state agreement reached between China and Guinea at the Beijing Summit of the Forum on China-Africa Cooperation in September 2024, responding to both the “One Belt, One Road” initiative and President Mamady Doumbouya’s call for local value addition (Hermanus & Montmasson-Clair, 2025).

Following initial delays linked to engagements with prospective consortium partners, SPIC has elected to proceed with the development of the refinery independently, including carrying financing through its own equity. In line with the Guinean government’s cluster approach, the company remains open to bringing partners on board.

Planning and site preparation work has been conducted, with the foundation work set to start in October 2025. The completion of the alumina plant is planned for the end of 2027.

4 GUINEA'S PUSH FOR LOCAL VALUE CAPTURE



Guinea's historical lack of meaningful value from its bauxite wealth is inextricably linked to the design and performance of local institutions governing minerals, as well as to broader economic development. Legal provisions existed on paper but were largely unenforced until 2021, allowing mining companies to extract resources with minimal domestic reinvestment. The post-

2021 transition government has initiated a shift, moving to strengthen institutional capability. Interventions include enhancing fiscal systems and revenues, and enforcing mining-specific value capture mechanisms. This section examines Guinea's evolving policy and regulatory landscape across these three critical dimensions.

ASSERTING SOVEREIGNTY: POLITICAL AND INSTITUTIONAL REFORMS

Guinea's institutions developed within an economy designed for resource extraction and foreign benefit under brutal French colonial rule and were reinforced through post-colonial international relationships (Caramento et al., 2023a; Gerits, 2019; Schmidt, 2007; Tietz, 2022). Following decolonisation, Guinea was the first former French colony to reject membership in the reconfigured 'French Community' in 1958. In reaction to the referendum that delivered this outcome, French colonial officials, in their retreat, abruptly severed economic ties, which undermined the local economy. The latter included the deliberate destruction of critical infrastructure and the stripping of facilities of equipment and supplies (Schmidt, 2007). This 'scorched earth strategy' had an exception: the extraction of bauxite and alumina. French interests soon returned, accompanied by other Western powers (North American and European), as well as the former Soviet Union and China.

Following decades as a single-party state, Guinea's multiparty electoral system emerged from a coup-driven period of military rule between 1984 and 1990, followed by another period of military rule from 2008 to 2010.

Former president Alpha Condé emerged as the victor in the tightly contested 2010 elections. Upon reaching his two-term limit, however, he engineered a constitutional amendment to legalise his future contestation of elections (Odubajo et al., 2024). Condé's presidency would go on to be criticised for democratic backsliding, despite its promising inception at the dawn of Guinea's democracy. Under his leadership, Guinea's economy did not break away from a path of under-development, despite accelerating foreign mining investment. Given this persistent condition, his leadership was also criticised for maintaining the paradoxical economic structure that continues to challenge the country.

In September 2021, Guinea experienced yet another military coup that brought a new political regime to power. This major political event had immediate and consequential impacts on the country. Former President Alpha Condé was deposed and arrested along with several other high-ranking officials in his administration. The National Committee of Reconciliation and Development (Comité National du Rassemblement et du Développement or CNRD), headed by Lieutenant-Colonel Mamady Doumbouya, was established to govern, ahead of a planned national election. Doumbouya acted as the CNRD President, also holding the titles of Head of State and Supreme Commander of the Guinean Armed Forces. In December 2025, Doumbouya was officially elected President of the Guinean Republic, gathering 86.7% of the votes in a largely controlled and uncontested election. This marks a decisive turn towards civil rule and regime stability in the country.

The executive also includes Guinean Prime Minister Amadou Oury Bah,¹¹ who oversees 27 Ministers and two Secretaries General with ministerial rank. In addition to the Prime Minister's office (known as Primature), several ministries have portfolios related to the bauxite industry. These included the Ministries of Mines and Geology; Trade, Industry and Small and Medium Enterprises; Finance and Economy; Infrastructure and Public Works; Energy, Hydraulics and Hydrocarbons; Environment and Sustainable Development; and Labour and Civil Service.

The CNRD has initiated an ambitious programme of policy, legal and institutional reform, as well as enforcement of existing rules. The legislative authority, the National Transitional Council (Conseil National de la Transition or CNT), was constituted under the auspices of a transition charter enacted following the suspension of the 2020 Constitution. The CNT is responsible for legislative texts, monitoring progress against the transition roadmap, and upholding human rights and the government's reconciliation project. It also adopted a new Constitution, replacing a transition charter through a political referendum.¹²

The Constitution established a Senate (in addition to the existing National Assembly), consolidated independent judicial power, extended the presidential term to seven years, and instituted stringent rules for further constitutional amendments. While the transition charter had precluded CNRD members from running for office in planned elections, the Constitution repealed this rule, laying the ground for the maintenance of the current administration's power.

Subnational governments were dissolved following the coup. In place of these governments, the CNRD has implemented a temporary system of decentralised military governance, with local prefects governing subnational regions ('prefectures'). The High Council of Territorial Communities is tasked with designing proposals for decentralisation to be implemented in future.

The Guinean government has demonstrated its resolute commitment to restructuring its relationships with foreign investors in the bauxite industry, reinvigorating mineral governance, and implementing ambitious policies and regulations. A multi-pronged strategy is pursued, with various aims, among which three stand out: increasing public revenues from mining; deepening economic benefits from mining across other sectors; and facilitating value chain upgrading. These are to be achieved chiefly through scaling up alumina production. The increased facilitation of public and private investment complements these interventions.

On the international front, the 2021 coup was initially condemned by the African Union and the Economic Community of West African States (ECOWAS), the United Nations, several Global North nations, and China (African Union, 2021; Le Monde & AFP, 2021; Lianhe Zaobao, 2021; Odubajo et al., 2024). The latter was notable, given China's historical pattern of political agnosticism regarding its African economic partners. This condemnation soon shifted, signalling Guinea's then-latent market power. The supply of Guinean bauxite into global markets is consequential for individual state or private-sector-led mining operations, aluminium supply chains and prices, and downstream manufacturing.

At the end of 2025, Guinea's transition government had successfully normalised relations with the international community.

It continues to work with global development partners, including the World Bank, the United Nations and its agencies, the African Development Bank, the European Union, the Islamic Development Bank, the French Development Agency, and the United States International Development Finance Corporation (World Bank, 2025b). These international partnerships have focused on democratic reform, institutional capacity, and economic development. Likewise, a range of foreign players have continued to invest in the country's economy, primarily in mining value chains. Investment is flowing from China, Brazil, Russia, India, and Gulf countries, as well as from certain Global North economies (the USA, Canada, France, the UK, and Australia). These are generally private or at least semi-private ventures. However, as noted below, the terms of these investments have been subjected to more scrutiny and conditionality than under the previous political regime.

BOX 2: THE SIMANDOU 2040 VISION

Simandou 2040, dubbed “a bridge towards prosperity” (un pont vers la prospérité), is Guinea’s ambitious national development strategy designed to transform the country’s vast mineral wealth into broad-based economic prosperity. Named after the world’s largest untapped high-grade iron ore deposit in southeastern Guinea, the programme is not just a mining project but a comprehensive national transformation roadmap extending to 2040.

Leveraging its vast iron ore reserves and other assets, Guinea aims to transition from a resource-dependent economy to a diversified, middle-income nation over the next 15 years. By positioning Guinea as a key player in the processed minerals market in Africa and internationally, Simandou 2040 aims to drive progress across the following levers: agriculture, food security and trade; education and culture; infrastructure, transport and technology; economy, finance and insurance; and health and well-being.

At the core of the programme is the construction of a 670-km railway, deep-sea ports, and energy infrastructure, designed to position Guinea as a leading mineral producer, beneficiary, and exporter (World Bank, 2025). Leveraging investment in the range of US\$ 20 billion (i.e. almost the size of the Guinean economy in 2024, US\$ 25 billion), local content rules aim at maximising domestic benefits, especially employment and economic participation. About 60 000 new direct jobs are forecasted.

To secure long-term benefits, the programme, primarily through iron ore revenues, will finance a sovereign wealth fund, a large-scale human capital development programme (Simandou Academy), infrastructure development, service delivery and economic diversification (General Secretariat of the Government, 2023).

The impact of the Simandou iron ore project alone could lead to a 26-55% increase in GDP over the 2025-2030 period compared to a ‘business-as-usual’ baseline. Employment could rise by 4-10% over the same period. Overall, allocating additional revenues (equivalent to 3% of GDP) to public and social investment (rather than general consumption) would yield the highest benefits. While the Simandou project itself is not expected to materially reduce poverty (<1 percentage point difference compared to the baseline), reinvesting revenues generated by the initiative in public infrastructure, education and social protection could reduce poverty by 24-28 percentage points by 2040 (IMF, 2024b).

CLOSING THE REVENUE GAP: FISCAL REFORMS AND FAIR PRICING

Fiscal reform and capacity building have been a priority of Guinea's transition government and of international development support.

Historically, Guinea has not adequately captured the fiscal value attached to the country's mining operations (World Bank, 2025a). Overall, as depicted in Figure 11 and Figure 12, the country's fiscal revenue stood at 13% of GDP in 2024 and averaged 12.8% of GDP between 2016 and 2025. This is one of the lowest levels globally, falling below the average for low-income countries. It is also below the 15% threshold widely understood to be necessary to enable investment in development priorities, such as health, education, and infrastructure, and to unlock economic growth and support poverty reduction (Choudhary et al., 2024; World Bank, 2025a).

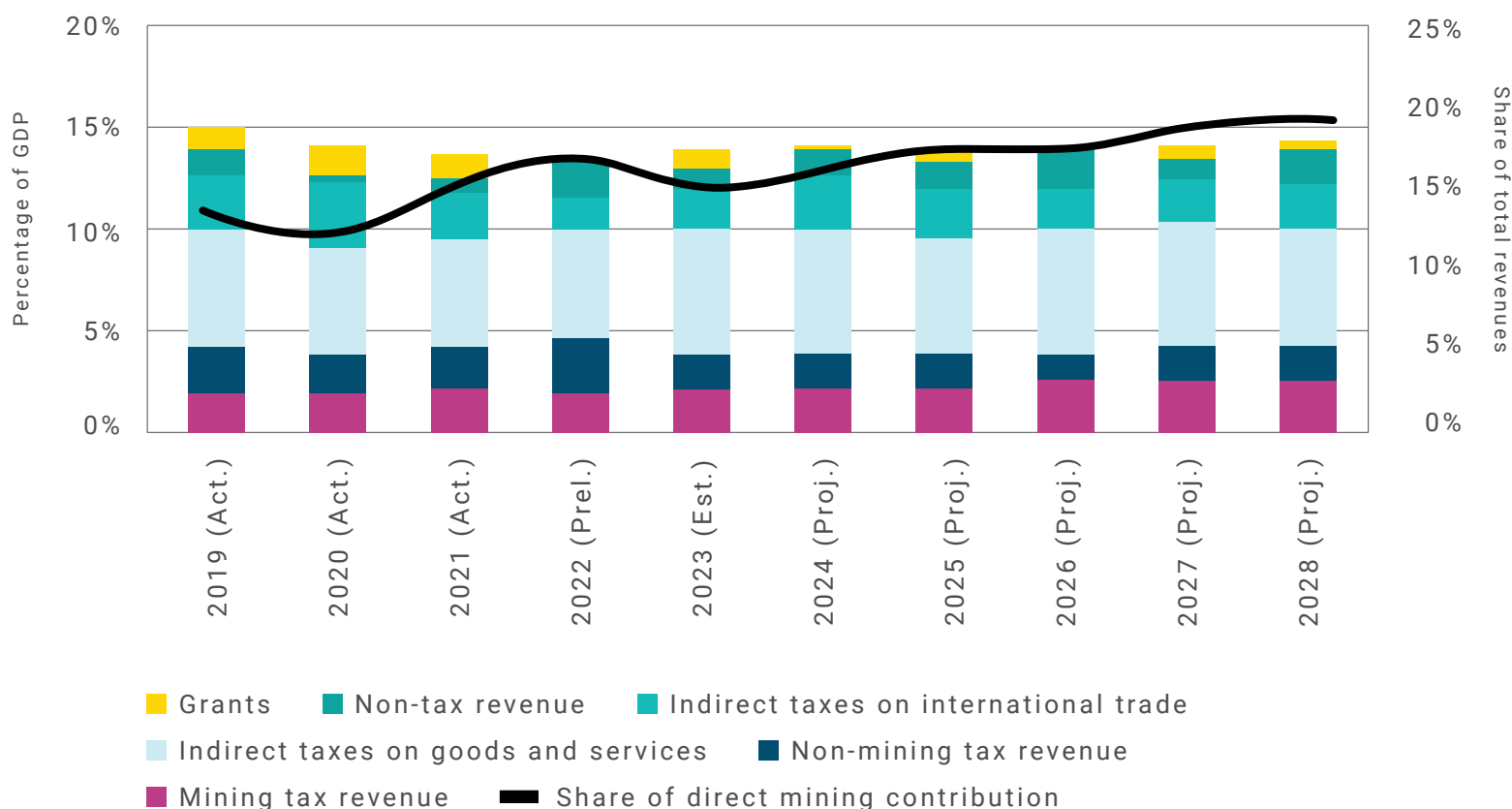
Despite the economic significance of mining, in 2024, it directly accounted for only 16% of total revenues. When taking indirect taxes related to mining activities into account, this proportion increases to 23% (see Figure 12). Under Guinea's Mining Code, taxes applicable to mining operations have included 30% corporate income tax on mining companies' taxable profits, a 10% withholding tax on dividends and interest paid to foreign beneficiaries, a 6% payroll tax on salaries, and a property tax equivalent to 10% of rental value. Bauxite and iron mining

companies contribute an additional 0.5% of their turnover (1% for other minerals) to a Fund for Local Economic Development (Fonds de Développement Local – FODEL). There are additional extraction and export taxes of 0.075% of the export value of bauxite,¹³ respectively, along with an area-based fee. Mining-related imports are largely exempted from the 18% value-added tax that applies to the whole country.

In practice, sizeable tax exemptions, along with revenue leakage from transfer mispricing¹⁴ and thin capitalisation schemes¹⁵ by multinational companies (reducing taxable income in Guinea), have weakened fiscal flows from mining (IFC, 2021).

Under the Mining Code, if a mining company sells minerals below arm's-length price for a continuous period exceeding three months, the state may exercise pre-emption rights over 50% of production. However, in practice, the state has been unable to enforce the legal safeguards against transfer mispricing.

FIGURE 11: GUINEA'S FISCAL REVENUES BY SOURCE OVER TIME

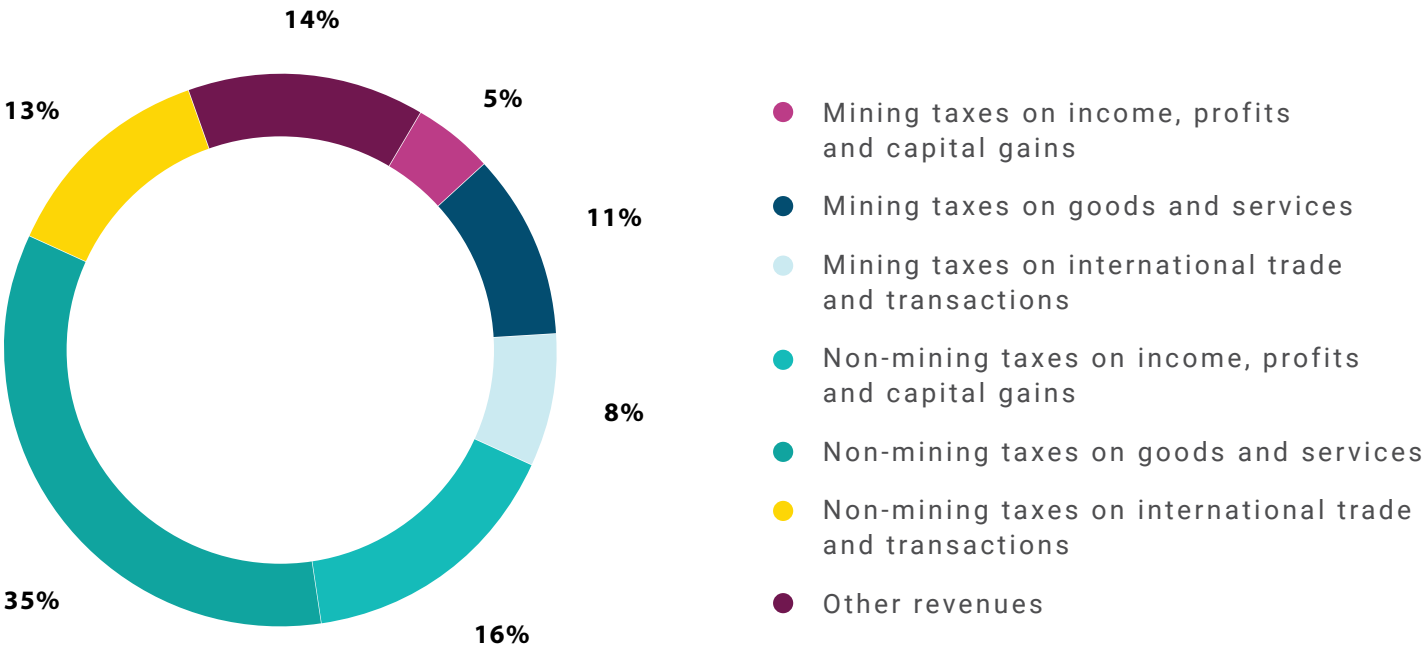


Source: Authors, based on data from the International Monetary Fund

As a result, bauxite leaving the Guinean shores has historically been underpriced. Despite bauxite exports quadrupling from 20 million tonnes in 2015 to 80 million tonnes in 2020, government revenue only rose from US\$ 250 million to US\$ 370 million, a disproportionate increase to the value of mineral exports (IGF, 2023). Over the 2019-2020 period, revenue losses were conservatively estimated at about US\$ 640 million, with over 70% from transfer pricing, 11% from tax exemptions, and 19% from the combined effect of the two (IMF, 2024a).¹⁶

A reference pricing system was introduced in a 2022 reform to remedy the situation and ensure fairer returns. The reference price (for Guinea's Free on Board export), applied since September 2022, is based on the China Bauxite Index (CBIX).¹⁷ Prices below the reference price are justified and may be used only if supported by proper documentation. Before the implementation of the reference pricing system, the export price declared by some companies stood below US\$15 per tonne, compared to an index-based price between US\$ 38.5 and US\$ 54.6 in the last quarter of 2022 (IMF, 2024a).

FIGURE 12: GUINEA’S FISCAL REVENUE IN 2024, BY SOURCE



Source: Authors, based on data from the Guinean National Treasury

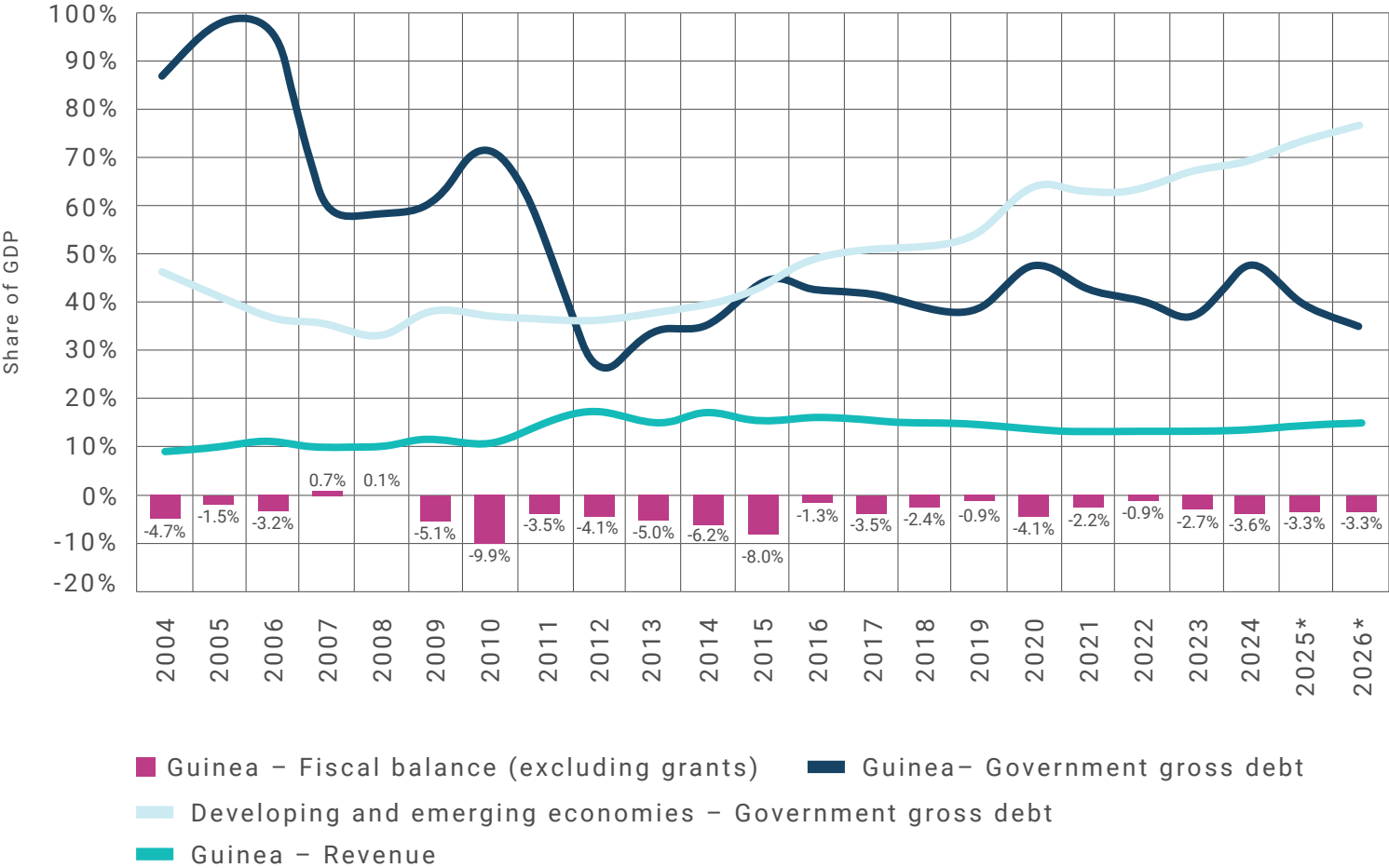
The implementation of the reference pricing system has led to some notable improvements, although enforcement remains a challenge.

According to official data from the Guinean statistical office, the unit price per tonne in 2024 stood at an unweighted average of US\$ 28.6, ranging from US\$ 19.0 for Ashapura and US\$ 23.8 for Chalco, to US\$ 37.7 for AGB2ASDM and US\$ 38 for CBG. SMB, the leading company in tonnage, achieved a unit price of US\$ 32 per tonne. On average, this is somewhat lower than the unit price for Australian exports, at about US\$ 38 per tonne in 2024. The capacity of the Guinean state to enforce the reference pricing system remains constrained due to limited capacity to conduct tax audits, to measure and certify the quantity and quality of bauxite exports reported by companies, and to access the necessary equipment and databases (IMF, 2024a; World

Bank, 2025a). To further improve revenue collection from mining operations, Guinea is planning to implement its own Guinea Bauxite Price Index as its official price by the end of 2025. This would replace the current system based on the CBIX index, a privately owned, proprietary index accessible only under license (Tossou, 2025).

In addition to addressing low public revenue collection, Guinea is leveraging foreign direct investment (for details on the Simandou iron ore project, see Box 2) and institutional reform to re-engage global finance actors. Recognising a need to increase public investment levels, Guinea’s government is currently repositioning itself to access international finance to support its development goals.

FIGURE 13: GUINEA’S FISCAL POSITION



Source: Authors, based on data from the IMF
Note: 2025 and 2026 data are projected estimates

The country has a relatively low sovereign debt ratio, at 48% of GDP in 2024,¹⁸ having benefited from the cancellation of a portion of its debt under the Enhanced Initiative for Heavily Indebted Poor Countries in 2011-2012. Given its relatively stagnant public revenues and operating at a steady deficit, the government has had limited space for new borrowing (see Figure 13). However, as an indicator of progress in its

institutional overhaul, the country received its first-ever credit rating (B+, stable outlook) by S&P Global Ratings in September 2025. This is an essential signal to international financial markets, which should make a material difference to the government’s borrowing capacity.

ENFORCING LOCAL CONTENT AND BENEFICIATION

While 2021 marked a turning point in terms of institutional enforcement of local value capture, the rules themselves, notably the Mining Code discussed above, are not new. It was adopted

in 2011 (amended in 2013), following decades of liberalisation in line with the World Bank's (1992) 'Strategy for African Mining'. The Mining Code articulates Guinea's precise mechanisms to control and benefit from its natural resources. The Code prescribes an automatic 15% free-carried interest in the capital of bauxite mining companies for the state.¹⁹ Already pre-empting value chain upgrading from bauxite to alumina to aluminium, the public equity stake is 5.5% for integrated bauxite and alumina production, 7.5% for standalone alumina production, and 2.5% for stand-alone aluminium projects. Importantly, this no-cost equity allocation is non-dilutable. It cannot be reduced through capital increases or other means, and cannot be sold, assigned, or mortgaged by the state.

Beyond this automatic 15% free carry, the Mining Code provides for the state to purchase an additional equity share in bauxite mining projects, of up to 20% for cash, at fair market value and on negotiated terms. This brings total possible state ownership to a maximum of 35%. The maximum is 30% for integrated bauxite and alumina production, 27.5% for stand-alone alumina, and 32.5% for stand-alone aluminium projects. In practice, due to limited financial resources, there is no evidence that the Guinean state has ever taken up these optional equity buy-ins for bauxite mining. This right has also not been exercised for the country's only alumina production.

The state may also exercise 'marketing rights' over a percentage of production corresponding to its equity participation, provided this is done under conditions at least equivalent to those offered by third-party buyers. This would allow

the state to participate in the sale of mining products, potentially capturing more value than passive ownership. As with the optional equity buy-in, there is no evidence that the state has ever exercised this right.

Beyond ownership, economic integration of mining can be facilitated through local procurement requirements. The Mining Code determines minimum thresholds for the supply of goods and services to mining companies by local small- and medium-sized enterprises. These are 10% at the exploration stage, 20% at the development stage, and 15-30% for exploitation, the latter ramping up over time. A 2022 Local Content Law reinforced and strengthened the local content requirements included in the Mining Code, notably expanding obligations to all large businesses in the country.²⁰ While localisation quotas remained unchanged for mining companies, the new law introduced additional obligations regarding local involvement, skills development, technology and knowledge transfer, succession planning, and youth employment. For instance, local Guinean companies must be awarded exploitation contracts equivalent to at least 40% of the deposit size, while all transport and dirt road construction is restricted to Guinean businesses.

The Mining Code and the Local Content Law also include strong provisions for local employment. Table 2 summarises key obligations for mining operations.

While such requirements have provided an impetus for increased local job creation, employment in the Guinean mining sector remains limited, as illustrated in Section 2.

- In 2023, the transition government approved the country's industrial development plan (Politique Nationale de Développement Industriel de la Guinée 2022-2040). It provides an overarching blueprint for Guinea's industrialisation, across five pillars:
- Developing essential preconditions for industrialisation (regulations, standards, infrastructure, funding instruments);
- Revitalising industrial enterprises through dedicated policies (human, technological, and financial support);
- Opening to African and international markets through product upgrading (investment and export promotion);
- Developing value chains and capturing local added value in eight priority sectors: agro-processing, wood and paper products, light manufacturing (including chemicals, machinery, equipment and automotives), mining and metals, artisanal production (notably in textiles), construction materials, and transport equipment; and
- Revitalising public sector capacities, especially in terms of implementation and strategic planning.

Environmental regulations are meant to prevent avoidable harm to ecosystems and communities living near mining-related operations.

Before the start of operations, companies are mandated by law to conduct an Environmental and Social Impact Assessment. As part of these assessments, there should be public consultations with affected communities, which will be validated by the Guinean Agency for Environmental Assessments (Agence guinéenne d'évaluations environnementales). During operations, environmental monitoring, along with the implementation of mitigation measures and progressive, concurrent rehabilitation, is legally mandated and financed by a compulsory 'rehabilitation deposit' from the company. Mine decommissioning and official closure must, by law, follow the restoration of the site to 'near original' state with respect to security, rural productivity, public health and visual aspects. Notably, the Mining Code prescribes that the most stringent legally applicable standards are to be used to evaluate implementation, whether they are found in Guinean law or in any other jurisdictions in which a given mining company operates.

TABLE 2: MINIMUM LOCAL EMPLOYMENT QUOTA FOR MINING OPERATIONS

POSITION LEVEL	EXPLORATION	DEVELOPMENT	EXPLOITATION (YEARS 0-5)	EXPLOITATION (YEARS 6-10)	EXPLOITATION (YEARS 11-15)
Senior management	33%	20%	60%	80%	90%
Mid-level management	50%	30%	80%	90%	100%
Skilled workforce	66%	40%	80%	95%	100%
Unskilled workforce	100%	100%	100%	100%	100%

Source: Guinea's 2011 Mining Code, as amended in 2013

In practice, a Human Rights Watch report (Wormington, 2018) documented a range of non-compliance issues by mining companies, as well as negative social and environmental impacts (on land, water and air quality). Bauxite mining and alumina refining pose significant environmental risks and human health impacts that necessitate rigorous assessment and effective regulation enforcement. In terms of economic linkages to other sectors, the contamination of water and land poses significant risks for agricultural production, with consequences for domestic food security.

While there is a clear domestic policy and legal framework for mining and anticipated additional industrial activities, these are operationalised primarily through bilateral agreements ('conventions') signed between the state and individual mining companies. They may specify supplementary conditions, especially regarding value addition. Several bauxite mining conventions include requirements for investment in alumina refining. At least one convention (the one of Chinese Tebian Electric Apparatus) covers the construction of an aluminium smelter. Historically, these obligations have been largely ignored by companies across the board. Concurrent with this failure of implementation, many agreements signed post-2013 contain derogations that are more favourable to companies than those in the Mining Code. They include reduced royalty rates, extended VAT exemptions, customs duty exemptions beyond Code provisions and accelerated depreciation schedules (IMF, 2021). This is despite the Code being a legal requirement for conventions to adhere to its prescriptions.

Given that the existing policy and legal framework for mining and related industrial investments is quite comprehensive and ambitious, the current administration has focused its significant efforts on compliance and enforcement. Between 2023 and 2025, the Guinean government issued various time-bound compliance instructions for mining companies, as conditions for their continued operation. In January 2023, President Doumbouya called a meeting with mining stakeholders, together with Ministers of Mines and Geology, the Budget, and the Environment, and the Governor of the Central Bank of the Republic. This meeting issued a call for clear timelines for the construction and operation of alumina refineries, subject to government monitoring (Gouvernement de la République de Guinée, 2023).

Subsequently, in May 2025, the Guinean government announced a comprehensive review of all signed conventions to ensure alignment with the Mining Code and other national policies. The review included a clear emphasis on alumina refining obligations, again calling on companies to demonstrate progress toward 2027 refining capacity. It also covered all environmental assessments, contributions to the FODEL, and compliance with local employment and procurement targets.

During the same period, the government cancelled 129 exploration permits to 'free unused resources' for new potential investors. It also revoked over 50 mining licenses for underutilisation or non-compliance. Major bauxite exporter, Emirates Global Aluminium, operating through its subsidiary Guinea Alumina

Corporation (GAC), had its operation halted for failing to advance its promised alumina refinery, presented in Box 3 (Adombila, 2025; Samb, 2025a, 2025b).

These developments are in line with the legal framework that, on paper, has governed companies for more than 20 years. It supports the Guinean government's dual strategy in the bauxite value chain. While the country is committed to expanding its alumina production, it also aims to maintain its leadership in unprocessed bauxite exports, with the intent to play a key role at both stages of the value chain

in the future. Higher-quality bauxite (of an ore grade exceeding 45%) would be channelled for export. In comparison, lower-quality bauxite (of an ore grade lower than 45%) would be used for domestic beneficiation. In 2024, mining companies operating in Guinea reported an unweighted average ore quality of 45.5%, with specific operations ranging from 42.4% (SPIC) to 49.7% (CHALCO). Other leading mining companies, SMB, AGB, CBG and GAC, reported ore concentrations of 44.0%, 44.8%, 47.1% and 46.1%, respectively (INS Guinée, 2025).

BOX 3: THE CASE OF THE GUINEA ALUMINA CORPORATION

The case of the Guinea Alumina Corporation (GAC) illustrates challenges in securing adherence by foreign investors and in enforcing commitments, as well as the recent shift in approach.

Owned by the Emirati company EGA, GAC began operations in Guinea in 2019 following a US\$ 1.4 billion investment in bauxite mining. Part of the convention signed by the company with the Guinean state included the construction of a 1.2-million-tonne-per-year alumina refinery by 2022, as the first phase of a larger 4-million-tonne-per-year complex. Concessions from the Guinea government pushed this initial deadline to 2026. Citing economic, technical, and environmental challenges in Guinea, the company prioritised the construction of the two-million-tonne-per-year Al Taweelah alumina refinery in Abu Dhabi, which opened in 2019.

While GAC inked a cooperation agreement with Chalco in June 2023 to collaborate towards the construction of a Guinean refinery (Energy Capital Power, 2023), the lack of meaningful progress led the Guinean government to terminate GAC's mining agreement in July 2025. This followed multiple engagements and warnings from the Guinean government. The Guinean government, for instance, warned that if the laying of the foundation stone did not occur by December 2026, compensation should be paid to the Guinean state, in addition to a 15% interest in the Abu Dhabi refinery. The government transferred the mining lease to a newly established state-owned entity, Nimba Mining Company, under a renewable 25-year lease.

5 STRATEGIC PATHWAYS FOR A JUST TRANSITION



The institutional processes currently underway are indicative of a break with history. As described above, Guinea's transitional government is taking decisive steps to maximise the benefits from its bauxite (and iron ore) mineral endowment. Given these developments, two key questions arise. The first is whether these efforts will translate into real improvements for the state, the economy, and the people of Guinea; and the second is whether this increased value can be translated into a sustainable 'just transition' pathway for the country. These questions require viewing current actions through a strategic lens that enables systematic monitoring, analysis, and evaluation of plans and actions. ²¹

This section begins with outlining the Guinean government's general pursuit. It then moves towards a more specific categorisation of strategic upgrading options, both currently implemented and not. It first considers options with goals related to the value chain, broader industrialisation, and the economy, and then moves to those with goals related to social or environmental value protection, addition, and capture. For each of the two successive discussions, the current 'strategic upgrading options' undertaken by the Guinean government are characterised in terms of the 'levers' and 'mechanisms' that can be used to pursue these options and their associated goals. This section also formulates a set of targeted recommendations based on this analytical characterisation.

CHARACTERISING GUINEA'S STRATEGIC OPTIONS FOR ACHIEVING VALUE UPGRADING

In the case of upgrading the bauxite-aluminium value chain in Guinea to deliver value to the state and Guinean people, the sector offers significant opportunities for greater local benefit. Looking ahead, the question is whether and how Guinea can achieve value chain upgrading, in both a narrow and a broader industrial sense. If this is achievable, a subsequent but equally important question is whether and how broader economic, social, and environmental upgrading can set the country on a just transition pathway.

The approach to upgrading applied in this paper and the broader project of which it is a part is a holistic approach, which spans different dimensions of value, including the value chain itself, widening the focus to the industries in which the value chain is embedded,

the economy more broadly still, as well as social and environmental dimensions. This approach is consistent with just transitions and sustainable development, not seeing social and environmental risks, costs and harms as separate from more conventional questions of economic value addition (Fanning & Raworth, 2025).

The options provided below offer direction and parameters for different actors working to preserve, qualitatively enhance, add value, and align with upgrading outcomes. Options can be diverse and may also be mutually dependent, complementary, or contradictory.

To realise strategic upgrading options, it is necessary to employ specific levers and mechanisms, which are understood (with

reference to evidence generated locally or in other contexts) to enable, encourage, trigger, dictate, or otherwise produce the preservation, qualitative enhancement, addition and capture of value, aligned with one or more strategic options. Activating a particular lever may demand several specific mechanisms, which may trigger diverse actors and activate the causal systems, structures, or processes through which these levers are effected.

Analysing strategic upgrading interventions in terms of options, levers and mechanisms allows for clarity, evaluation and adaptation over time. Given the complexity of upgrading and the persistent lack thereof in Guinea, it is expected that no single intervention will achieve widespread, meaningful, and durable benefits. Limited resources and interactions across interventions, along with other features of the local context, mean that benefits need to be carefully weighed and known and emergent risks

appropriately managed. Ensuring that a policy lever, when activated, has the desired effect depends heavily on a range of conditions.

Some of the strategic upgrading options being pursued are relatively straightforward, at least in the sense of applying good practices. However, others are less clear, involving multiple actors who must contend with a complex, opaque opportunity context, raising the need to co-create clarity and manage overlapping goals (Hölscher, 2020). Within this opaque opportunity context, Tables 3, 4 and 5 construct an ‘option set’ for value chain, industrial and economic (Table 3), social (Table 4) and environmental (Table 5) upgrading, respectively. They include relevant levers, highlighting their related risks and benefits, and emphasising key conditions for success. This is followed by a reflection on the extent to which each policy lever is considered and/or implemented in Guinea, along with recommendations.

CHARACTERISING VALUE CHAIN, INDUSTRIAL AND ECONOMIC UPGRADING OPTIONS

This section focuses on four mutually reinforcing strategic options across the value chain, industrial and economic (Table 3): (1) mineral rent maximisation, (2) value chain development, (3) economic diversification, and (4) infrastructure development.

Increasing fiscal revenues from bauxite mining is a primary and urgent priority. Harnessing fair revenues from the country’s mineral endowment is already a clearly understood priority for the Guinean government. It has wide-reaching consequences. Additionally, it falls squarely within the current remit of the government, not

relying on the voluntary conduct of other actors. As discussed above, the rollout of an effective fiscal regime, along with a fair mineral pricing strategy, remains a work in progress. Success will depend on building and institutionalising the effective capabilities, not only improving rules and adding capacity, in the public sector, to operationalise and enforce new systems. In the longer run, given Guinea’s leading role in the global bauxite market, ancillary mechanisms like strategic stockpiling can be investigated to manage price volatility and maximise mineral rents.

Significantly, in terms of the value chain itself, this option can be strategically tied back to state bauxite investment, to other sectors, and to cross-cutting investments in public infrastructure and service delivery. In terms of supporting industrialisation, revenue increases should be managed in accordance with a strong industrial policy programme. Another specific mechanism that can be developed over time is a Sovereign Wealth Fund. These measures should support the diversification of the economy towards employment-rich activities as well as fast-track the modernisation of existing low-value-adding activities, which form the backbone of employment in the country, predominantly small-scale agriculture and informal trade. As the state's capacity to make such investments, either directly (through public expenditure) or indirectly (through policy support), grows over time, it should go hand in hand with strengthened public sector capabilities and accountability.

The development of the bauxite-aluminium value chain beyond mining is a logical upgrading step for Guinea, given the unrealised plans for both existing and new alumina-refining capacity.

This is now reinforced by the Simandou 2040 vision, which reignites the ambition to go beyond alumina refining, towards aluminium smelting and the development of a comprehensive industrial ecosystem. This would indeed position the country to reap widespread benefits from the value chain. Alumina and aluminium production would generate significant additional fiscal revenues, in addition to industrial and economic development.

The energy and capital intensity of these production stages would need to be carefully planned and managed. Additionally, the goal of employment generation needs to be

appropriately scoped, given that employment creation is concentrated in downstream, connected and side-stream activities (such as the manufacturing of machinery and equipment, the provision of support services and the production of aluminium products).

Consequently, given the significance of employment creation, complementary efforts would be required to use these production activities as 'stepping stones' towards a broader integrated socio-economic strategy for the country. International cooperation is a widely applicable complementary lever (Hermanus et al., 2025) that, in this case, can form strategic partnerships with other countries in the value chain, especially other African and Global South countries that share the same ambition to increase domestic value capture from their natural resources.

A critical and significant source of influence for Guinea arises from its dominant, high-quality bauxite supply, recognised by the government in its strategic retention of high-quality exports alongside its alumina and aluminium production ambitions. Using its 'supply advantage' as the world's largest producer is more straightforward than trying to gain a price advantage (see Scurfield et al., 2024 for a discussion on the determinants of equitable value addition in mining). The mining conventions are an essential mechanism through which this market power can be exercised, by prescribing and enforcing state-to-state and state-to-firm conditionalities and determining the 'rules of the game'. While a 'preferential pricing' of bauxite for local beneficiation would be complicated and yield uncertain results, access to the country's natural resources can be effectively conditioned to a range of provisions (Scurfield et al., 2024).

The approach taken in the country's existing legal and policy framework is broadly opportunity-oriented, extending beyond beneficiation to industrial ecosystem development and infrastructure investment.

The Guinean government has already begun to engage strategically on issues of mutualisation of infrastructure across companies to generate efficiencies. However, more can be done by directing the type of infrastructure, specific design, and integration with service delivery plans, to benefit the economy broadly. Transport and energy access provide clear opportunities for sustainable development planning.

Table 3 should be read as a first iteration in a longer-term research and strategic engagement process. It is not final and is intended to be refined through robust stakeholder reviews and workshopping. It is both grounded in the foregoing analysis and propositional in nature. Its propositions, particularly recommendations, are subject to further iteration. Risks are identified in general terms, given the early implementation stages of most options.

TABLE 3: STRATEGIC OPTIONS AND LEVERS TO FOSTER ECONOMIC UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Mineral rent maximisation	Fiscal policy and systems: Fiscal reforms targeting developmental objectives and closing loopholes	May deter specific foreign investment Resistance from mining investors	Maximises mining-related revenue Establishes fiscal sovereignty	State technical capabilities (tax administration) State enforcement capabilities Resistance to political pressures Regular fiscal regime reviews	Fiscal regime under review (2025) Actively pursued since 2021 Limited state capabilities	Short-term priority, to maximise revenues from mining operations
	Developmental pricing: National mineral pricing strategy	Persisting under-pricing due to information asymmetry Market volatility Disputes with mining companies	Ensures fair value capture for resources Reduces revenue leakage	State technical capabilities (commodity pricing) Access to independent price verification Transparent pricing mechanisms Data and monitoring Systems	New internationally based pricing mechanism introduced in 2022 Guinea Bauxite Price Index in development Low monitoring and enforcement capacity Entrenched under-pricing practices demand active interventions	Short-term priorities, to shift from a position of 'price taker' to 'price setter' on bauxite markets
	Developmental pricing: Strategic national stockpiling	Storage costs, Price volatility, Working capital requirements	Maximises revenue during price peaks Increases market power	Storage infrastructure Market intelligence Financing capacity	Not implemented or publicly considered No existing stockpiling infrastructure	Medium-term consideration, to manage price volatility in the long run

TABLE 3: STRATEGIC OPTIONS AND LEVERS TO FOSTER ECONOMIC UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Value chain development	State-state and state-firm conditionalities: mining convention amendments	Resistance from mining investors Corruption Legal challenge and reputational damage in case of contract renegotiation	Increases value capture Forces value chain investment Redress unfavourable legacy contract (if renegotiation)	State enforcement capabilities Transparency and anti-corruption measures Negotiation leverage with investors (e.g. permit) Investor consultation and phased implementation	Included in law and existing conventions Actively pursued since 2022	Short-term priority, to enforce (at least) existing policies and conventions
	Non-tariff trade measures: Export bans and quotas	Resistance from mining investors Short-term impact on production	Increases value capture Makes market power explicit Forces upgrading investment	Sustained market dominance State enforcement capabilities Investor consultation and phased implementation	Conventions' enforcement introduces de facto soft quotas Export ban not publicly considered as a blanket approach	To be considered if the convention enforcement order does not deliver results
	Developmental pricing: targeted subsidies	Subsidy costs to public finances Potential WTO challenge Market distortions	Incentivises domestic processing Reduces input costs for value-added industries Attracts downstream investment	Legal framework Complementary infrastructure development Financial resources for premium compensation	Considered in the Simandou railway tariff structure (under development)	Short-term priority for network infrastructure mutualisation For minerals, priority should be to leverage 'supply advantage' (rather than 'price advantage')
	International cooperation: Strategic & regional integration	Uneven benefit sharing Competition outweighs cooperation	Strength in numbers Shared infrastructure and technology costs Peer learning and collaboration	Willing, complementary partner countries and companies Strategic agreements (e.g., on trade and investment)	ECOWAS member Limited regional integration Limited strategic integration	Medium-term consideration, to structure mutually beneficial value chain partnerships and increase market power

TABLE 3: STRATEGIC OPTIONS AND LEVERS TO FOSTER ECONOMIC UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Value chain development and Economic diversification	Industrial policy support: various, including clear and stable policy	Opportunity cost Incorrect prioritisation	Strategic direction aligned with local priorities	Available financial and technological resources State enforcement capabilities Coordination across government entities Private sector engagement mechanisms Complementary infrastructure development	Historically not pursued Overarching vision developed under Simandou 2040 (14 priority sectors identified) Industrial policy framework developed (8 priority value chains)	Rising priority (as resources become available over time), to bolster public investment in the economy
	State-led direct investment: Sovereign Wealth Fund	Delayed benefits Governance capture	Public sector control Sustained revenue stabilisation and investment capacity Inter-generational equity	Legal framework Fund management capabilities Independent board Transparent rules and reporting	Part of Simandou 2040 Legal framework yet to be established	Short-term priority, to enable public investment over the medium to long run
	State-led direct investment: Public-private partnerships or joint ventures	Complex contracts with mixed results Fiscal liabilities Regulatory capture	Shares risk and capital burden Leverages private sector efficiency Knowledge, technology and skills sharing / transfer	Strong legal framework, including investment protection Transparent procurement State management capacity (contract) Attractive investment terms	Legal framework in place Limited state capacity Public-private cooperation pursued through other vehicles	To be considered on a case-by-case basis

TABLE 3: STRATEGIC OPTIONS AND LEVERS TO FOSTER ECONOMIC UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Value chain development, Economic diversification, and Infrastructure development (energy, transport)	State-led direct investment: State equity as prescribed in the Mining Code	High cost of capital Corruption	Public sector control Economy- and society-wide benefits	Available financial resources Favourable financing terms Technical implementation capacity Transparency and anti-corruption measures	Limited to date A key focus of Simandou 2040 (e.g. Sovereign Wealth Fund) Framework developed under Simandou 2040 (14 priority sectors identified)	Rising priority (as resources become available over time), to bolster public ownership and benefits
Infrastructure development (energy, transport)	State-state and state-firm conditionalities: various, including mutualisation, state ownership of infrastructure specified in mining covenants	Resistance from mining investors Corruption	Forces infrastructure development investment	State enforcement capabilities Transparency and anti-corruption measures Negotiation leverage with investors (e.g. permit) Investor consultation and phased implementation	Historically not pursued Actively pursued since 2021 through the mutualisation requirement Still arm's length state-firm relations (e.g., technology choices)	Short-term priority, to maximise benefits from infrastructure development and align rollout with national priorities

CHARACTERISING SOCIAL AND ENVIRONMENTAL UPGRADING OPTIONS

Social upgrading (Table 4) can take on various forms (Barrientos et al., 2011; Gereffi & Lee, 2016a; Sinclair & Coe, 2024). Domestic job creation and enterprise development generally constitute the primary objectives to generate sustainable economic activity. Increased local ownership and control, community development, the emergence of knowledge and capability systems and improved social cohesion are other relevant forms of social upgrading.

Fostering the development of local economic opportunities, through direct employment creation or supply chain-induced enterprise development, is mandated by law, both through the Mining Code and the Local Content Policy.

Employment creation can be pursued by maximising direct employment at mining and other value chain operations. Improving job quality is critical to ensuring that this is socially beneficial (ILO, 2018; van der Ree, 2019).

Using supply-chain-induced enterprise development to create employment should also be subject to decent work requirements.

Additionally, to be meaningful, such 'localisation' (Serifsoy & Ferman, 2019) would need to drive employment creation at scale. Importantly, operationalisation should align with existing local capabilities, which should be bolstered over time, with the operationalisation accordingly amended. Clear 'ramping curves' should inform strategies for increased local content and for improved employment creation, respectively (Anzolin & Pietrobelli, 2021).

Across all employment-generation and improvement efforts, skill development offers a range of levers to generate social benefits. The facilitation of capacity and capability building – whether general or specific – can be coupled with employment creation, creating complementarity between formal training and on-the-job skilling. Guinea's current education challenges define the scope and difficulty of this option. Bridging mechanisms would be necessary to ensure that local workers accrue better-compensated positions previously reserved for migrant workers.

The well-being of workers cannot be understood or enhanced without similar attention to the communities in which they live. Mining-affected communities require specific support to manage risks, harms, costs, benefits and access to opportunities. In Guinea, measures should target education and health, as well as access to modern services (energy, water, sanitation, transport, digital connectivity), which are highly unequal and overall limited. While mechanisms are in place, through development agreements with communities and the FODEL, implementation requires attention.

Social upgrading also encompasses questions of local ownership and control, which provide an essential foundation for pursuing national just transition and sustainable development goals. Although such ambitions are sometimes pathologised by foreign actors (see Caramento et al., 2023), these reactions often reflect external interests and outdated assumptions about development. Different ownership configurations generate distinct benefits, as well as risks that require careful management. At present, however, Guinea's largely foreign-owned mining assets constrain state influence, limiting government participation to the mandated 'free-carry' equity stake.

As state capacity and resources increase, other alternatives can be feasibly introduced such as, firstly, taking up the additional equity option provided by the Mining Code. This will be particularly important for beneficiation activities, given the lower 'free carry' awarded in law for both alumina and aluminium production. Attention can also be given to building local private ownership by Guinean industrialists, as well as workers and local communities. This would also enhance linkages with the domestic economy.

Social upgrading is not about value addition alone. It is also about protecting or conserving value. This includes maintaining an appropriate baseline of harm reduction, risk management and qualitative improvements, ensuring that human rights, participation (Free, Prior and Informed Consent [FPIC]), and traditional livelihoods are respected, in line with all relevant international and domestic standards and guardrails (Shift, 2023; Wormington, 2018). This must be integrated with novel value-adding actions.

Social upgrading is inextricably linked to environmental upgrading (Table 5), which is essential for social well-being and progress (Fanning & Raworth, 2025; Gupta et al., 2024).

The bauxite-aluminium value chain causes significant environmental damage, including air pollution, water contamination, and land contamination (Montmasson-Clair & Hermanus, 2025). There are knock-on impacts on human health and well-being. As with social upgrading, the effective implementation of robust policy and regulatory frameworks, through the capacitation and empowerment of local agencies and authorities, is a short-term priority.

There is also potential to explore more regenerative levers that actively improve socio-ecological systems (Krishnan et al., 2023).

There is a possibility of coupling social and environmental upgrading options. These include exploring nature-based solutions to infrastructure problems, regenerative business models with certifications that enable access to 'green' supply chains and the development of fit-for-purpose R&D matching the needs, requirements and overall context in the country. The development of local solutions and the 'localisation' of foreign innovations is one such pathway.

As with Table 3, Table 4 and 5 should be read as a first iteration in a longer-term research and strategic engagement process. They are not final and are intended to be refined through robust stakeholder reviews and workshopping. They are both grounded in the foregoing analysis and propositional in nature. Their propositions, particularly recommendations, are subject to further iteration. Risks are identified in general terms, given the early implementation stages of most options.

TABLE 4: STRATEGIC OPTIONS AND LEVERS TO FOSTER SOCIAL UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Job creation	Local employment policy: Targets and quotas	Companies could bypass requirements Lack of alignment with local capabilities	Employment creation Creates social license to operate	State enforcement capabilities Educational / training infrastructure Labour market data systems Business registry and verification systems Transparent procurement processes	Mandated by law Actively pursued since 2021	Short-term priority, to boost employment creation and skills development
	Local employment policy: Decent work agenda, including gender equality and social inclusion	Can slow the rate of local employment creation in the short and medium term Companies could bypass requirements	Improved working conditions Creates social license to operate	Legal framework State enforcement capabilities Labour inspection capacity Tripartite dialogue mechanisms	Mandated by law Lack of capacity hampers implementation	Short-term priority, to improve working conditions
Enterprise development	Local content policy: Mining Code and Local Content Law (and implementation forums) Industrial policy: SMME support programme	Bypassing / tokenistic implementation Lack of alignment of local capabilities Low success rate Lack of alignment of local demand	Builds capabilities and value over time Builds a homegrown ecosystem of small businesses Supports innovation and entrepreneurship	State enforcement capabilities Business registry and verification systems Transparent procurement processes Enterprise development infrastructure alignment Available financial resources Social infrastructure (incubators, etc.) Link to local content policy	Mandated by law Actively pursued since 2021 Limited SMME support infrastructure and resources Included as a pillar of Simandou 2040	Short-term priority, to improve working conditions Short-term priority, to develop a local industrial network Short-term priority, to enable an increase in local content

TABLE 4: STRATEGIC OPTIONS AND LEVERS TO FOSTER SOCIAL UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Capacity and capability development	Skills development: Employment-linked training programmes	Brain drain after training Training misalignment with actual opportunities High costs relative to uptake	Builds domestic technical capacity Reduces dependence on foreign workers Creates multiplier effects in the economy	Quality educational institutions (or partnerships with foreign institutions) Industry-education partnerships Retention incentives / bonding mechanisms Sustainable funding mechanisms	Actively pursued under Simandou 2040 No clear strategy in place to limit brain drain	Short-term priority, to improve job creation and business development opportunities
Local ownership and control	State ownership: State equity as prescribed in the Mining Code	Deters (foreign) investment	Generates passive revenues	Transparency and accountability	Mandated and implemented (15% free carry) Option for additional public equity not taken up	Additional public equity to be considered on a case-by-case basis in the long run
	Domestic private firm ownership: Prescriptions through mining covenants	Can deter certain foreign investments Does not translate into domestic benefits	Cultivates a group of local industrialists	Conditionalities on benefits for the broader economy	Exclusive local ownership for exploration permits for semi-industrial operations	Medium-term consideration, to support the development of a local industrial network
	Community and worker ownership: Prescriptions through mining covenants	Can deter certain foreign investments	Translate to community benefits Builds social license to operate	Inclusive, transparent management of benefits	No community or worker ownership Not actively pursued No local capacity to manage possible involvement	Medium-term consideration, to increase local benefits and social license to operate

TABLE 4: STRATEGIC OPTIONS AND LEVERS TO FOSTER SOCIAL UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Community development (education, health, safety)	Benefit sharing schemes: Prescriptions through mining covenants coupled with appropriately designed and governed implementation vehicles	Elite capture of benefits Community conflict over distribution Lack of transparency	Direct community participation in mining benefits Builds social license to operate Addresses historical grievances	Community consultation mechanisms Transparent governance structures Regular audits and reporting	Development agreements with local communities are mandatory by law Weak enforcement and monitoring Limited CSI by mining companies	Medium-term consideration, to increase local benefits and social license to operate
	Revenue ringfencing: Prescriptions through mining covenants, coupled with effective administration through the FODEL	Inflexibility in budget allocation Misalignment with actual needs Administrative overhead	Guarantees funding for priority sectors Prevents revenue diversion Long-term commitment to development	Legal/constitutional framework Independent oversight bodies Clear, transparent allocation formulas	Local Economic Development Fund (FODEL) in place Actively pursued under Simandou 2040	Ongoing consideration to improve the impact of allocated funds
Social cohesion	Participatory, inclusive decision-making: Enhanced capacity and implementation of relevant authorities and legal requirements	Delays in project implementation Increased transaction costs	Reduces conflict Builds social and environmental license to operate Ensures socially and environmentally sustainable operations	Legal recognition of community rights and Free, Prior and Informed Consent (FPIC) Transparent decision-making processes	Guinea is not a signatory to ILO Convention 169 FPIC not enshrined in law Ineffective consultation processes	Short-term priority, to improve social license to operate
Policy and regulatory frameworks	Environmental policy: Implementation process design and enforcement before, during and after activity	Can slow down certain investments Companies could bypass requirements	Directly prevents environmental damage and socio-economic costs Enables post-mining land use Prevents long-term environmental liabilities	State enforcement capabilities Alignment of incentives/interests across the state Clear implementation standards, mechanisms and decision-making processes	Legal framework in place Historically neglected State capacity and enforcement have historically been weak Increasing consideration since 2021	Short-term priority, to mitigate socio-environmental impacts

TABLE 4: STRATEGIC OPTIONS AND LEVERS TO FOSTER SOCIAL UPGRADING

STRATEGIC OPTION	LEVER: MECHANISM	RISKS	BENEFITS	ENABLING CONDITIONS	STATUS	RECOMMENDATION
Supply chain standards and rules	Sustainability certification: International geochemical fingerprinting and supply chain traceability systems	Lack of domestic control	Provides access to GVCs	Certification and monitoring capabilities Market pull (buyers' club)	Voluntary, externally driven certification only No local capacity Not currently pursued	Medium-term consideration, in line with 'green aluminium' market development
Resource-efficient and regenerative innovation	Industrial policy: Sustainable design support	Limited domestic innovation capacity Technology lock-in with foreign suppliers High R&D costs Uncertain uptake	Reduces environmental footprint Develops green technology capabilities Access to premium markets	Available financial resources Research institutions and expertise Partnership with technology providers	Not currently pursued No local R&D capacity Externally driven innovation and technology rollout	Long-term consideration, to build an ecosystem conducive to upgrading

6 CONCLUSION



Guinea's transition government has steered the country towards a critical juncture in its economic history. Following the 2021 coup, in a fraught political and institutional context, it has made deliberate interventions that run counter to ingrained patterns of extraction by foreign actors. The alumina production envisaged as just the first of a complex of refinery plants has had periods of stagnation, decline, and even suspension, but never the acceleration clearly articulated in policy and legislation. Even as FDI and exports increased, the country has carried the costs and benefited little from its abundant mineral wealth.

Despite being the world's largest bauxite producer, Guinea has historically captured only a fraction of the value chain, with limited fiscal revenues, negligible employment creation, constrained infrastructure development, and persistent poverty. The country's dualistic economic structure, characterised by a high-value mining enclave operating alongside a survivalist informal economy, has delivered macroeconomic growth in terms of GDP without meaningful value chain, industrial, economic, social or environmental upgrading.

At this juncture, a series of decisive interventions has initiated a fundamental reorientation of Guinea's resource-based development model. Since 2021, the new government has embarked on an unprecedented policy and institutional reform agenda, making a new developmental pathway visible. Through the enforcement of long-ignored contractual obligations, the introduction of reference pricing mechanisms, the review of mining conventions, and the expulsion of non-compliant operators, the state has signalled its determination to exercise sovereignty over its natural resources.

The pipeline of alumina refinery projects represents a serious attempt to move beyond raw mineral extraction. These actions are embedded within a coherent policy approach in the broader Simandou 2040 vision.

Looking at both the depth of the challenge and the ambition of the state, the opportunity landscape certainly exists, but is complex with many obstacles and uncertainties. A range of strategic upgrading options is considered or actively pursued, with associated levers and mechanisms ranging from relatively straightforward to opaque and very risky.

This paper has sought to filter these through an analytical framework to enable the categorisation and parsing of these options for different dimensions of upgrading. It is necessary to emphasise that this heuristic is intended as a first step in an iterative process to understand and evaluate strategic upgrading options for effective implementation. These options need to be understood on their own merits in relation to one another. No one option holds the key to success on its own, and all will require adaptive implementation tactics.

The development of institutional capacity and capability, including strategic capability, for state and non-state partners, is essential to every strategic option. Strategic capability is required to analyse frameworks, design sustainable interventions, enforce regulations, manage complex industrial projects, and channel revenues into productive investments. Ensuring that alumina refining becomes a stepping stone towards broader industrialisation, rather than simply replacing one enclave with another, demands strategic coordination among government, private-sector actors and civil

society. The environmental footprint of bauxite mining and alumina production necessitates robust safeguards and community engagement mechanisms that have historically been weak.

Guinea's attempt to rewrite the rules of mineral-led development carries significance far beyond its borders. As the global economy accelerates its transition toward net-zero emission pathways, digital transitions are intertwined with escalating military spending. While opportunities for mineral-rich countries exist, so do risks, as well as well-understood costs and harms. Guinea's experience will offer crucial lessons for how mineral-rich countries can leverage market dominance in a strategic commodity to negotiate better terms, enforce domestic beneficiation

requirements, and chart a path toward inclusive, sustainable development. Understanding Guinea's case may also clarify the potential of international cooperation as a lever for just transitions across potential partner countries.

The red earth of Boké has long been extracted to build the world's infrastructure and industries. The question now is whether it can finally build a different Guinean future. What unfolds in the coming years will test not only the resolve of Guinea's government and the capability of its institutions, but also the international community's support for more equitable models of resource governance. The stakes could not be higher for Guinea's 14.5 million people.

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ENDNOTES

¹ This policy paper is part of a series. A ground-clearing report, *Navigating the African opportunity landscape for value chain upgrading in the global scramble for critical minerals: Delineating the opportunity landscape*, provides an overview of the window of opportunity for Global South countries (Montmasson-Clair et al., 2024a). A paper unpacks global dynamics shaping the bauxite-to-aluminium value chain (Montmasson-Clair & Hermanus, 2025). Two other case studies on the phosphate value chain in Morocco (Ayala et al., 2026) and the copper-cobalt value chain in the Democratic Republic of the Congo-Zambia (forthcoming) complements this policy paper. A final paper investigates the Sino-African relations and the opportunity for mutually beneficial just transition pathways (Hermanus & Montmasson-Clair, 2025).

² The West African Power Pool is an initiative of the Economic Community of West African States (ECOWAS) that links national electricity systems across West Africa to enable cross-border power trade, improve supply reliability, and support a unified regional electricity market.

³ Industrial investments can generate broader social benefits through employment, infrastructure access, beneficial government spending, and economic spillovers, creating new opportunities. As these investments are linked (forwards, backwards, sideways), the aim would be to maximise benefits, pursuing “social upgrading” (Gereffi & Lee, 2016b).

⁴ See more World Bank data on multidimensional poverty here: <http://documents.worldbank.org>.

⁵ See more WHO-UNICEF data on Guinea here: <https://data.unicef.org>.

⁶ See data here: <https://data.worldbank.org>.

⁷ See data here: <https://hdr.undp.org>.

⁸ See data here: <https://data.worldbank.org>.

⁹ The Government of Guinea refers to proposed alumina refineries as “clusters” because they are conceived as integrated industrial zones linked to shared infrastructure such as power generation, rail corridors, and port facilities. This terminology appears in national industrialisation policy and mining conventions, which frame alumina development as part of spatially concentrated processing hubs rather than standalone plants (Government of Guinea, 2020; Ministry of Mines and Geology, 2022).

¹⁰ These projections are based on an average of 2.5 tonnes of bauxite per tonne of alumina production.

¹¹ Oury succeeded in February 2024 to Bernard Goumou, who acted as Prime Minister from July 2022, after health issues forced Mohamed Béavogui, the first Prime Minister under the transitional government, to step aside.

¹² Boycotted by opposition parties, the referendum was easily adopted, with 89% of valid votes in favour.

¹³ The extraction and export taxes for iron and other metals, such as copper, tin, nickel, zinc, respectively stand at 3% and 2% of their export value.

¹⁴ Transfer pricing occurs when companies exchange goods or services for pay with other affiliated companies. Transfer mispricing occurs when one company sells goods or services to another related company at an inflated or deflated price to allocate profits to a lower-tax jurisdiction. Because these transactions are internal to a multinational company, they are often not subject to market pricing. This makes it difficult to distinguish between legitimate transfer pricing and transfer mispricing. In the case of mining companies, transfer mispricing can be broadly grouped into two categories: the sale of minerals and/or mineral rights to related parties, and the purchase or acquisition of various goods, services, and assets from related parties (IGF, 2025).

¹⁵ Thin capitalisation refers to the situation in which a company is financed through a relatively high level of debt compared to capital injection by shareholders' equity.

¹⁶ The estimates only covered 12 companies (9 in the bauxite sector and 3 in the industrial gold sector) for which data was available.

¹⁷ The CBIX is the world's first and most widely quoted bauxite price index, developed by CM Group to reflect the market conditions for bauxite imports into China. It is a value-in-use adjusted price, which considers the usability of the bauxite for producers, and is based on trade-weighted average prices from a representative sample of Chinese bauxite imports over about a week.

¹⁸ Guinea completed a GDP rebasing exercise in 2025 to better account for previously under- or unmeasured sectors. Nominal GDP was revised upward by about 44%, to US\$ 36.3 billion in 2024. This would translate into a revised debt ratio of 30.5% as of December 2024.

¹⁹ This public equity is held and managed by the Société Guinéenne du Patrimoine Minier (SOGUIPAMI), which exercises voting rights, receives dividends, monitors company performances and represents state interests at shareholder meetings.

²⁰ The new law also created a dedicated body, the Authority for the Regulation of Local Content (Autorité de Régulation et de Contrôle du Contenu Local - ARCCL), to monitor and enforce implementation.

²¹ This section draws on the evolving thinking of the authors and the broader project team. It is integrated and iterated across various reports including Ayala et al., 2026; Hermanus & Montmasson-Clair, 2025 and Montmasson-Clair & Hermanus, 2025. It is part of an emerging 'upgrading' framework that considers value chain upgrading in relation to a wider range of 'dimensions', widening out to industrial and broad economic upgrading, as well as considering social and environmental dimensions. This table also builds on the conceptualisation of international cooperation as a lever for whole-of-economy, whole-of-society just transitions (Hermanus et al., 2025).

ABOUT SOUTHERN TRANSITIONS

Southern Transitions is a climate and transition ‘think-and-do-tank’ working to advance just transitions in the Global South. ***We are focused on fostering transformative economic opportunities in systems that are changing, emerging and scaling up in the transition.*** Embedded in the Global South, we are experienced in bridging public and private actors and operationalising an entrepreneurial, innovative and implementation spirit in our work. We draw on our growing network to collaboratively generate ideas, evidence and experiments for just transitions.

To achieve our vision and mission, we have established a programme of work including four initial areas: ***providing technical support towards just transitions*** in multilateral processes and Global South countries; formulating viable business cases and associated future-oriented ***pathways for Global South countries to harness value chain upgrading*** opportunities; ***mapping and interrogating real transition-driven economic risks and opportunities*** for transformation in and for the Global South; and supporting public policy and private-sector ***implementation through experimentation***, collaboration and learning to unlock just transition projects in the Global South.

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