



A strategy for resource-led development in Zambia

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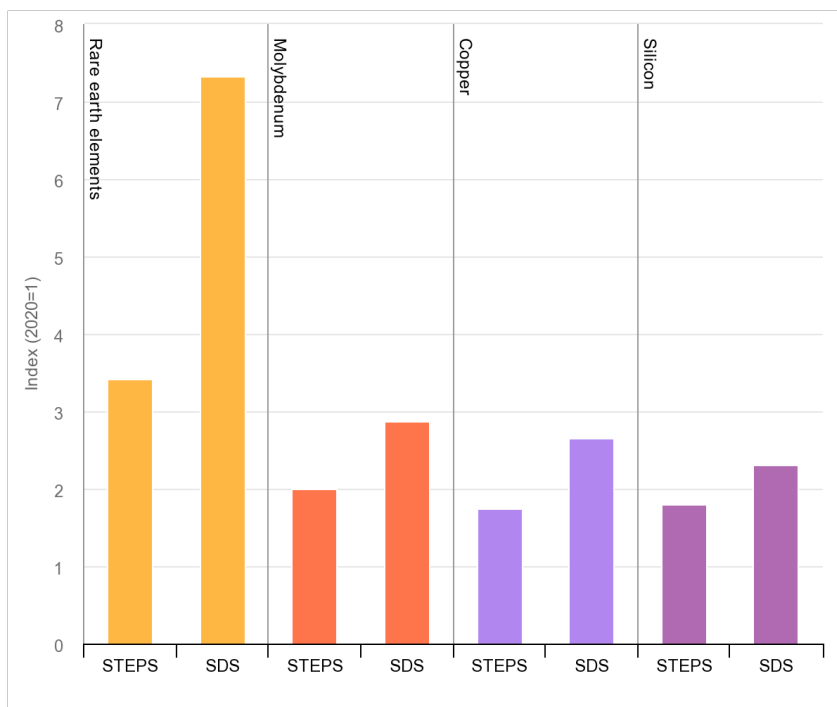
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Context

The ongoing energy transition will result in an increase in demand for copper, lithium, nickel, cobalt, and other metals and minerals that play an increasing role in renewable energy production and the electrification of transportation and heating.¹ Zambia had 3.59% of global copper exports in 2019, and 1.47% of cobalt, making it a significant producer.²

To enable the energy transition, copper demand is expected to increase up to threefold by 2040 while cobalt demand is expected to rise over twentyfold (see figure 1 and 2). Being a supplier to clean technology companies such as Tesla and Apple requires mining companies to have supply chains characterised by a relentless focus on environmental, social, and governance (or ESG) factors. With green-minded investors and lenders looking to fund the energy transition, mining companies can expect much more screening and attention over ESG performance.³

Figure 1: growth in demand for clean tech minerals by 2040 in stated policy (STEPS) and sustainable development (SDS) scenarios⁴



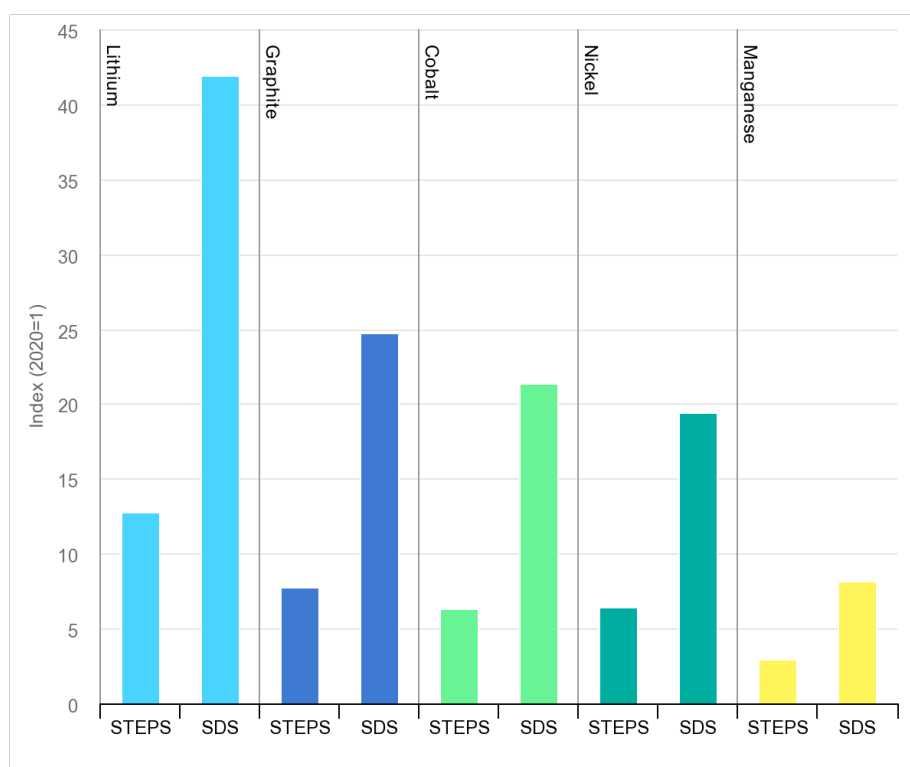
¹ <https://blogs.imf.org/2021/12/08/metals-demand-from-energy-transition-may-top-current-global-supply/>

² <https://atlas.cid.harvard.edu/explore>

³ <https://capitalmarkets.bmo.com/en/news-insights/sustainable-finance/rebooting-the-mining-esg-narrative/>

⁴ <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/mineral-requirements-for-clean-energy-transitions#abstract>

Figure 2: growth in demand for battery minerals by 2040 in stated policy (STEPS) and sustainable development (SDS) scenarios⁵



Altogether, this presents a generational opportunity for Zambia to hitch its mining sector to the nascent energy transition. With copper and cobalt demand forecast to be strong into the future, and currently weak domestic economic growth forecast in the near term,⁶ Zambia has an opportunity to increase production to initiate a new growth cycle.

Zambia's GDP per capita of \$3410,⁷ measured in purchasing power parity, qualifies the country as middle income, yet this figure has been largely static for the last decade. With high and persistent levels of poverty—nearly 60% of the population living on less than \$1.90 per day, measured in 2011 PPP dollars, and 75% living on less than \$3.20 per day⁸—Zambia needs not only economic growth, but inclusive, poverty-reducing development.

While Zambia is blessed with a rich natural endowment of valuable minerals, it also falls prey to resource dependence. In 2020, mining accounted for 11% of GDP, 80% of exports, and 31% of government revenue.⁹ Indeed, this correlates

⁵ <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/mineral-requirements-for-clean-energy-transitions#abstract>

⁶ <https://www.imf.org/en/Countries/ZMB>

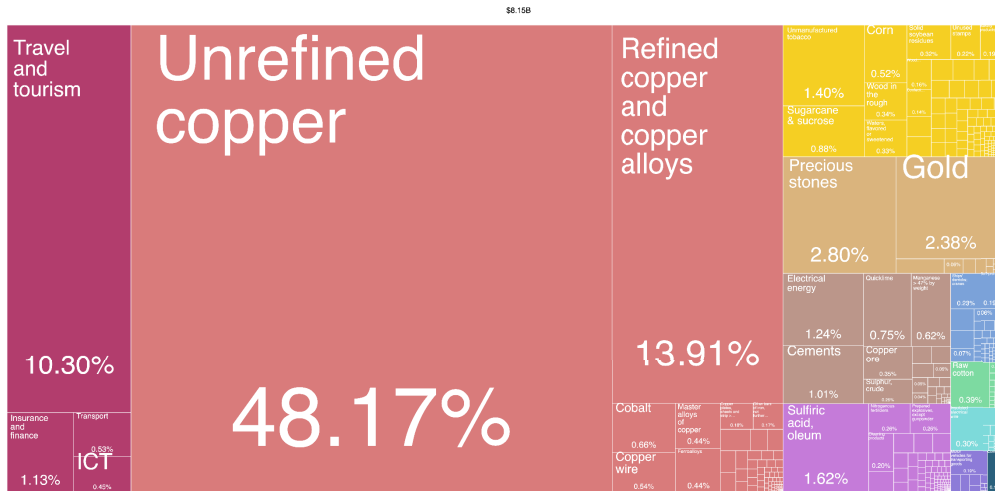
⁷ IMF World Economic Outlook, October 2021, accessed Apr 7, 2022.

⁸ World Bank *World Development Indicators* database, latest year of data is 2015. Accessed Apr 9, 2022.

⁹ <https://zambiaeiti.org/wp-content/uploads/2022/01/2020-ZEITI-Report.pdf>, p. 14

with a lack of export diversification; Zambia’s economic complexity index, a measure of export diversification and product sophistication, ranked it just 96th out of 133 countries and looking over time there is no measurable improvement.¹⁰

Figure 3: Zambia’s export basket remains dominated by primary commodities¹¹



But a comparative analysis of economic diversification in resource-rich sub-Saharan Africa shows that Zambia is a bright spot.¹² Zambia’s service exports, diversification of the domestic economy, and diversification of Zambia’s economic base have been superior to that of resource-poor countries, which is a rare occurrence among resource-rich countries. Moreover, among resource-rich countries in the region, Zambia’s institutional quality was second only to Botswana. That, coupled with the energy transition, means that it has the potential to initiate a strong growth episode with positive feedback on social and political development and structural transformation:¹³ in other words, strong and inclusive economic development. But such an outcome will require deliberate and rigorous planning and execution. The next section of this note describes the policies that may bring about this outcome.

¹⁰ <https://atlas.cid.harvard.edu/countries/247/export-complexity>

¹¹ <https://atlas.cid.harvard.edu/countries/247/export-basket>

¹² Ross, Michael and Eric Werker. 2022. “Diversification in Resource-Rich Africa, 1999-2019.” Background paper for the World Bank.

¹³ Pritchett, L., Sen, K. and Werker, E. eds., 2018. *Deals and development: The political dynamics of growth episodes*. Oxford University Press.

A strategy for resource-led inclusive growth

We suggest a strategy for the mining sector that will contribute to Zambia's overall economic development, effectively utilising Zambia's mineral endowment to generate prosperity. The strategy rests on three pillars, each with several key areas for policy and regulatory action.

Pillar I: Increase the GNP generated from the mining sector in Zambia

The first pillar is to increase mining activity so as to take advantage of historically high demand for copper, cobalt, and other clean economy metals and minerals. Importantly, we recommend increasing gross national product, measured in value added economic activity, from the mining sector rather than just mining output itself. This privileges Zambian actors in both the mining and upstream sectors. To illustrate how mining output and Zambian mining GNP may differ, consider the following equation:

$$\text{Zambian Mining GNP} \approx \text{Mining output in Zambia} * \text{Zambian share of mining value chain}$$

where the Zambian share of the mining value chain equals the share of all of the wages, profits, interest, and rents that accrue to Zambian workers, companies, and tax collectors involving in mining, including the suppliers. In other words, imported capital equipment, payments to foreign workers, profits earned by foreign miners or suppliers, and taxes collected by other jurisdictions on Zambian mineral production would detract from Zambian GNP generated from mining activity in the country.

As the formula indicates, achieving success on Pillar I means balancing the tension between friendliness to foreign investors with consideration for national benefits.

We suggest four distinct policy recommendations within this pillar, with the first two recommendations directed towards increasing mining output broadly, and the second two towards increasing the Zambian share of the mining value chain.

Policy 1: Conduct a geological and geophysical survey of Zambia's mineral endowment

With a thorough geological and geophysical survey, the Government of the Republic of Zambia (GRZ) will have a better idea of the country's resource base and its distribution, including of the metals and minerals that will see increased

demand in clean tech sectors such as batteries. This will allow more efficient exploration activity to occur while attracting higher bids and the right investors.

Policy 2: Allocate exploration and mining rights transparently and publicly and, as part of a digitalisation strategy, with a view to match the right companies with mining opportunities

Zambia's current mining licensing regime has been criticised by a number of partners for a lack of transparency and excess discretion.¹⁴ This has culminated in the suspension of mining licenses and an audit into beneficial ownership.¹⁵ As Zambia digitises its mining license and registration system, it can overlay that information with exploration data—including from the new geo survey data—to gain deeper insights into mining potential and activity. These data files can serve as a bedrock for a broader digitalisation strategy that can link resources with licenses, activity, tax, and environmental and community impact.

Policy 3: Develop Zambian workers and suppliers as part of a local content strategy

Over half of mining revenue is spent on operational and capital expenditures, a larger share than goes towards either profits or government tax.¹⁶ Much of those input services are not competitively available in the host country, and as a result the mining company contracts with foreign suppliers and brings in expatriate workers. In Zambia, in particular, only 2.1% of purchases were found to be procured from Zambian-owned suppliers.¹⁷ A local content strategy examines opportunities to develop Zambian companies and workers to have more significant participation in the mining value chain. The GRZ has been conducting policy work to develop such a local content strategy, and it could be moved forward as part of the first pillar of this overall mining strategy.

Policy 4: Formalise and develop the capabilities of small-scale miners

Artisanal and small-scale mining (ASM) provides tens of millions of people with livelihoods across sub-Saharan Africa with its labour-intensive methods, yet it also can lead to pollution and child labour, among other ills.¹⁸ ASM is associated with security challenges including illicit financial flows, which can finance or exacerbate criminal activity and corruption.¹⁹ The challenge of formalising ASM is complex, however, with scholars arguing that industrialising

¹⁴ See, e.g., <https://zambiaeiti.org/wp-content/uploads/2022/01/2020-ZEITI-Report.pdf>

¹⁵ <https://www.reuters.com/world/africa/zambia-cap-number-mining-licences-issued-single-firms-2022-03-29/>

¹⁶ <https://oecd-development-matters.org/2018/01/31/what-gets-measured-gets-managed-tapping-into-local-procurement-in-the-mining-industry-to-advance-development/>

¹⁷ <http://zambiachamber.org/mining-local-content-si/>

¹⁸ Hilson, G. (2020). The 'Zambia Model': A blueprint for formalizing artisanal and small-scale mining in sub-Saharan Africa? *Resources Policy*, 68, 101765.

¹⁹ Hunter, M. (2020). Illicit financial flows: Artisanal and small-scale gold mining in Ghana and Liberia. OECD.

small-scale mining without a view to livelihoods and rights can exacerbate rather than improve security challenges.^{20,21}

Zambia already has experience formalising and taxing small-scale miners, particularly around gemstones.²² Smaller-scale, locally-owned mines are likely to be characterised by a larger share of Zambian value added than foreign-owned large-scale mines, thus contributing more to Zambian GNP from mining. Moreover, small-scale mines have the potential to scale to be able to tackle larger projects while behaving responsibly from a labour and environmental perspective. Rather than seeking to curtail ASM in Zambia that contributes to local livelihoods, the GRZ can focus its attention on health and safety as well as the eventual graduation of artisanal miners into higher-productivity formalised medium-scale miners through improvements in productivity and market access.

Pillar II: Ensure world-class sustainable supply chains

Mining is no longer the extractive-based, dirty commodity producer that it once was. Instead, metal and mineral production is a key input into sophisticated technology hardware, such as smartphones, as well as the green energy products, such as solar cells and electric vehicle batteries, that will drive the energy transformation.

Both investors in mining companies and purchasers of primary metals and minerals in the technology and green energy sectors have a whole new view on responsible supply chains. They are rooting out labour violations, including the use of child labour, disallowing bribery, minimising environmental impact, insisting on local value creation, and paying attention to community development.²³

This focus on so-called ESG (environmental, social, and governance) factors is not only humanitarian but also in the self interest of investors and buyers. Larry Fink, CEO of Blackrock, the world's largest asset manager with \$10 trillion under management, wrote in his 2022 letter to CEOs of the shift towards net zero (carbon emissions), ESG indicators, and a focus on stakeholder health rather than just shareholder wealth, as fundamental pieces of capitalism and asset allocation. Academic research backs this claim up, finding that companies

²⁰ Le Billon, P., & Levin, E. (2009). Building peace with conflict diamonds? Merging security and development in Sierra Leone. *Development and Change*, 40(4), 693-715.

²¹ Dery Tuokuu, F. X., Idemudia, U., Bawelle, E. B. G., & Baguri Sumani, J. B. (2020, February). Criminalization of "galamsey" and livelihoods in Ghana: Limits and consequences. In *Natural Resources Forum* (Vol. 44, No. 1, pp. 52-65). Oxford, UK: Blackwell Publishing Ltd.

²² Hilson, 2020.

²³https://www.responsiblemineralsinitiative.org/media/docs/standards/RMI_RMAP%20ESG%20Standard%20for%20Mineral%20Supply%20Chains_%20June32021_FINAL.pdf

with better ESG,²⁴ proper community agreements,²⁵ and the development of environmentally responsible suppliers,²⁶ among dozens of other related factors, have stronger financial performance.

Zambia has a chance to join the ranks of world leaders in responsible supply chains, especially given the distribution of cobalt and copper in such challenging competitor operating environments as the Democratic Republic of Congo and Russia.²⁷ To the extent that the effort is countrywide and generates learning and reputational benefits, this will create value for mining firms in Zambia, more tax revenue for the government, and of course improve social, economic, and environmental outcomes for Zambians. Thus, responsible value chains can be seen as a competitive advantage for Zambian mining.

We suggest two policies to bring about responsible mineral value chains in Zambia, one relying on industry initiative and the other on government. Creating sustainable mineral supply chains is a long game, and relying on government inspectors and oversight alone will likely not be the most effective route to reaching the global frontier of practice.

Policy 5: Facilitate the adoption of supply chain norms and standards among Zambian mining companies

Zambian mining companies are a diverse bunch, with corporate origin ranging from China and India to Canada and South Africa, let alone the small-scale Zambian miners and cooperatives. Each company and national approach has been observed to relate to different supplier practices.²⁸ There are a number of different voluntary standards for mineral value chains, but they have a number of common factors.²⁹ Getting companies presently operating in Zambia together to come up with common and ambitious practices could not only push companies towards more responsible supply chain practices—as pursued by the Mining Association of Canada through its Towards Sustainable Mining standard³⁰—but also create an environment for developing local supply chains, thus contributing to policy 4.

²⁴ Giese, G., Lee, L. E., Melas, D., Nagy, Z., & Nishikawa, L. (2019). Foundations of ESG investing: How ESG affects equity valuation, risk, and performance. *The Journal of Portfolio Management*, 45(5), 69-83.

²⁵ Dorobantu, S., & Odziemkowska, K. (2017). Valuing stakeholder governance: Property rights, community mobilisation, and firm value. *Strategic Management Journal*, 38(13), 2682-2703.

²⁶ Ağan, Y., Kuzey, C., Acar, M. F., & Açıkgöz, A. (2016). The relationships between corporate social responsibility, environmental supplier development, and firm performance. *Journal of cleaner production*, 112, 1872-1881.

²⁷ <https://www.nsenenergybusiness.com/features/top-cobalt-producing-countries/>

²⁸ Ruppert, N. M., Sobel-Read, K., & Pepper, B. (2021). Law, Global Value Chains and Upgrading in the Mining Industry: A Case Study on Zambia. *African Journal of International and Comparative Law*, 29(4), 521-550.

²⁹ Hiete, M., Sauer, P. C., Dremptic, S., & Tröster, R. (2019). The role of voluntary sustainability standards in governing the supply of mineral raw materials. *GAIA-Ecological Perspectives for Science and Society*, 28(1), 218-225.

³⁰ <https://mining.ca/towards-sustainable-mining/>

Policy 6: Convene a multi-stakeholder initiative to advise the GRZ on laws and regulations on sustainable mineral supply chains

To be sure, voluntary standards are likely not enough to bring about the desired results in responsible supply chain behaviour,³¹ and must be supplemented with government action and buttressed by monitoring and reporting by civil society organizations. In order to advise the GRZ on an appropriate regulatory backstop, the government can convene a multi-stakeholder initiative composed of representatives from the private sector, civil society, mining-affected communities, and global knowledge centres. The task would be to share information, perspectives, and insights, with the objective to sufficiently inform government on the tradeoffs involved with different regulatory measures. At the same time, a collaborative and generative learning opportunity may emerge with mining's different stakeholders.

Only by bringing all of the stakeholders together to understand how each can create value from the industry can Zambia's mining potential be realized.

Pillar III: Leverage responsible mining growth into inclusive development

While mining has the potential to generate GDP growth (Pillar I), and sustainable value chains can enable healthier and wealthier stakeholders and shareholders (Pillar II), transformative and inclusive change to the Zambian economy is only likely to result as part of a broader effort towards diversification, economic management, and government accountability.

Being rich in natural resources has been found to be both a blessing and a curse. Resource abundance (natural capital per person) is positively correlated with some drivers of economic competitiveness, including human development, public capital, and new firm entry, whereas resource dependence (dominance of resources in the economy) is usually negatively correlated with those drivers, including human capital, tertiary education, innovation, and financial market development.³² The key insight here is that expanding the mining sector alone will lead to resource dependence, and so a concerted effort must be made to utilize the rents from mining to develop the wider economy. In order to achieve this objective we suggest four broad policy recommendations.

³¹ Sethi, S. P., & Emelianova, O. (2006). A failed strategy of using voluntary codes of conduct by the global mining industry. *Corporate Governance: The international journal of business in society*.

³² Lashitew, A. A., Ross, M. L., & Werker, E. (2021). What drives successful economic diversification in resource-rich countries?. *The World Bank Research Observer*, 36(2), 164-196.

Policy 7: Develop and implement a resource revenue and expenditure strategy to finance development and minimize volatility

In Zambia, resource revenue is collected primarily through royalties and other taxation instruments, but the parastatal ZCCM-IH investment vehicle is another route. The first stage of this strategy is to ensure effective collection of revenue owed across all revenue sources, and a related piece is to adhere to rigorous standards of transparency when it comes to revenue reporting, including through the Zambia Extractive Industries Transparency Initiative.

However, collecting revenue competently and transparently is not enough to transform mineral wealth into societal wealth, for two reasons. One, revenue may emerge in a pro-cyclical fashion that follows resource prices. This pro-cyclicality can introduce volatility into the macroeconomy that can result in weaker growth, inflationary bouts, and false promises as government and other actors make commitments during periods of high prices that they cannot realistically honour when the prices fall again. Two, the revenue must be spent deliberately on goods and services that will generate prosperity and productivity in other sectors of the economy.

Commodity price-induced volatility can be managed through fiscal rules and/or a sovereign wealth fund. Most likely, given the magnitude of resource revenues as well as the existing debt load, Zambia would not need a sovereign wealth fund but instead could utilize fiscal rules. Such rules would specify how much money from the resource sector can be reinvested in the economy in a given year, with the remainder either set aside or used to pay down debt. Combined with an expenditure strategy that would delineate how Zambian resource revenue can be spent, a fiscal rule could bring about reduced volatility and smarter government-led investment in inclusive growth.

Policy 8: Diversify the Zambian economy, building on the capabilities and resources of the mining sector

This recommendation is to pursue “related” diversification that shares in the same smarts and factors that are used in the mining sector. Related diversification is the most common way in which regions and countries have expanded into producing new products and services.³³ For Zambia, related diversification can be thought of along the mining value chain and grouped into upstream, downstream, “sidestream,” and parallel diversification. Upstream diversification is already handled with the local content strategy of policy 3, which recommends that Zambian suppliers and workers to the mining sector be

³³ Boschma, R., & Capone, G. (2015). Institutions and diversification: Related versus unrelated diversification in a varieties of capitalism framework. *Research Policy*, 44(10), 1902-1914.

given a greater role. Downstream consists of the processing and value added from mining production, but caution should be deployed here as these steps in the value chain are often extremely competitive and characterized by high capital expenditures and low operating margins.³⁴ Sidestream diversification utilizes the scale of fixed capital investments of mining, such as power, rail, and ports, to expand access to other actors in the economy.³⁵ With sidestream efforts, the GRZ could leverage investments in the mining sector to lower the costs of production and transportation for non-resource based industries. Finally, parallel diversification can emerge when countries use the same productive capabilities and factors that lead to successful mining activity to enter new or different markets. With mining, those opportunities may be more limited than with manufacturing or other industries.³⁶

Policy 9: Diversify the Zambian economy into sectors that are unrelated to mining

Although related diversification is usually easier to attain, related diversification for a commodity-dependent economy is a double-edged sword: success along the value chain may generate more income, but it also introduces more volatility as changes in iron ore prices and steel prices, for example, are likely to move in tandem. As a resource-dependent country, Zambia needs to try extra hard to develop its non-resource sectors. We suggest three broad categories of unrelated sectors to focus diversification efforts.

First, broad investments in infrastructure, human capital, and a functioning business environment can help businesses across the Zambian economy increase their productivity and earnings, and allow new businesses to form in sectors that entrepreneurs can best identify. This can enable Zambia to invest in productive cities and people who can most benefit from local and global innovation. Among resource-rich countries, Indonesia has been particularly effective at this transformation over the last several decades.³⁷ To do this effectively, the GRZ can prioritize public-sector led investments and rank them according to their potential impact on generating new economic activity so as to protect them from lobbying and special interests.³⁸ Second, Zambia can utilize mining revenues to build up other potential export sectors such as tourism and agribusiness, as Malaysia has achieved in electronics. Sector development

³⁴ Östenson, O., & Löf, A. (2017). *Downstream activities: The possibilities and the realities* (No. 2017/113). WIDER Working Paper.

³⁵ Collier, P., & Ireland, G. (2018). Shared-use mining infrastructure: Why it matters and how to achieve it. *Development Policy Review*, 36(1), 51-68.

³⁶ Hidalgo, C. A., & Hausmann, R. (2008). A network view of economic development. *Developing alternatives*, 12(1), 5-10.

³⁷ Lashitew, A. A., Ross, M. L., & Werker, E. (2021). What drives successful economic diversification in resource-rich countries?. *The World Bank Research Observer*, 36(2), 164-196.

³⁸ Collier, P., Van Der Ploeg, R., Spence, M., & Venables, A. J. (2010). Managing resource revenues in developing economies. *IMF Staff papers*, 57(1), 84-118.

activities use a whole-of-value-chain approach from competent local suppliers to international marketing to improve the odds for individual businesses to become internationally competitive. Third, resource wealth is likely to bring about a rise in demand for locally-produced nontradeables that are inputs into nearly every other sector of the economy such as energy, housing, telecoms, and banking. Often, such products and services in resource-rich economies become a haven for businesspeople with close ties to government that end up with quasi monopolies.³⁹ To allow businesses across the economy to be competitive, and to allow Zambian consumers affordable necessities, these core nontradeables must be of decent quality and priced competitively.

Policy 10: Double down on governance, government effectiveness, and transparency.

Averaging the World Bank's Worldwide Governance Indicators (WGI) for 2019, Zambia scores a -0.45 (with higher scores being better), enough for the second best score among resource-rich countries and higher than all but 12 countries in sub-Saharan Africa.⁴⁰ Among the sub-scores, Zambia performed best in political stability and absence of violence/terrorism, and worst in government effectiveness. The GRZ is aware of the linkages between governance and inclusive development—indeed, governance is a foundational part of the 8th development plan. In spite of its relative success on governance compared to its resource-rich peers in the region, Zambia would be wise to include governance and transparency as part of its mining development strategy. Resource dependence is found to be correlated with poor institutions, which in turn inhibits development.⁴¹ Natural resource rents can enable autocratic and clientelist governance and threaten meaningful reform. Of course, transparency on its own cannot bring about improved governance, but must be part of broader efforts around societally based accountability.⁴² And Zambia's lowest WGI sub-score in state effectiveness underscores the need to invest in administrative and bureaucratic capacity alongside reforms in governance and transparency.

³⁹ Pritchett, L., Sen, K., & Werker, E. (Eds.). (2018). *Deals and development: The political dynamics of growth episodes*. Oxford University Press.

⁴⁰ World Bank. (N.D.) The Worldwide Governance Indicators. URL: <https://databank.worldbank.org/source/worldwide-governance-indicators>, accessed Jun 27 2022.

⁴¹ Lashitew, A. A., & Werker, E. (2020). Do natural resources help or hinder development? Resource abundance, dependence, and the role of institutions. *Resource and Energy Economics*, 61, 101183.

⁴² Boldbaatar, D., Kunz, N. C., & Werker, E. (2019). Improved resource governance through transparency: Evidence from Mongolia. *The Extractive Industries and Society*, 6(3), 775-787.