

WHITE PAPER 4 OF 4

Mining Creates Jobs, Processing Creates Value

Why mineral wealth becomes a national competitive advantage only when a country can process what it mines

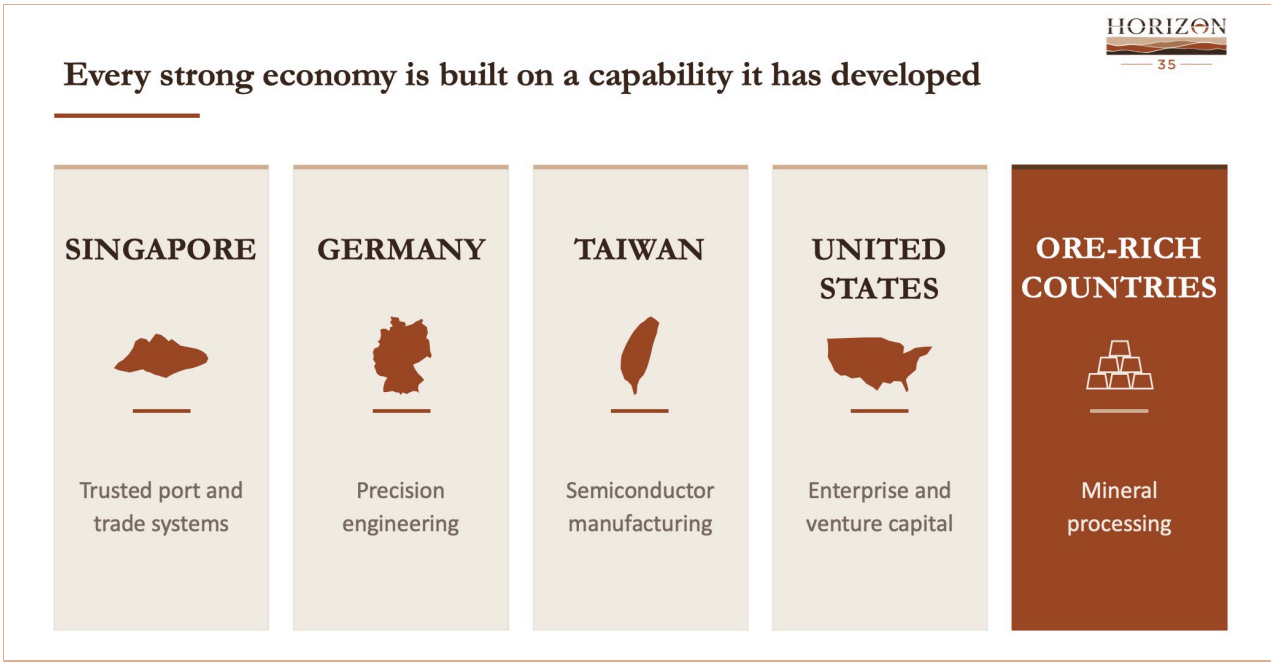
SUMMARY

- Countries compete the way companies do. The ones that prosper build a distinctive capability and specialize in it until it becomes an advantage others cannot easily copy.
- A country rich in minerals starts with an advantage on paper. To make it competitive, the country needs the processing capability that turns ore into refined material sold at full value.
- Mining creates the jobs, and processing creates the value. A national strategy needs both, linked in clusters where many mines feed one plant.
- Horizon 35 works as a systems integrator to build that capability with governments and proven operators. In Uganda, our goal is one million jobs in five to ten years, built through mining, processing and the economy that grows around them.

Countries need a competitive advantage, just as companies do

Every business leader knows that a company cannot win by doing everything a little. It wins by building a capability its rivals cannot easily match, then investing in it year after year until customers come to it first. That capability, more than any single asset, is what makes the company competitive.

Nations work the same way. Michael Porter made the case in *The Competitive Advantage of Nations*: the countries that prosper over time are those whose industries develop distinctive, hard-to-copy capabilities, and inherited endowments alone rarely sustain that position.[1] The strongest economies in the world each chose a capability and specialized in it over decades.



Each strong economy built a capability it is known for. For ore-rich countries, that capability can be mineral processing.

Singapore built trusted port and trade systems. Germany built precision engineering. Taiwan built semiconductor manufacturing. The United States built a system of enterprise and venture capital. None of these was an accident of geography. Singapore has no natural resources to speak of, and Taiwan imports most of what its chip plants consume. Each country turned what it had into a capability the rest of the world now depends on.

Mineral wealth is an advantage only on paper until it is processed

A country with minerals in the ground does start with something valuable. Geology cannot be copied, and demand for critical minerals is set to almost double by 2040.[2] But an endowment is not the same as a competitive advantage. A country that only digs and exports raw ore competes on the one thing every other ore-rich country also has, and it sells that ore for a fraction of what it is worth once refined.

The record bears this out. Economists have documented for decades that countries dependent on raw resource exports have often grown more slowly than countries without them, a pattern known as the resource curse.[3] The value is captured further down the chain, by whoever turns ore into metal, chemicals and components. The World Economic Forum estimates that African countries collect only about 40 percent of their potential mineral revenue, and that each processing step adds 15 to 30 percent more value.[4]

Processing is what converts the endowment into an advantage. It is the step that turns a handful of rock with some mineral in it into refined material that manufacturers buy at full price. It brings skilled industrial jobs, export earnings, tax revenue and foreign exchange that stay at home. And it is hard to

copy, because it depends on engineering know-how, reliable power and water, trained operators and a dependable supply of feed. A country that builds it has something its neighbors cannot simply dig up.

~40%

Share of potential mineral revenue African countries currently collect[4]

15–30%

Additional value created by each processing step[4]

~10×

Growth in Indonesia's nickel export value after it required processing at home[5]

Countries that require processing at home are already seeing results

Indonesia offers the clearest recent example. After banning exports of raw nickel ore in 2020 and requiring the metal to be processed in the country, its nickel export earnings rose from about 3.3 billion dollars in 2017–2018 to about 33.5 billion dollars in 2023, according to the government.[5] The policy has drawn criticism over environmental standards and foreign ownership of the plants, and those lessons matter. But it shows how quickly a mineral endowment can become an industrial capability once processing is built at home.

Uganda is pursuing the same logic. It restricts the export of unprocessed minerals, passed the Mining and Minerals Act in 2022 and created a national mining company to invest alongside partners. When the country's first tin refinery opened in 2024, President Museveni noted that the jobs in that plant would not exist if the minerals had been shipped out unprocessed.[6] The world is also looking for new processing nations: refining of key minerals is concentrated in a single country, and advanced economies committed about 65 billion dollars in 2025 to diversify supply.[2]

Mining and processing do different jobs for a country

Mining employs large numbers of people, many of them in rural areas where formal work is scarce. It is the engine of job creation, and each mine job supports about ten in all once suppliers and local spending are counted.[7] Processing employs fewer people per tonne, but those jobs are highly skilled, and processing is where the country keeps the value.

The two also depend on each other. A processing plant needs a steady supply of ore to run economically, and mines need a buyer close to home now that raw exports are restricted. For governments, the link matters strategically. Mining is a hard industry to unlock: licenses, permits and regulatory timelines can stall projects for years. A credible plan to build processing in the country gives a government every reason to clear the way for the mining that feeds it.

Many mines feed one plant, so the system grows in clusters

A processing plant only works economically when it runs near capacity. Most individual mines, especially the small and medium operations that make up much of a country's license base, cannot fill a plant on their own. The answer is to organize the system in clusters: a group of mines along a mineral corridor feeding a shared plant sized to their combined output.

The sequence matters. Mines come first, because they create jobs quickly and establish the feed. Processing follows once there is enough secure supply to keep a plant running. In our planning model for Uganda, a cluster averages about eight mines per plant. A plant built before its feed is secure risks sitting idle, and a corridor of mines with no processing plan leaves the country exporting ore. Building in clusters avoids both.

Horizon 35 is the systems integrator that builds the capability

Doing this once is a project. Doing it again and again, across a country, takes a system. Horizon 35 works the way a systems integrator does in defense or large infrastructure: we do not own every piece, and we make the pieces work together. We bring five capabilities to each operation.

1. **Strategy.** More than twenty years of strategy consulting and new-venture building, applied to which sites, minerals and processing routes to pursue, and in what order.
2. **Government relations.** Working relationships with government and communities, so that licensing, export rules and national policy line up behind the build-out.
3. **Technology and innovation.** Processing technologies matched to each site's material, with independent technical review of every decision.
4. **Partnerships and network.** Mining operators, processing partners and buyers who want traceable supply from outside today's concentrated sources.
5. **Capital.** Private equity, investment and capital-project experience, with funding released in stages as each operation meets its milestones.

The model is closer to a hotel brand than to a mining company. A hotel brand does not have to own the building to put its standard on it. In the same way, a site that joins our network commits to a clear bar: formal employment contracts, at least a living wage, modern safety practice, environmental responsibility and a documented chain of custody for every tonne it produces. Meeting that standard is what connects a site to in-country processing, to international buyers and to the capital that helps it grow.

Our goal in Uganda is one million jobs in five to ten years

The goal is deliberately ambitious. For context, about 4.2 million young Ugandans have no job, school or training today, and another 700,000 reach working age every year.[8] One million jobs starts with about 100,000 people working directly in mining and processing, with each of those jobs supporting

about ten in all through suppliers, services and local spending.[7]

Our planning model reaches that number with roughly 220 restarted or expanded mining operations, in the same mix of large, medium and small sites as Uganda's mining register, and about 25 processing plants built in clusters over ten years.[9] We begin with a foothold in tin, tungsten and tantalum. All three are on the U.S. critical minerals list, all three face buyers who now require supply from outside today's concentrated sources, and each needs a processing step Uganda can realistically build.[10] These are early estimates from public data, and the next step is to verify them site by site.

We walk before we run

Every planning figure in this paper is an estimate, and we treat it that way. The path is built one operation at a time: prove the first site, measure the jobs it creates and the value it produces, and use that evidence to fund and de-risk the next. Each stage is paid for, in part, by the one before it.

The ingredients already exist in Uganda: minerals the world needs, mines ready to restart, a government that wants processing at home and a young workforce ready to work. What turns those ingredients into a lasting national advantage is the capability to process them, and the system that ties mining, processing, capital and standards together. That is what Horizon 35 is building.

About Horizon 35

Horizon 35 is a systems integrator for mining and mineral processing in developing countries. We bring strategy, government relations, technology, partners and capital together around proven operators to create formal, well-paid local jobs and to help ore-rich countries keep more of the value of what they mine. Our goal in Uganda is one million jobs in five to ten years. horizon35.com · mitch@horizon35.com

---

Sources

1. Michael E. Porter, *The Competitive Advantage of Nations*, Free Press, 1990.
2. International Energy Agency, *Global Critical Minerals Outlook 2026*.
3. Jeffrey D. Sachs and Andrew M. Warner, "Natural Resource Abundance and Economic Growth," NBER Working Paper 5398, 1995.
4. World Economic Forum, April 2026, on African mineral revenue capture and value added per processing step.
5. Government of Indonesia, Ministry of Investment, as reported by Antara News, July 30, 2024: nickel export value of US$3.3 billion in 2017–2018 and US$33.5 billion in 2023.
6. Remarks by President Yoweri Museveni at the opening of Uganda's first tin refinery, April 2024; Republic of Uganda, Mining and Minerals Act, 2022.
7. World Gold Council with Steward Redqueen, *The Social and Economic Contribution of Gold Mining*, November 2021: 5.9 supply-chain jobs per direct job, about 10.5 including induced employment.
8. Uganda Bureau of Statistics, National Population and Housing Census 2024; World Bank, *Uganda Jobs Strategy for Inclusive Growth*, 2020.
9. Horizon 35, *A Model for One Million Jobs in Uganda* and Uganda mineral portfolio analysis, October 2026, built on the Uganda Mining Cadastre (979 license records, August 2026). Planning estimates, not forecasts.

10. U.S. Geological Survey, Final 2025 List of Critical Minerals.