

The Race for Malaysia's Rare Earths

An Indo-Pacific Strategy

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Introduction

As the United States and its closest allies race to diversify rare earth supply chains and establish nodes of production outside the sphere of dominance of China, Malaysia has emerged as a key player. At the center of Malaysia's strategic importance is its refining capacity: In 2025, it became the first country outside of China to produce dysprosium oxide, a key heavy rare earth for the defense industry. Now, its processing capacity is set to expand precipitously with investment in a new facility, which will increase capacity from **1,500 metric tons** of heavy rare earth feedstock to **5,000 metric tons** per year.

This effort is spearheaded by Lynas Rare Earths, an Australian company that first received its license to operate in Gebeng, Malaysia, in 2012. Malaysia's rise as a rare earth processing hub, while a significant triumph for Lynas, cannot be attributed to just one company or even one country. Rather, Malaysia's development as a commercial-scale rare earth processor has been enabled by decades of international investment and commitment: Malaysia's reform to its regulatory ecosystem, China's infrastructure investment, Japan's patient capital, Australia's technological expertise, and the United States' most recent **offtake agreement** and price support. Malaysia sits at the intersection of plurilateral efforts to diversify rare earth supply chains and serves as an example of how targeted support can transform countries with little experience in the rare earth industry into significant producers shifting the global landscape.

The successful commercial production of refined heavy rare earth metals outside of China is merely the beginning of global efforts to diversify mineral supply chains. The Malaysian government is spearheading efforts to turn the country into not just a landing pad for midstream investment by foreign firms

but also an integrated contributor to global rare earth supply chains. Malaysia seeks to achieve this by both continuing to emphasize its industrial capacity as a processing hub and emphasizing technology transfer and research and development (R&D) up and down the supply chain. Malaysia holds the potential to be a major source of heavy rare earth feedstock from large ionic clay deposits. Its rare earth deposits are estimated at **16.1 million metric tons**, the **third-largest reserves** in the world after China (44 million) and Brazil (21 million). Importantly, ionic clay deposits are nonradioactive, circumventing the social challenges that often arise from traditional hard-rock deposits that are colocated with potentially hazardous radioactive materials. This significant source of feedstock will become only more strategic as Malaysia increases its refining capacity over the next several years. The rare earth industry is expected to contribute as much as **9.5 billion MYR** (\$2 billion) to the country's GDP in 2025 and create nearly 7,000 job opportunities.

China already has a head start. In 2022, MCRE Resources, a joint venture between Chinese and Malaysian stakeholders, began developing the Gerik ionic clay deposit in the state of Perak. Using Chinese in situ leaching technology, MCRE exported nearly **\$11 million** worth of rare earth ore to China from January to September 2025 for refining. Without a competitive Western alternative, Malaysia will continue to rely on Chinese technology, equipment, know-how, refining capabilities, and offtake to unlock its rare earth resources.

China has only strengthened its position within Malaysia in recent years. In April 2025, when Malaysia was hit with a **24 percent** reciprocal tariff from U.S. President Donald Trump, Chinese President Xi Jinping arrived in Kuala Lumpur on his first state visit to Malaysia in 13 years to meet with Prime Minister Anwar Ibrahim. During the visit, Xi **proclaimed** a new “golden era” of China-Malaysia relations and signed a flurry of **31 agreements** on railway transportation, semiconductors, **aircraft sales**, and agriculture. China has made large-scale, concrete investments in Malaysia's economic future and mineral resources. In comparison, the United States has made softer commitments to Malaysia, offering introductory dialogues for engagement but no hard capital commitments. Malaysia is one of the only near-term suppliers outside China for materials the United States requires for global power projection. If the United States wishes to access these materials and counter China's influence in the region, it needs a new strategy that pairs meaningful investment with coordinated diplomatic engagement.

This white paper reviews how Malaysia came to be a strategically valuable node in the rare earth supply chain and outlines the role and continuing influence of several international partners in fostering an enabling ecosystem for commercial-scale processing. The paper recommends a path forward to transforming Malaysia into a key U.S. partner in securing rare earth supply chains by leveraging existing ties between Malaysia and trilateral partners (Australia, Japan, and the United

States). With critical mineral frameworks already underway between the United States, Australia, Japan, and Malaysia, now is the time to deepen industrial ties in the rare earth industry—before China secures the resources entirely for itself.

The Rise of Malaysia's Rare Earth Industry

Malaysia has managed to successfully develop its rare earth processing sector over the course of decades. It has done so through both strategic domestic industrial policy planning and foreign policy engagement with a variety of neighbors in the Indo-Pacific region. As a result, Malaysia boasts an attractive regulatory regime, well-suited infrastructure, and conducive diplomatic relationships to attract investment from a breadth of international partners.

Malaysia's mineral industry dates to the nineteenth century during Malaysia's British colonial era. Discoveries of **large tin deposits** in the states of Perak and Selangor ushered in large amounts of capital investment from China and Europe, along with Chinese migrant workers and European technology. By 1904, Malaysia supplied **50 percent** of the world's tin. While Malaysia remained a significant supplier of tin to Europe throughout World Wars I and II, its share of global production declined steadily throughout the second half of the twentieth century as other **major producers**, including Indonesia, Bolivia, and Peru, entered the market. By the 1990s, tin exports accounted for less than **1 percent** of Malaysia's economy. Nevertheless, Malaysia's history of tin mining played a significant role in launching its rare earth processing industry, as leftover tin by-products offered feedstock for early rare earth enterprises.

The country's first rare earth operation began in 1982, with a monazite processing plant in **Bukit Merah** operated by Asian Rare Earths, a Mitsubishi subsidiary. The plant repurposed slag from old tin smelting operations to extract rare earths within the feedstock. However, the endeavor ended in catastrophe. Residents and workers near the plant **raised the alarm** that radioactive materials and waste could be responsible for a notable spike in birth defects and cancer rates in the small community. The project was permanently closed in 1992, followed by years of site cleanup.

This tragic history continues to shape public attitudes in Malaysia toward the rare earth industry, even decades later. Lynas received approval from the Malaysian government to build its facility within an industrial park in 2007, but years of vocal opposition, protests, and legal filings by the Stop Lynas movement **delayed** operations until 2012. As a result, the Malaysian government has had to tread carefully as it crafts its critical minerals strategy, balancing incentives for foreign investments with environmental regulations and oversight.

Critical Minerals Regulation in Malaysia

Malaysia first undertook efforts to formalize its minerals policy landscape in 1994 with the original National Mineral Policy (NMP1) to lay the groundwork for a robust and competitive regulatory environment for the minerals sector. The industry is governed by the **Mineral Development Act of 1994**, which delineates the powers of the federal government to regulate mineral exploration and mining while the state governments maintain the power to issue mineral exploration and mining licenses. Each state sets its own regulations for mining activities and may impose royalties. The act also mandates adherence to health and safety regulations to protect workers and communities near mining sites.

The National Mineral Policy was **updated in 2009** (NMP2), identifying areas of focus, or “strategic thrusts,” including expanding the mineral resource sector, fostering a conducive business climate for investment, and enhancing R&D efforts. The new framework introduced standardized model mineral agreements between states and investors to establish baseline legal and commercial terms and environmental standards across jurisdictions. It also sought to attract foreign investment through security of tenure policies, transparent implementation of state mineral legislation, and fiscal incentives. Lynas received a **12-year tax holiday** as a “pioneer investor” in the burgeoning rare earth industry, making Malaysia a highly cost-competitive jurisdiction for investment compared to Australia or other regional destinations.

Malaysian minerals policy consistently prioritizes the development of midstream processing and greater value-added industries over extractive industries. Malaysia has a large services sector, **accounting** for 59.5 percent of GDP, and a relatively small manufacturing sector, making up just 23 percent of GDP in 2025. Malaysia views the transition to technology-driven industrialization as the key to unlocking further economic growth and welcomes foreign direct investments to transfer new skills and technologies as a pivotal shortcut to value-added production. The country’s **New Industrial Master Plan 2030**, released in 2023, seeks to bolster the manufacturing sector and high-value-added activities to more deeply integrate Malaysia into global value chains. The plan targets nine strategic sectors, one of which is critical materials. The plan includes goals of “cooperative vertical integration” for global critical material value chains, accelerated technology transfer and a shift away from low-skilled labor, and enhanced environmental sustainability.

Malaysia’s Export Bans on Raw Materials

In recent years, geological studies have confirmed that Malaysia has significant untapped heavy rare earth feedstock from large ionic clay deposits, estimated at **16.1 million metric tons**. These ionic adsorption clays are an **especially attractive** form of rare earth feedstock, with simpler and more cost-effective

extraction methods and fewer environmental externalities to manage. In September 2023, Malaysia **announced** a nationwide moratorium on the export of unprocessed rare earths effective January 1, 2024. Trade Minister Tengku Zafrul Aziz **explained** Malaysia's desire to avoid the exploitation and loss of resources within a country aiming to build its manufacturing and industrial sector and attract investment into midstream processing: "Our policy is not to prevent trade forever. Our policy is to prevent the export of cheap unprocessed raw materials so that value is added to Malaysia."

Still, Malaysia has shown willingness to negotiate exemptions with international partners making commitments to its future in rare earth processing. Malaysia granted MCRE an exemption to ship its ore to China for processing by Chinalco Guangxi Nonferrous Rare Earth, a subsidiary of a state-owned entity. In 2025, the United States and Malaysia entered a **critical minerals MOU** and reciprocal trade agreement, in which Malaysia committed to refrain from imposing rare earth export bans or quotas on the United States—an important step in creating an enabling regulatory environment for investment. The U.S. government, for its part, has committed to purchasing rare earth oxides from Lynas at a supportive price floor of **\$110 per kilogram**. Malaysia appears to be skillfully navigating its export control policies in ways that protect domestic value creation without alienating key foreign investors.

The Battle for Social License to Operate in Malaysia and Combating Chinese State Influence

While Malaysia encourages investment in its midstream and downstream minerals and metals industries, it is also highly sensitive to the environmental and social risks associated with the rare earth sector. As a result, Lynas has faced repeated challenges from nongovernmental organizations (NGOs) and Malaysian politicians alike. In 2023, the government of Malaysia raised concerns about radiation levels from the cracking and leaching stage of Lynas's rare earth processing facility, imposing a ban on the practice as a condition of the company's renewed operating license. Lynas quickly launched **legal action** to appeal the Malaysian government's decision to the High Court in July 2023. At the same time, the company accelerated construction of a cracking and leaching plant already underway in Australia to fill the supply chain gap. Lynas claimed the new license conditions at the Malaysia facility represented a significant variation from the conditions under which Lynas made its initial investment decision and risked shuttering the plant entirely.

In October 2023, a compromise was reached, and Malaysia amended the license to allow for cracking and leaching. In return, Lynas committed to removing radioactive waste and investing **1 percent** of its gross sales into R&D within Malaysia. The Malaysian government's swift resolution to its dispute with Lynas

was critical to not only preserving a crucial asset for global supply chains but also to reassuring investors that Malaysia is a reliable partner for foreign investment capable of balancing investment incentives with environmental protections.

Nevertheless, Lynas continues to face NGO actors who undermine its social license to operate. In July 2026, a Malaysian parliamentary committee **announced a hearing** to discuss the Pentagon's \$96 million supply agreement with Lynas, in response to protests from Greenpeace and the Boycott, Divestment, Sanctions movement. Opponents accuse Lynas of supplying the materials for U.S. weapons used by Israel. Malaysia is a Muslim-majority country and does not hold diplomatic ties with Israel. It remains to be seen how effective this line of argument is considering Malaysia has also been a recipient of U.S. military sales, including **Sniper Advanced Targeting Pods** in 2025, **advanced medium-range air-to-air missiles** in 2015, and potentially **naval strike missiles** in 2026.

It is important to note that opposition within Malaysia to Western rare earth operations may not be entirely organic. China has a long history of influence campaigns within Malaysian politics and media that are likely playing a role in shaping the rare earth narrative. China has long leveraged influence campaigns to build pro-Chinese sentiment in Malaysia and even attempt to **influence election results**. Chinese state narratives in **Malaysian media** attempt to mask China's true intentions in the South China Sea and discredit reports of abuses against the Uyghur population in Xinjiang, two issues of concern for many Malaysians. Networks backed by the Chinese Communist Party (CCP) have been discovered **actively undermining** Western attempts to build rare earth projects by spreading disinformation on Lynas and amplifying inflammatory content. As the United States, Australia, and other partners continue to make progress in breaking China's rare earth dominance, disinformation campaigns are expected to intensify.

China and Malaysia: Long-Term Infrastructure Investments Yield Industrial Ties

In 2025, Malaysia emerged as the West's first bulwark against China's chokehold on heavy rare earth refining. Interestingly, Malaysia has managed to build this reputation despite China's deep entrenchment in Malaysian infrastructure and industrial parks, which continue to attract foreign investment. China-Malaysia relations transformed over the course of decades from hostility during the Cold War, when the CCP supported communist insurgents in Malaysia, to a cordial partnership in the post-Cold War era built on the two-way flow of trade, capital, and people. Despite **ongoing competing claims** in the South China Sea, Malaysia has prioritized commercial gains from engagement with China over security concerns. In 1970, Malaysia notably shifted its pro-Western stance to a strategic policy of nonalignment, formalizing diplomatic relations between Kuala Lumpur and Beijing.

Economic ties between Malaysia and China have only deepened in recent years. In 2013, the bilateral relationship was **elevated** to a “comprehensive strategic partnership.” Chinese investments in Malaysia under the Belt and Road Initiative surged from a total of \$16.1 billion between 2005 and 2013 to **\$42.27 billion** between 2013 and 2025. In 2016 alone, China announced **14 MOUs** for projects totaling **143.6 billion MYR** (\$36.3 billion). Large-scale infrastructure projects have proliferated significantly, accelerating Malaysia’s transformation into an advanced industrial hub. The **\$13 billion** East Coast Rail Link is the largest announced project, connecting the resource-rich eastern states of Pahang and Kelantan to the industrial west coast and port of Klang, the country’s largest commercial port.

China has also targeted Malaysia’s energy infrastructure, **acquiring 100 percent** of Edra Global Energy. Edra is Malaysia’s second-largest independent power producer and controls over **3,000 megawatts** of capacity. The **\$2.3 billion purchase** of 14 percent of Malaysia’s total power assets was largely viewed as a bailout of the 1Malaysia Development Berhad, roiled in scandal, fraud, and massive amounts of debt. Now China is looking to leverage its investments in Malaysian energy, logistics, and industrial capacity to build out its rare earth footprint. Lynas may soon no longer be the only rare earth producer in Malaysia. In 2025, Malaysia was **in talks with China**, saying Malaysian sovereign wealth fund Khazanah Nasional would partner with a Chinese firm to build a refinery in Malaysia.

At the center of China-Malaysia industrial ties is the **Two Countries, Twin Parks** initiative, in which two industrial parks were proposed: one in Qinzhou, China, and the other in Kuantan, Malaysia, known as the Malaysia-China Kuantan Industrial Park (MCKIP). The move was broadly viewed as an attempt to circumvent **country-of-origin rules** and the high tariffs levied against goods manufactured in China. China also **heavily invested** in the expansion and upgrade of the Kuantan deep-sea port, which today serves as a key logistics hub for regional mineral trade, jointly operated by both Malaysia and China. China’s infrastructure investments have made Malaysia an attractive jurisdiction for foreign investment. As of 2024, only **400 of MCKIP’s 3,000 acres** remain unused. Nevertheless, as China continues to expand its infrastructure networks in Malaysia, there is growing danger of foreign acquisition of strategic assets and risk of logistics disruptions. While Lynas’s refinery is located outside the MCKIP, the company uses the Kuantan deep-sea port to ship its rare earth materials to global markets. If the United States and allies seek to turn Malaysia into a rare earths processing hub for non-PRC supply chains, they will have to mitigate the risk of overreliance on Chinese infrastructure and ensure the availability of logistics corridors to transport materials.

Australia and Malaysia: Proven Defense and Rare Earth Partners

The Australia-Malaysia relationship has long been anchored in security considerations and defense cooperation. Sharing a common history with Malaysia as a former British colony, Australia played a key role in the development and defense of an independent Malaysian state. Australian forces **fought side by side** with Malaysian forces during World War II to defend Malaysian states from Japanese incursion. In the 1950s, during the period of communist insurgency known as the **Malayan Emergency**, Australia dispatched troops, arms, and food. In 1957, Australia sponsored Malaysia's bid to join the United Nations and was among the first 15 nations to establish official diplomatic relations with the newly recognized Federation of Malaya. In 1971, Australia, Malaysia, New Zealand, Singapore, and the United Kingdom formed the military cooperation pact known as the **Five Power Defence Arrangements**, through which Canberra and Kuala Lumpur continue to cooperate militarily today.

Considering Australia and Malaysia's track record of security cooperation, it is fitting that the two countries are intrinsically linked in the development of rare earth resources critical to defense supply chains. For decades, Australia has partnered with Malaysia to build the world's first ex-China rare earth supply chain, leveraging Australia's industry expertise and mining legacy with Malaysia's industrial capacity within cost-competitive economic corridors. Malaysia established its East Coast Economic Region (ECER) as a special economic zone in 2009. Today the ECER is home to several **specialized industrial parks** for manufacturing, petrochemicals, and automobiles. The ECER has **attracted investments** from major multinational companies including Mitsubishi, Volkswagen, Arkema, and HSBC Bank due to its tax incentives, enabling logistics, and trained workforce. The expansive 69,000-square-kilometer region covers the states of Kelantan, Terengganu, and Pahang, offering **direct connectivity** between the South China Sea and the Strait of Malacca for easy access to major shipping routes and global markets. The region also hosts four public universities and **over 130** public technical and vocational education and training programs to support a skilled workforce and strong talent pool.

Lynas has pursued large-scale commercial refining within the ECER since 2012 and is now actively scaling its Malaysian operations. In contrast, it has reported "**significant uncertainty**" about whether it will go ahead with its effort to build a heavy rare earth refining facility in Texas due to ongoing challenges with wastewater management and ballooning costs. This scale-down of operations in the United States makes Lynas's Malaysian facility all the more critical for global supply chain security. The close Australia-Malaysia relationship has been advantageous to the advancement of the Lynas rare earth project in the face of political obstacles. In 2023, when the Malaysian government imposed new restrictions on Lynas's operating license, the Australian government backed

Lynas in its push for the project's cracking and leaching operations to continue as planned in Malaysia. During the period of contention, the Albanese government stressed Lynas's safe operating record and **appealed directly** to Malaysian authorities that "a drop in production from Lynas's Malaysian facility will have an impact on global rare earths supply chains."

In the present day, Lynas is growing its footprint in Malaysia by expanding its refining capacity, investing in domestic R&D, and exploring the possibility of tapping into Malaysia's ionic clay deposits as a future feedstock. Lynas **signed an MOU** with Malaysia's Kelantan state government to jointly develop the state's rare earth deposits. Leveraging Australian expertise and experience in the rare earth industry will be critical for the West to counter China's lead in Malaysian ionic clay mining.

Japan and Malaysia: A Cornerstone Economic Partnership

Despite the dark history of Imperial Japan's wartime occupation of Malaya (1941-1945), Tokyo and Kuala Lumpur have managed to forge an economic partnership based on mutual benefits and regional cooperation. At the center of Japan and Malaysia's partnership lies Malaysia's long-standing **Look East Policy (LEP)** for driving domestic economic growth. Introduced in 1982 by former Prime Minister Mahathir Mohamad, Malaysia sought to emulate Japan's industrial practices and corporate culture with the goal of similarly transforming into a developed economy. As a result, Malaysia and Japan formed deep economic ties through investment, industrial collaboration in emerging sectors, and technology transfer.

Japan has supported the objectives of Malaysia's LEP through its **Official Development Assistance** (ODA). Over the course of decades, ODA loans, grants, and technical assistance have been offered to bolster Malaysia's economic landscape as a key regional partner to Japan. ODA support has targeted critical infrastructure projects and talent development programs. Japan has hosted over 17,000 Malaysian workers for training and supported power generation through the construction of seven hydroelectric power stations. As a result, Malaysia has attracted investment from over **1,600 Japanese companies** operating 2,778 manufacturing projects. Companies operating in Malaysia include Japanese technology heavyweights Toyota, Sony, and Panasonic.

ODA support has also emphasized maritime security enforcement in the Strait of Malacca and South China Sea to protect vital trade routes. Japan **donated** two offshore coast guard patrol vessels for Malaysia's coastal region. Over **80 percent** of Japan's oil imports pass through the Strait of Malacca, making Malaysia a vital partner in protecting Japanese economic security. While Japan and Malaysia both face similar challenges with Chinese incursion in the South China Sea, Malaysia's

more tolerant approach to Chinese encroachment has placed the burden of regional maritime security largely on Japan.

Today, Japan is a cornerstone economic partner to Malaysia, as its **fourth-largest trading partner** and third-largest foreign investor. As of 2023, **2,778 Japanese manufacturing projects** had brought in over \$27 billion in investment and created nearly **345,000 jobs**. This partnership is increasingly extending to the rare earth industry. In 2012, Japan made an initial \$250 million investment in Lynas. In 2026, Japan Australia Rare Earths, a joint venture between the Japan Organization for Metals and Energy Security and Japanese trading company Sojitz, signed a purchasing agreement for a minimum of **5,000 metric tons** of neodymium-praseodymium from Malaysia annually at a floor price of \$110 per kilogram. Japan's rare earth manufacturing industry, the largest outside China, accounts for **15 percent** of the global market. ODA also announced funding for cooperation between the two countries in rare earth mining and refining activities for the first time in the agency's history. In February 2026, Japan announced it would **provide technological support** to Malaysia's rare earth industry, and it dispatched experts in geology and environmental chemistry to conduct preliminary studies.

United States and Malaysia: Transferring Technology Through Investment

The United States is a late entrant into the Malaysian rare earths landscape but is quickly building upon its long-standing status as a **top-three foreign investor** in Malaysia to form bilateral ties in the rare earth space. Between the 2025 MOU, Malaysia agreeing not to implement rare earth export bans or controls, and the U.S. government offtake agreement with Lynas, the two countries have nurtured an environment conducive to further investment. Much of the offtake the United States receives is expected to come from the Malaysian facility.

The United States has a significant track record of foreign investments in Malaysia's manufacturing sector, particularly in the semiconductor industry. This experience will be key to translating a high-level MOU into actual investments that build industrial capacity. Following the Covid-19 pandemic in 2020, Malaysia was a top recipient of foreign investment flows getting redirected from China to alternative Southeast Asian countries in supply chain de-risking efforts. U.S. companies were crucial in laying the foundation for Malaysia's status as a semiconductor manufacturing hub. Intel Corporation, Hewlett-Packard, National Semiconductor (now Texas Instruments), and Advanced Micro Devices made up half of the **Eight Samurai** that brought the initial wave of electronics innovation to the country. In 2021, Intel pledged **\$7 billion** to expand its Penang facility, the largest in the world for frontier 3D packaging and testing. These investments are crucial not only to Malaysia's development as an advanced manufacturing

economy but also to U.S. economic security strategy. Malaysia was an attractive destination for U.S. investors looking to diversify manufacturing supply chains away from China and reduce dependence on the semiconductor exports coming from the highly contentious Taiwan Strait. Over years of investment, Malaysia has transformed into a strategic hub for semiconductor advanced manufacturing, with **ambitions** to develop home grown chip technologies within the decade. This same playbook may be leveraged for the global rare earth industry, just as it was for the U.S. semiconductor industry.

Recommendations

Malaysia's long-standing partnerships and economic and security ties to the United States, Australia, and Japan bode well for its future as a rare earth hub. However, this trilateral partnership will have to carefully navigate Malaysia's close relationship with China and its preestablished infrastructure networks that link many of Malaysia's industrial zones directly to the PRC. The following recommendations offer a path forward for U.S.-Malaysia rare earth cooperation in close collaboration with Australian and Japanese partners.

- 1. Build a plurilateral Indo-Pacific critical minerals framework to coordinate regional vertical integration and de-risk ionic clay mining and processing ventures in Malaysia.** The Indo-Pacific region is emerging as central to de-risking the world's rare earth supply chains. Much of the rare earth magnet supply chain is poised to be centralized within the Indo-Pacific region, from Australian and Californian mining operations to Malaysian refining and Japanese and Korean magnet manufacturing. The region also faces elevated supply chain vulnerabilities, as China weaponizes export restrictions to undermine U.S., Japanese, and Korean hubs of advanced manufacturing in the automotive, consumer electronics, and defense industries. Therefore, leveraging and coordinating Indo-Pacific partners' comparative advantages within the supply chain will be crucial to unlocking the region's rare earth potential.

The United States, Australia, Japan, and most recently South Korea are already announcing new investments in Malaysia to address security challenges. In July 2026, South Korea's JS Link signed an **agreement with Lynas** to build a rare earth magnet facility in Malaysia. A skeleton for an integrated mine-to-magnet supply chain within the Indo-Pacific is taking shape, with Malaysia hosting key foreign investments in midstream and downstream production. Still, Indo-Pacific partners have an important role to play in ensuring investments are translated into production, and individual projects upstream and downstream are integrated from allied suppliers to allied consumers.

An Indo-Pacific critical minerals framework could turn distinct projects into connected supply chains by coordinating capital investment, offtake agreements, and even targeted price support to alter the global rare earth landscape. Gaps in the rare earth mine-to-magnet supply chain remain. In particular, the United States and its Indo-Pacific partners must still find ways to unlock and integrate commercial-scale ionic adsorption clay mining with heavy rare earth separation and refining.

Malaysia's ionic adsorption clay resources have yet to be tapped as a future heavy rare earth feedstock. China has a head start in mining Malaysia's ionic clay deposits for rare earths and a breadth of experience in the sector compared to Western miners. Historically, ionic adsorption clay rare earth mining has taken place **only in China**, whereas the West has focused on hard-rock resources. The United States and Australia are attempting to change this. The United States already backs an ionic clay deposit in Brazil, Serra Verde's Pela Ema mine, supported since 2024 by the Minerals Security Partnership and acquired by USA Rare Earth in 2026. The project has produced small quantities of neodymium, praseodymium, dysprosium, and terbium since 2024, with **6,400 tons** projected to be produced in 2027. Australia has also been **accelerating its efforts** to develop ionic adsorption clay rare earth mining capabilities, with significant exploration and technology development underway. The Koppamurra project, located in southern Australia, received a **\$5 million grant** from the Australian government's International Partnerships in Critical Minerals Program to support a prefeasibility study and a demonstration plant. The Australian Nuclear Science and Technology Organisation (ANSTO) began **pilot-scale processing** of Koppamurra's clay ore in June 2026. Together, the United States and Australia may soon demonstrate they can commercially mine rare earths from ionic clay deposits, an important step in countering China's long-held dominance in this process and offering Malaysia a credible alternative to Chinese industrial partnerships.

- 2. Leverage financing from the U.S. International Development Finance Corporation (DFC) or the Export-Import Bank of the United States and Japan's ODA to fill infrastructure gaps and ensure adequate logistics networks to serve Western facilities.** As the United States and allies advance their efforts to diversify rare earth supply chains, China will only continue to develop more creative means to stymie them to maintain dominance. Historically, China has leveraged a familiar playbook to disincentivize additional non-PRC investment in the rare earth industry: Oversupply the market, leading prices to crash and burgeoning projects to fail. Then, once the supply chain is under PRC control, restrict exports for foreign policy leverage. However, if the U.S. government price floor of \$110

per kilogram continues to be levied, China's typical strategy may not be as effective. China has already found new ways to obstruct competitors. In 2025, Chinese suppliers stopped providing spare parts for Chinese-made equipment at the Lynas rare earth refining facility. Lynas CEO Amanda Lacaze has cited the restriction as an added barrier and **cost penalty** to the project.

Chinese-operated infrastructure in Malaysia is another point of potential vulnerability to Western mining and minerals projects. Both the DFC and Japan's ODA office have the capability and the experience to invest in strategic logistics networks. These funding sources should be leveraged to ensure Western investments in Malaysian rare earth mining and processing have access to non-PRC-controlled infrastructure, including energy, rail, and ports, to get materials to allied markets. The projects should be selected in consultation with Western mining and processing operators already on the ground to ensure developing infrastructure is aligned with the needs of Western industry.

3. Coordinate R&D efforts to enhance technological capability outside China while offering a more advantageous model of technology transfer and local value creation to Malaysian stakeholders.

Advancements in technology will be crucial to unlocking the resource potential of ionic adsorption clay deposits on a commercial scale. China has **decades of experience** extracting rare earths from ionic clays using in situ leaching methods. However, in situ leaching, which involves the direct injection of chemicals into the ore body, can be severely environmentally damaging, with a high risk of groundwater contamination and deadly landslides. The United States and Australia **have yet to extract** rare earths from ionic clay deposits at a commercial scale but are actively developing the technologies that may reduce the environmental and safety risks that accompany current ionic clay rare earth extraction techniques. While the United States, Australia, and Japan may be behind China in terms of deploying ionic adsorption clay extraction technologies in this area, Western partners have an opportunity to offer Malaysia a more environmentally sound alternative to Chinese technology, with the opportunity of transferring some technology and simultaneously upskilling Malaysia's own mining industry.

The MOU between the United States and Malaysia **notes** a "desire" to enable technology transfer but includes no mechanism for facilitating such transfer. Incentivizing foreign direct investment alone does not guarantee technology transfer and the upskilling of the Malaysian workforce. Vietnam has recognized this and, as a result, implemented the **Law on Technology Transfer** in 2017 to prioritize advanced, new, or clean technologies while promoting transfer through the National Technology

Renovation Fund, offering loan guarantees and tax incentives. While Vietnam does not mandate local labor thresholds, foreign businesses are **required to prove** that efforts to hire suitable local workers were unsuccessful before recruiting internationally. Malaysia may adopt similar local labor policies to incentivize skill transfer, ensuring the MOU's language on technology transfer is not merely aspirational.

Malaysia is also working to build its rare earth R&D capabilities. In 2024, the country established its **first mineral analysis laboratory**, Terra Mineral Lab, and a Centre of Excellence for Mineral Research with approximately \$3 million in government funding. The United States, Australia, and Japan have well-developed R&D laboratories that have the potential to bolster Malaysia's efforts. The U.S. Department of Energy's **Ames Laboratory** and ANSTO are working with both public research institutions and private companies to further ionic clay mining capabilities. Collaboration between individual countries' research endeavors can help to accelerate efforts, increasing the West's competitiveness in an industry currently led by China and offering Malaysia R&D support aligned with its long-term economic development goals.

- 4. Strengthen local support for the West's social license to operate within Malaysia's rare earths sector through dedicated educational campaigns that counter PRC disinformation.** Ensuring a long-term social license to operate remains one of the greatest challenges to expanding the footprint of the United States and the rest of the West in Malaysia's rare earth industry. The legacy of the Bukit Merah disaster and the decade-long Stop Lynas movement demonstrates that community opposition has long posed a threat to project development. These campaigns frequently exploit real local anxieties for geopolitical ends. Today, Lynas continues to overcome organized opposition to its growing operations. Without deliberate investment in public trust, even well-financed and technically sound Western projects risk years of delay, litigation, and reputational damage that cede ground to Chinese operators.

To combat misinformation, a sustained public education effort should combine the expertise of commercial industry with the authority of local government, the diplomatic support of embassies, and the credibility of universities and civil society organizations. Communities should be offered independent and publicly available environmental and radiation monitoring of Western-backed facilities, as well as a technical demonstration and explanation of how rare earth mining and processing today bear little resemblance to the processes that caused the Bukit Merah disaster. Project proponents must also emphasize benefit sharing, highlighting linkages between the rare earth industry and the local job

creation, upskilling, and infrastructure improvements that come with it. Indo-Pacific partners should also coordinate diplomatic messaging to assure Malaysia that it is a key partner in building regional security, not a target of resource exploitation.

Conclusion

Malaysia's emergence as one of the world's first rare earth refining destinations outside of China represents more than a commercial milestone—it is a model for how targeted, coordinated investment can reshape critical mineral supply chains long dominated by Beijing. Yet this progress remains fragile. China's deep entrenchment in Malaysian infrastructure, its history of disinformation campaigns, and its willingness to exploit choke points all underscore that the battle for Malaysia's rare earth future is far from settled. The United States cannot rely on Lynas alone, nor can it assume that a single MOU will translate into durable industrial capacity. Success will require the United States to move beyond dialogue toward the same kind of patient, strategic capital that Japan, Australia, and China have each deployed over decades—paired with meaningful technology transfer, infrastructure investment, and sustained public engagement to secure Malaysia's social license to operate. The United States and its allies have an opportunity to offer Malaysia a better model of investment that creates local value, responsibly manages environmental externalities, and secures supply chains outside Beijing's sphere of influence. ■

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