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Issue Brief

Myanmar's Rare Earth Elements: Conflict Dynamics and Supply Chains

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Summary

Myanmar's Kachin and Shan regions have massive deposits of rare earth elements. Ethnic rebel armed organisations believe controlling these mines will give them extra leverage in negotiations with the military junta and China. Myanmar's civil war and the mining of rare earth elements reflect the complicated relationship between the world's climate aspirations and controversial supply chains.

Rare-earth elements (REE) have unique magnetic, conductive and thermal properties. They are essential in small quantities across modern industries, such as clean-energy technology, electric vehicle (EV) motors, wind turbine generators, petrochemical refining, defence and aerospace. Demand for green technology is on the rise, not only to mitigate climate impact but also to boost energy security. Chinese state-owned enterprises (SOEs) have dominated REE processing and control about 90 per cent of the global refining capacity.[1]

China enforced stricter laws on domestic rare-earth mining after 2016. In the Thirteenth Five-Year Plan (2016–2020), China focused on 'strengthening resource and ecological protection' and 'advancing sustainable development' as its first 'major task' for the period. China also strictly enforced soil pollution standards and strengthened supply-chain management of specific strategic REEs.[2] These shifts in policy outlook unfolded further in the coming years, which resulted in China looking abroad for new sources of supply to meet rising demand.

These policy measures forced Chinese firms to shift extraction into countries such as Myanmar, which has emerged as a major supplier of these materials. An Associated Press (AP) investigation, drawing on dozens of interviews, customs data, corporate records and Chinese academic papers, suggested that rare earths from Myanmar are being supplied to 78 companies across the globe.[3] Myanmar's Kachin and Shan states, bordering China, have large deposits of REE such as dysprosium and terbium.[4] Reports suggest this area is 'the world's largest source' of heavy REEs.[5]

Exports of heavy rare-earth elements into China have increased sharply from around 8,000 metric tonnes in 2011 to over 41,000 tonnes in 2023 (see Table 1). *Global Witness* states that China "had outsourced much of its [rare earth] extraction to Myanmar".[6] Trade data suggests that Myanmar supplies roughly 57 per cent of China's REE imports.[7] The following sections will highlight the environmental impact

[1] Patrick Body, **"Understanding China's Global Rare Earth Power Leverage"**, CKGSB Knowledge, 26 March 2025.

[2] Beatrice Tanjangco, Yue Cao, Rebecca Nadin, Olena Borodyna, Yunnan Chen, Linda Calabrese, Lauren Johnston and Edmund Downie, **"Special Focus: Chinese Outbound Investment in Rare-Earth Elements"**, Pulse 3: Recover, Reform, Restructure, ODI Report, 2021..

[3] Dake Kang, Victoria Milko and Lori Hinnant, **"'The Sacrifice Zone': Myanmar Bears Cost of Green Energy"**, Associated Press, 9 August 2022.

[4] Amara Thiha, **"Rare Earths and Realpolitik: Kachin Control, Chinese Calculus, and the Future of Mediation in Myanmar"**, STIMSON, 24 June 2025.

[5] **"Myanmar's Poisoned Mountains"**, *Global Witness*, 9 August 2022.

[6] **"Fuelling the Future, Poisoning the Present: Myanmar's Rare Earth Boom"**, *Global Witness*, 23 May 2024.

[7] Dylan Butts, **"How War-torn Myanmar Plays a Critical Role in China's Rare Earth Dominance"**, *CNBC*, 23 June 2025.

of REE mining by Chinese SOEs or firms associated with Chinese SOEs, the geo-political dynamics, and supply chain implications of this dependence on such critical raw materials from a war-torn country.

Table 1. China's Imports of Rare Earth Oxides from Myanmar

Year	Units in Metric Tons
2018	8,147
2019	14,428
2020	17,457
2021	19,460
2022	11,380
2023	41,629
2024	34,484

***Note**: Most Myanmar rare earths are shipped to China as rare earth oxides under HS code 28469019. Smaller quantities are shipped as rare earth oxalates under the HS code 28469099, but are not included in this chart.*

Source: **"Coverage of Major Imports & Exports"**, General Administration of Customs, People's Republic of China; Dylan Butts, **"How War-torn Myanmar Plays a Critical Role in China's Rare Earth Dominance"**, *CNBC*, 24 June 2025.

Environmental Impact

Chinese SOEs and associated firms manage mining operations in Myanmar, often through local firms, though many Chinese mine crews are also involved. Mining is unregulated in these regions. China-backed companies extract such elements through in-situ leaching, a solvent extraction method. In-situ leaching in Kachin has produced a rampant environmental disaster.

According to this method, experts note miners pour ammonium nitrate or sulphate solutions down a mountain from drilled top holes. The charged fluid dissolves metals from the ore and emerges in drains or collection ponds below the hill. It is usually a sludge containing rare earth. This sludge has high water content and is burned off in kilns to precipitate and retrieve the minerals.

This 'in-situ leaching extraction' process can be implemented relatively quickly, but is considered highly polluting. It is designed so that each mined hillside is drowned in acid.[8] Moreover, after the process, the 'leached' material results in the scarring of the landscape. Reports note that there are thousands of such pits across Kachin's hills.

Apart from widespread deforestation, soil contamination has become a significant problem in Kachin and Shan states. Pollution contaminates the local water sources.[9] Tonnes of toxic sludge are accumulated in open-air ponds, and reports note that villagers suffer painful rashes when they step into the streams.[10] Some reports even suggest that fish population have collapsed.[11]

This environmental devastation has now started affecting other countries as well. The Kok and Sai rivers in neighbouring Thailand, which are fed from northern Myanmar, have been found to contain arsenic and other heavy metals above the safety limits given by the World Health Organization (WHO). Local environmental activists from the NGO International Rivers claim this contamination has spread further along the Mekong.[12]

Satellite imagery and data suggest over 2,700 acid-leach collection pools across nearly 300 sites in Kachin.[13] Experts describe this contamination as likely to persist for an extended period. Chronic health hazards and loss of agricultural water are other negative aspects for the local communities. Elephant sanctuaries also prevent animals from bathing in the contaminated river pools.

The Mekong Commission confirmed unsafe heavy-metal levels in Mekong.[14] According to them, the likely source of this contamination can be traced to upstream mining in Myanmar through rivers that originate from Myanmar and join other tributaries of the Mekong River in Thailand. Even in bordering areas of Thailand, like Chiang Rai province, officials have confirmed arsenic levels many times above safety

[8] **"Fuelling the Future, Poisoning the Present: Myanmar's Rare Earth Boom"**, *Global Witness*, 23 May 2024.

[9] Mathis Richtmann, **"The Dirty Secrets Behind Myanmar's Rare-earths Boom"**, *Deutsche Welle (DW)*, 24 May 2025.

[10] **"Hundreds of Myanmar Villagers Report Diseases from Toxic Mine Waste"**, Radio Free Asia Burmese, 24 November 2024.

[11] **"Myanmar's Poisoned Mountains"**, no. 5.

[12] Michael Sullivan, **"In Myanmar, a Rush for Rare Earth Metals is Causing a Regional Environmental Disaster"**, *NPR*, 12 July 2025.

[13] **"Myanmar's Rare Earths: Cries Behind - Critical Minerals"**, ISP Conflict Economy Studies, Institute for Strategy and Policy – Myanmar, July 2025; Emily Fishbein, Hpan Ja Brang, Zau Myet Awng and Jaw Tu Hkawng, **"How the Kachin Public Overturned a Rare Earth Mining Project in KIO Territory"**, Frontier Myanmar, Rainforest Journalism Fund, 2 May 2023.

[14] Michael Sullivan, **"In Myanmar, a Rush for Rare Earth Metals is Causing a Regional Environmental Disaster"**, no. 12.

standards in river water from Myanmar and have urged villagers not to drink or bathe in it.[15]

Moreover, an AP investigation points out that apart from environmental destruction, there are issues of

> theft of land from villagers and the funneling of money to brutal militias, including at least one linked to Myanmar's secretive military government. As demand soars for rare earths and green energy, the abuses will likely grow.[16]

On every parameter, therefore, mining REE by Chinese SOEs has disrupted the environmental balance and is threatening public health in downstream countries. The Chinese Embassy in Bangkok recently pledged to "resolve [the Mekong contamination] through friendly dialogue". This suggests that Beijing recognises some reputational risks in its mining activities in Myanmar. Yet, it is doubtful that Beijing will abandon its economic interests.

Geo-political Dynamics

Since February 2021, Myanmar has been going through a brutal civil war—rebel ethnic armed groups, including the Kachin, have controlled most peripheral areas. The military regime (junta) controls only a fraction of the territory. At the same time, ethnic armed organizations (EAOs) now dominate almost 60 per cent of the areas across the country, including the resource-rich borderlands. In the case of Kachin State, Kachin rebel groups like the Kachin Independence Army (KIA) control much of the northern area of Myanmar, including key mines.[17]

China has been in consultation with both the Myanmar Junta and rebel groups. China sees Myanmar's mines as a strategic resource, and Beijing largely tolerates Myanmar's brutal armed civil war and chaotic mining areas of its 'Wild West' as long as shipments of REEs keep flowing from Myanmar to China.[18]

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[15] **"People in Chiang Rai Urged Not to Use Water Kok or Sai River Water"**, *Thai PBS World*, 4 May 2025.

[16] Dake Kang, Victoria Milko and Lori Hinnant, **"'The Sacrifice Zone': Myanmar Bears Cost of Green Energy"**, Associated Press, 9 August 2022; **"Myanmar: 78 Companies Implicated in Rare Earth Supply Chains But Human Rights Due Diligence Lacking, Investigation Finds; incl. co. comments",** Business & Human Rights Resource Centre, 9 August 2022.

[17] **"Myanmar: KIA Clash Risks China's Rare Earth Imports"**, *Star News Global*, 8 July 2025.

[18] Michael Sullivan, **"In Myanmar, a Rush for Rare Earth Metals is Causing a Regional Environmental Disaster"**, no. 12.

Bhamo, a city in Kachin State, is just 100 km from the Chinese border and is known as the heart of the rare-earth belt.[19] Due to its geographical location and the Shweli River along the Yangon-Mandalay highway, Bhamo is a strategic town. In late 2024, the KIA launched a major offensive operation.[20] KIA commanders believe that controlling Bhamo would give them effective command of Kachin's mines. KIA has pushed Myanmar junta forces into isolated pockets in Bhamo. Given that the junta has airpower assets, it continues to dominate the region, which has led to severe destruction and loss of lives.

There are claims that the junta has bombed civilian areas and destroyed infrastructure. Many humanitarian agencies have reported worsening conditions, including fuel and medicine shortages. Even under these circumstances, KIA understands the strategic significance of Bhamo and believes that control over it would shift the momentum of the conflict. KIA describes that this desired control may compel China to engage with ethnic forces instead of the junta because China cannot compromise the flow of rare earth resources.

It is reported that China has been worried about the situation in Bhamo since last year. Therefore, Chinese authorities summoned KIA leaders and warned that they should restrain themselves and back off, or Chinese firms would halt purchases of ores from Kachin.[21] China threatened to "block exports from Kachin State, including rare-earth minerals", if the KIA did not relent.[22] China's ultimatum became public in July 2025. Thereafter, China offered expanded trade in KIA-controlled areas in return for their resistance to the offensive actions in Bhamo. Under these circumstances, Beijing has given enough indications that it doesn't want to lose its mineral dominance for geo-political leverage. Moreover, it also indicates that though it is in talks with the KIA, China still considers the junta "a guarantor of [its] economic interests".[23]

Even though the junta has intensified air strikes in Kachin, there are no signs of the KIA fighters halting their offensive.[24] KIA is betting that if it controls Kachin, China will be forced to negotiate with it. The biggest question is whether China would wait

[19] **"How One Tiny Myanmar Town Controls the Globe's Rare Earth Supply and is Holding the World Hostage - The Real Story"**, *The Economic Times*, 8 July 2025.

[20] **"China Risks Global Heavy Rare Earth Supply to Stop Myanmar Rebel Victory"**, *Reuters*, 9 July 2025.

[21] **"KIA Denies Rumor Chief Under House Arrest in China"**, *The Irrawaddy*, 11 July 2025.

[22] **"Exclusive-Why China's Ultimatum to Myanmar Rebels Threatens Global Supply of Heavy Rare Earths"**, *The Print*, 8 July 2025.

[23] **"Why China's Ultimatum to Myanmar Rebels Threatens Global Supply of Heavy Rare Earths"**, *Investing.com*, 7 July 2025.

[24] **"Junta Airstrike Kills Nearly 40 Trainees at KIA Camp Amid Crisis"**, *Kachin News Group*, 1 April 2025.

and sideline the junta if KIA gains further on the battlefield. This is a peculiar situation where both sides carry high stakes and are betting on global demand for REEs. China may be concerned that a prolonged disruption could lead to a more diversified supply of rare earth elements in international markets.[25] On the other hand, the KIA is eyeing a scenario in which China eventually has to deal with the de facto authority of the territories where the mining of the REEs takes place.[26]

Global Supply Chain Implications

The conflict in Kachin, though, has already disrupted mining, especially since the KIA's October 2024 offensive operation. Production of dysprosium and terbium was reportedly hit sharply due to new taxes and insecurity.[27] Reuters' report says that compared to 2024, China's imports of rare-earth metals from Myanmar dropped by around 50 per cent during the early months of 2025.[28] The latest reports suggest that there are signals of improvement in May 2025. This short-term supply squeeze has global price impacts. Some experts suggest that a long-term disruption in supply from Kachin could trigger rare-earth shortages by the end of the year.[29]

An assessment by a US-based organisation suggests that "$1.4 billion in rare-earth trade from Kachin risks financing conflict and destruction."[30] Even environmental activists have been propagating the idea of "responsible sourcing".[31] The Organisation for Economic Co-operation and Development (OECD) Guidelines call on 'enterprises' to

> Conduct due diligence to address adverse environmental impacts of their operations, products, and services. This includes impacts such as climate change, biodiversity loss, degradation of land, marine, and freshwater

[25] John Zadeh, **"China Risks Global Heavy Rare Earth Supply to Stop Myanmar Rebel Victory"**, *Discovery Alert*, 10 July 2025.

[26] **"Myanmar Rebels Disrupt China Rare Earth Trade, Sparking Regional Scramble"**, *The Print*, 28 March 2025.

[27] Naw Betty Han, Devjyot Ghoshal, Shoon Naing and Poppy Mcpherson, **"Exclusive: Why China's Ultimatum to Myanmar Rebels Threatens Global Supply of Heavy Rare Earths"**, *Reuters*, 8 July 2025.

[28] Ibid.

[29] **"China Risks Global Heavy Rare-earth Supply to Stop Myanmar Rebel Victory"**, *Deccan Herald*, 8 July 2025.

[30] **"Fuelling the Future, Poisoning the Present: Myanmar's Rare Earth Boom"**, *Global Witness*, 23 May 2024.

[31] Ibid.

ecosystems, deforestation, air, water, and soil pollution, and mismanagement of waste, including hazardous substances.[32]

Even the guidelines for multinational companies suggest that due diligence be conducted and that they use "their leverage with suppliers to improve conditions on the ground".[33]

Conclusion

Amid the civil war, Myanmar's rare earth elements have become a flashpoint for regional and global resource politics. There are also aspects associated with environmental and humanitarian crises. The ongoing civil war in Kachin and fighting over control of Bhamo, a city in Kachin, will influence global supply chains as far as these critical rare materials are concerned. Myanmar's civil war and the extraction of rare earth elements reflect the complicated relationship between the world's climate aspirations relating to EVs and renewables and controversial supply chains. Global efforts must be reinforced to seek alternative sources of these REEs, ensure greater international oversight over such crucial supply chains, and ensure mechanisms for responsible mining in conflict zones.

[32] **"OECD Guidelines for Multinational Enterprises on Responsible Business Conduct"**, The Organisation for Economic Co-operation and Development.

[33] **"OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas"**, OECD Guidelines for Multinational Enterprises.

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