

China's strategic edge as rare minerals emerge as a geopolitical currency



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In a world increasingly driven by technology and green energy, a seemingly obscure group of 17 metallic elements known as rare earths has quietly become one of the most critical resources on the planet. From smartphones and computers to electric vehicles and advanced military hardware, these elements are the invisible enablers of modern life. Yet, despite their name, their scarcity isn't due to a lack of abundance within the Earth's crust, but rather the rarity of economically viable concentrations needed for mining and processing.

In a stunning display of strategic foresight on one side and a complete lack of it on the other, the global rare earth market has become a high stakes game of Monopoly, where one country holds all the winning cards—that is China. While the rest of the developed world was busy outsourcing its manufacturing and bemoaning the environmental impact of digging up obscure minerals, China was quietly cornering the market on the very materials that power our "green" future and our "smart" gadgets.

The story of China's rare earth dominance is a masterclass in long-term planning, contrasted with the West's penchant for short-term profits. Back in the 1980s, while Western nations like the US were struggling to keep mines like California's Mountain Pass open because they were too costly and messy, China's then-leader Deng Xiaoping famously declared, "The Middle East has oil; China has rare earths." It was a quote that should have been a screaming headline, but instead, it was treated like a footnote.

And so, China went to work. It poured state money into developing the complex and often dirty process of separating and refining these 17 elements. The result? Today, China doesn't just dominate mining; it controls an overwhelming majority of the world's

processing capacity. The West, in its infinite wisdom, happily bought the raw materials from China and then, for a truly mind-boggling second act, shipped them back to China for processing.

This near-monopoly extends beyond just light rare earths; China controls a staggering portion of the refining for the heavy rare earths like dysprosium and terbium, which are essential for high-performance magnets that can operate at high temperatures. In terms of global production, while its share of mining has fluctuated, China still accounted for an impressive 70 percent of global production of rare earth minerals in 2023. Other producers, such as the US (11.6 percent in 2024) and Myanmar (7.97 percent in 2024), play a role but they lack the comprehensive processing infrastructure that China has built over decades.

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So, why did the world become so dependent on these materials? Rare earth elements have unique magnetic, fluorescent, and catalytic properties that make them indispensable in much of modern technology. For instance, the element neodymium is a key ingredient in the world's strongest permanent magnets, which are essential for the compact, powerful motors in electric vehicles (EVs) and the massive generators in wind turbines. These magnets

Fast forward from the trade war under the Trump administration, where China first floated the idea of restricting rare earth exports as its ace up its sleeve. That threat is no longer theoretical. In December 2023, Beijing moved beyond rhetoric and officially banned the export of technologies used to process rare earths and create high-performance magnets. This move was the equivalent of not just threatening to turn off

security, and force a chaotic scramble for alternative sources.

The good news is, the wake-up call has been heard. The bad news is, it's a very, very late wake-up call. The US and its allies are now in a frenzied race to build their own rare earth supply chains. This has sparked a global hunt for new deposits, leading to significant recent discoveries. In early 2023, Sweden announced the discovery of Europe's largest known deposit of rare earths, and in mid-2024, an even larger deposit was confirmed in Norway, potentially capable of meeting a significant portion of Europe's demand for decades. Similar large-scale deposits are being explored in Wyoming in the United States.

Policy is also finally catching up. The EU has enacted its Critical Raw Materials Act, setting ambitious targets to mine and process more of its own strategic minerals by 2030. The US Department of Defense is now directly funding the construction of processing facilities on American soil to break the Chinese stranglehold.

More interestingly, a quiet revolution is brewing in research and development. Scientists are working furiously to find substitutes for rare earths, particularly for permanent magnets. Promising materials like iron nitride and manganese-based compounds are being explored, offering the tantalising possibility of magnets made from abundant, cheap elements. A crucial and growing field is the effort to reclaim rare earths from e-waste; advanced recycling techniques are being developed to efficiently extract these valuable elements from old hard drives, electric motors, and batteries. The long-term hope is to "design out" the need for these elements altogether.

However, moving from a mineral discovery or a lab prototype to industrial-scale production is a long, arduous process that can take a decade or more. For the foreseeable future, the world remains largely at China's mercy. While the West is finally putting its mind and money into solving this problem, it's a testament to China's decades-long strategy that the world is only now starting to play catch-up. The rare earth elements may be tiny, but their story is a monumental lesson in how a simple group of materials can upend global power dynamics.



A mining machine is seen at the Bayan Obo mine containing rare earth minerals, in Inner Mongolia, China.

FILE PHOTO: REUTERS

have enabled both the miniaturisation of technology and the efficiency of clean energy.

Lanthanum, on the other hand, is used to make lenses in phone cameras distortion-free, while yttrium and europium phosphors create the vibrant colours on LED screens. As the global push for a sustainable future accelerates, so too does the demand for these elements. From guided missiles and fighter jets to advanced radar and sonar systems, rare earths are crucial for military hardware, too. The US Department of Defense has identified this dependency as a critical national security risk.

The irony is that as the West championed the shift to a green economy, it was simultaneously strengthening China's control over the very materials needed for that transition.

the power to Silicon Valley and the Pentagon, but actually handing out schematics for a new lock while holding the only key. The message was clear: while the US might have the biggest military budget, a guided missile is just a very expensive paperweight without its rare earth magnets.

So, what happens as this geopolitical game escalates? The immediate fallout of a full supply-chain squeeze would be a full-blown industrial crisis. Electric vehicle manufacturers, wind turbine companies, and defense contractors would be scrambling for a non-existent supply. Prices would skyrocket, production would grind to a halt, and the transition to a greener economy would look less like a smooth glide and more like a crash landing. In a worst-case scenario, it could cripple key industries, undermine national

TEJGAON SANITATION CRISIS

A look into workers' health in Dhaka

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Tejgaon, one of Dhaka's oldest and busiest industrial zones, is often celebrated as the beating heart of the capital's economy. Its factories, warehouses and offices churn out goods and services round the clock. Yet, behind this story of economic vibrancy lies a stark and shameful paradox: the very workers who keep this industrial hub alive are condemned to live in squalid conditions that rob them of health, dignity and hope.

A recent survey among slum residents in Tejgaon paints a sobering picture of the crisis in water, sanitation and hygiene (WASH). It highlights that without access to safe water and sanitation, urban growth remains not only inequitable but also unsustainable.

The findings reveal that more than half of slum dwellers rely on rudimentary pit latrines, while 38 percent depend on fragile tin structures. Alarmingly, nearly one in ten households resort to makeshift toilets built from cloth and wood. In one of the world's most densely populated cities, such arrangements are not only unhygienic but downright dangerous.

Overcrowding compounds the problem. More than 40 percent of families share a single toilet with three to six households, while another third must share with as many as ten. In some extreme cases, up to 20 families rely on one latrine. Under these circumstances, maintaining basic hygiene is almost impossible.

The consequences are borne disproportionately by women and children. Lack of privacy, exposure to harassment, and heightened risks of infection turn everyday survival into an ordeal. Sanitation, in this context, is not simply about infrastructure; it is about human dignity.

The survey also highlights disturbing lapses in hygiene practices. Only 43 percent of respondents reported using soap

consistently after using the toilet. Another 36 percent do so occasionally, while a staggering 20 percent never use soap at all.

This is not merely about awareness; many families simply cannot afford to purchase soap regularly. What may appear to be a minor omission has devastating public health implications. Poor handwashing habits contribute directly to diarrhoeal disease, skin infections and respiratory

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illness. Children are especially vulnerable, and the resulting malnutrition and absenteeism undermine their education and future prospects.

Access to safe drinking water remains another daily battle. Only 27 percent of respondents reported having personal water sources, while one-third depend on shared supplies. Another 32 percent rely on local tube wells, many of which remain vulnerable to arsenic contamination.

A further six percent are forced to buy water, stretching already fragile household budgets.

Even where water is available, consumption patterns reveal a troubling reality: nearly half of residents drink fewer than seven glasses a day, with nine percent consuming fewer than four. Poor quality and inadequate intake leave many exposed to dehydration, gastrointestinal disease and chronic kidney complications.

These failings are not confined to the

slums. They spill over into Dhaka's wider economy. Many slum residents work as factory hands, drivers, domestic aides or security guards, integral to the city's daily functioning. Their poor health translates into lower productivity, higher absenteeism and greater healthcare burdens. In other words, unsafe WASH conditions are not just a humanitarian concern; they are an economic liability. A city cannot thrive when the very people who keep it running are locked in a cycle of disease and indignity.

Ensuring safe water and sanitation cannot be left solely to government initiatives. It demands a coordinated effort involving city corporations, NGOs, employers and community groups. Subsidised water supply schemes, community-led sanitation projects and mass awareness campaigns could offer tangible relief. At the same time, urban planning must acknowledge and prioritise the needs of informal workers, rather than relegating them to the margins of industrial prosperity. Outbreaks of waterborne disease, once rooted in slums, do not respect boundaries of class or geography.

If Bangladesh is serious about inclusive growth and sustainable urbanisation, urgent action is needed. Priorities must include investment in safe, affordable and gender-sensitive sanitation facilities; clean, arsenic-free water supplies, backed by subsidised schemes and regular monitoring; expanded hygiene education, particularly in schools and community hubs; and integrating slum populations into urban planning, ensuring that industrial growth is not built upon their neglect.

Dhaka's ambition to be a modern, liveable city hinges on addressing this silent emergency. Progress cannot be measured by skyscrapers and highways alone while the workers who sustain the city remain invisible, trapped in unsafe and degrading conditions.

The WASH crisis in Tejgaon is more than a story of deprivation. It is a litmus test of our collective conscience. Will we continue to overlook the silent suffering of those who sustain us, or will we finally act on the truth that their well-being is inseparable from our own? For reasons of justice, humanity and survival, the choice should be obvious.

Bangladesh Trade and Tariff Commission

Strengthening Capacity of Bangladesh Trade and Tariff Commission Project
1st 12-Storied Govt. Office Building
Segunbagicha, Dhaka
www.btc.gov.bd

No. 26.01.0000.005.46.084.24(Part-1).281

Date: 14 September, 2025

Request for Expression of Interest (REoI) for Selection of a Consulting Farm for Conducting Studies on "Impact Assessment of Anti-Export Bias on Export Diversification of Bangladesh", "Research on Trade Remedy Issues (Anti-dumping, Countervailing and Safeguard Measures): Constraints and Way Forward in Bangladesh" and "Strengthening of Bangladesh Trade and Tariff Commission: Review of Existing Laws and Regulations"

A. Basic Information (Procuring Entity, Assignment, Procurement Method, Source of Fund, etc.) for the Consulting Farm:

| | |
|--|--|
| 1 Name of the Organization | Bangladesh Trade and Tariff Commission |
| 2 Procuring entity name & designation | Md. Raihan Ubaidullah, Project Director |
| 3 Expression of Interest for Selection of | A consulting farm for conducting Researches on: 1. Impact Assessment of Anti-Export Bias on Export Diversification of Bangladesh. 2. Research on Trade Remedy Issues (Anti-dumping, Countervailing and Safeguard Measures): Constraints and Way Forward in Bangladesh. 3. Strengthening of Bangladesh Trade and Tariff Commission: Review of Existing Laws and Regulations. |
| 4 REoI Ref No. | 26.01.0000.005.46.083(3). |
| 5 Package No. | 01 |
| 6 REoI publishing date | 16 September 2025 |
| 7 Procurement method | Quality and Cost Based Selection (QCBS) |
| 8 Source of fund | GoB |
| 9 Development partner | N/A |
| 10 Project name | Strengthening Capacity of Bangladesh Trade and Tariff Commission |
| 11 EoI proposals submission closing date, time and place | Date: 05 October 2025, Time: 05:00pm, Room # 1002, Bangladesh Trade and Tariff Commission, 1st 12-Storied Govt. Office Building (10th Floor), Segunbagicha, Dhaka-1000 |

B. Key Information for the Consulting Farm:

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|---|--|
| 12 Brief description of the assignment | Please find the detailed REoI in the following website: www.btc.gov.bd |
| 13 Experience, resource and delivery capacity required of the consulting farm | |
| 14 Other details | |

C. Procurement Entity Details

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|--|---|
| 15 Name of the official inviting EoI | Md. Raihan Ubaidullah, Project Director |
| 16 Designation of official inviting EoI | Project Director |
| 17 Address of the official inviting EoI | Bangladesh Trade and Tariff Commission, 1st 12-Storied Govt. Office Building, Segunbagicha, Dhaka-1000 |
| 18. Contact details of official inviting EoI | Telephone: 02-58311768 Mobile: 01911233641 E-mail: raihan.ubaidullah@btc.gov.bd mdraihanubaidullah@gmail.com www.btc.gov.bd |

The procurement entity reserves all the rights to accept or reject all EoI proposals.

14/09/2025
Md. Raihan Ubaidullah
Project Director