



**A NEW GEOPOLITICS AND GEO-ECONOMICS OF RARE EARTH ELEMENTS
(REES): A CASE STUDY OF CHINA**

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Abstract

The current world order and international trade have entered into advanced technological and economic security of rare earth elements (REEs). A geopolitical evolving bloc has significantly reshaped the global world order and trade. A geopolitical game on periodic table will shape world politics aiming to control resources. This paper aims to analyze the use of China's politics of REEs, which significantly impacts the world trade into groupings. The apparent competition for REEs is between states including US, China, Japan and Russia. There is a wide array of literature available on the trade competition between the US and China, and various scholars have established considerable scholarship on the subject matter. The central question is how the REEs will shape the future geopolitical-driven trade war and conflicts in the context of their foreign policies. Therefore, it is argued that the geopolitics of REEs will further exacerbate the great powers rivalries and competition over REEs. The 21st-century economy is based on the REEs. The new dimensions of the world economy will shape future geopolitics and geo-economics on strategic lines and aspects.

Key words: Geopolitics of rare earth resources, technological innovations, supply chain, industrial developments, geo-economic competition, periodic-politics.

Introduction

The technological and civilizational shift is occurring. The world has entered into the era and competition of a new technological revolution with a focus on green politics and energy resources. The change in mood of resources is shifting as the major and emerging powers are acquiring and striving for rare earth resources. The next industrial revolution is upon the world. The crux and mood of competition are already shifting towards geo-economics and the politics of rare earth

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resources. The return of Trump 2 significantly marked the beginning of this era and race. The shift and developments are evident in the modern-day battlefield, where soldiers are surrendering to drones based on modern technology and precious resources, and in the race for outer space. The deployment of satellites and communication from space has marked the militarization of the most vulnerable frontier. The geo-economics and technological rivalry is playing out from active battlefields to outer space. These all are based on the technological innovation, creativity, and the new industrial know-how. The shift will jolt and lead to major powers rivalries and competition in the search for rare earth resources. The Russia-Ukraine war and the US's possible rare earth material deal are the notable dimensions in the current world geopolitics.

Currently, there is an emerging debate on the use of REEs as a strategic tool in academic and international political economics. The use and control of natural resources and energy security in IR have a long history. The emergence of multinational corporations in the politics of green perspective has a considerable impact on states economic and security policies. The REEs are major elements for modern technologies and defense equipment. The new era of competition and politics of exploitation and exploration of REEs are marked in the world trade relations.

REEs are becoming the new oil for the world and particularly for defense productions. The groups of REEs are critical in the production of high-tech goods, including modern aircraft, electronic warfare, electric cars, solar panels, missiles, and stealth aircraft. One example is that the F-35 fighter of the US contains nearly 400 kg of these elements and metals. Interestingly, more than 70% of the total US imports are from China (Politika, 2025). This shows the dominance of China over the REEs and the vulnerability of the supply chain.

The US's attempt to mitigate the overreliance of REEs on China has failed so far. The President Trump administration in 2018 imposed and raised tariffs on REEs but later on re-backed this decision. The return of Trump's second term marked the intensified trade war with China. It is important to mention that China controls 60% of global REEs and nearly 90% of the processing of these elements (Politika, 2025). Overall, the geopolitical cards are in China's hand. Any decision to impose tariffs from the US will only backfire from China. The world and international trade are becoming complex with new protectionist policies and the significant race for REEs and modern technologies.

What Are Rare Earth Elements?

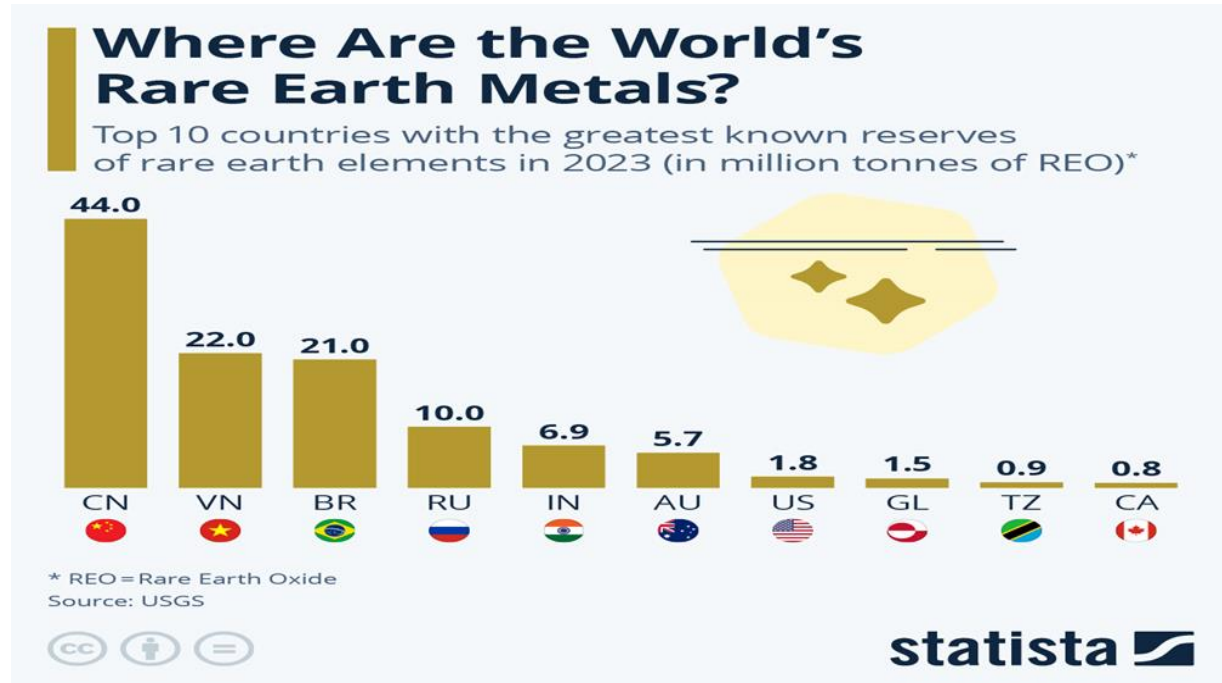
REEs are 15 elements on the periodic table starting from atomic number 57 to 71. These elements start from lanthanum to lutetium. Many of these elements are regarded as rare because of their utilization in high technologies. As mentioned by USGS, REEs are critical minerals “having “a supply chain that is vulnerable to disruption and that serve an essential function in the manufacture of a product, the absence of which would cause significant economic or security consequences.” These minerals are subject to the rising strategic significance in the modern security implications. These elements are critical to the new dimension of security and national prosperity (USGS, 2017).

As mentioned by USGS, REEs are critical minerals “having “a supply chain that is vulnerable to disruption and that serve an essential function in the manufacture of a product, the absence of which would cause significant economic or security consequences (Brian and Jaskula, 2019)”. These minerals are subject to the rising strategic significance in the modern security implications. These elements are critical to the new dimension of security and national prosperity (Brian and Jaskula, 2019).

Geopolitics and international relations are intertwined and an integral part of the control over global resources, the struggle for economic prosperity, and resource utilization. The struggle for oil, coal, gas, and minerals is an example from history of how relevant they are in international politics and economic relations. From chapters of history, the European imperial expansion in the nineteenth century and control over Africa’s raw materials and resources led to the rise of mercantilism from Europe. The European imperial powers exploited the majority of Africa's raw materials and established a triangle of extraction of resources, shipment to European industrial sectors, and then reselling exports to the host countries. The European industrial rise was the main reason for Africa's colonization. The power ambitions and empire building were exacerbated in the 19th century and onward. The outbreak of World War I and World War II had major resource dimensions. The famous iron reserves of Lorraine and the massive oil fields in the Caucasus and Caspian Sea were the turning point. The Cold War and the technological race were solely based on economic resources and control over heartland, parts of Central Asia, and access to coastlines and Persian Gulf oil. The process of decolonization in the third world countries sparked the emergence of local conflict over natural resources. In the late 1970s and 80s, the concept of energy security emerged in world politics as a pattern of states operational strategy and as a subject as well. The central concepts of energy security were the availability, accessibility, and uninterrupted

flow of major essential natural resources. The concept of energy security and concerns emerged and became part of international politics. The post-Cold War era and the emergence of geo-economics as war by other means turned international politics into a new dimension.

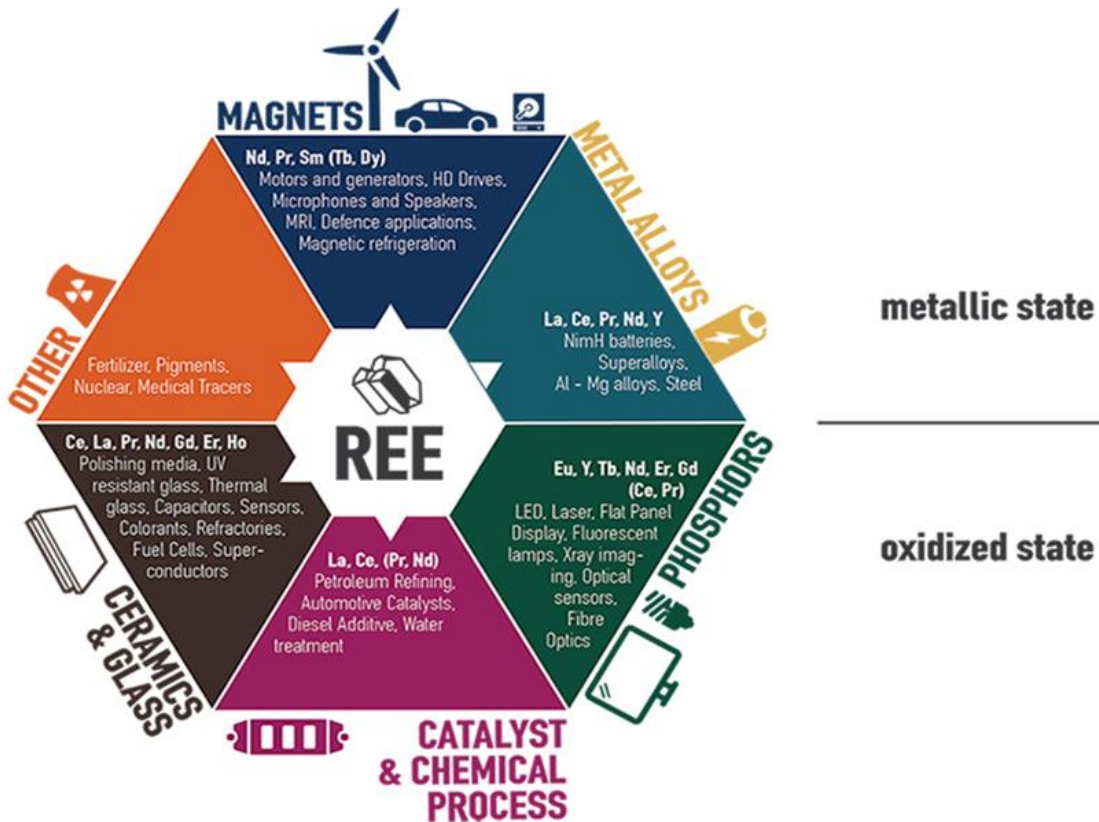
Figure 1



Source (<https://www.statista.com/>)

Geopolitics is broadly defined as the use of geography for political and economic purposes. Geopolitics and international relations are linked in the context of energy and mineral security and availability. Geopolitics and energy security have three major reasons for their world economic importance. The first is physical aspects of fossil fuel and natural resources located in a few hot spots geographically. This natural distribution makes few states major players in global politics. Secondly, these natural resources are critically important in the context of global trade, production, and manufacturing. The world industrial base depends upon these resources. The global economic growth and production are dependent on the resources. Thirdly, the absence of global regulative energy and resources governance and international consensus, which guarantee the uninterrupted flow of the resources.

Figure 2: Uses of rare earth elements



Source (<https://www.eurare.org/RareEarthElements.html>)

From Geopolitics to Geo-economics and Periodic-politics

Since the post-Cold War, a wide bulk of literature has emerged on geo-economics and its link with international politics. Geo-economics was defined as the strategy of using economic means and methods to achieve and protect the geopolitical objectives of the state. Further, geopolitical objectives largely depend on the geo-economics approach and policy of any state. Broadly speaking, the inferences that can be drawn from geopolitics and geo-economics are that both are dependent on each other and represent two sides of the same coin. The state's strategy, whether immediate, long-term, or grand strategy, and operational foreign policies revolve around geopolitics and geo-economics. The great power politics in Ukraine, Eurasia, the Indo-Pacific, the South China Sea, etc., are examples from the current age and time. The world, in sum, has entered into the era of geo-economics and wars and competition for natural resources and minerals. The dawn of the geo-economics era is evident in current world politics.

The literature on geo-economics and resource competition was enriched by the notable work of David Gulala, Haris, and Black Will (2016), “War by Other Means. Their work describes and traces the genesis of resource- and geo-economics-driven conflict in the post-Cold War era. This book also centers on the future of conflicts and competition between and among states based on natural resources and wars. It was argued that the future of world politics will be decided by geo-economics competition. The future of world politics will be shaped by energy needs, resources, connectivity wars, and mega infrastructure and investment projects. The modern-day strategy and statecraft will be determined by geo-economics and resource politics at large. The advent of economic warfare, sanctions, politics of finance, foreign direct investments, and the use of currency dominance are parts of new competition between and among states. The IMF SAP and the emergence of BRICS+ and new regionalism are notable considerations in this regard. These aspects of global political and economic order are used by states as weapons for their interests and objectives.

Situating the Security Debate in IR REEs

Security studies are an important agenda of international relations. The debate and nature of the security shifted over time. Since the end of the Cold War, considerable changes and scholarship have emerged on the changing subject nature of international security. Since then, the subject of security has been divided into two main blocks. First, the revisionist and then the second block of traditionalist schools of thought. For revisionists, security should be viewed through a complex analytical and conceptual lens. They argued that states should look beyond the traditional threats to security and should be concerned about the new dimensions of security, like political, economic, social, energy, and much more (Dalby, 1997; Booth, 2005; Browning & McDonald, 2013). Further, revisionists argued that appropriate use of power will guarantee political and human rights and human prosperity at large. Thus, it expands the new agenda of security to a broader extent. (Buzan et al., 1998; Williams, 2003).

On the other side, traditionalists view security through a limited conceptual and analytical lens and paradigm. The state-centric and military context of nation-states dominates this approach to security (Walt, 1991; Lipschutz, 1995; Dannreuther, 2014).

On the other hand, critical security studies is based on identifying possible opportunities and hurdles to human emancipation. This approach diverged methodologically, ontologically, and

epistemologically by believing that security and security threats are socially constructed. Power and discourse constitute security and insecurity for states, as argued by critical theorists. (Robenson, 2010; Willimas, 2005; Newman, 2010; Booth, 2005).

The broader inferences from the above diverse approaches to security are that states need to address multiple aspects of modern-day security. The emergence of geo-economics as one of the important dimensions of nation-states security has put considerable debate on the supply chain, energy security, and the latest politics of REEs. There are growing concerns over the role of the World Trade Organization (WTO) and various emerging regionalisms based on economic cooperation, exploration of natural resources, and the return of geopolitical conflicts based on geo-economics, which have brought considerable attention to the subject matter of security.

The weaponization and politicization of international financial and trade institutions are pillars of great powers. The real competition is between the China+Russia and the Western-led neoliberal, authoritarian, and exploitative systems. These two initiatives are antithetical to each other.

In Luttwak's (1990) work, the logic and grammar of international conflict are shifted. The grammar of commerce is practiced by states. This also led to significant changes in modern warfare and international politics. The introduction of economic sanctions, alliances, counter-alliances, and the block politics driven by economic integration has changed world politics. Energy security and uninterrupted supply of essential elements and resources have become key considerations of states. The new battlefield has emerged between and among states. This competition includes resource distribution, manipulation of resources, international trade, sanctions, energy means, rare earth resources, etc. This new competition is based on absolute and comparative advantage. The emergence of hyper globalization and the politics of green and renewable and climate-friendly resources has led to significant shifts in the global political economy. The variables of global economic order are changing. These variables include FDI, capital, sanctions, currency dominance, interdependency, and resource monopolization. These are all the key variables that shape global politics in the current age. It is important to link and trace these aspects to operational policies of states.

A new geopolitical game on the periodic table

The themes and patterns of geopolitical competition are changing with the focus on REEs. The new geopolitical games will be based on REEs. Classical geopolitics will remain the same, but the dimension will be different, focused on REEs, supply and chain, availability, and affordability. The Chinese dominance and urge for controlling REEs has multiple geopolitical contests in the South China Sea, disputes with Japan, and multiple contracts for mining in North and South America. For example, in September 2010, the Chinese naval ships were heading and patrolling near the disputed Islands of Senkaku in the East Asian Sea. The Japanese Coast Guard arrested the Chinese naval ships by claiming that these are under Japanese control. The East Asian Sea has potential oil, gas, and REEs. After various diplomatic negotiations, Japan realized the Chinese naval ship and imposed an embargo on Tokyo on REEs (Klinger, 2017). In a tit-for-tat approach, China banned exports from South Korea containing its REEs to the US. The Chinese government issued a notice to the Korean companies for retribution for exporting REEs and metals to the US military contractors. Later on, the Korean exporting agencies and manufacturers confirmed that they had received official notices from the Chinese government. These notices aim to restrict Chinese-origin REEs to the US. The Korean firms and companies also fear that China will completely block sales of all elements. This also confirmed that China has officially taken export control steps and measures one way or the other on non-US companies tied with the supply and chain of REEs. All these countermeasures from China's side after imposing tariffs from the US's new administration. The Chinese government issued strict restrictions for obtaining licenses for exporting REEs. Under similar measures, the Chinese government barred Chinese-based companies that have export contracts and deal with nearly 27 US military contractors (Kim & Kim, 2025).

China's Geopolitics of REEs

The change and initiative for decarbonization of the global economy were initiated after the climate change and environmental challenges. The new wave of technological and industrial revolution based on artificial intelligence (AI) and advanced networks sparked the race for securing critical rare earth resources and elements. The broader world economic picture represents that the traditional economies like the US and European ones are standing against the Chinese global and regional initiatives in the shape of BRI and massive technological advancements. The Chinese strove to extend beyond Eurasia and Africa and towards North America. In these states, the

Chinese connectivity and resource extraction pace is unmatched and based on land, maritime, air, and cyber connectivity and reach. The issue with rare earth resources such as lithium and cobalt is that they are becoming hotspots for new economic competition in the most unstable regions and parts of the world. It is interesting to indicate and imagine how the new economic race for critical minerals and initiatives to decarbonize and digitalize the global economic order will shape and contribute to the geopolitical competition and future outcomes.

REEs as a major geopolitical challenge

In the 21st century, competition involves access to and control over seventeen critical elements of the periodic table. These elements are called rare earth materials. For the majority of the world, these elements, nearly 90 percent, came from China. This highlights the importance of these elements and control and competition for these elements. These elements are crucial for industrial production and modern technology.

From lightning materials to magnets, glass, electronics, defense equipment, wind turbines, modern electric vehicles, lithium batteries, etc., all contain rare earth elements. It is important to mention that all these elements are not found in China. But the extraction and mining outside in other states is also time-consuming and difficult to mine and bring back to the industrial sector. The fact is that the Chinese are willing and striving to control, extract, and import to their homeland in order to maintain their new industrial growth and competition (Rathi, 2018).

It is also argued that not all of these elements are equally valuable; some are abundant but heavy, and more utilizable elements are rare, expensive, and need too much processing time and capital incentives to put them into industrial use. The dawn of a new technological revolution transformed these rare elements into renewed competition, and for China, it became a strategic value of supply and chain. These are new assets along with industrial, technological, and economic development plans.

China adopted a national policy over the rare earth elements. The key to this policy is to stop the raw commodity exporter of these elements and to end produced products in their mainland. In 2010, what is called the rare earth crisis, including illegal mining, exports, impacts on environmental degradation, etc., was a response to the previously mentioned challenges associated with rare earth resources. Under these directions, China first reduced the export quotas up to 40%.

(Mancheri, 2015). The Chinese government then boycotted the exports of rare elements to Japan over the territorial disputes on the Senkaku/Diaoyu Islands in the Eastern China Sea. This marked and jolted the international market of rare earth elements, and the major importers like Japan realized that the monopoly and dependence on China as one supplier could trigger and disrupt the production of necessary industrial products associated with these elements (Bardsher, 2010). In fact, China used these elements for geopolitical disputes and now they have become a main pillar in their statecraft. This crisis also brought a price hike of these elements, and the major importers of these elements from China, including the EU, the US, and Japan, filed complaints over these restrictions in the World Trade Organization (WTO).

After this thaw over the rare earth minerals, it is important to mention that resource competition will be inevitable in the future, and the Chinese statecraft will use it for geopolitical objectives and conflicts. The trade wars since President Trump marked the beginning of new geopolitics over these resources. The importance and centrality of the WTO in the case are marginalized and turned into political rivalries, minimal scientific cooperation, and clashes of economic interests over these elements. The evident clash of interests and rivalry is between the Western-led bloc, including the EU and Japan (Wei, 2019). These developments brought new areas for academics in order to understand the future of economic-driven conflicts and rivalries. Similarly, the geopolitical experts and policymakers are concerned about the sharing, imports, and exports of critical elements, namely cobalt and lithium. The problem with these elements is that they are mined and found in a few geographical areas and are indispensable for defense and technological productions. The green economy and the modern defense industry revolve around these two elements one way or the other. The demand for these elements is growing, and efforts are going on to increase supply and availability.

In the case of China, the state-owned giants established favorable supply chains and dominate international markets with their leading technological and processing capabilities. China invested massively across the world in various precious mineral sites. In 2018 and onward, China became the major net importer of several rare earth materials. Further, the rare earth materials emerged as a key strategic priority and geopolitical option for China when it announced in 2019 that it would weaponized these elements in a trade war with the US (Blanchard, Martina, Daly, 2019).

Competition over lithium and cobalt

The mantra and danger of climate change and crisis point to fossil fuels, which will sooner or later be replaced by the climate-friendly fuels in line with renewable sources of energy generation. Modern and advanced electric grids, companies, and industrial zones are using renewable energy options in order to minimize climate change and its impacts in the host countries. In this direction, for example, the transportation sector, responsible for 20 percent of the global emissions, is expected to be transitioned to renewable and climate-friendly energy. The manufacturing of electric vehicles (EVs) in China and the emerging markets (EU) is a prime example of this transition. All these initiatives revolve around lithium and cobalt as critical minerals (Sims et al., 2014).

Keeping in view the significance of rare earth materials, the US Department of the Interior in 2018 published a list of more than 35 critical earth minerals for modern industrial needs. Further, the US President issued executive order titled 13817, “A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals” (82 FR 60835), which shows concerns and commitments of the US over the critical rare earth minerals. It was highlighted that the US will ensure the availability of securing an uninterrupted flow of critical minerals to its growing modern industries (US Department of Interior, 2018). In a similar direction and path, the EU has also published its own lists of critical minerals and resources, with a major focus on lithium and cobalt for battery technology.

The Japanese government and manufacturing tech received a shock over the dependence on China over REEs. It was also realized among the Japanese economic circles that its high-tech industrial sector is based on Chinese imports of REEs and there is a need to diversify supply chains.

China has two basic strategic objectives in the REEs industry. First, China wants the internal and domestic requirements of REEs supply, and China should meet them with cheap prices. Secondly, maintain a considerable edge/monopoly over REEs. China allowed international corporations to keep and operate their production units on the mainland. The overall objective is to persuade various mining firms to invest in China for cheaper REEs. This will serve the basic purpose of maintaining a hold on REEs (Kalantazkos, 2017).

The Chinese government, despite diplomatic pressure, also used REEs as a strategy to achieve their objectives against Japan. The Chinese are using a coercive strategy that will focus on national interests and REEs as major tools in this context. This case and crisis highlight how states,

particularly China, are using REEs as a diplomatic and strategic tool and leverage in statecraft. The use of REEs in this direction marked the beginning of a new security threat and perception between and among states. The new security dimension of states will be subject to access to REEs and the use of these elements in statecraft.

After the utilization of REEs since the 1970s, the US was the leading producer till the 1990s. The mounting labor costs and the issues of environmental degradation and restrictions of mining lead to China's dominance. In contrast, the Chinese companies have lower labor costs and fewer restrictions in the mainland. The emerging geopolitical tension from the Ukraine-Russia war to the Chinese policies on REEs will affect and reshape international relations. The issues will be for both the REEs states and the importer as well. The process of REEs will fluctuate in the time of persisting geopolitical tensions. Any strict regulatory policy from China or other states will increase the prices of REEs and will disrupt global trade relations. The geopolitical conflicts will significantly impact the interstate trade of REEs. The empirical example in this sense was the China-Japan 2010 thaw over REEs (Feder, 2019).

Conclusion

This paper analyzed the emerging significance of REE in modern technology and defense equipment. These REEs are distinctive properties used in modern technology, magnets, conductive equipment, and energy storage batteries. The race and acquisition of REE marked significant technological competition between the US and China. Importantly, the return of President Trump and the possible minerals deal with Ukraine are important geopolitical considerations in world politics. It is found that the new technological race revolves around the REE, and the states are using it for their security and geopolitical interests. The significant technological development and the latest innovations in military technology have led to an unprecedented race for REE. This shift and race will affect the global trade order with tariffs and counter tariffs. The tit-for-tat approach will be seen in the global trade and order. A more competitive and reciprocal order based on absolute advantage is foreseeable in the near future. The forerunners of classic geopolitics will remain the same, but the struggle for REE will add new dimensions to the struggle between great powers. The demand and supply for REEs will drastically rise through 2030 and the future due to the increase in electric vehicles (EVs) and hybrid vehicles. China will maintain its dominance in the processing of REEs due to advanced processing technologies and supply chain management.

The global energy transition and climate concerns are becoming new dimensions in world politics and economics.

The geostrategic magnetism will revolve around REE and elements on the periodic table. The issue and concern is not that REEs are really rare, but the concerns arise over the technological advancements and recycling process. In this process the Chinese technological giants are leading by dominating international supply chains. This tendency and technological race will shape international trade order and state-to-state relations in the future. The more technological know-how a state possesses, the more important the role of that state will be in the technologically driven era in world politics. In the current time, China dominates the supply chain of REEs. China maintained significant determination over the exploration of REEs. China's monopoly will continue on REE and will shape future strategic parameters. REEs are strategic natural resources for which states are competing. The lack of access to REE will pose a security risk in technological and economic development. The geopolitical tension between the US and China and the fears of supply and chain fragmentation and availability of REE marked considerable attention to China's role in this context.

References

- Álvarez Calderón, C., & Trujillo Palacio, J. (2020). Geopolitics of rare earths: a strategic natural resource for the multidimensional security of the State. *Revista Científica General*
- Bradsher, K. (2010). Amid tension, China blocks vital exports to Japan. *The New York Times*, 22(9), 2010. <https://nyti.ms/2HOinnx>.
- Booth, K. (2005). *Critical security studies and world politics*. Lynne Rienner.
- Brian W. Jaskula, “Lithium”, in USGS, *Mineral Commodity Summaries*, February 2019, p. 98, <https://www.usgs.gov/node/930898>
- Blackwill, R. D., & Harris, J. M. (2016). *War by other means: Geoeconomics and statecraft*. Harvard University Press.
- Blanchard, B., Martina, M., & Daly, T. (2019). China ready to hit back at US with rare earths: newspapers. *Reuters*, 29, 2019. <https://reut.rs/2WsAIFE>
- Brian W. Jaskula, “Lithium”, in USGS, *Mineral Commodity Summaries*, February 2019, p. 98, <https://www.usgs.gov/node/930898>.
- Collins, A. (2015). *Contemporary security studies* (4th ed.). Oxford: Oxford University Press.
- Critical Mineral Resources of the United States—Economic and Environmental Geology and Prospects for Future Supply”, in USGS Professional Papers, No. 1802 (2017), p. A12, <https://doi.org/10.3133/pp1802>.
- Robinson, D. (2010). Critical security studies and the deconstruction of realist hegemony. *Journal of Alternative Perspectives in the Social Sciences*, 2(2), 846–853.
- Kalantzakos, S. (2017). *China and the geopolitics of rare earths*. Oxford University Press.
- Newman, E. (2010). Critical human security studies. *Review of International Studies*, 36, 77–94.
- Kalantzakos, S. (2019). *The geopolitics of critical minerals*. Istituto Affari Internazionali (IAI).
- Kim, R. A., & Kim, D. H. (2025, April 23). China bans export of Korean goods containing its rare earth metals to US. Retrieved from <https://www.kedglobal.com/economy/newsView/ked202504220010>.
- Korts, M. (2024, December 10). Rare earth minerals and clean technologies nexus at the background of Russia’s war in Ukraine. Retrieved from <https://www.enseccoe.org/publications/rare-earth-minerals-and-clean-technologies-nexus-at-the-background-of-russias-war-in-ukraine/>
- Rathi, A. (2018). One Chinese company now controls most of the metal needed to make the world’s advanced batteries’. <https://qz.com/1292202>;

- Tim Treadgold, “China and the U.S. Heading for a Showdown in an Australian Lithium Mine”, in *Forbes*, 24 June 2019, [https:// www.forbes.com/sites/timtreadgold/2019/06/24/china-and-the-u-s-heading-for-a-showdown-in-an-australian-lithium-mine](https://www.forbes.com/sites/timtreadgold/2019/06/24/china-and-the-u-s-heading-for-a-showdown-in-an-australian-lithium-mine)
- Feder, T. (2019). Trade wars and other geopolitical tensions strain US–China scientific collaborations. *Physics Today*, 72(11), 22-26. <https://doi.org/10.1063/PT.3.4338>
- Mancheri, N. A. (2015). World trade in rare earths, Chinese export restrictions, and implications. *Resources Policy*, 46, 262-271.
- Sims., R, et al. (2014). “Transport”, in Ottmar Edenhofer et al. (eds), *Climate Change 2014. Mitigation of Climate Change. Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, New York, Cambridge University Press, 2014, p. 599- 670, <https://www.ipcc.ch/report/ar5/wg3>.
- US Department of the Interior (2018). “Final List of Critical Minerals 2018”, in Federal Register, Vol. 83, No.97 p. 23295-23296, <https://www.federalregister.gov/documents/2018/05/18/2018-10667/final-list-of-criticalminerals-2018>.
- Politika, C. (2025). Peaceful Metals: What's Wrong With U.S.-Ukraine-Russia Resource Deals. Retrieved from: https://storage.googleapis.com/crng/russia-usa-ukraine-metals-agreement.html?utm_source=facebook&utm_medium=social&utm_campaign=post&utm_id=120218595436780049&utm_content=120218595437130049&utm_term=120218595436970049&fbclid=IwY2xjawI7e09leHRuA2FlbQEwAGFkaWQBqxos9QayIQEd8_eew5h4yiXB1swvMDxq4JED78AK9Ew_riITnLy9J6BdN8XOcxDr53Tt_aem_77PymghXLhphHUqPG9NWA
- Klinger, M. (2017). *Rare earth frontiers: From terrestrial subsoils to lunar landscapes*. Cornell University Press.
- Krebs, R. (2006). *The history and use of our Earth’s chemical elements: A reference guide*. Greenwood Press.
- Luttwak, E. N. (1990). From geopolitics to geo-economics: Logic of conflict, grammar of commerce. *The national interest*, (20), 17-23.
- Korts, M. (2024, December 10). Rare earth minerals and clean technologies nexus at the background of Russia’s war in Ukraine. Retrieved from <https://www.ensecocoe.org/publications/rare-earth-minerals-and-clean-technologies-nexus-at-the-background-of-russias-war-in-ukraine/>
- Paulick, H., & Machacek, E. (2017). The global rare earth element exploration boom: An analysis of resources outside of China and discussion of development perspectives. *Resources policy*, 52, 134-153.

Wei, L. (2019). Towards economic decoupling? Mapping Chinese discourse on the China–US trade war. *The Chinese Journal of International Politics*, 12(4), 519-556. <https://doi.org/10.1093/cjip/poz017>

Williams, P. (2005). Critical security studies. In A. J. Bellamy (Ed.), *International society and its critics* (1st ed., pp. 135–150). Oxford: Oxford University Press.