

CRITICAL MINERALS AS STRATEGIC LEVERAGE: SECURITY GUARANTEES IN MODERN DIPLOMACY

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ABSTRACT

Modern diplomacy is evolving as nations are seeking security guarantees for access to their natural resources. The geopolitical significance of natural resources, specifically critical minerals in diplomacy and international relations will be explored with a specific focus on the U.S.-Ukraine and U.S.-Democratic Republic of the Congo (DRC) mineral agreements. The potential of leveraging Ukraine's critical minerals for a peace agreement amidst conflict and the importance of these resources in green technologies and national security within the broader scope of a ceasefire will be examined. Additionally, an analysis highlighting challenges such as the fragility of peacebuilding, the complexities of ceasefire negotiations, and the militarization of peacekeeping, alongside the strategic implications of securing mineral supplies in unstable regions will be explored. While these deals offer opportunities to diversify supply chains and strengthen alliances, they also pose risks, including exploitation and prolonged instability. Balanced policies and international cooperation are needed to navigate these challenges and to ensure sustainable, equitable outcomes that align resource acquisition with ethical and strategic imperatives for long-term peace and prosperity.

The views and findings expressed here are those of the authors and do not necessarily reflect those of the Middlebury Institute of International Studies or any officials of the Institute.

INTRODUCTION

As the world rapidly changes and geopolitical alliances ebb and flow, a new form of foreign policy is emerging, particularly as the United States seeks to decouple from China. Minerals diplomacy is the strategic efforts by governments and organizations to secure access to natural resources, specifically critical minerals that are essential for economic growth, national security, and technological advancement. These minerals—such as lithium, cobalt, rare earth elements, and nickel—are crucial for industries like renewable energy, defense, and electronics. Countries form partnerships to ensure a stable supply of critical minerals, often through trade agreements or joint ventures. Nations seek to reduce dependence on single suppliers (such as the United States seeking to divest away from China) by diversifying their sources and investing in mining projects abroad or by supporting domestic production to strengthen supply chains. Control over mineral resources shapes international relations, as access to these materials impacts technological and military capabilities. Finally, and just as important, ensuring sustainable mining practices and preventing exploitation in resource-rich regions is vital.

According to a piece in *The Economist*, there is no single definition for critical materials (i.e., processed substances) and critical minerals (naturally occurring ones). The United States, the European Union, and Britain, for example, all have slightly different lists of the materials they deem “critical”. For the purposes of this research, the focus will be on U.S. interests, using U.S. Department of Energy data to show critical materials deemed essential to the United State.

In addition, there are rare-earth elements, a group of seventeen minerals that share similar chemical properties. They are required in minuscule amounts and Ukraine is thought to have a significant amount of them. Extracting them is often tricky and requires detailed exploration, but they are required for magnets that go into electric vehicles, as well as televisions screens and other electronics.

With the rise of renewables and electric cars, the demand for these minerals will skyrocket and countries are looking around the world to see where they can source these elements for their industries. Most of these mines are in conflict-prone or unstable areas of the world, and their actual production and refinement is very environmentally-damaging, a polluting process that takes a lot of money and energy, that some nations are unwilling to give. This explains why China controls most of the refinement of critical materials and why now the United States is seeking to decouple from China and create its own processes, which has led President Trump to invoke wartime powers to help kickstart the mining industry in the States². One major issue is that China already has a well-established mining industry and has been doing this for years; it has an established system already in place, while the United States would have to essentially start from scratch which will require years and years of work and millions of dollars.

U.S. – UKRAINE CRITICAL MINERALS DEAL AMIDST CEASEFIRE PROPOSALS

On February 24, 2022, Russia launched a full-scale, illegal invasion of Ukraine, escalating a conflict that had been going on since 2014, in what has become known as the Russo-Ukrainian War. The world watched as Moscow bombed Kyiv and troops crossed into Eastern Ukraine. It was the biggest conflict in Europe since World War II. The United States, the European Union, and most of the world condemned Russia and have sent a significant amount of military and technical aid to Ukraine to help in its existential fight against a much larger enemy. With the help of the United States, Ukraine's defense industrial base has grown significantly with the domestic sector really expanding into drone production and other military equipment. By the third year of the conflict, the war had reached a stalemate with very little progress being made over territory, though Ukraine has managed to hold off Russian troops and keep them from completely taking over the country, as Moscow had hoped when they initially launched the invasion.

President Trump has recently requested that Ukraine give its critical minerals to the United States in exchange for continued U.S. military support during Russia's illegal invasion of the country and to pay back the aid already given. President Zelenskyy travelled to the United States at the end of February to sign the deal but after a disastrous White House meeting where the Ukrainian president was ambushed by the President and VP of the U.S., Zelenskyy left with no deal signed. The United States proceeded with cutting off U.S. military aid to Ukraine and had stopped intelligence sharing, (intelligence sharing has since been restored). However, the minerals deal was still on the table and was expected to be signed with significant revisions.

The U.S.-Ukraine minerals deal has garnered significant attention due to its geopolitical implications and potential economic impact. Even more importantly, it would impact the post-WWII global order, future peace negotiations globally, and more generally, how conflicts are resolved going forward. By synthesizing insights from various sources, a comprehensive understanding of the deal, its viability, and its broader implications will be discussed. An exclusive in *The Kyiv Independent* reveals the full text of the deal that was on the table in February. Since then, there has been much back and forth between the United States and Ukraine and a new deal has been proposed. Additionally, the United States has been trying to broker a peace deal between Russia and Ukraine to bring an end to the Russo-Ukrainian War. This proposed mineral deal has been included within the broader peace process, though recently the United States has said that it is getting tired of no ceasefire being reached and has threatened to pull out of the peace talks completely if no progress is made. The minerals deal is now being considered as a separate point detached from the ceasefire talks.

On Wednesday, April 30, 2025, the minerals agreement between the United States and Ukraine was signed establishing the United States – Ukraine Reconstruction Investment Fund⁷. The agreement aims to support Ukraine's long-term reconstruction and modernization following the destruction caused

by Russia's full-scale invasion. The fund will be a limited partnership between the United States International Development Finance Corporation and Ukraine's Public-Private Partnership Agency and will strengthen the strategic relationship between the two nations and promote investment in critical sectors, such as mining, energy, and infrastructure. Additionally, income generated from the partnership will not be subject to Ukrainian taxes or tariffs. As a part of the deal, Ukraine will offer investment opportunities to the partnership (i.e. the United States) before engaging with other investors when issuing new licenses for natural resource development and will provide mechanisms for the U.S. to negotiate market-based offtake rights for Ukrainian resources. The agreement aims to modernize Ukraine's mining sector, attract global investment, and integrate its mineral industry into Western supply chains. Ukraine is committing a percentage of its revenue from natural resource-related activities to fund the partnership, while the U.S. will contribute with increased military aid.

The Center for Strategic and International Studies (CSIS) has produced a number of reports on this deal from exploring the viability of initial proposal and the strategic importance of Ukraine's critical minerals to highlighting the potential benefits and challenges of the deal and the lack of security guarantees for Ukraine, while providing a detailed breakdown of the deal's terms, emphasizing the establishment of a reconstruction investment fund, and the joint ownership of revenues from Ukraine's natural resources. "*We are in an era of transactional foreign policy*," says Gracelin Baskaran, director of the Critical Minerals Security Program at CSIS and co-author of an article about the deal. This also echoes those working on critical mineral issues within the U.S. State Department, who commented to this author that we are entering a state of foreign policy based on transactions and bargaining. She (Baskaran) goes on to mention that rare earths make up a group of 17 elements that are not that rare but are "*extremely difficult and expensive to extract and separate*." They are "*really important*" for national security because they are in virtually every type of defense technology, such as warships, tanks, munitions, satellites and lasers. Rare earths also are found in advanced semiconductors, wind turbines and even an electric vehicle's motor, she says. While China, for instance, is the world's largest producer of rare earths, the U.S. has a limited supply and wants "*to start sourcing from elsewhere*," Baskaran adds.

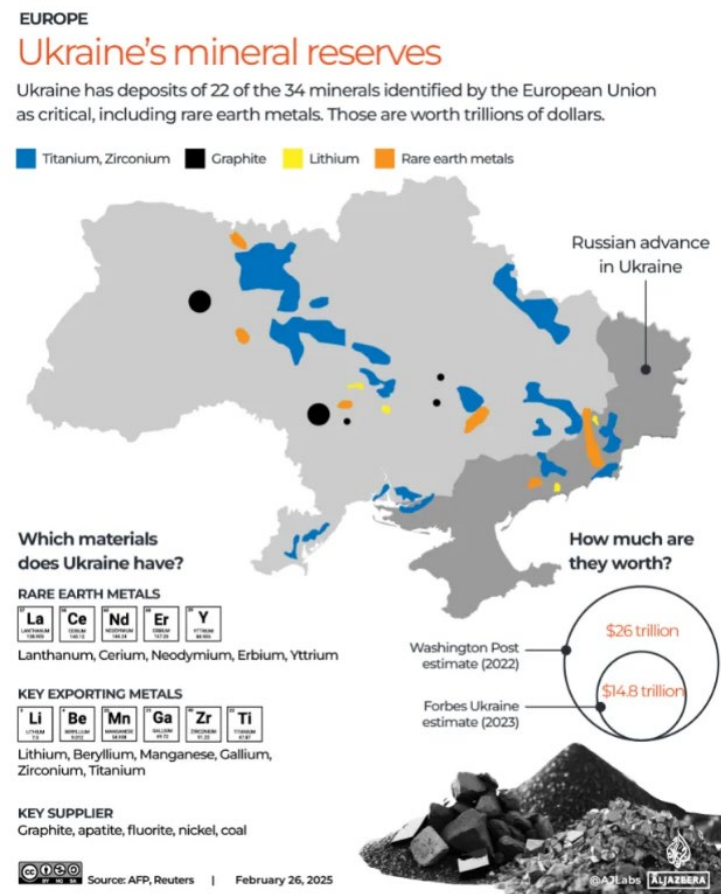
On an episode of *The Truth of the Matter* podcast with Andrew Schwartz, the geopolitical stakes and risks associated with the deal are discussed, comparing it to China's mineral diplomacy and highlighting the urgency of securing U.S. supply chains. *Foreign Policy* has also published a couple of reports on the proposed deal and why the United States is currently pushing so hard for them. The political dynamics and economic motivations behind the deal, including pressure from the Trump administration and the strategic importance of rare earth minerals are examined and special focus is paid on the security aspects of the deal, discussing the potential risks and benefits for both countries and the broader geopolitical landscape. The bulk of this research and writing focus on the mining, and extraction

capabilities of Ukraine's critical minerals, given that most of these deposits lie in war zones in the east of the country that is currently under Russian occupation. Additionally, no one really knows the exact value of the country's minerals or even where they are located, as that information pertains to national security and is not available to the public. The maps that are available to the public have not been updated since Soviet Union times, so it is hard to know exactly where these minerals are located. Because of this, the Australian Strategic Policy Institute (ASPI) argues that the value of Ukraine's critical minerals is overstated, questioning their economic feasibility, and highlighting the challenges in extracting and monetizing these resources.

There are many geopolitical implications for Ukraine. The Center for International Relations and Sustainable Development (CIRSD) provides an analysis exploring these implications of Ukraine's mineral resources and discussing how control over these resources could fuel future geopolitical rivalries. The authors argue that beneath the surface of military maneuvers and episodic peacemaking lies a deeper and often overlooked driver of the armed conflict: Ukraine's immense natural resources. Russia's calculated focus on the resource-rich provinces of Donetsk, Kherson, Luhansk, and Zaporizhzhia, together with

Crimea and the Black Sea, underscores the war's economic and strategic dimensions. These areas are abundant in hydrocarbons and critical minerals such as graphite, lithium and uranium, which are not only pivotal to Ukraine's sovereignty but also to Europe's energy independence and the competition between the United States and China for technological dominance. Control over these resources is a decisive factor in shaping the conflict's trajectory and will almost certainly influence its resolution. In a recent piece in *Al Jazeera*, they mapped out Ukraine's minerals which can be seen in the graphic.

Ukraine possesses vast reserves of critical minerals essential for global industries, particularly in green energy, defense, and technology. These resources include lithium, rare earth elements, cobalt, and nickel, which



play a key role in battery production, electronics, and clean energy transitions. While some deposits are well-established, others require further exploration and investment to unlock their full potential. In their book, *The Green Stone Age: Exploration and Exploitation of Minerals for Green Technologies*, the authors highlight Ukraine's strategic importance in supplying these materials to European and global markets, emphasizing the need for modernized mining infrastructure and foreign investment. The newly established U.S.-Ukraine Reconstruction Investment Fund aligns with these findings, focusing on expanding mining operations and integrating Ukraine's resources into Western supply chains. The agreement ensures exclusive investment opportunities for U.S. partners, enabling development in areas like mining, energy, and technology. With Ukraine committing 50% of revenue from mineral extraction to reconstruction efforts, the partnership strengthens both Ukraine's economic recovery and U.S. access to critical minerals. Ukraine's role in global mineral supply chains is boosted and its strategic alliance with the United States is deepened. Research from the University of Birmingham highlights how the global demand for critical minerals—such as lithium, rare earth elements, and cobalt—is shaping international trade policies and security concerns. As nations transition to renewable energy and electric mobility, securing these resources has become a priority.

UKRAINE'S DOMESTIC POLITICS RELATED TO MINING

Ukraine's domestic politics surrounding mining have become increasingly complex, especially as the country navigates its postwar recovery and international partnerships. The nation holds vast mineral wealth, including approximately 20% of the world's titanium reserves, significant iron ore deposits, coal, rare earth elements, and uranium. These resources are crucial for both Ukraine's economy and global supply chains.

Given the recently negotiated minerals deal between Ukraine and the United States, the country's mining sector will be of great importance for years to come. The deal involves creating an investment fund where revenues from future mining projects would be shared between Ukraine and the U.S. In exchange, Ukraine hopes to secure security guarantees from the United States after the war with Russia ends. Ukraine's reaction to the minerals deal with the U.S. has been mixed, with officials emphasizing its potential benefits while also addressing concerns about sovereignty and economic independence. Some Ukrainian officials and locals have also expressed concerns about potential exploitation.

Prime Minister Denys Shmyhal, has welcomed the deal, highlighting that it does not require Ukraine to repay any supposed debt to the U.S., while Economy Minister Yulia Svyrydenko has reassured the public that Ukraine will maintain ownership of its minerals and the companies involved in extraction. She emphasized that the agreement is designed to attract global investment while ensuring that Ukraine retains control over its natural resources. Other Ukrainian lawmakers and citizens have expressed

skepticism, fearing that the agreement could lead to excessive foreign influence over Ukraine's mineral wealth. There were last-minute negotiations before signing, as Ukraine sought to ensure that the investment fund would be structured in a way that benefits both nations equally. Concerns were raised about whether the deal might complicate Ukraine's aspirations to join the European Union, though the agreement explicitly states that it will not hinder Ukraine's EU accession. Local communities in Ukraine's mining heartlands, such as Kryvyi Rih and Zhovti Vody, have voiced skepticism about the deal. Many residents fear that foreign agreements could lead to their mineral wealth being bargained away without sufficient benefits for Ukraine. President Zelenskyy, himself from Kryvyi Rih, has been working to ensure that the agreement is equitable and beneficial for both nations.

Overall, the deal has been framed as a signal to Russia that the United States remains committed to Ukraine's sovereignty and economic recovery. The agreement includes provisions for oil, gas, and other hydrocarbons, expanding beyond just minerals. Former Russian President Dmitry Medvedev criticized the deal, claiming that Ukraine is effectively paying for U.S. aid with its resources. Meanwhile, the U.S. Department of Energy has identified Ukrainian rare earth elements as high priority for American industrial policy and energy security. This highlights the strategic importance of Ukraine's mining sector in global geopolitics. However, balancing national interests with international partnerships remains a challenge for Ukrainian policymakers.

PEACE NEGOTIATIONS AND CEASEFIRE PROPOSALS

The Journal of Peace Research and *International Peacekeeping* collectively explore the dynamics of ceasefires, peacekeeping, and militarization, offering insights that are highly relevant to the ongoing Russo-Ukrainian War. Ceasefires, as discussed, serve multiple purposes—they can reduce violence, signal peaceful intentions, or even be exploited to regroup militarily. In Ukraine, ceasefires have often been fragile, with violations undermining trust and complicating negotiations. The militarization of peacekeeping underscores the challenges of balancing military objectives with humanitarian goals. International actors must navigate the tension between providing security and fostering conditions for peace.

The role of robust peacekeeping and the strategic use of ceasefires in transitioning from war to negotiated peace is crucial. In Ukraine, the interplay between military strategies and diplomatic efforts mirrors the complexities outlined in these studies. The militarization of peacekeeping operations and the strategic use of ceasefires should inform approaches to stabilizing the region, ensuring that efforts to end violence are complemented by mechanisms to build trust and address underlying grievances. These insights emphasize the importance of designing peace processes that account for both the immediate cessation of hostilities and the long-term stability of agreements, which is why it is especially important

that all parties are at the table when peace is being negotiated. Ukraine must be included in any and all peace negotiations.

It is equally important to understand why ceasefires often fail. While Russia and Ukraine technically agreed to a 30-day ceasefire on energy infrastructures, it has already failed and is the latest in a string of ceasefires that Russia has violated since 2014. It also gives credence to Ukraine's argument on why it does not trust Russia in peace negotiations as their word means very little. Some literature has been written on the nature of ceasefire violations. One article in *International Studies Review* examines ceasefire violations, categorizing them into four categories: strategic, retaliatory, spoiling, and localized, and exploring how these violations relate to military and political decision-making processes. Ukraine's conflict with Russia has seen multiple ceasefire violations, each serving different strategic purposes. Strategic violations have occurred when Russian forces breached agreements to gain military advantages, re-position troops, or prepare offensives. Retaliatory violations have led to a cycle of tit-for-tat strikes, where Ukraine responds to Russian breaches, making trust-building difficult. Spoiling violations have been used by hardline factions within both Ukraine and Russia to deliberately undermine peace talks. Meanwhile, localized violations—often caused by miscommunication or rogue actors—have further complicated ceasefire enforcement. These violations collectively shape Ukraine's military and diplomatic strategy, pushing leaders to balance responses while ensuring that ceasefire breaches do not derail broader peace efforts. Understanding these patterns helps explain why ceasefires often fail and why Ukraine remains committed to improving international monitoring and accountability as it works to bring about an end to this deadly war.

Going from the broad literature on peacebuilding and ceasefires, and focusing even more on Ukraine, the piece from the *Journal of Democracy* argues against negotiating with Putin, emphasizing that the conflict is deeply rooted in Russia's broader ambitions rather than specific territorial disputes. It suggests that peace negotiations are unlikely to succeed and that the war will ultimately be decided on the battlefield, which is a bit complicated given that the war has now entered its third year. The article stresses the importance of continued Western support for Ukraine to ensure a just and durable peace that upholds Ukrainian sovereignty and international order.

An article from *The Journal of Global Security Studies* delves into why leaders often resist making concessions because they fear rewarding their opponent, even when peace might be beneficial. This can be observed in Ukraine, where public sentiment and political pressures make negotiations complex. Major ceasefire violations, like those committed by Russia in Ukraine, as well as disastrous meetings with supposed allies (i.e. the February 2025 White House meeting between Zelenskyy and Trump/Vance) tend to reduce public support for peace talks, making it harder for leaders to justify concessions. The U.S.-Ukraine Reconstruction Investment Fund plays a role in this dynamic by ensuring

economic stability and investment, which strengthens Ukraine's position in negotiations. However, the challenge remains: how can Ukraine pursue peace without appearing to concede too much to Russia? And similarly, even if Ukraine agrees to concessions, how do we ensure that Russia keeps up their end of the agreement?

Another significant challenge is the difficulty of making "costly concessions," where leaders face resistance when pursuing agreements perceived as unfavorable. In Ukraine, this is evident in the hesitance to compromise over territorial disputes or sovereignty concerns, as such concessions could provoke backlash from domestic audiences. Furthermore, public support for negotiations in protracted conflicts can be fragile, especially when violations of ceasefires or heightened violence inflame distrust. When you have an external country like the United States pushing for a quick ceasefire and offering concessions up front without including Ukraine in the talks, the negotiations are bound to break down with no one getting what they want and giving Russia the chance to hold all the cards and continue the fighting.

A crucial insight is the role of justice in establishing lasting peace. The balance of distributive and procedural justice is vital to fostering agreements that all parties see as fair, addressing grievances, and promoting trust. In Ukraine, the perception of justice in resolving territorial claims and political autonomy will likely influence the durability of any peace settlement. The principles discussed underscore the importance of carefully navigating public opinion and ensuring fair processes to achieve a stable resolution in a deeply divided conflict.

The Quincy Institute recently did a report that explores how the United States can leverage its diplomatic and strategic tools to negotiate peace in Ukraine. It highlights the importance of addressing Russia's broader security concerns, such as NATO's presence in Europe, to create incentives for compromise. The article suggests using sanctions relief and diplomatic engagement as key strategies to achieve a sustainable settlement. This is where critical minerals come into play and while the newly signed deal does not include security guarantees, it does put Ukraine in a better economic position, giving it more leverage in peace negotiations.

While initially, the minerals deal was tied with negotiating a ceasefire to the war, but recently after no progress between the negotiating parties and following Zelenskyy's disastrous White House visit, the minerals deal and ceasefire negotiations have become two separate issues. Ukraine has been trying to reach a ceasefire with Russia that would ultimately lead to a just and lasting peace that would end the war once and for all. It is important to understand the key dynamics that are relevant to peace negotiations in Ukraine. Ukraine's ongoing war with Russia is a real-world case study of the problem of costly concessions in peace negotiations.

U.S. – DEMOCRATIC REPUBLIC OF THE CONGO CRITICAL MINERALS DEAL

Other countries have been watching the ongoing discussions with the United States and Ukraine and have come prepared with their own deals. For a juxtaposition to the Ukraine deal, let us travel south to the middle of Africa and go to the Democratic Republic of the Congo (DRC). Recently, U.S. Senior Advisor for Africa, Massad Boulos travelled to the DRC to review a proposal set forth by their president giving the U.S. access to its critical minerals, specifically cobalt, in exchange for U.S. military assistance in fighting Rwanda's M23 rebels, who have been steadily advancing in the region. The deal aims to grant American firms access to the DRC's vast reserves of critical minerals, such as cobalt and tantalum, in exchange for U.S. military support. This arrangement could help the United States diversify its mineral sources and reduce dependence on China, while supporting the DRC's economic growth and stability.

The CSIS report on U.S.-DRC critical minerals cooperation highlights the strategic importance of securing access to cobalt and copper, two essential materials for battery production and clean energy technologies. Despite the Democratic Republic of the Congo holding some of the richest deposits of these minerals, China has largely dominated the sector through state-backed investments and infrastructure deals, limiting U.S. influence. Historically, the U.S. has prioritized development aid over commercial diplomacy, leaving a gap in securing mineral supplies crucial for its technological and energy needs. To counter China's dominance, the report recommends strengthening diplomatic ties, increasing financial investment, and enacting policy reforms that encourage sustainable resource extraction.

However, concerns arise over the militarization of such a partnership, which could exacerbate existing conflicts and undermine long-term peace efforts in the region. From the U.S. perspective, the deal aligns with broader strategic goals to secure critical minerals essential for defense technologies and renewable energy. Yet, critics warn that the agreement may backfire, echoing past entanglements in unstable regions. The risks include potential exploitation of local communities, increased geopolitical tensions, and the possibility of U.S. involvement in prolonged conflicts. These challenges underscore the need for a balanced approach that prioritizes economic and diplomatic engagement over militarized solutions, ensuring sustainable outcomes for both nations.

As of May 1, 2025, the United States has been pushing for the DRC and Rwanda to reach a peace agreement in two months that will also come with a billion-dollar minerals deal and Western investment with the DRC and a smaller deal with Rwanda. *"When we sign the peace agreement ... the minerals deal with the DRC (Democratic Republic of the Congo) will be signed on that day, and then a similar package, but of a different size, will be signed on that day with Rwanda,"* Massad Boulos said in an interview in the Qatari capital, Doha, as reported by Reuters. As a precedent to peace accords being signed, Boulos said, Rwanda and Congo must finalize bilateral economic agreements with Washington that will see U.S. and Western companies invest billions of dollars in Congolese mines and infrastructure projects to support mining in both countries including the processing of minerals in Rwanda. Security concerns are also

expected to be addressed, such as Rwanda pulling its troops out of Congo and ending its support for its M23 rebels. Meanwhile, Congo must address Rwanda's security concerns with militias such as the Democratic Forces for the Liberation of Rwanda (FDLR). As this deal is still developing, it will be interesting to watch over the coming months how it all comes together, or quite possibly, falls apart.

The U.S.-DRC security-for-minerals deal offers an interesting parallel to the ongoing conflict in Ukraine, particularly regarding the strategic use of critical resources in geopolitics. In both cases, natural resources play a central role in shaping alliances and foreign policy objectives. While the DRC agreement focuses on leveraging critical minerals for economic and security gains, Ukraine's natural resources, particularly its fertile land and energy reserves, have become a focal point of the war. In Ukraine, securing access to these resources has geopolitical and economic ramifications, much like the DRC deal. Both situations highlight the risks and complexities of engaging with resource-rich regions that face instability, underscoring the need for carefully crafted policies that prioritize sustainable development, minimize exploitation, and ensure peace and security. The U.S.-Ukraine Reconstruction Investment Fund follows a similar strategy as the U.S.-DRC minerals cooperation by prioritizing investment in rare earth elements, lithium, and graphite and ensuring access to key resources for future industries. Both agreements underscore the need for the U.S. to diversify global supply chains, reducing reliance on single-source suppliers, and reinforcing economic and geopolitical stability. These cases reflect how resource-driven strategies can profoundly influence international relations and global power dynamics.

THE EMERGENCE OF MINERALS DIPLOMACY AS A NEW FOREIGN POLICY TOOL

Natural resources, and specifically, critical minerals are of strategic importance to the United States especially as it seeks to decouple from China and bring more manufacturing and processing stateside. *The Economist* recently produced an in-depth visual exploration of critical materials and rare earths, emphasizing their significance in modern industries and global geopolitics. It highlights the growing demand for these materials, driven by their essential role in technologies like renewable energy, electric vehicles, and advanced electronics. For the United States, this reliance is particularly crucial given its ambitions to lead in green energy innovation and maintain technological dominance. It examines the geographical distribution of critical materials, noting that their uneven availability creates vulnerabilities in supply chains and heightens geopolitical tensions. For the U.S., reducing dependence on foreign suppliers like China is a key priority, pushing efforts to diversify sources, expand domestic production, and invest in recycling technologies. These measures align with broader national strategies to enhance economic resilience and security amid a competitive global landscape.

Meanwhile, the European Commission has adopted a list of 47 Strategic Projects to strengthen the EU's domestic capacities for critical raw materials. This initiative aims to bolster the European raw

materials value chain, reduce reliance on external suppliers, and ensure a sustainable, secure supply of essential resources. For the United States, this strategy holds significant geopolitical relevance, as it echoes similar efforts to reduce dependence on foreign suppliers—particularly China—and safeguard access to critical minerals. Collaboration between the EU and the U.S. could amplify shared goals in diversifying global supply chains, promoting sustainable practices, and maintaining economic resilience, while advancing both regions' green and digital transitions. This shared pursuit of strategic autonomy positions the U.S. and EU as key partners in ensuring the stability of critical raw material markets. A new critical minerals executive order aimed at accelerating domestic production in the U.S. has been signed and aims to streamline permitting processes and deploy federal resources for mining efforts. It highlights the strategic importance of reducing reliance on imports, particularly from China, to bolster national security and economic resilience. U.S.-China tensions are currently reshaping global supply chains, with the U.S. seeking to diversify sources and strengthen partnerships with allies and the geopolitics of critical minerals will be crucial for their role in the energy transition as well as in tackling the vulnerabilities of concentrated supply chains. Critical minerals are being integrated into U.S. diplomacy, showcasing efforts to secure access to resources in conflict zones like Ukraine and Congo. All of this underscores the strategic use of minerals in foreign policies to support economic and security objectives while navigating geopolitical challenges.

For the United States, critical minerals represent not only a linchpin for technological innovation and renewable energy leadership but also a key factor in its broader national security strategy. Rare earths and other critical materials are crucial for maintaining military readiness, as they are integral to advanced defense technologies like missile systems, satellites, and secure communications infrastructure. Recognizing this, the United States is actively pursuing partnerships with allies (though the recent tariffs on friends and foes alike may make this difficult) to establish more resilient supply chains and reduce dependence on nations with opposing interests, such as China and Russia. The security dimension adds urgency to these efforts, as ensuring a stable supply of critical minerals safeguards the country's defense capabilities and bolsters its strategic autonomy in an increasingly volatile geopolitical landscape. Investments in domestic mining and recycling initiatives further strengthen U.S. preparedness while addressing environmental and economic concerns.

IMPLICATIONS FOR INTERNATIONAL TRADE

The implications for international trade and on global supply chains are numerous as related to critical minerals. The stakes are possibly even higher and perhaps more unstable in the midst of the ongoing tariffs levied on friends and foes and the escalation of the trade war with China. Critical minerals have become a cornerstone of international trade, shaping economic strategies and geopolitical dynamics. As

nations transition to clean energy, electric vehicles, and advanced technologies, the demand for resources such as lithium, cobalt, nickel, and rare earth elements has surged. This growing dependence has led to increased competition, strategic trade agreements, and supply chain diversification efforts. Countries with abundant mineral reserves, like Ukraine and the Democratic Republic of the Congo (DRC), are now at the center of global trade discussions, attracting investment and partnerships aimed at securing steady mineral supplies from Western investors, specifically the United States.

One of the key impacts of critical minerals on trade is the concentration of refining and processing capabilities in a few dominant players—most notably China. China controls over 80% of global rare earth processing, creating vulnerabilities for other nations dependent on these materials. In response, Western nations have sought to diversify supply chains through bilateral agreements like the U.S.-Ukraine Reconstruction Investment Fund and the pending U.S.-DRC partnership, which aim to expand mineral exploration and secure access to these vital resources. By investing in mining infrastructure and reducing reliance on single-source suppliers, countries can stabilize their industrial sectors and strengthen their geopolitical influence.

Moreover, critical minerals trade has sparked debates around sustainability and ethical sourcing. Some mineral-rich regions struggle with issues such as environmental degradation, human rights violations, and exploitative labor practices, particularly in cobalt mining operations. As global trade policies evolve, there is a push toward ensuring responsible mining practices, transparency in supply chains, and fair labor conditions. Countries like Ukraine, which potentially hold large reserves of lithium and rare earth elements, have an opportunity to implement stringent regulations that align with international standards, making their mineral exports more attractive to global buyers.

The competition for critical minerals is reshaping trade routes, investment priorities, and international alliances, making resource security a major geopolitical concern. Nations that effectively leverage their mineral wealth—by fostering strong partnerships, transparent policies, and sustainable mining practices—will gain economic advantages while ensuring stable supplies for key industries. As the global demand for green technologies continues to grow, critical minerals will remain a defining factor in shaping the future of international trade and economic diplomacy.

In addition to green energy, critical minerals also play a pivotal role in dual-use technologies and weapons systems, influencing global defense strategies. Many of these materials—such as titanium and tungsten—are essential for both civilian industries and military applications, including advanced radar systems, fighter jets, and missile guidance systems. Countries with access to these minerals can enhance their defense capabilities while also supporting commercial industries like electronics and aerospace. The U.S.-Ukraine Reconstruction Investment Fund not only secures critical minerals for economic development but also strengthens Ukraine's defense industrial base, ensuring it has the necessary

resources for modern military equipment and technological innovation in its very fight for survival against Russia. As geopolitical competition intensifies, securing these minerals becomes a national security priority, making minerals diplomacy a crucial aspect of both commercial and defense strategies.

The race for critical minerals has become a central battleground in the emerging trade war between the United States and China. China has imposed export restrictions on several critical minerals, including tungsten, tellurium, bismuth, indium, and molybdenum. These restrictions require exporters to obtain special licenses, making it harder for foreign companies—especially in the U.S. and Europe—to access these materials. The move is widely seen as a response to U.S. tariffs, with China leveraging its dominance in mineral processing to disrupt global supply chains. The intensifying competition over these resources could lead to higher costs for industries relying on clean energy, electronics, and military technology, driving global players to invest in domestic mining and recycling efforts. This looming trade war underscores the strategic importance of minerals diplomacy, as countries race to control the resources powering the next generation of technological advancements.

Critical minerals have become a fundamental driver of international trade, influencing supply chains, economic policies, and geopolitical relationships. As nations accelerate the transition to renewable energy, electric vehicles, and advanced technology, the demand for key resources continues to rise. Trade agreements, investment initiatives, and international partnerships are being reshaped to secure stable access to these materials, reducing dependence on dominant suppliers and mitigating geopolitical risks. The increasing competition over mineral access has also led to strategic shifts in manufacturing, resource extraction, and trade diplomacy, reinforcing the need for diversified supply chains and new technologies in mineral processing.

At the same time, critical minerals are essential for dual-use technologies, powering both civilian industries and military applications such as advanced defense systems, aerospace engineering, and communications infrastructure. Nations with control over mineral reserves gain significant leverage in trade negotiations, while export restrictions and trade wars—especially between major economies—continue to disrupt global markets. As countries race to secure long-term supplies, policies surrounding sustainable mining practices, ethical sourcing, and environmental regulations will continue to shape the future of resource security and trade stability.

CONCLUSION

The geopolitics of critical minerals underscore their growing significance as both economic assets and strategic tools in international relations. The signed U.S.-Ukraine agreement and the pending U.S.-DRC deal illustrate the complex interplay between resource security, national interests, and global diplomacy. While these agreements offer opportunities to diversify supply chains and strengthen alliances, they also

pose risks of exploitation, geopolitical tension, and prolonged instability in conflict-prone regions. In both cases, the balance between leveraging critical resources and ensuring sustainable, equitable outcomes remains a pivotal challenge. As the global demand for critical minerals intensifies, carefully crafted policies and international cooperation will be essential to navigating these challenges and promoting long-term peace and prosperity.

Furthermore, these scenarios highlight the delicate relationship between resource diplomacy and security guarantees. The United States must weigh its ambitions for mineral security against the potential consequences of engaging with unstable regions. In Ukraine, mineral-based strategies must be coupled with assurances of sovereignty and reconstruction aid to foster trust and prevent further destabilization. Similarly, in the DRC, a focus on military assistance must be balanced with efforts to support sustainable development and minimize conflict. Both cases demonstrate the need for a holistic approach—one that aligns resource acquisition with ethical and strategic imperatives to ensure a resilient and peaceful global order.

With respect to Ukraine, concerns about the lack of security guarantees and the potential risks associated with joint ownership of mineral revenues which the current administration seems to dismiss by insisting that the mere presence of American companies in Ukraine will be enough to deter Russia from continued aggression. However, it is unclear which companies are willing to risk their resources and personnel to move operations to a war zone. The deal signed in late April abets some of these concerns but needs to go further to guarantee security and maintain Ukrainian sovereignty. It is also unclear if Russia will accept this deal or if they will honor it but the fact that the United States has agreed to resume military aid is an improvement. Further research and careful consideration of the strategic, economic, and security dimensions is essential for understanding the full impact of the agreements.

The geopolitics of critical minerals highlight their growing role as both economic assets and strategic tools in international diplomacy. As global demand rises, nations are increasingly leveraging minerals diplomacy to secure access, build alliances, and reinforce supply chain resilience. The U.S.-Ukraine and U.S.-DRC agreements exemplify this trend, showcasing the intersection of resource security with broader economic and security strategies. While these deals offer opportunities to diversify mineral sources and strengthen partnerships, they also pose challenges, including geopolitical tensions, ethical concerns, and risks of prolonged instability in resource-rich regions. A balanced approach that prioritizes sustainability, security guarantees, and equitable development is essential to navigating the complexities of minerals diplomacy while ensuring long-term stability in global trade and strategic alliances.

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