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Critical Minerals, U.S. National Security, and Africa

BLUF (Bottom Line Up Front): United States industry and national security supply chains are vulnerable because they are reliant on adversaries for critical materials necessary for advanced technology and high-end weapons systems. However, the Department of Defense (DoD), American industry, and African partners can implement coordinated measures to reduce these deficiencies.

On 2 August 1939, Albert Einstein signed a letter to Franklin Delano Roosevelt warning him of the possibility of a nuclear bomb. In the letter, warning that Germany was also aware of the physics behind the potential release of such energy, Einstein noted that the highest-grade uranium ores known at the time were to be found in the Belgian Congo. While metals were important in the leadup to and during World War II, it was the first time that one specialty metal was deemed of such critical strategic importance in advanced weaponry. Due to the magnitude of this task, its wide-ranging scope, and the resources required, the U.S. military was put in charge of the Manhattan Project, and unconventional methods were used to secure the uranium by the Office of Strategic Services (predecessor of the CIA and Army Special Forces). Today, America finds itself again in a race for critical materials, this time against China—and the DoD, Africa, and unconventional methods will again play an important part in securing them for our national interests.

WHAT ARE CRITICAL MATERIALS?

But first, what are critical materials? According to the Department of Energy (DoE), the official definition is any substance used in technology that is subject to supply risks and for which there are no easy substitutes. Or, in plain English—stuff you really need but can't always get. The DoD has

AUTHOR: PETER CHIN, *IWC Advisor – Valens Global CTR*

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an altered version, in which it "...defines strategic and critical minerals as those that support military and essential civilian industry; and are not found or produced in the United States in quantities to meet our needs." Materials is a broader term that can include oil but also encompasses critical minerals, which are mostly chemical elements or compounds. For this discussion, the terms will be used interchangeably and will mostly comprise key metals needed for advanced industrial sectors. Each nation categorizes them according to its own needs and supply chains and creates lists for those deemed at risk. The American list contains 50 such minerals; the UK list contains 23, and the EU has 30. Groupings of these metals are different, for example, listing the Rare Earth Elements as one group versus breaking them out individually. Many of these are imported from China (up to 90% or more in the case of rare earth elements) and are not mined, refined, processed, or manufactured into goods domestically in sufficient quantities. This is a concern for renewable energy and electric vehicle companies, but of greater significance is that all DoD advanced weapons systems contain materials from this list.

Critical materials have initiated, influenced, or decided the outcome of several major wars in the last 100 years. The Japanese attack on Pearl Harbor and the invasion of the Dutch East Indies were due to concerns about their oil supply. Again, there was the quest to obtain uranium in the Belgian Congo during World War II. During the Cold War, the titanium for America's most important spy plane, the SR71 Blackbird, had to be bought through front companies from the then-Soviet Union by the CIA. Operation Desert Storm was fought over not allowing one dictator to control 20% of the world's oil reserves. And now, Russia's Wagner Group and China's Belt and Road Initiative in Africa are focused on securing oil, gas, and critical minerals for their economies and strategic advantage. Hence, there is precedent for conventional war and unconventional activities being used to acquire or prevent the acquisition of strategic resources.

Several wars in the last century had oil as their main objective; today, metals are the new oil. In 1992, former Chinese Communist Party Chairman Deng Xiaoping said, "The Middle East has oil. China has rare earth metals." Going forward, advanced technologies will require particular elements in quantities never before required by the global mining industry. Global warming will increase pressure on renewable energy targets; Electric vehicle production is increasing across all carmakers, and weapons system manufacturers will increase demand due to robotics and other tech requiring such materials to enhance performance.

UNITED STATES' STRATEGIC VULNERABILITY

For the United States, there are multiple factors of this strategic exposure, from education, technical expertise, mining, refining, processing, manufacturing, to recycling. Each requires multidimensional solutions, but this article will focus on acquisition of the material. Some believe that capitalism is the answer; however, strategists should not be comfortable relying on capitalism as the best solution when faced with a national security vulnerability. Moreover, China heavily subsidizes these markets, which is one of the main reasons they achieved dominance. Exporting the mining and processing of various metals to China during the 1980s and '90s allowed for cheaper production and fewer domestic environmental concerns, but also transferred and atrophied the technical base needed along the entire U.S. supply chain.

From economic, permitting, and regulatory perspectives, the exportation of these industries made sense. Domestic mines can take a decade or more to come online if they reach production at all. Environmental groups look at the historical record of mining in several parts of the country and fight back against the rivers and land being despoiled. Regulations and permitting take years to work

through the system for approval. However, the industries were exported when China was a poor nation and not considered a threat to the United States. During the Global War on Terror (GWOT), while America was solely focused on counterterrorism, China grew and developed a global strategy to secure resources. Now that the time and resources dedicated to counterterrorism have waned, the U.S. government and the DoD have woken up to their strategic vulnerability.

In talks with current and former national security officials, one of the key takeaways was that the country is deficient in countering China—not just around the world, but in Africa in particular. Academic and U.S. government deliberations have pondered how to operationalize a strategy to compete, counter, and/or crowd out Chinese investment, infrastructure, and security influence. One thing that repeatedly occurred in these conversations about critical materials with the military, DoD, industry, academia, and other government agencies was that they were all in agreement that the DoD and military should not be responsible for securing such materials, that this vulnerability needs to be addressed, and that it will take all elements of national power to solve it. But who should be in charge? It is an agency with the proper budget, flexible authorities, personnel, global reach, and planning and coordinating capabilities. And what agency or department has all of that? After so many similar discussions, having equity interests from the Defense Production Act, the Defense Logistics Agency (DLA), the potential of leveraging the new U.S. Sovereign Wealth Fund, and being the end user of advanced weapons systems, it is time the DoD accepted its fate in this matter for responsibility and coordination. If World War III were to break out tomorrow, this would certainly be the case anyway.

STRATEGIC ROLE OF AFRICA

As stated at the beginning of this article, it is not the first time in the historical record that America has gone to Africa to meet national security imperatives. Due to several recent coups, China's vast influence, and the proliferation of Islamic extremist groups there, one might justifiably think that there are less risky places to extract resources. However, the continent has 54 countries, varying alliances, geological endowments, and infrastructure bases. Moreover, because four of the five main national security threats to the United States are active there—China, Russia, Iran, and Violent Extremist organizations (VEOs)—America should increase its presence for the following reasons:

- Critical resource availability
- Many critical mineral mines are either existing or further along in development than those in the west
- Nations and potential allies are hungry for investment and infrastructure development
- U.S. adversaries are competing in Africa for allies and critical materials
- Coups in Francophone Africa replace French troops with Russian Wagner Group mercenaries in exchange for mining concessions
- VEOs fight to control logistical networks and cause refugee flows and internally displaced people, further destabilizing the Sahel
- Projected demographics of the continent, lower labor costs
- Billions of dollars in potential investment returns for American companies

Sun Tzu said that the first importance is to attack an adversary's strategy; the next best is to attack his alliances. In Africa, China and Russia are currently doing both. When they look at the strategic vulnerabilities of the United States, key supply chains are part of the global chessboard (or Wei Qi, depending on your metaphor preference), and the United States is ceding ground in this arena to its main adversaries (for the past 30 years, the first trip of China's foreign minister is to the continent). A further consideration is influence at the United Nations—Africa has 54 votes, and one can look at referendums against recognizing Taiwan or condemning Russia for its Ukraine invasion to see the sphere of influence politics at play. Fortunately, America has key advantages it can put into action.

PROPOSED SOLUTIONS

There is an African proverb that a drowning man refuses no hand; if America does not offer assistance, others will. But there is another African proverb that the best time to plant a tree was twenty years ago; the next best time is today. Bandwidth freed up in the DoD from units that focused on terrorism now find themselves looking for ways to compete against China and Russia in their functional and geographic operations and can bring their flexible authorities and budgets, access to allies, and creativity to bear in traditional and irregular ways. This is in many ways comparable to what Special Operations units have done in the Middle East and other regions since 2001: they created opportunities, bought time and space for strategic decisionmakers, and sometimes created the strategy from the bottom up due to a lack of planning at the national level. Credibility, trust, ground truth, cultural and contextual familiarization, and operational experience would often have higher authorities pushed down to those in the field.

The United States is better tied to the international community than China and Russia, has dollar dominance, has more allies, and can bring more assets to bear. As the European Union, Japan, and other allies with advanced economies face critical material vulnerabilities (and similar strategic threats), a multinational effort can be mounted in Africa. Steps have been taken in this direction with the Critical Materials Alliance, and the Defense Production Act.

A comprehensive solution to securing critical materials should include the following and would be inclusive of African partners throughout as much as possible:

1. **Identify which metals should be prioritized and stockpiled:** The DLA and the Defense Industrial Base Policy can best determine which metals the national security architecture should prioritize in acquiring for national defense, advanced technology, and the national stockpile. The critical materials list put together by the U.S. Geological Survey can be a starting guide. However, agencies are not in agreement on what should be prioritized. It is best to get a consolidated, up-to-date prioritization. Focus should be placed on those materials the nation cannot obtain from domestic sources or allies.
2. **Identify where these minerals are located in Africa (and each region of the globe):** The U.S. Geological Survey (USGS) and the latest mapping software can verify this and geolocate primary, alternate, contingency, and emergency sources of materials.
3. **Invest in infrastructure:** Roads, railways, and ports need development or enhancement to enable the extraction and export of minerals from remote areas.

4. **Identify which companies deal with these particular metals:** This can be established through interviewing industry associations and going to conferences that deal with these resources. The U.S. government, and DoD specifically, should provide and/or coordinate funding and expertise to help discover new critical mineral reserves and develop mines in Africa through private-public partnerships. The DoD already has experience doing this within the United States.
5. **Consider establishing a private equity fund for critical resources:** Such a fund could help secure stable supply chains, de-risk private investment, and enable more flexible and rapid investment when a U.S. company risks falling into the hands of adversaries.
6. **Offer relevant partners a comprehensive plan:** Offering a bespoke package to partner nations in security, investment, infrastructure, diplomacy, and other benefits such that the United States can gain access to materials.

Ideally, the end state will keep the national security architecture better informed on prioritizing their financial, diplomatic, and DoD assets to reduce critical materials vulnerability. The United States will increase supply chain redundancy, knowledge will be gained on how to counter China's Belt and Road Initiative and Russia's creeping influence in Africa, and there will be the possible replication of the above measure in other regions of the world.

CONCLUSION

China has a comprehensive approach to the African continent, mixing investment, trade, and cultural exchanges with medical assistance, training soldiers, arms sales, and anti-piracy; our nation should do no less. Focus on the GWOT consumed much strategy, bandwidth, and resources across the U.S. government. From the strategic to the tactical level, DoD personnel realize that the usual ways of business will have to change in terms of competition with China (and, to a lesser extent, Russia) on the continent.

America does not always get to choose where it competes. On 7 March 2023, the U.S. Special Operations Commander, General Bryan Fenton, testified before the Senate Armed Services Committee and discussed Great Power Competition with China. As war between superpowers would benefit no one, he repeatedly invoked the irregular nature of how this contest would take place. Competition for global sea lanes, every region of the world, space, military and economic superiority, technology, and critical resources will be vital, and it will take whole-of-government synchronization to develop solutions. This issue has gained national and international attention, with multiple American allies straining to inoculate themselves from supply chain disruption. And like uranium during World War II, these materials are necessary to maintain a strategic advantage.