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Afghanistan's Lithium as Strategic U.S. Focus in the Great Power Competition

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Abstract The contemporary geoeconomic Great Power Competition can be understood as global competition for access to a finite supply of necessary rare earth and critical minerals such as lithium. China's current near-monopoly on these minerals presents a potential national security risk to the U.S. as access to these vital resources depends on the two powers' unpredictable relationship. The critical mineral lithium is used in a wide range of technologies and is expected to increase in demand in the coming years significantly. As an alternative to Chinese-controlled lithium sources, Afghanistan presents a promising option, rendering this fragile, centrally located country a key strategic site for the U.S. in the modern Great Power Competition. However, even though vast mineral wealth has been discovered in Afghanistan in recent years, the country is missing the essential mining market access infrastructure to turn these resources into actual wealth to sustain itself financially. Therefore, this chapter argues that as the U.S. plans to withdraw militarily from Afghanistan, it should transition to a strategic role of helping Afghanistan develop its vast mineral wealth. Such a strategy will ensure Afghanistan does not return to a failed state and ensure the U.S. a reliable source of critical mineral lithium.

Keywords Afghanistan · Great power competition · Lithium · Rare earth minerals · China · Economy · Central Asia

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Introduction

The contemporary geoeconomic Great Power Competition can be understood as a global competition for access to a finite supply of necessary rare earth and critical minerals. The primary distinguishing feature of this era is a competition for resource security with pipeline routes and natural resources "as the center of gravity of the New Great Game" (Rahman 2014). This competition for resource security has taken on many forms and is fought on many battlegrounds, both in the diplomatic and physical spheres. At present, a near-monopoly on certain rare earth and critical minerals belongs to China, whose exclusive access to mining and distribution of these minerals gives it power over those countries who depend on access to those resources, including the United States. China's dominance of the rare earth and critical minerals market has expanded to the point that it currently supplies 95% of the world's rare earth (Bernard and Sugarman 2012). Among U.S. imports of minerals, China currently accounts for approximately 80% of the supply due to its near-monopoly control of all the mineral processing facilities. While on an official tour of southern China in 1992, then-Premier of China, Deng Xiaoping, is reputed to have claimed, "The Middle East has its oil; China has rare earth" (Kiggins 2015). Chinese control of the market is largely attributable to China's mines, as well as its relaxed environmental regulations and low labor costs (Gholz 2014).

For China to have such power over such a strategically important product is a major concern not only for the United States, but also for Russia, who is actively seeking foreign investments of $1.5 billion to further develop and expand their rare earth mineral industry (Scheyder 2019; Lyrichkova and Stolyarov 2020). According to Lyrichkova and Stolyarov (2020), Russia aims to become the second-largest producer of rare earth after China by 2030. This ambition places further stress on the United States, particularly so in the era of the Great Power Competition, to develop its own independent source of rare earth and critical minerals.

China's overwhelming monopoly on rare earth, amounting to 67% of global rare earth mineral production, constitutes a security risk for the U.S. because of the insecurity of supply and overwhelming dependence on China's production and reserve (Kiggins 2015; Lyrichkova and Stolyarov 2020). As Dixit explains, strategic minerals are those that are imperative to the security of a country but are obtained largely from foreign sources because the supplies available within the country concerned would not be adequate in a time of national emergency. The three criteria defining strategic minerals are that they are essential for national defense, essential for industry and civilian uses, and do not have any suitable substitutes (Dixit 2015). Butt and Thomas explain that strategic minerals are those considered to be essential for critical civilian and military needs in quantities not available from either domestic sources or secure foreign sources, and for which short-term substitutes are also not available (Dixit 2015). In the case of the GPC, China has demonstrated that it is unafraid to weaponize its monopoly on strategic rare earth and critical minerals against other states, a manipulation of power that has been described as the "new geopolitics of minerals" (Kiggins 2015; Dixit 2015).

Given that the Great Power Competition is essentially a competition for rare, necessary minerals, the United States could find itself in a position of weakness should it enter a military conflict in the coming years. China understands the strategic importance of rare minerals and has used their dominance of the rare earth market to manipulate political events in their favor. China's understanding of the power bestowed by its rare earth access, and its corresponding flexing of political power, is clearly seen in, for example, the diplomatic entanglement between China and Japan in late 2010 (Kiggins 2015). China has repeatedly used rare earths to coerce modification of policy on the part of another state, and its unilateral reduction of rare earth exports to all rare earth consumers by 35% jolted policymakers in rare earth consuming states (Kiggins 2015). For these reasons, rare earth mineral sourcing has become a major concern for the U.S. in the context of the GPC. As James Litinsky, co-chair of the United States' only rare earth mine, has repeatedly stated, the U.S. is in dire need of a "sustainable supermajor for the Western supply of these minerals" (Scheyder 2019).

One of the critical minerals at play in the GPC is lithium. A member of the alkali metal group, a group of metals that are lightweight and very reactive to oxygen, lithium is a powerful superconductor in small quantities and has found its way into many technologies. The uses of lithium have historically been centered around the production of glass and ceramics, but the mineral has increasingly been used for medicinal purposes, as well as in warfare as an active ingredient for nuclear weapons. Its power as a superconductor lies in the fact that, when the element comes into contact with water, it forms into an alkali; according to Kavanagh et al. (2018), it "has the highest specific heat capacity (at 25 °C) of any solid element" and "is the most polarizing of all the alkali metals and more electronegative than H." Due to its reactive nature to oxygen, lithium is not found as pure metal in nature but rather is in various salts and minerals. Today, lithium is used in technologies ranging from cell phones, televisions, and computers, to fiber optics and pharmaceutical products, as well as many other important technologies that are used in mass throughout the world.

Lithium's lightweight conductivity makes it a key ingredient in a highly desirable type of battery. Lithium-based batteries are currently preferred for electric cars and other uses because they can carry far more energy than other batteries in a small and lightweight form (Rapier 2019). It is estimated that by 2040, over half the cars in the world will be electrically powered and contain a lithium battery pack (Rapier 2019). The rise in green energy, such as the use of lithium-powered electric vehicles, is increasing demand for lithium. The global sales of electric cars have increased tenfold in the last five years, and with more and more countries placing bans and restrictions on petroleum powered cars, sales will only grow in the future (Rapier 2019). According to Peiro et al. (2013), the production of lithium secondary batteries grew by 25% between 2000 and 2007, which is the single largest area of growth in lithium use. As the manufacturing and popularity of electric vehicles increases, demand for lithium will as well. Piero describes the way that many countries and government bodies have created initiatives for the manufacturing and consumption of electric vehicles, with the EU publishing several directives to promote electric

vehicles, and several European countries such as France, Britain, Spain, and Denmark launching national programs to promote electric car use, creating initiatives such as tax cuts and free parking for electric cars, as well as investing in the infrastructure needed for electric cars to be manufactured as well as used (Peiro et al. 2013). Yet, reports by the British Geological Institute state that even if the electric vehicle market does not take off in the manner in which it has been predicted, lithium demand will continue to increase at a rate of 8% per year due to its important role in daily technologies (British Geological Survey 2016).

Lithium is expected to soon be classified as a critical raw material (CRM), defined by the British Geological Survey as "a material which forms a strong industrial base, producing a broad range of goods and applications used in everyday life and modern technologies" in 2020 (British Geological Survey 2016). As such, lithium is now integral to modern life. Yet, according to Kavanagh et al. (2018), lithium is "far less abundant in the universe than it has been predicted to be." Given the importance and rarity of lithium, as a mineral whose supply is currently dominated by China, the U.S. needs to establish its own sources for minerals such as lithium for the sake of global security.

This paper argues that the U.S.'s strategy for accessing rare earth minerals should center on the country of Afghanistan, which is the most promising alternative source of such minerals and is thus a key strategic site in the Great Power Competition. Vast mineral wealth has been discovered in Afghanistan in recent years, and all that is missing to turn these resources into actual wealth and prosperity are the requisite mining and market access infrastructure. The present moment happens to be a historic one for Afghanistan, as the era of U.S. military presence in Afghanistan comes to a close in May 2021. For the first time in forty years, warring parties are willing to make peace: the Taliban, working in concert with the U.S. and its allies, have negotiated a peace agreement in which the U.S. agreed to withdraw its military presence in exchange for the Taliban's assurance that they will prevent protection of terrorist groups within their borders.

Even as the U.S. withdraws militarily, it has an active role to play in establishing and maintaining a durable peace. Such peace depends on the stabilization of Afghanistan's economy around a profitable commodity; thus, Afghanistan must explore which economic avenues it has available to it. The clearest path to economic autonomy, a byproduct of which would a sustained peace for the region, is in the extraction of Afghanistan's natural resources. On the other hand, a failure to create opportunities for prosperity would result in Afghanistan reverting to its past state of poverty, societal regression, insurgency, and a safe haven to violent extremism. It is the stance of this paper that the U.S. must shift to a form of developmental presence and economic engagement to support Afghanistan in monetizing its vast mineral wealth. Afghanistan's most promising route to a stable peacetime economy is to create the infrastructure necessary to mine, transport, and trade its mineral wealth, including lithium. Because the United States already has a firm foot in Afghanistan, the U.S. is a natural partner for Afghanistan in developing its vast rare earth mineral wealth. Not only would this development allow for other countries to circumvent China, but it would also allow for the United States to maintain independent access

to these strategic minerals. Afghanistan presents itself as a strategic country in which the U.S. can maintain a presence to counter the problem of the Chinese monopoly.

This paper elaborates on how the monetization of Afghanistan's lithium can stabilize its economy and integrate it with its neighbors of the Central Region. The paper also discusses the strategic role that the United States should play in Afghanistan in order to maintain a durable peace through economic development. The United States should invest in Afghanistan's lithium as well as investing in its infrastructure and extractive industry. First, we explain Afghanistan's various challenges related to its geography and political climate, the need for continued U.S. engagement in the region, and the promise of Afghanistan's minerals as the key to its economic development and integration. Second, we explore how the development of Afghanistan's trade and transportation infrastructure can enable the country to monetize its mineral wealth. Finally, we discuss Afghanistan's neighbors in the region to illustrate how the development of Afghanistan's infrastructure for bringing its mineral wealth to market can contribute to economic integration of the region and stabilize the region via shared prosperity.

Afghanistan's Lithium as Strategic U.S. Focus in the GPC

The Central Region has been described as the most important battleground of the Great Power Competition, with China, Russia, and the United States all maintaining a firm and growing presence in the region. Afghanistan, in particular, has proven itself to be vital to the Great Power Competition due to its central location and precarious condition. Since the nineteenth century, Afghanistan has been dependent on foreign aid, beginning with the large subsidies provided by the British to Afghan Emirs (Fayez 2012). This dependence on foreign funds continued into the Cold War, the Afghan Civil Wars, and then again, albeit on a larger scale, upon the United States' occupation of Afghanistan (Fayez 2012). Since 2001, the U.S. has provided billions in foreign aid to fund social programs, basic government functions, infrastructure projects, and security. Beginning in spring 2020, however, the United States has begun to withdraw its funding from Afghanistan due to the COVID-19 pandemic and the February 29, 2020, peace deal between the United States and the Taliban. The imminent withdrawal of foreign aid leaves Afghanistan in urgent need of a strategy for rapidly stabilizing a decentralized peacetime economy.

The country's longtime dependence on foreign aid has created a rentier state that Fryklund (2013) describes as "fueling a culture of corruption never previously seen in Afghanistan" due to an influx of cash and a lack of "accountability to its citizens as well as a lack of oversight from its donors." The Afghan economy has been in ruin for decades and has largely been based on opium production and narcotics trafficking (Risen 2010). Additionally, the Taliban's presence in the country still presents a security concern. While major population centers are largely not in danger of being overrun by the Taliban, high-profile attacks still remain a persistent threat. In order to achieve a durable peace, Afghanistan requires a sustainable economy

independent of foreign aid. Even though 30% of Afghanistan's people currently live under the poverty line and 40% of the 6-million-strong labor force is unemployed, such a self-sufficient economy is possible: Afghanistan is a very rich country (Fayez 2012), merely requiring the means to mine its mineral wealth and bring it to market.

Yet Afghanistan faces major obstacles in tapping into its mineral wealth. Beyond the problem of needing adequate infrastructure to extract the minerals and transport them, Afghanistan must also contend with the overwhelming narrative of the resource curse. The thesis of the resource curse first came about in 1995 when Sachs and Warner (1995) studied 97 developing countries and observed that countries with a high ratio of natural resource exports in 1971 had lower economic growth rates by 1989 than countries that were not endowed with natural resources. The resource curse only became a working hypothesis in the aftermath of the 1970s when resource-rich countries showed slower rates of economic growth (Bruenecker et al. 2014). Yet, much evidence demonstrates that the resource curse is not a given, but rather a mere hypothesis that benefits former colonial powers by creating dependency on foreign aid and imports in "traditional" countries. It is the position of this paper that the key to Afghanistan's peace and autonomous prosperity lives under its surface and within its lands in the form of its natural resources. Thus, the country's best hope is to return to its historic focus on mining and trading natural resources such as rare earth minerals, critical minerals, and gemstones.

In 2010, the United States and the Afghan Geological Survey teams discovered vast mineral deposits throughout Afghanistan, comprising copious amounts of iron, copper, cobalt, and gold. Sheraz (2014), a Senior Policy Analyst for COMSTECH, places the estimates of the discovery of this extractable resource at around $1–3 trillion. Among the 14,000 minerals discovered in Afghanistan are its vast lithium reserves, a material that is vital to the age of the technology-dependent global economy (Reeves 2012; Dowd 2013). According to Kavanagh et al. (2018), lithium deposits scattered throughout the country exist at concentration levels between 41 and 99 mg/L. Kavanagh et al. (2018) say that such lithium concentrations would place Afghanistan among the top producers of lithium, alongside Australia, Bolivia, Argentina, and Chile.

Lithium is a critical resource material that is becoming increasingly important in the modern global economy. Such new wealth could not only permanently alter the Afghan economy, which currently has a gross domestic product (GDP) of about $12 billion per year, but can also alter the global standing of the U.S. with immediate access to Afghanistan's lithium. According to Rahman (2014), the discovery of lithium in Afghanistan could provide the country a much-needed economic boost and create thousands of jobs for Afghans. It could also encourage political stability through licit exports and taxation, as well as help to eradicate violent extremism. Lithium in Afghanistan could create a new Saudi Arabia, a state that has benefited greatly from its natural resources.

The discovery of lithium, referred to as "white petroleum," in Afghanistan comes at a crucial moment (Chazan 2019). China, which currently dominates the lithium product manufacturing industry due to its ability to produce and sell lithium products cheaply and without environmental restraints, has been actively investing in lithium

mining projects to keep up with its increasing internal demand and has also actively been limiting exports of lithium, which could give rise to a supply security issue. Chossudovsky (2019) says that China, already a major investor and trading partner to Afghanistan, has its sights set on Afghan lithium. The Chinese state-owned company, the Metallurgical Corporation of China, already has a firm footing in Afghanistan.

Afghanistan therefore finds itself in a unique position at an opportune moment. Lithium is in high demand, and that demand will only continue to grow in the years to come. The vast Afghan deposits of lithium could be the answer to an increasingly China-dominated lithium market as well as the increasing global demand for lithium. According to Jeffrey Reeves of the Griffith Asia Institute, demand is currently equal to supply; however, by 2020, demand will begin to greatly outpace supply (Reeves 2012), with estimates of demand being placed at 900,000 tons per year by 2025 by the British Geological Survey (2016). This untouched resource could not only make Afghanistan the New Saudi Arabia of lithium, but also place Afghanistan's strategic partner in the venture in a position of power in the new technology-driven global economy.

Clearly, the key to maintaining a durable peace in Afghanistan is economic development. Afghanistan, rich in vital minerals such as lithium, can achieve economic autonomy with the development of a sustainable extractive industry and its accompanying infrastructure. These minerals can and should be the instrument of economic development, providing necessary jobs for the youthful population of Afghanistan as well as for former Taliban fighters. Holding an estimated $1–3 trillion in minerals, Afghanistan should neither be a poor country, nor should it be a failed state. Given Afghanistan's internal challenges and the larger geostrategic context of the Great Power Competition, the U.S. has a critical role to play in diplomatically facilitating the peace process and ensuring a sustained peace in Afghanistan through shared prosperity.

Building Afghanistan's Capacity to Monetize Its Minerals

Afghanistan's challenges in extracting mineral resources are largely centered on security concerns, issues of corruption, and lack of infrastructure. In a 2019 article for *Al Jazeera*, Pikulicka-Wilczewska corroborates these factors as roadblocks that have stymied Afghanistan's development and also notes a general absence of legal and organizational frameworks that could help facilitate resource extraction and reduce corruption. Given these challenges, how might the United States support Afghanistan's mineral extraction? The answer lies in engaging soft power to galvanize investment by the private sector, which can in turn foster the emergence of a long-term peacetime economy driven by Afghan citizens' own interest in the private sector alongside foreign private actors. Although the Afghan government is reluctant to award foreign investors with contracts due to their belief that the profits of mineral extraction would be distributed outside of the country—and would thus prefer the

nationalization of its resources—a compromise here would be to engage in public–private partnerships with the government. In this way, Afghanistan can transition towards a developmental state with heavy macroeconomic planning along-side a market economy. To navigate this challenge, the Afghan government and its citizens need the necessary technical skills and expertise to properly emerge as an autonomous stakeholder in the region, one that is empowered by foreign private sector investment rather than subservient to it.

The theoretical basis for this recommended course of action is that of geoeconomics. Luttwak defines geoeconomics as "interstate rivalry and conflict conducted through the methods of commerce" (Chacko 2016). According to Fußstetter (2016), the aim of geoeconomics is to gain "a sustainable competitive advantage over other countries and regions through geographical, cultural, or resource-related aspects." The use of these economic means by international actors can structurally influence world power distribution. Geoeconomics can be used to create spheres of influence while also reaping economic benefits. It goes without saying that the Great Power Competition has geoeconomic dimensions as multiple entities compete for influence and world power distribution using often economic means. In the current era of the Great Power Competition, economic and military power are tied to each other, and nowhere is this clearer than in the geoeconomics of natural resources.

If the United States does not remain engaged in Afghanistan as a partner in its extractive industry, competitors such as China, who already have a firm foothold in the extractive market, or Russia, who would like to, most certainly will. China has already demonstrated their willingness to act geopolitically and geoeconomically for minerals and energy. This has been demonstrated multiple times and in multiple ways: China's pivot strategy to Central and South Asia and the Middle East, China's One Belt One Road initiative, the geostrategic strategy of territory acquisition in the South China Sea and the Strait of Malaka. China, a monopoly power in the minerals market, has manipulated the minerals market after an international crisis with Japan. Moiso and Paasi (2013) characterize this as a geoeconomic social stance, or "the process by which states seek to accumulate wealth through market control rather than through acquisition and control of territory." To allow either Russia or China into Afghanistan to develop the extractive industry would weaken the position of the United States in The international system from an economic, military, and influential standpoint.

In developing Afghanistan's capacity to monetize its mineral wealth, new economic geography (NEG) theory points to the importance of focusing on transportation infrastructure, in particular, due to Afghanistan's landlocked geography. According to NEG theory, landlocked countries such as Afghanistan must devote significantly more resources to the transportation sector, and they must take advantage of telecommunications and information technology advances to circumvent the additional burden on the transportation sector. As NEG economic growth theory asserts, lowering transportation costs will have a direct positive effect on economies of scale and "agglomeration," called the "home market effect," required for sustainable economic growth (Hoaby 2005). NEG also asserts that "transportation costs will decline due to such things as economies of scale, technological advances that

increase efficiency, better transport infrastructure and removing procedural barriers" (Hoaby 2005). Traditional economic theory, with its emphasis on "static allocative efficiency," has a limited capacity to explain how economic growth and development can be achieved through such mechanisms as research and development and technological diffusions, especially in fragile, conflict-affected states (Agalewatte 2004). NEG is much more capable than traditional economic theory of explaining how such dynamic factors influence growth and enable a country and international community to use resources more effectively to achieve a sustainable economic development model (Agalewatte 2004). Thus, the NEG offers the most appropriate economic growth theory for a landlocked, fragile, conflicted state. NEG states that once an economic belt is established, production, growth, development, and consumerism will flow, and the economy will grow (Krugman 1991).

At present, the poor infrastructure in Afghanistan makes transport difficult and adds to the overall logistical cost overhead necessary for investment in mineral resources. Due to this multitude of factors, mining only comprises "between 7 and 10%" of the nation's GDP, according to Pikulicka-Wilczewska (2019). To achieve sustainable economic growth, one of the top priorities of Afghanistan is to make the country into a regional trade and transit hub. Just as peace is required for Afghanistan's economic autonomy, infrastructure is required as well. This is particularly so given that Afghanistan is a landlocked country. Recognizing the significant contribution of this sector in terms of creating employment opportunities and reducing poverty, Afghanistan intends to initiate several major projects to facilitate the country in becoming one of the most open trade and transit economies in the region.

Improving Afghanistan's transportation infrastructure capacity is key to building its autonomous economy. The next several pages will describe the current Afghan transportation network, the current bureaucratic system around trade across borders, and the weaknesses and strengths of these systems, noting concrete regional and modal differences and how these delimit the transportation environment. Particular attention will be paid to the specifics of lithium extraction and export, such as the fact that lithium's water reactivity limits the viability of various transportation modalities.

It must be noted that several factors influence both the export and transportation infrastructure environments, but that we have determined to fall outside the scope of the present paper. Political relationships, for example, constrain the range of Afghan export possibilities, as well as the potential gains in the national security of the United States. Given the American national security interest in lithium extraction, this paper focuses on U.S. as well as Afghan political relationships with those countries neighboring Afghanistan that would prove essential to the export process, as well as the current supply chain for key lithium imports to the United States. Special consideration is given to China, Iran, and Russia, particularly these countries' geopolitical roles in countering U.S. interests both regionally and globally.

Rail linkages, dry ports, and multimodal airport hubs will be the most effective solution for getting mined goods to market with minimal corruption and hands in the process. The potential benefits of establishing such infrastructure in Afghanistan

are numerous. Along with its associated office space and technology, this infrastructure can support the increased trade/exports and transit required for economic sustainability and long-term stability in Afghanistan and the region. In addition, it can attract significant amounts Foreign Direct Investment (FDI) to accelerate local and regional economic activity. Because of the inherent infrastructure and strategic locations, transferring U.S. bases to entities in Afghanistan can provide a critical jump-start to the establishment of these hubs.

Being a landlocked country, Afghanistan is becoming more dependent on aviation as a form of transportation, both for individuals and businesses. Air is increasingly becoming an alternative way to transport road, rail, and sea cargo due to security concerns, unfavorable political developments, and changes in customs laws that result in extra charges being borne by Afghan traders. Various air corridors to and from Afghanistan have been established in the past few years, which have provided direct trade routes where Afghan goods, often perishable, can arrive safely and in a timely manner. These air routes have connected Afghanistan with several Asian countries, as well as with London.

Efforts focusing on trade facilitation in Afghanistan as propagated by the United States government are nothing new and have been seen as a key strategy for rebuilding the Afghan economy during conflict transition. Efforts taken by USG bodies, such as the Agency for International Development, have focused on assisting Afghanistan's ascension to the World Trade Organization, facilitating bilateral and regional trade agreements with large Afghan partners (including Pakistan), and improving customs efficiencies and laws (USAID 2019). These efforts, done in conjunction as the Trade and Accession Facilitation for Afghanistan project (TAFA) and Afghanistan Trade and Revenue Project, attempted many of the tried-and-true methods that have proven successful globally in facilitating trade for LDCs and other nations (TAFA 2019). Despite these efforts, Afghanistan still has an abysmal rating for Trading Across Borders by the World Bank's Ease of Doing Business metric, ranking 177th globally (Doing Business 2020).

Afghanistan's trade rating is hampered by numerous challenges. In every single measurable factor, Afghanistan lags behind the rest of South Asia in cost and time for import and export. The most abysmal of these metrics lies in the cost for imports, with the cost of border and documentary compliance vastly larger than the regional average and exponentially larger than the OECD High Income Average. The only metric out of the eight in which Afghanistan is regionally competitive is the time it takes to achieve export border compliance, which is more efficient than the regional average, but still four times more challenging than the OECD high-income average. Border compliance is actually the most effective aspect of trading across borders in Afghanistan, with both the import and export processes being the closest to the regional norm (Doing Business 2020).

Another key issue that plagues Afghanistan's export viability is the status of the state's infrastructure, which is an issue of significantly higher importance due to Afghanistan's landlocked nature and its lack of a seaport. Quite understandably, Afghanistan's current level of infrastructural quality is low, with the mileage of paved roads roughly half the sum of unpaved roads, and the ongoing civil war severely

degrading the quality of both (SIGAR 2016). Exacerbating this problem is the limited nature of the Afghan rail system, which remains extremely hard to expand due to the topographical features of the state (Glassner 1983). Furthermore, the multi-faceted civil war continues to wreak havoc on the infrastructural system in multiple ways, including checkpoints across the country, damage to infrastructure from explosives, and kidnapping and ancillary human security threats. Air travel, while safest, is prohibitively expensive for most aspects of trade, and the transportation of hazardous materials (such as lithium) falls under even stricter regulations. While efforts to expand Afghan air trade capabilities have been relatively successful—including the creation of an air freight corridor between India and Kabul—the heavy export of an extremely volatile element by air is untested, and without improvements to the capacity of Hamid Karzai International and the other airports across Afghanistan, it remains to be seen whether this is a viable solution (Indian Government 2017).

Rail provides an intriguing option for Afghan export capacity. The current rail system is incredibly limited, however, with three short linkages: from Mazar-e-Sharif to Uzbekistan, Torghundi to Turkmenistan, and Aqina to Turkmenistan (Kakar 2017). Rail, on paper, provides the best resolution for the logistical issues plaguing large-scale exports, as rail is more cost-effective and able to transport in higher quantities than air freight or trucking, as well as less vulnerable to the unique logistical issues of transporting lithium (e.g. volatility when in contact with water). Yet, the limited nature of Afghanistan's rail system severely hampers this a viable solution, with the currently known extractable lithium naturally occurring in Daykundi and Nuristan, which are far removed from the current skeletal rail system (Cocker 2011). Expansion of the current system within the state would alleviate this problem; however, the extreme level of investment that would be required to expand this system enough to make rail transport from these locations economically viable is prohibitive.

Due to this infrastructural restriction, the only viable logistical solution, despite the challenges that befall it, would be a multi-modal solution, utilizing all logistical aspects to avoid reliance on a single one. This would entail the utilization of air freight with embarkation and debarkation predominantly occurring at the two largest and most capable airports: Bagram AFB, which is currently being utilized by the United States and allied nations in support of Operation Resolute Support and Operation Freedom's Sentinel, and Hamid Karzai International Airport, which is Afghanistan's largest. The international airports in Kandahar, Mazar-e-Sharif, and Herat can also provide logistical support and solutions. Of these, the international airport in Mazar-e-Sharif provides the most intriguing solution. As mentioned previously, Mazar-e-Sharif currently has a rail linkage with Uzbekistan, which can be utilized to haul large volumes across the border and further onwards. To augment these solutions, trucking will be essential for overcoming logistical and topographical challenges.

In order for these solutions to be viable, key investments must be made in administrative solutions and infrastructure, both in terms of Afghan development and United States national security. Investment would take two forms. The first is trade facilitation measures specifically focused on improving Afghan capacity in handling large-scale natural resource exports as well as driving down the cost and man-hours to achieve documentary compliance as well as border compliance. The second

form of investment would be a more traditional form of investment, targeted at improving infrastructural capacity by investing in expanding rail capacity and air freight capacity, including storage and ancillary services as necessary. These investments, focused on improving the underlying factors that currently limit extraction opportunities, will create a more favorable investment environment for lithium extraction and, by proxy, will help bulwark the national security of the United States by ensuring a supply of lithium that is not at the mercy of Chinese central decisions. To fully achieve this objective, however, the United States must prioritize incentivizing investors who are friendly to the interests of the United States to lead this extraction effort, in collaboration and at the behest of the Afghan government.

Expanding trade promotion investments as well as rail and air freight capacity will ensure a multi-modal approach while bypassing erstwhile troublesome neighbors. We believe the missing link is the lack of a unified rail gauge as well as airport cargo infrastructure, which severely limits potential trade and forces Afghanistan to rely on neighbors to an unhealthy degree. By eliminating the need to transport lithium for long road stretches and deal with potential security hazards, government interference (internal and external), and infrastructure gaps, this approach will ensure long-term Afghan security and provide a means for the government to demonstrate the legitimacy of these sorts of large-scale investments to a wary global investor community.

Regionalism: Engaging Afghanistan's Neighbors

Afghanistan's landlocked geography means that its export concerns necessarily call for cooperation with other regional actors, which include Pakistan, India, Iran, China, and the Central Asian states. These nations play an important role in Afghanistan's domestic affairs, have a vested interest in peace in Afghanistan, and play a part in the Great Power Competition. This section of the paper highlights regional partnerships that the United States must to facilitate. A large part of the United States' strategy for achieving and then maintaining a durable peace in Afghanistan involves using its convening power with these regional actors. These diplomatic and economic relationships are necessary to develop and maintain in order to provide an environment where Afghanistan can thrive.

Pakistan

Perhaps the single largest foreign influence on Afghanistan, aside from the United States, is Pakistan. This neighboring country will play a large role in any facilitation of increased export capabilities in Afghanistan. Pakistan is currently Afghanistan's second-largest export market and its largest import partner, per OEC, and is within two percent of Afghanistan's largest partner, India (Observatory of Economic

Complexity 2020). Pakistan shares the largest contiguous border with Afghanistan, of all of the neighboring states (the Durand Line), and it remains a key player in Afghan politics and regional considerations. Currently, the Pakistan–Afghan relationship is nuanced. The two states share heavy ethnic ties, with Pashtuns comprising a significant percentage of both states' populations, and Pashto being a recognized language in both states. Also, both states have agreed to the Afghan–Pakistan Trade Transit Agreement. However, that agreement was in place for only about five years before the Afghan government pulled out in 2015 due to various disagreements, mainly focusing around the prospect of the additions of India and Uzbekistan as parties to the agreement (Husain and Elahi 2016). Furthermore, political and economic ties have been strained between Afghanistan and Pakistan due to the ongoing civil war within Afghanistan. Afghanistan has repeatedly accused Pakistan of providing direct and indirect support to various anti-government forces within the state of Afghanistan in order to further their own political aims, as well as providing a safe haven for those waging war against the internationally recognized government in the mountainous border region between the two states, where the rule of law has consistently been hard to enforce (Azamy 2015). The accusations by Afghanistan have been consistently rebuked by the Pakistani government and ISI; however, theories regarding the links between Pakistan and these groups have been supported by outside actors, including the United States. In 2011, then-Joint Chief of Staff Admiral Mullen called out Pakistan's actions thusly: "In choosing to use violent extremism as an instrument of policy, the government of Pakistan … jeopardizes not only the prospect of our strategic partnership but Pakistan's opportunity to be a respected nation with legitimate regional influence. They may believe that by using these proxies, they are hedging their bets or redressing what they feel is an imbalance in regional power" (Shahzad 2011). In 2015, the Afghan government and the Pakistani government signed a Memorandum of Understanding to jointly combat terrorism and divulge key information to one another, which was followed by another in 2018, this time with China as a member.

While relations between the United States and Pakistan are generally positive, they have historically differed in their positions on Afghanistan. The United States and Pakistan are long-term allies, dating back to the Cold War, where the United States viewed Pakistan as a bulwark against Communism and as an ally in South Asia to offset India's declared non-alignment (Gartenstein-Ross and Vassefi 2012). This continued post-9/11, with then-President Pervez Musharraf working closely with the United States in the Global War on Terror, culminating in Pakistan's designation as an American major non-NATO ally in 2002. However, Pakistan's continued "double game" of nominally supporting counter-terror measures while continuing to fund groups that Pakistan viewed as amenable to Pakistani national security, including the safe harbor of Al-Qaeda mastermind Osama bin Laden in Abbottabad, Pakistan, caused rifts in the Pakistani–U.S. relationship. This led to the United States freezing all military aid flows to Pakistan in early 2018, although they resumed in late 2019 (Landler and Harris 2018). Despite Pakistan's history in aiding and abetting extremist groups in Afghanistan, both United States policy and the current ground truths necessitate the inclusion of Pakistan in the ongoing peace processes, with Prime Minister Imran Khan publicly committing to utilizing Pakistan's resources and gravitas to aid the talks.

India

One of the most influential geopolitical partners of Afghanistan is India, which views Afghanistan as a natural geopolitical ally and a natural counterweight to Pakistan. India has had longstanding ties with multiple Afghan governments and has invested heavily in the state. As the largest purchaser of Afghan goods globally, India is also the second-largest originator of Afghan imports (Gartenstein-Ross and Vassefi 2012). These ties predate the current Afghan state, with friendly relations between the two existing since the signing of a Friendship Agreement in January 1950 between the then-Prime Minister of India Jawaharlal Nehru and the Ambassador to India Najibullah Torwayana (not to be confused with the later President of Afghanistan, Mohammad Najibullah) (Government of India 2017). India was the only regional actor to recognize the Democratic Republic of Afghanistan, led by the aforementioned Mohammad Najibullah, and the two states currently enjoy a strong relationship. This relationship has, both currently and historically, been buttressed by long-term flows of Indian aid into the Afghan state, absent the era of Taliban control of Afghanistan.

Aid from India to Afghanistan has funded the construction of schools and public services buildings, including hospitals, educational exchange programs, and military aid. In 2017, then-Ambassador to India Shaida Mohammad Abdali, in a speech highlighting India's involvement in Afghanistan, noted that India "is the biggest regional donor to Afghanistan and fifth largest donor globally with over $3 billion in assistance. India has built over 200 public and private schools, sponsors over 1,000 scholarships, [and] hosts over 16,000 Afghan students" (Godbole 2017). Afghanistan and India signed a strategic partnership agreement in 2011, and projects such as the Afghan–Indian Friendship Dam, also known as the Salma Dam, have continued to strengthen the two states' relations. Most importantly for the purposes of this paper, India and Afghanistan have facilitated the creation of two air freight corridors to alleviate Afghanistan's reliance on cross-border traffic due to its landlocked nature (Government of India 2017). These freight corridors provide a key opportunity to expand Afghanistan's export capacity and enjoy increased access to the global market, due to India's influential role regionally and globally, as well as its ports.

Iran

Another state that borders Afghanistan and shares a complicated past and present with the Afghan state is Iran. Iran shares Afghanistan's third-largest border, and it has remained actively involved in the Afghan state since each state recognized the other in 1935. Linguistically, the predominantly spoken language in Afghanistan is Dari, a dialect of Farsi. Historically, Afghanistan and Iran have found themselves in political contention since the Islamic Revolution in Iran in 1979 and the Russian invasion of Afghanistan that same year (Worden 2018). Tensions between the two

states have long been exacerbated by disputes over the water rights of the Helmand River, which was the subject of an unratified deal between Iran and Afghanistan in 1973. Key political differences have also strained their relations, particularly the close relationship between Afghanistan and the United States, which maintains an exceptionally adversarial stance against the Iranian government. While both parties (Iran and the United States) nominally backed the same actors pre- and post-Taliban ouster, with Iran backing the Northern Alliance and opposed to the Sunni-sectarian Taliban, who have a history of vicious attacks and massacres against the Shia populations in Afghanistan, Iran is highly opposed to the United States' presence and relationship inside Afghanistan and with the current Afghan government (Milani 2020). Due to this, Iran has been accused of promoting and abetting sectarian groups inside Afghanistan, including Gulbuddin Hekmatyar's Hezb-e-Islami, as well as providing safe haven for the Taliban due to their ongoing conflict with the United States. While these relationships, particularly the latter, seem counterintuitive due to the sectarian odds between the two parties, multiple parties, including the Saudis, the United States military, ISAF (International Security Assistance Force), and key Afghan officials insist on it, with the former commander of all U.S. forces in Afghanistan, Gen. David Petraeus, stating that:

> [ISAF] did interdict a shipment, without question [from] the…Quds Force, through a known Taliban facilitator… Iranians certainly view as making life more difficult for us if Afghanistan is unstable. We don't have that kind of relationship with the Iranians. That's why I am particularly troubled by the interception of weapons coming from Iran. But we know that it's more than weapons; it's money; it's also according to some reports, training at Iranian camps as well (The Situation in Afghanistan 2011).

Despite these differences, Iran and Afghanistan have made some overtures toward improving their relations and economic linkages. The largest of these efforts center around the Chabahar Port, located in Iran, and a tripartite agreement among Iran, India, and Afghanistan to expand capacity and utilization there (Nader et al. 2014). Chabahar provides an intriguing option for Afghanistan to improve its export location diversity and lessen its reliance on Pakistan for global trade; however, the continued animosity between Iran and the United States, which is still Afghanistan's largest foreign backer, has rendered this option non-viable for the time being.

Iran has found itself at the center of the region's export capabilities. An examination of these capabilities demonstrates that Iran, Pakistan, and India are key for Afghanistan's global connectivity. However, Pakistan does not have nearly as many trading routes, ports, roads, or pipelines as its immediate neighbors, India and Iran. Pakistan's historically strained relationship with India had led to Pakistan being bypassed (Times of India 2018). Pakistan does have the Gwardar Port; however, it had succeeded in isolating itself by not allowing India, the region's most populated country, land access to Central Asia and Afghanistan, specifically. It is widely considered by the region's states that an economically integrated and strong Afghanistan means a strong and stable region.

Iran's Chabahar Port provides various commercial and also strategic advantages since Iran acts as a regional connection hub. Due to its centralized location, Iran is vital for the International North–South Transport Corridor (INSTC), which runs

from India to Europe. Iran provides vital connections to countries in Central Asia that are landlocked, and it also is the shortest, fastest, and most cost-effective route through the INSTC (Times of India 2018). The Chabahar Port project has led to a trilateral trade and transit corridor which has greatly benefitted all the countries involved (Times of India 2018). Between 2018 and 2019 alone, trade between India and Afghanistan, facilitated by Iran, has jumped 40% and can be placed at a value of $1 billion. Chabahar Port can be seen as the door to the landlocked countries of Central Asia and the key to Afghanistan's vital export trade, which would free it from the culture of war that has so long gripped the country. Iran has also committed itself to rebuilding and stabilizing Afghanistan through the Chabahar Port. It has reduced the port fees for Afghanistan as well charging reduced tariffs for goods from Afghanistan (Farooq 2019). This is in the hopes that it would stimulate exports and allow for the maximum amount of profit to enter the country.

The Chabahar Port is still in phase one, with many additional expansions in the works. India plans on further building a railroad that would connect Chabahar to the Bamiyan province in Afghanistan (Farooq 2019). There is also going to be an air freight corridor as well as a $16 billion free trade zone around the city of Chabahar (Times of India 2018; Bahgat 2017). However, renewed sanctions on Iran have provided a heavy roadblock to its success and have led to diminished enthusiasm and funding from India. For example, Indian and Afghan banks have not been able to transfer money through the port because of US sanctions against Iran. In May of 2019, At least 50 containers of Afghan goods to be exported to India and China through the Chabahar Port were blocked from doing so due to United States sanctions against Iran (Chaudhury 2019). India also slashed the development budget for Chabahar Port by a third (Kapoor 2019). India's waver to import Iranian oil, was also not renewed (Iyengar and Defterior 2019). Interestingly, China has continued ignored U.S. sanctions against Iran and has chosen to continue importing Iranian oil (Iyengar and Defterior 2019). Governor of Sistant-and-Baluchestan, Ali Oset-Hashemi, told a Chinese delegation in 2015 that "Iran stands ready to provide lucrative business opportunities to the countries that stood by it during hard times" (The Iran Project 2015). Surely, this positioning with Iran against the United States, only further serves to heighten the current trade war between China and the United States, as well as to challenge the hegemony of the United States.

In 2016, the European Union released their "EU Strategy for Relations with Iran After the Nuclear Deal" in which they refer to their future relationship with Iran as "not indispensable" but certainly as "unavoidable" (European Parliament 2016). The document further expands upon this sentiment:

> the cost for the EU to pursue its policies vis-à-vis the region will be much higher and less effective with Iran absent from the table. Neither does the absence of an EU–Iran relationship mean that such a relationship void will remain empty. If Europe is not present on the Iranian scene, be it in trade or politics, other actors (China, Japan, India, etc.) will claim that space. As a result, in order for the EU to make any headway in addressing issues of concern and build a more stable relationship with Iran, the EU must devise a medium to long-term strategy for regular, sustained dialogue with Iran. In other words, the EU must have a clear notion of what a structured and strategic relationship with Iran can and should look like. Such a rethink is not about rewarding or punishing the Islamic Republic of Iran, but rather, about the

role and position of the EU in the Middle East in general and how it can pursue its interests most effectively (European Parliament 2016).

The European Union recognizes the role that Iran plays in the region, and the importance of that role. If the United States does not do so as well, it risks losing its own position in the post-WWII order to another contending state, and contributing to Afghanistan's loss of its link to the world.

China

China also plays a key geopolitical and geostrategic role in Afghanistan. By maintaining a small, remote border (the Wakhjir Pass) between the two states, it has essentially locked down all potential travel between the two states, which abuts two natural reserves in both states. China limits access at this crossing due to the belief that the violence in Afghanistan could spill over into the predominantly Muslim, heavily repressed Xinjiang Province (Malik 2014). While there have been proposals to open a trade corridor and improve infrastructure at this pass, the geopolitical considerations as well as the topography have rendered this proposition moot. Despite the lockdown in cross-border transit, China views Afghanistan as critical to its regional aims and the propagation of its Belt and Road policy, and it has heavily invested in Afghanistan, particularly in the extractives sector, where projects such as the extraction of oil and natural gas products in the Amu Darya basin have been awarded to Chinese firms (Jin 2016). Furthermore, the Afghan rail system that begins in Hairaton terminates in China, providing the opportunity to increase rail freight trade between the two nations. Nevertheless, this paper focuses on the possibility of incentivizing Afghan lithium extraction to loosen the Chinese stranglehold on lithium. That stranglehold poses a potential national security threat to the United States.

China's Grand Strategy rejects the notion of the nation-state and, according to Araya (2019), instead reimagines "the world as a single complex of supply chains and trade arteries" wherein China can leverage the current geotechnological shift and develop new markets for its advanced technologies. These technologies include electric vehicles (EV), telecommunications, robotics, artificial intelligence (AI), semiconductors, clean energy technology, advanced electrical equipment, rail infrastructure and maritime engineering (Araya 2019). For all of these technologies, lithium is vital. In short, China plans to grow and exert its power and influence through economic expansion. Rahman (2014) argues that China's grand strategy is aimed at displacing the current world system in which financial, economic, and strategic dominance center on America. The signature project of China's Grand Strategy is its Belt and Road Initiative (BRI). In 2011, China's President Xi described the initiative as a "vast network of railways, energy pipelines, highways, and streamlined border crossings" that travel from East Asia to Europe by land and sea. This project, described by many as the New Silk Road, is funded by the National Development Bank (NDB), which according to the bank's constitution will "support public or private projects

through loans, guarantees, equity participation and other financial institutions," as well as cooperating "with international organizations and other financial entities, and provide technical assistance for projects to be supported by the Bank" (New Development Bank 2020). As such, China has gained the power to influence the development of its neighboring countries, but also allow those countries to contribute to the growth of China through increased trade and shared prosperity.

With technology at the center of China's Grand Strategy, the importance of Afghanistan to China cannot be overstated. Indeed, China has been the country most active in Afghanistan's extractive industries (Bernard and Sugarman 2012). China has hardly hidden its intent to crown Afghanistan as the center of the BRI or to occult its intentions in regard to Afghanistan's extractive industries. China's relationship with Afghanistan is focused not on reconstruction of security, but rather, on commerce (Bernard and Sugarman 2012). China has therefore been quietly benefitting from the fruits of the United States' labor to reconstruct Afghanistan and build peace.

China's Grand Strategy calls for it to control Afghanistan's vast natural resources in order to meet the Chinese demand. It routinely makes geopolitically driven resource investments through state-owned companies and outbids its commercially driven Western competitors (Bernard and Sugarman 2012). Afghanistan's first contract, a 30-year lease, went to the Metallurgical Corporation of China (MCC), a Chinese mining consortium, giving them the rights to one of the largest copper deposits in the world at Aynak, 25 miles south of Kabul in Logar Province. This $3 billion project is the largest foreign investment and business venture in Afghanistan's history and spearheads China's ambitious effort to monopolize Afghanistan's natural resources (Bernard and Sugarman 2012).

Rare earth and critical minerals have both political and economic importance, giving significant power to those states or entities that can control the production and/or distribution of a given strategic commodity. This is especially true if those states are willing to flout global trade rules and agreements. If China is allowed to dominate Afghanistan's rare earth minerals, the United States, as China's main competitor, will find itself locked out of the market. This alone may be a decisive factor in future confrontations (Butler 2014). China has demonstrated that it is unafraid to manipulate its political power through natural resources.

Gulf Cooperation Council (GCC) States

Afghan relations with the GCC states, notably the United Arab Emirates, Saudi Arabia, and Qatar, shape the geopolitical situation in which Afghanistan currently finds itself. Historically large backers of the Afghan government and heavy investors into the infrastructure there, GCC states have sent troop detachments in support of the current conflict against the Taliban. However, these states have also historically been friendly with the Taliban. During the U.S.-backed insurgency against the Soviet-backed government, most of the foreign fighters involved in this conflict came from

these states, including the predecessors to al Qaeda and key individuals such as Osama bin Laden. Support for the *mujahideen* and "the Islamic struggle" in Afghanistan came predominantly from these states, including routing fighters and funding. Saudi Arabia and the UAE were also two of the only states that recognized the Taliban as the government of Afghanistan, and the current political office of the Taliban resides in another GCC state, Qatar, which has had strained relations with the rest of the Gulf over the last few years (Gannon 2018). Despite these historical links, the GCC nations formally recognize the current government in Afghanistan as the legitimate one, and they have invested in key areas such as road infrastructure, housing, and ancillary public services to support efforts there. As key partners of the United States, these states can play a role in expanding Afghan logistical and exploitative capacity.

Central Asian States

Lastly, one of the most important geopolitical relationships and opportunities to expand Afghanistan's global export capacity lie with the other Central Asian states with which Afghanistan shares a border, namely Tajikistan, Turkmenistan, and Uzbekistan. These states, which share with Afghanistan a history of colonization by the Soviet Union and Russian Empire, maintain large borders and combined logistical networks with Afghanistan, including road and rail. These logistical networks, utilized by the United States government in their current efforts against the Taliban, are less politically fraught than those with Pakistan, and allow for transport into Russia and the rest of Europe. These states view peace inside Afghanistan as an important policy objective to curtail cross-border violence, and have begun small-scale but noticeable investments into Afghanistan, stating multiple times their interest in pursuing more concrete efforts (Government of Afghanistan 2019). The United States has attempted to promote continued growth in relationships between Afghanistan and these states and will continue to do so (United States Strategy for Central Asia 2020). Expansion of these networks as an alternative to air freight and road logistics could promote and diversify Afghanistan's trade options, allowing for greater export opportunities.

These dynamics in international relations limit the potential transportation solutions we may consider. Namely, export frameworks which include Iran should not be onsidered within the realm of possibility. Other countries like India, UAE (and other GCC countries), Pakistan, and particularly the northern states (Tajikistan, Uzbekistan, Turkmenistan), should be the focus of potential transportation solutions. That is not to say that political implications are associated with those areas (from regional hegemons like Russia and China) which may interfere with supply chains and political stability.

Conclusion

To date, the United States has spent over $2 trillion USD in Afghanistan, of which $714 billion USD has been on war and reconstruction (Almukhtar and Nordland 2019; Amini 2017). Yet, Afghanistan is missing key trade and transport infrastructure that could enable it to monetize its vast mineral wealth and free it from over-reliance on neighbors. If the United States supports Afghanistan in expanding its trade promotion investments, including unified rail gauge and airport cargo infrastructure, Afghanistan's vast wealth in lithium and other minerals can be monetized using a multi-modal approach that bypasses erstwhile troublesome neighbors. By eliminating the need to transport lithium for long stretches by road, with the attendant potential for security hazards, government interference (internal and external), and delays caused by infrastructure gaps, Afghanistan's long-term security can be ensured, and the government can have a means of demonstrating to a wary global investor community the legitimacy of large-scale investments in Afghanistan.

The 2008 Afghan National Development Strategy put forth the vision of a peaceful Afghanistan that is "a stable Islamic constitutional democracy," "a tolerant, united, and pluralistic nation that honors its Islamic heritage," and "a society of hope and prosperity based on a strong, private-sector led market economy, social equity, and environmental stability." Such a vision can be achieved in part through continued U.S. engagement after the military drawdown. The alternative is to allow Afghanistan to regress into a narco-mafia state that harbors terrorists who threaten the security of the United States and its allies. Thus, continued U.S. engagement in Afghanistan is critical to ensuring a just and durable peace that stabilizes the region through shared prosperity. In return, this continued engagement will preserve U.S. National Security—a critical goal in the environment of the Great Power Competition.

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