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Digital Active Measures: Historical Roots of Contemporary Russian Cyber and Information Operations

Justin Sherman

Use of the phrase aktivnye meropriyatiya, or "active measures," by the Soviet Union dates back to the 1950s, but the concept itself reflects a long history of largely covert influence operations executed by the Russian state.[1] For the USSR, active measures included executing assassinations, spreading disinformation, creating propaganda front groups, coopting foreign civil society organizations, and engaging in various other kinds of subterfuge, subversion, and disruption at home and abroad.[2] This is of great significance for U.S. foreign and national security policy today because some active measures have taken on renewed forms in the internet age, including online disinformation and cyber operations—leveraging new technologies but following in the footsteps of Soviet Union practices. Because these new active measures are a mechanism for the Putin regime to project power globally, cement state control at home, and destabilize countries it views as the enemy (the United States included), better understanding active measures in the Soviet era will help provide insights into responding to their contemporary and increasingly digital forms. It can also therefore help policymakers in the United States design and execute strategic and policy responses.

Today's online disinformation and cyber operations do not have perfect historical analogues; the internet, of course, had yet to be invented a century ago. This brings with it many qualitative and quantitative differences in the Russian government's opportunity and capability to conduct online disinformation and cyber operations, but there are still strong historical links. Conversely, analysis that suggests modern Russian practices are no different than those of years past—literally just more of the same—miss important differences in the present, including the possibly immense scale of internet-related operations and evolving Kremlin thinking around the internet itself. But the many historical roots of contemporary Russian cyber and information operations can help policymakers try to understand the Kremlin's thinking, identify ways to possibly defend against digital "active measures," and even slightly alter the calculus of the Putin regime. Principally, U.S. policymakers must understand that Russian thinking positions such practices as online disinformation and cyber operations not as entirely new tools—where the 1s and 0s of cyberspace demand completely new thinking around information and competition—but under an umbrella of activities of age-old information manipulation, coercion, and below-threshold-of-war conflict, with some modern upgrades.

Links Between Soviet and Modern Kremlin Thinking

Despite many analyses that may portray "Russian disinformation," for example, as a uniquely new phenomenon in the social media age, important links exist between the Kremlin's modern thinking and the concept of active measures in the Soviet Union. On the flip side, however, the symmetries between active measures in the Soviet Union and digital active measures today are not absolute; painting the Kremlin's digital behavior today as exactly what the Soviet Union did obscures the quantitative and qualitative differences of digital operations. It also obscures the Putin regime's Cold War-informed but not Cold War-replica worldview. Drawing out links between Soviet Union active measures and the Russian government's contemporary

active measures in the digital sphere underscores the importance of these realities for policymaking.

The Soviet concept of active measures was rooted in Leninist thinking and encompassed such techniques as propaganda, forgery, assassination, terrorism, and the funding of international front organizations.[3] While the U.S. engaged in political warfare throughout the Cold War, there was and remains no analogous term to "active measures" in the United States. Active measures are "difficult to contain conceptually, with no obvious beginning or end";[4] these actions were typically continuous, and their very purpose was to undermine foreign powers and opposition movements while ensuring plausible deniability for Moscow. In the 1920s, for instance, Moscow covertly spread disinformation in Western Europe to discredit émigré groups and lure them back to Russia.[5] Perhaps most famously, the Soviet Union manufactured and spread the lie that the Pentagon started the AIDS epidemic.[6] This holistic and continuous approach was also reflected bureaucratically, as active measures were "adopted and implemented by a variety of institutions" in the Russian state.[7] The Committee for State Security (KGB) established a "Department D" in the First Chief Directorate in 1959 to invest more resources in disinformation campaigns;[8] the KGB also coordinated disinformation with security agencies overseas (e.g., the East German Ministry for State Security)[9] and worked with the International Department of the Central Committee to funnel money to front organizations that would spread Communist Party narratives.[10] Active measures were seen as key to projecting Soviet political influence and safeguarding the security of the regime.[11]

Today, active measures take the form of so-called Russian political warfare, "a continuous, multi-vectored, and multi-layered effort that deploys all the tools at the Kremlin's disposal," from planting disinformation in newspapers to coopting foreign civil society organizations.[12] Its purpose is to weaken Russia's enemies and undermine trust in democratic institutions.[13] In the late 2000s, the former deputy head of Moscow's New York spy station told Russian journalist Andrei Soldatov that "the department responsible for running active measures"—using the Soviet term—"was given a new name, but the methods, structure, and employees were retained," underscoring this Soviet-era parallel.[14] This historical legacy is further bolstered by the tremendous power of the security agencies in modern-day Russia. The Federal Security Service (FSB), the successor organization to the KGB, is particularly influential, and others like Russia's military intelligence agency (GRU) play a significant role in active measures as well. These security organs' continued use of political and other nonmilitary tactics to protect the regime,[15] plus Putin's time in the KGB and the influence of other current and former security officials in the Kremlin,[16] lend further credence to the idea that active measures remain an important part of the Kremlin's global security strategy. Indeed, most approval requests for assassinations and other active measure-type operations appear to run through the Presidential Administration,[17] and the Kremlin has tasked multiple Russian state security agencies with executing such operations as assassinations, disinformation campaigns, and other active measure-type activities in recent years.[18] The Kremlin frequently denies knowledge of and responsibility for these actions.

The Russian security apparatus' historical reliance on active measures is coupled with a notable shift in the last two decades of Russian military and security thinking, which has placed more emphasis on the importance of employing continuous, below-threshold-of-armed-conflict actions to

protect the Russian state. The Russian Federation's 2000 Foreign Policy Concept asserted that military power, while significant, was to be surpassed in importance by political, economic, technological, and informational power.[19] The 2013 article "The Value of Science in Prediction" by Valery Gerasimov, chief of Russia's General Staff, has been frequently misunderstood in the West—often wrongly called the "Gerasimov doctrine"—as the definitive guide-post article on modern Russian military strategy, but the publication nonetheless highlighted a similar shift in thinking about non-military measures in war.[20] It was, in other words, not a "coherent or preconceived doctrine," but the fact remains that "non-linear or non-traditional warfare, as it is understood in Moscow, is simply Russia's attempt to catch up conceptually to the realities of modern war with which the United States has been grappling with for over a decade."[21] The Russian government's view of political warfare and below-threshold-of-armed-conflict operations is thus, as with that of any government, continuously evolving.

Digital Active Measures: Information and Cyber Operations

Online information operations are a form of contemporary active measure. Russian state-controlled media such as *Sputnik* and *RT* spread disinformation and pro-Kremlin narratives through traditional media like television as well as through online media like VKontakte, Twitter, Facebook, YouTube, and their own websites. During the Covid-19 pandemic, for instance, these outlets have systematically spread lies about the virus' origins and transmission.[22] Vladimir Putin's regime also relies on proxy actors to sow discord and, especially, exploit existing societal divisions. The most high-profile example is the St. Petersburg-based Internet Research Agency, a nonstate group funded by "Putin's chef" Yevgeny Prigozhin[23] that spread disinformation and artificially amplified divisive narratives on U.S. social media platforms in 2016. Though, other modern disinformation front groups exist, like InfoRos, run by the GRU, the Strategic Culture Foundation, run by the Foreign Intelligence Service (SVR), and SouthFront and NewsFront, run by the FSB, all of which advertise no connection to the Kremlin while deliberately spreading confusing, misleading, or false information.[24]

This modern information structure reflects that of USSR active measures: using a combination of white propaganda (from Soviet-labeled sources like *Pravda*), black propaganda (from deceitful sources like falsely labeled radio broadcasts), and grey propaganda (from unknown sources like Soviet front organizations).[25] A lack of complete coordination of and between these actors only contributes to flooding the information space with volumes of (sometimes contradictory) content—designed to produce confusion in target populations and advance the view that no information can be trusted. Much like their Soviet predecessors, Moscow's online information operations today are also constructed, through the use of proxy organizations and informal funding channels, to provide deniability for the Kremlin.[26] These contemporary operations blur the lines between public diplomacy and active measures, such as when Kremlin-backed narratives enter another state's independent media environment.[27]

Online information operations are also executed within a broader strategy reminiscent of that employed by the Soviet Union. As Former KGB major Yuri Shvets has written, the USSR's view was that "if America has no domestic problems, they must be created. Let the Americans focus on their internal affairs, instead of trying to interfere with our efforts to build a glorious

future."[28] Likewise, Pavel Sudoplatov, a former KGB lieutenant general, has written that existing tensions in the United States, including because of diversity in the population, were viewed by the KGB as "weaknesses" to be exploited.[29] This perspective manifested itself in Soviet information operations that targeted American problems such as systemic racism.[30] In kind, recent Russian information operations against the United States have targeted domestic tensions. The Internet Research Agency's 2016 campaign against the U.S. election discouraged Black Americans from voting—spreading narratives, in the words of an independent, Senate-commissioned report, of "don't vote, stay home, this country is not for Black people, these candidates don't care about Black people";[31] it conversely stoked right-wing anti-immigrant sentiments through such activities as Facebook groups titled "Secured Borders" and "Stop All Immigrants";[32] and it created a myriad of online groups purporting to be conservative groups, Black social justice groups, LGBTQ+ groups, and religious groups, all designed to collectively stoke dissent among the American public.[33]

Symmetry between online disinformation campaigns today and the USSR's disinformation active measures is not absolute. Moscow is "primarily not" selling the idea of Putin's Russia as it did under Communist rule, for example.[34] The internet additionally enables new levels of micro-targeting from anywhere in the world that have no good historical analogues;[35] in fact, the ability for governments to conduct information operations online through foreign-operated, private internet platforms has arguably made it far easier than ever for highly resourced and capable actors to spread disinformation, sow discord, and exploit existing divisions. Platforms like Facebook and Twitter are designed to precisely target users with platform-housed content and third-party advertisements. Additionally, data brokers in the U.S., operating with virtually no regulation, can legally sell hundreds of millions of Americans' political preference information on the open market, which can also be weaponized for such low-cost, high-scale operations.[36] But the fact remains that online disinformation campaigns have clear parallels to USSR active measures that relied on a combination of actors and methods to stoke distrust and chaos globally.

Russian state cyber conflict also fits into this active measures paradigm. While the Western definition of "information security" is relatively synonymous with that of "cybersecurity"—referring to the confidentiality, integrity, and availability of systems, networks, and data—the Russian concept is much broader than 1s and 0s and refers to the protection and control of the information sphere. In similar form, the Russian concept of "information confrontation" does not just include computer network operations as understood in the West, but also includes "disciplines such as psychological operations, strategic communications, influence, intelligence, *maskirovka* (military deception), disinformation, electronic warfare," and more.[37] This is precisely why many recent military conflicts in which the Russian state was involved have witnessed Moscow's use of cyber operations and other active measures (like online disinformation campaigns) alongside kinetic force. In the 2008 Russo-Georgian war, hackers based in Russia launched distributed denial of service (DDoS) attacks to overload and knock offline Georgian government, media, communications, and transportation servers.[38] In 2015 and 2016, Russian hackers in the advanced persistent threat group known as "Sandworm," later identified as the GRU, turned off a power grid in Ukraine amid heightening tensions.[39] The list of groups conducting cyber operations at

Moscow's behest or on its general behalf goes on.

Cyber operations harken back to the concept of Soviet active measures. Deniability is a key feature of Russian cyber operations, just as it was for assassinations, terrorism funding, and other covert activities carried out by the USSR: the Kremlin makes use of proxy cyber groups to conduct operations at its behest or on its general behalf.[40] That the Russian government provides a *krysha* ("roof") of protection for criminals[41] and genuinely may not have a hand in many cyber operations only bolsters the Kremlin's deniability of these digital active measures. The opacity of cyber operations vis-à-vis war and peace[42] has echoes of Soviet-era active measures, where the KGB and other state actors could exploit the below-threshold nature of disinformation-planting, terrorism- and front group-financing, and other activities to execute operations during relative peacetime without risk of serious blowback.

Just as Soviet active measures often combined multiple techniques at a time (such as disinformation and assassination, or front group-funding and popular discontent-stoking) to achieve strategic objectives, the Kremlin today also combines and connects different digital active measures to undermine Russia's enemies and encourage chaos globally. The 2016 U.S. election provides an illustrative and U.S.-focused example. In addition to state proxy groups conducting information operations on social media—spreading disinformation, promoting misinformation, and otherwise sowing division—the GRU hacked and leaked troves of campaign emails from the Democratic National Committee (DNC).[43] Russian state media and other state-backed organizations then promoted that information online, running headlines and promoting notions of a rigged DNC nomination process through which Hillary Clinton was the only truly considered candidate.[44] Multiple DNC employees received death threats following the hack-and-leak.[45] Some Democratic Party members and independent national security analysts also raised the possibility that the GRU planted forged documents alongside otherwise seemingly real emails, but there is no evidence to suggest this one way or the other.

All the while, the Kremlin itself rhetorically exploited the effects of fusing cyber operations with digital information operations. In July 2016, Russian Deputy Foreign Minister Sergei Ryabkov mocked the (Russia-stoked) U.S. reaction to the hack-and-leak that the GRU perpetuated, saying, "the fact that each of them – analysts, political scientists and lobbyists – sees the hand of Moscow everywhere reflects a certain complex formed in the U.S. with regard to Russia. They get up with thoughts about Russia, they go to bed with thoughts about Russia, this is a permanent phenomenon. This is a throwback to the 1950s, when a Congressman jumped out of the window shouting 'The Russians are coming!'"[46] Foreign Ministry spokesperson Maria Zakharova followed on by ridiculing the U.S. government for denying Russian state requests to hand over information on the hack.[47] American media widely covered the hacked emails, typically without providing broader context on the actors and events behind the emails' sudden availability online.[48] This coverage played into the Kremlin's historically informed tactics, as independent media took planted information at face value, often neglected to provide broader context, and helped promote what James Shires calls the "simulation of scandal," or "strategic attempts to direct public moral judgment against the operation's target."[49] It was a below-threshold-of-armed-conflict action that threatened the integrity of the U.S. election,

with the Kremlin denying knowledge of and responsibility for the events all the while.

Conclusion: Policymaking on Digital Active Measures

Analysts and policymakers in the United States must recognize that contemporary forms of digital conflict, coercion, and contestation employed by the Kremlin and its network of state-controlled and state-sponsored actors have strong historical footing in Soviet active measures. Certainly, the parallels are not perfect, and elements of the modern digital era, such as the internet's global reach and accessibility, do not have good historical analogues. That said, core features of active measures persist today in online disinformation campaigns and cyber operations: the leveraging of a range of state-controlled, -sponsored, or -enabled actors; the prioritization of deniability for the Kremlin; and the exploitation of below-threshold, "grey zone" forms of conflict, coercion, and contestation to project influence and weaken the Kremlin's enemies during relative peacetime.

Decision-makers should remember that Russia does not characterize online disinformation and cyber operations as entirely new tools but places them under an umbrella of age-old information manipulation, coercion, and below-threshold-of-war conflict, with modern upgrades. Covertly and illicitly spreading disinformation on Twitter is not the same as deploying overseas assassination squads. Yet from the Kremlin's perspective, these activities are not as conceptually disconnected as they might be understood in the West; they fit under the same active measures or political warfare conception.

This matters for policymaking. Separating out GRU poisonings abroad from FSB recruitment of cybercriminals at home is not going to be as diplomatically easy as some in the U.S. might wish. The same goes for separating out state-run cyber operations from those with some degree of state involvement (state backing, tacit state approval, etc.), because that spectrum of deniability is a factual reality and a strategic benefit for the Kremlin—and the same goes for separating out what the U.S. would call information operations from what the U.S. would call cyber operations, because the Kremlin fundamentally does not make that same distinction. Heading into, say, negotiations over ransomware attacks without this understanding will reduce the prospects for U.S. success.[50]

Looking at the long-term, this historical foundation also matters because the U.S. will have more success in countering and undermining specific Russian digital active measures—and in focusing on narrowly shaping Kremlin behavior where possible—than it will in trying to "deter" or prevent these actions altogether. The Soviet Union conducted active measures all throughout the Cold War, and the failure of specific operations and the capturing of specific agents did not change the state's overall calculus. Today, the Putin regime has demonstrated a considerable willingness to run active measures campaigns around the world, with some agencies like the GRU demonstrating an even greater willingness than some counterparts to conduct aggressive operations with high risk of exposure. Formal attributions, indictments of hackers, and other measures—from the U.S. as well as many allies and partners—have done little to change the Kremlin's strategic mentality and overall cost-benefit calculus. And for decision-makers, that is precisely the takeaway: the U.S. should focus on countering and undermining specific Russian active measures, and trying to narrowly shape Kremlin behavior where possible, instead of expending resources attempting to "deter" (vaguely defined) the Russian government from engaging in these activities in general.

For those looking to better understand and combat the likes of online disinformation and cyber operations coming from the Russian government, the Soviet Union's active measures are a key starting point for grounding this analysis in Russian concepts—and recognizing these activities' perceived or actual benefits to the Putin regime.

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How and Why to Remove U.S. Tactical Nuclear Weapons from Turkey
The Issue is Complicated, But Not Without Precedent

Demetrios Marinides

The United States of America faces a conundrum regarding tactical nuclear weapons (TNWs) stored at Incirlik Air Base in Turkey. There have been increasing calls to remove the weapons due to a multitude of security concerns, as well as a decline in relations with Turkey. Removing them is not simple, however, and raises significant concerns related to deterrence, alliances, and geopolitics. Should the United States decide to remove them, the decision on where to move them is equally as complicated, especially in the shadow of Russia's invasion of Ukraine. Ultimately, whether the U.S. government redeploys the weapons elsewhere in Europe or returns them to the United States, withdrawal from Turkey makes sense. This solution strikes the balance among all parties concerned, while leaving the United States, and therefore NATO, with flexibility for the future.

Introduction

The United States faces many challenges when it comes to its relationship with Turkey. In the background of headline-grabbing disagreements and confrontations lies the issue of American tactical nuclear weapons (TNWs), also referred to as nonstrategic nuclear weapons, located at Incirlik air base in southern Turkey. The 2016 coup attempt in Turkey and Ankara's purchase of Russian air defense systems, as well as issues stemming from the Syrian conflict and Turkey's increasingly contentious behavior, have led to periodic calls by some observers for the United States to remove its TNWs from Incirlik.[1] Removing these nuclear bombs is a complicated matter, however, and raises questions related to tensions within the North Atlantic Treaty Organization (NATO), deterrence against Russia, and risk of further alienating Turkey. The question of where to move the weapons should the United States decide to do so is equally as complicated. Moving them to another NATO country might seem obvious, but would risk upsetting European allies at a sensitive time for transatlantic relations, although the Russian invasion of Ukraine has already reshaped security mindsets in Europe. There are valid reasons and pretenses for simply returning the TNWs to the United States. While convenient, this is not necessarily the correct solution. The manner in which the United States goes about this decision could also be optimized to satisfy other aspects of its foreign policy, providing flexibility in how Washington chooses to play its hand, especially in light of the current Russian invasion of Ukraine.

A clear precedent exists for the United States to remove the bombs quietly and unilaterally, although it might not be that simple. Nonetheless, a clear distinction must be drawn between withdrawing TNWs as punishment for Turkey's antagonistic behavior and withdrawing them because of security concerns. Emphasizing the latter is the right call.

Background and context

The United States first deployed nuclear weapons, both strategic and tactical, to Europe in 1954, and numbers peaked in 1971. NATO's nuclear sharing arrangement—a cornerstone of deterrence against the Soviet Union—saw weapons placed in Great Britain, Germany, Belgium, France, the Netherlands, Italy, Greece, and Turkey.[2]

This included the Jupiter missile systems deployed to Turkey, which the United States removed in April 1963 as a result of the Cuban Missile Crisis.[3] Some reductions took place in the mid-1970s after inspections raised safety concerns, in addition to the realization that numbers exceeded planning requirements.[4] In 1991, President George H.W. Bush ordered the worldwide withdrawal of all tactical nuclear weapons, except air-delivered B61 gravity bombs.[5] By late 1994, 480 B61s remained in Europe after continued post-Cold War reductions.[6] Keeping nuclear weapons in Europe despite the Soviet Union's collapse became an important political link among NATO allies.[7] This relevance was renewed after Russian aggression in Georgia in 2008 and Ukraine in 2014, and is magnified further in the wake of Russia's invasion of Ukraine in late February 2022 and Moscow's decision to increase the alert level its nuclear forces.[8] Today there are an estimated 100 to 150 B61 bombs stored in Turkey, Italy, Belgium, Germany, and the Netherlands.[9] Recent analysis supports the lower end of that range, with indications that the number of bombs in Turkey has been reduced from 50 to as low as 20.[10] This could be due in part to the fact that the bombs are scheduled to rotate back to the United States for life-extension upgrades to the "mod-12" variant of the B61, or B61-12.[11]

Calls for removal of the B61s from Turkey increased in July 2016 after factions of the Turkish armed forces launched a coup attempt. During the coup, Turkish authorities shut down Incirlik air base, interrupting flights by American forces conducting strikes from the base against the Islamic State terrorist group (Daesh). Similar to some bases in other NATO countries, the United States does not own the base and conducts operations there based on agreements signed with Turkey during the Cold War, and additional agreements stemming from international efforts to defeat Daesh.[12] Turkish authorities arrested the base commander, Turkish General Bekir Ercan Van, for his role in the plot.[13] The coup attempt raised serious questions about worst case scenarios, which added to security concerns about the proximity of Daesh and other terrorists to the nuclear stockpile.[14] Southern Turkey has served as a transit point for Daesh since the group's rise, and concerns have been raised about Daesh fighters returning to Turkey since the group's collapse.[15] Further complicating matters, Turkey's President Recep Tayyip Erdoğan clashed with U.S. President Donald Trump in 2018 and 2019 over American support for Kurdish forces in Syria and Turkey's purchase of S-400 air defense systems from Russia. The latter resulted in sanctions and Turkey's removal from the F-35 Joint Strike Fighter program.[16] The risks associated with these various overlapping issues have made it unclear if keeping the B61s in Turkey is prudent; a security compromise there could come not just from outside forces such as Daesh, but from within the Turkish government itself. The United States has reportedly augmented its security measures for nuclear storage facilities at Incirlik already.[17]

The TNWs in Turkey were originally spread across three air bases within the country but were consolidated at Incirlik in the 90s. The United States withdrew forty B61s earmarked for delivery by Turkish F-16s in 2005 after a unilateral nuclear reduction by the George W. Bush Administration.[18] Despite conflicting reports, however, it appears that Turkish jets are no longer part of the nuclear mission, aside from a supporting role.[19] Turkish F-16s were scheduled to receive stopgap upgrades to equip them to carry the B61-12, but that measure has been withdrawn along with Turkey's removal from the F-35 program.[20] Turkish pilots, therefore, would not be delivering these bombs if a decision was made to employ

them. This is not the case for the TNWs stationed elsewhere in Europe, although Germany's scheduled upgrade to the Eurofighter Typhoon might change this, since nuclear certification of that aircraft is an ongoing question.[21] Additionally, Turkey rejected requests to permanently station an American fighter wing at Incirlik for the nuclear mission.[22] The United States would have to deploy aircraft to Incirlik to use those weapons, either from the United States or from other American bases in the region, making their storage there increasingly irrelevant and inconvenient.

Navigating the issue

There are several reasonable arguments against removing the B61s from Turkey. One set of arguments is based on traditional ideas of deterring Russia. Turkey might be nettlesome, but Russia is a long-term threat, and seeks to undermine NATO and the United States on many fronts. Russia has shown its willingness to preempt countries in its sphere of influence being brought into the NATO fold through military incursions or invasions.

Russia has an estimated 1,000 to 6,000 nonstrategic nuclear weapons, although the majority of these are supposedly deployed along Russia's border with China.[23] Even if a fraction of Russia's TNWs are deployed near its European borders, their numbers would dwarf the 100 to 150 TNWs NATO has across Europe and Turkey. Furthermore, this framework demonstrates a Cold War-era "missile gap" mindset that is arguably irrelevant. It fails to account for the advantage NATO has over Russia in conventional forces, and encourages a security dilemma. The United States and its allies also boast a strategic nuclear arsenal that more than compensates for the difference in nonstrategic nuclear weapons between the West and Russia. Furthermore, TNWs are not subject to nonproliferation agreements, a constant sticking point in those negotiations.[24] Proponents of removing the weapons from Turkey argue that it would be a significant step in signaling to Moscow that nonstrategic nuclear weapons should be back on the table for nonproliferation treaty negotiations.[25] The steady reduction in TNWs over the last few decades already indicates as much, and removal from Turkey would emphasize the point. The TNWs are hardly the linchpin of deterrence efforts; Russia is likely far more concerned with the strategic nuclear threat and the conventional capabilities of the United States and NATO.[26] The B61s arguably serve more as a symbol of American security commitments and as a means to give smaller countries a seat at the table on nuclear issues. Finally, they could be removed from Turkey and relocated to other bases in Europe, undermining arguments based on deterrence. The Russian invasion of Ukraine surely affects such a decision, but other European countries that have been opposed to hosting more of the bombs may have regained their willingness to do so in light of recent events.

Opinions grounded in the value of nuclear deterrence are not necessarily wrong writ large. But when it comes to TNWs in Turkey *specifically*, the question that needs to be asked is whether deterrence gained by those 20 to 50 bombs is worth the risk of their compromise, whether by rogue Turkish officers or one of the many terrorist groups operating in the area.[27] The United States can maintain the deterrence factor against Russia by storing the weapons in another NATO country.

Another argument in favor of keeping the weapons at Incirlik is that TNWs can serve as a bargaining chip that can be played after other efforts to change Turkey's behavior have failed. It is a sensitive time for U.S.-Turkey relations as well as NATO-Turkey relations. Turkey's contretemps with Greece and Cyprus in the Eastern

Mediterranean over Exclusive Economic Zones (EEZs) and natural gas exploration have also put Ankara at odds with Egypt, Israel, and France. Despite signs of rapprochement with Russia, Turkey finds itself opposite Moscow on many fronts, including Turkey's support for Ukraine.[28] Fiery rhetoric and proclamations of Turkish regional power and ambitions aside, Turkey is isolated, and its economy is in crisis.[29] Why should the United States play this card when it has plenty of issues it can use to hold Erdoğan's feet to the fire? While politically savvy, this approach downplays the main concern that should drive a removal of the TNWs from Incirlik - that of security.

Additional arguments in favor of keeping the weapons in Turkey claim that the United States would be failing in its security commitments and abandoning a NATO ally, and might do the same to other allies.[30] These arguments ignore the nuance and context of current relations with Turkey, and assume that NATO members cannot differentiate between a decision specific to Turkey and a hypothetical decision to make further unilateral reductions in Europe. Concerns that removing the B61s from Turkey would cause a crisis in NATO and do irreparable harm to relations with Ankara are also grasping at straws. Unilateral removal of TNWs from Greece and the United Kingdom several years ago were conducted quietly and did not cause significant heartburn.[31] The manner in which TNWs are withdrawn is more relevant than the removal itself.

Others have argued that because the weapons cannot be used without codes even if they fall into the wrong hands, the security threat is overblown.[32] This demonstrates an astounding naivete about physical security, black markets, rogue states, and the disaster that would occur if those weapons were compromised. Daesh has operated in Turkey throughout its reemergence, rapid expansion, and collapse, and Turkey has been accused of everything from early inaction to tacit coordination with the group.[33] While the TNWs at Incirlik are protected by robust security measures, the risk is not justified considering that there are other options for storage within Europe, not to mention the ability to deploy the weapons from the United States if necessary.

The question of where to move the weapons is a key consideration. There are supposedly 96 empty vault spaces spread across the four countries in mainland Europe that host them. Of the four, however, all but Italy have called for the removal of the weapons. In 2011, Germany, the Netherlands, Norway, and Poland circulated a "non-paper" at NATO that called for increased transparency and reductions in TNWs in Europe.[34] The year prior, a group of NATO nations that included those hosting the bombs (except Italy) called for their removal from Europe.[35] In the United Kingdom, there are 25 empty vault spaces in caretaker status.[36] Reopening storage facilities in Greece is likely a non-starter due to that country's tensions with Turkey, and playing that card as a signal to Turkey is unnecessarily provocative. Italy appears to have space to host all the bombs that are currently in Turkey.[37] However, Italy maintains an ambiguous stance on hosting additional nuclear weapons. Rome has paid lip service to nuclear disarmament, but also emphasized its commitment to NATO nuclear sharing, and did not sign the 2011 non-paper.[38] The Russian invasion of Ukraine has galvanized NATO however, and attitudes in Europe towards nuclear weapons may change accordingly.

The modernization program underway for the B61 bombs is imperative to extending their service life and upgrading capabilities to modern standards.[39] The planned upgrades to the B61-12 variant require their rotation back to the United States.

According to open-source analysis, there are 130 B61s stored in the United States that are earmarked for potential use outside of Europe, to include Asia.[40] This undermines the idea that the bombs must be located abroad for expedient use. The United States can transport those weapons to a number of bases worldwide relatively quickly.

An additional benefit of removing the TNWs from Turkey is that it could simplify NATO nuclear planning without sacrificing mobilization capabilities and response times. Removal would also prevent a situation where Turkey refuses access to aircraft that are deployed to Turkey for that purpose, an idea that has become more plausible in recent years. Removing the TNWs removes a key leverage point for Ankara. The United States can arguably counter this leverage by appealing to Turkey's desire for prestige, status, and relevance, but Washington can preempt a situation where the bombs are held hostage by being proactive about their removal under the pretext of the required upgrades. This may also enable continued use of Incirlik for the counter-Daesh mission.

Despite lukewarm relations between U.S. President Joseph Biden and President Erdoğan, the United States has given Turkey opportunities to mend fences. Positive overtures such as holding Afghan peace talks in Turkey last spring can be used to engage Turkey and mitigate negative responses to pulling out the TNWs. President Biden tested the waters by acknowledging the 1915 Armenian genocide, and was met with verbal condemnation by President Erdoğan but no further actions.[41] But Erdoğan's recent announcement that Turkey plans to purchase additional Russian S-400s squandered any renewed goodwill. Turkey is losing room to maneuver in terms of placating the United States, and lacks political capital in Washington.[42] That being said, the initial decision to remove the bombs must be divorced from political considerations and coercion. Should President Erdoğan take concrete actions in response to the removal of the B61s, however, positive overtures can be withdrawn as well. This would send a clear message that kills two birds with one stone: showing Ankara there are consequences for its belligerence beyond sanctions and taking the TNWs out of harm's way without putting another NATO ally in a position to decline them or reluctantly host them. Either way, the bombs can be removed; it is the accompanying actions by the United States that will either soften the blow or send a shot across the bow, as necessary.

Among other NATO allies, France and the Baltic states have been the most vocal opponents of removing nuclear weapons from Europe.[43] France, however, has its own tensions with Turkey and would be unlikely to oppose removing the B61s from Incirlik. Baltic opposition to removal is based on threat perceptions of Russia. Nonetheless, there is enough context based on American relations with Turkey that removal from Incirlik would not necessarily be perceived as a harbinger of future reductions, and putting the weapons elsewhere in Europe could allay such concerns. Overall, the United States has a long list of grievances against Turkey. These must be separated from the main concerns and justifications: the 2016 coup and the presence of terrorist groups in the region, coupled with the mod-12 upgrades.

Another consideration about the long-term impacts is that removing the TNWs will push Turkey closer to Russia. Despite the S-400, however, there is little common ground between the two Black Sea rivals. Turkey and Russia continue to jockey for power and influence in their traditional spheres of competition and beyond. Aside from the benefits of undermining the NATO alliance, Moscow has plenty of disagreements with Turkey that would prevent warmer relations or more robust security

cooperation. Turkey's shift to labeling Russia's invasion of Ukraine as a "war", and pledge to limit the transit of Russian warships into the Black Sea via the Montreux Convention, demonstrate that Ankara might be hedging closer to NATO, likely limiting the extent of Russia-Turkey cooperation in the near future.[44] Ankara is attempting a delicate balancing act, the outcome of which remains to be seen; it has not joined sanctions against Russia, and is now hosting talks between Kyiv and Moscow.[45]

The arguments both for and against removing the B61s from Turkey quickly demonstrate the complexity of such an issue. What must be remembered is that the United States would already need to deploy its bombers and fighters to load and employ the weapons housed in Turkey, and Turkey's role in the nuclear mission has been downgraded significantly. With these considerations in mind, it is easier to view the problem purely from the standpoint of physical security and risk.

Conclusion

The United States must conduct a candid assessment regarding the security of its TNWs at Incirlik, divorced from other disagreements with Turkey. If there is a low degree of confidence in the long-term security of those weapons, then the answer must be removal. Arguments for keeping the weapons there—whether for international security commitments, placation of a belligerent Turkish regime, or leverage on other matters—fall flat in light of the risks associated with those weapons being compromised. The United States has flexibility in how it conducts the withdrawal. It can do so quietly, using scheduled upgrades as the pretext, and simply delay their redeployment indefinitely, or quietly redeploy them to another NATO country. It can also do so noisily, demonstrating that the United States means business when it comes to Ankara's continued intransigence. The former is the better option, and while the signal will be heard when those bombs do not make their way back to Incirlik, it avoids providing President Erdoğan with a new talking point with which to rail against the United States. It also demonstrates a more serious approach, and avoids antagonizing a key NATO member during a sensitive time for the alliance. As the Ukraine crisis continues to unfold, strategic calculations must still consider the long-term security risk to those weapons.

The secrecy inherent in nuclear weapons issues provides adequate excuses for remaining mum on the matter, and tracks with previous withdrawals, making this instance par for the course. In the long term, the United States can set the example when it comes to TNW force posture, a sharp contrast with Russia's approach. The United States can deal with the political fallout as it comes, but can rest assured that keeping American nuclear weapons out of harm's way is always the correct decision.

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Nile River Basin Watercourse Agreements in the Context of the Grand Ethiopian Renaissance Dam

How the U.S. and Turkey Can Support Ongoing Watercourse Negotiations

Amelia Dal Pra

Since the construction of the Grand Ethiopian Renaissance Dam (GERD), tensions have been rising between Nile Basin States (NBS), especially those dependent on the Nile Basin for vast supply of water resources. Though there is little known about the long-term impact the GERD will have on groundwater levels and flow to downstream states, evidence from the construction of other dams suggests there will be a lasting impact on groundwater resources and flow. This is especially challenging since a large majority of downstream populations, especially in Egypt, are dependent on the Nile for a majority of groundwater resources. While African Union (AU) negotiations between NBS are in deadlock, tensions continue to escalate with each Ethiopian filling of the GERD. To better understand the context of the current NBS water tensions and reveal opportunities for NBS cooperation, this paper delves into the history of watercourse agreements between NBS and the context of GERD and current negotiations and mechanisms for water cooperation. The paper concludes that the U.S. and Turkey have unique expertise and experience with international watercourse agreements and can jointly bolster the outcome of AU negotiations to allow for a mutually beneficial watercourse agreement for both upstream and downstream Nile Basin States.

Introduction and Roadmap

Some 4,500 years ago, Lagash and Umma, two ancient Mesopotamian city-states, began one of the earliest documented wars in human history.[1] The city-states fought over territory, and notably shared water resources in the Tigris-Euphrates river basin.[2] The result of the water war is historically significant: it prompted the earliest documented treaty, the Treaty of Mesilim,[3] which is a legal agreement on boundary water resources.[4] Though, according to ancient inscriptions, Mesilim was not successful in the maintenance of peace in the long-term, the ancient legal document laid the foundations for future agreements on water cooperation and shared resources.[5] The lessons of this ancient water conflict are increasingly important in contemporary times where numerous nation-states are tasked with governing and sharing finite water resources. The consequences of the failure to adhere to the Treaty of Mesilim, namely the invasion and fall of Umma, illustrate the risks of failing to cooperate in the sharing of water resources. This is especially true in the stressed cooperation between Nile Basin States (NBS).

Considering the importance of multilateral cooperation on watercourse resources, this essay will analyze the current state of NBS water cooperation considering the Grand Ethiopian Renaissance Dam (GERD). It will begin by discussing the "water question" and provide an analysis of global warming projections and their impact on climate events, water scarcity, and human security and livelihoods. It will then provide a broad analysis of agreements made between NBS surrounding Nile River resources and discuss the context of GERD construction. Next, this article will provide an overview of U.S.-Turkish relations, delve into their joint interests in bolstering cooperation between NBS, and offer policy recommendations for both states. It will conclude that the U.S. and Turkey are uniquely positioned to strengthen their bilateral relations and, concurrently, the

effectiveness of NBS negotiations through regional and international engagements.

The Water Question

The economic turbulence and decline of the Ottoman Empire caused European powers to discuss the "Eastern question," or, rather, how Western leaders should engage and dominate the region upon the dissolution of the empire. This antiquated question led to the formation of colonial mandates, construction of arbitrary nation-state borders, and plays into a range of security issues that plague the region today.[6] A question that should be considered today, however, is the "water question." The ways in which economically powerful and influential countries respond to the question of resource scarcity and the "water question" has the potential to similarly alter the course of history and the future of international relations. In some respects, high-income countries, which have contributed the most to global warming and climate change, have an obligation to assist low- and middle- income countries, which have contributed the least but are most impacted by climate change.[7] However, any high-income intervention or assistance considering climate change should consider the colonial past and the negative impacts Western meddling caused in the region. Nevertheless, the limited resources across the Nile River Basin make technical and financial investments necessary to safeguard regional human security.

While the global population continues to grow, the fresh water available remains limited. Water scarcity issues will continue to impact more and more people across the globe. The impacts will vary based on the economic and coping capacities of countries. Low- and middle- income countries with economic reliance on natural resources will be grossly impacted by water scarcity which has the potential to cause mass migrations, isolated conflicts, and destabilize regions.[8] Already, 1.1 billion people, or 13.9 percent of the 2021 global population, are impacted by water scarcity issues.[9] The 2021 Intergovernmental Panel on Climate Change (IPCC) report projects that global temperature will increase by 1.5 to two degrees Celsius in the coming decades.[10] Among the major impacts of this temperature warming include altered rainfall patterns, increasing desertification, and water scarcity issues. Inadequate water access will also be exacerbated as the global population continues to tick upward.[11] Africa has contributed the least to the global carbon emissions linked to climate change; around 25 percent of the international water basins face water scarcity.[12]

Though the connection between climate change, drought, and water scarcity is evidenced, the connections between drought, water scarcity, conflict, and migration are nebulous and studies on this topic are limited. Water scarcity and increasing desertification resulting from global warming will exacerbate loss of economic stability, livelihoods, migration, and could lead to conflict, though data and studies on the climate conflict are challenging to collect and analyze due to the multi-dimensional and isolated nature of the conflicts.[13] When water resources are scarce, rural communities that depend on natural resources for pastoral livelihoods may decide to migrate to cities or even internationally.[14] The increase in urbanization after drought conditions in agricultural communities has been studied as an aggravator of to the tensions that led to the Syrian War.[15] Nevertheless, in the age of water scarcity and the subsequent uncertainties regarding its ultimate impact on human security and safety, water cooperation is vital.

Watercourse cooperation is especially important with trans-boundary water resources. There will be an increasing need for enforceable, implementable laws

surrounding water security globally, now and in the future. The Nile River situation is especially important to consider as the GERD may be a flashpoint for already tense water cooperation, specifically between Egypt, Ethiopia, and Sudan. These three states are the most powerful and influential of the eleven NBS; their ability to cooperate on Nile River resources will likely contribute to the overall regional stability, or lack thereof, in the years to come.

Background and Analysis: Egypt, Sudan, and Ethiopia Nile River Cooperation

Water cooperation between NBS has always been challenging given the regional interstate dynamics and the limited supply of freshwater in the region. Although the Nile Basin, being 1.2 million square miles or 10 percent of Africa, is the third largest basin in the world, the river does not supply a vast quantity of freshwater.[16] The annual freshwater supply of the Nile is merely two percent of the freshwater supplied by the Amazon River.[17] An estimated 85 percent of Nile water originates in Lake Tana in the Ethiopian highlands with the Blue Nile.[18] The White Nile originates in Lake Victoria in Tanzania, which converges with the Blue Nile in Khartoum, Sudan.[19] The Nile runs through eleven states and flows to the Mediterranean Sea, as shown in Figure 1.[20]

Figure 2 displays the total population of Nile Basin countries in 2021. The population of NBS is estimated to be roughly 487 million, many of whom live along the Nile and are dependent on its freshwater resources, specifically the resources of the Blue Nile.[21] It is significant that 95 percent of Egypt's population is living along the Blue Nile, more than any other NBS.[22] Of all NBS, Egypt is most dependent on the Nile for its water resources. Given this, Egypt has the most to lose in negotiations: its security and stability hinge on its ability to access adequate fresh water from the Blue Nile.

Figure 1: Map of the Nile River Basin Across East Africa[23]

The dependency of Egypt on the Blue Nile is a historic part of its water security. This unique reliance on the Nile is even mentioned in ancient Egyptian texts and hymns. One such hymn is *The Hymn to the Nile*, found on *Papyrus Sallier II.*

> *"Hail to thee, O Nile! Who manifests thyself over this land and comes to give life to Egypt! Mysterious is thy issuing forth from the darkness, on this day whereon it is celebrated! Watering the orchards created by Ra, to cause all the cattle to live, you give the earth to drink, inexhaustible one! Path that descends from the sky, loving the bread of Seb and the first fruits of Nepera, You cause the workshops of Ptah to prosper!"* –

The historic orientation and association that Egyptians have with the resources of the Blue Nile reveal it has long been viewed as their lifeline. The Nile is life for Egyptians and has been for centuries.

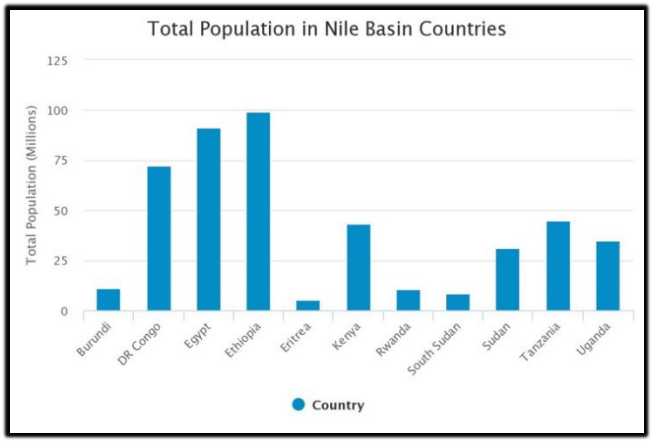

Figure 2: Total Population in Millions of Nile River Basin Countries[24]

Historically, Egypt dominated the resources of the Blue Nile through its control of resources. One example of Egypt's dominance over the Nile is the Aswan Dam constructed by Egypt in 1960. Egypt also had enough leverage to work with colonial powers in historic agreements to assure dominance over the Nile resources. According to the hydro-hegemony theory, which posits that dominance over regional water resources is linked to state power, the ability of Egypt to maintain dominance and control trans-boundary water resources reveals its historic regional power and influence.[25]

In recent years, however, Ethiopia has become a competitor to Egypt's hydro-hegemony of the Nile.[26] Ethiopia's investment in the utilization of the Nile's resources for hydropower are important to consider in light of the hydro-hegemony theory, considering the unique reliance of Egypt on its resources and its historic lens that the Nile is its source of life. These shifting dynamics can also be analyzed through the lens of a downstream-upstream state divide on equitable water rights.

Downstream states along the Nile River are Sudan and Egypt, and upstream states are Burundi, the Democratic Republic of Congo, Tanzania, Rwanda, Uganda, South Sudan, Kenya, Ethiopia, and Eritrea. Due to geography, upstream states, which can divert water and restrict flow, have more power to control the water flow of water resources than that of downstream states. In the case of the Nile River Basin, the two downstream states, Egypt and Sudan, more dependent on the freshwater resources of the Nile River Basin than upstream states that have more geographic influence and power over Nile resources. Ethiopia's actions long the Nile River, and its diversion of any Nile River resources, will therefore disproportionally impact the downstream states that are most dependent on the Nile's resources for the livelihoods of their populations.

Regional and International Treaties and Agreements

Historic agreements and treaties surrounding the usage of the Nile River Basin have been heavily influenced by the regional history of colonialism and the lack of autonomy this allowed for Nile Basin states: no agreement to date has ever been signed and ratified by all eleven NBS.[27] An overview of significant NBS regional treaties and pertinent international agreements are shown in Annex 1. While the first watercourse treaties were signed in 1902 and 1929, both included the British colonial representatives as a party to the agreements.[28] The lack of autonomy of NBS and the interference of an outside state makes the legitimacy of these agreements questionable. It was not until 1959 that independent two NBS, Egypt and Sudan, negotiated their own treaty independent of Britain.[29] This treaty allocated most of the water to Egypt and Sudan agreed to the Egyptian request to construct the High Aswan Dam. The hydro-hegemony of Egypt is apparent in this treaty where Egypt had the most evident benefits of this agreement.

In 1997, the UN Convention on Watercourses outlined the basic tenants for a

fair and equitable watercourse agreements a) state sovereignty should be prioritized during watercourse agreements and outside power and influence (colonialism and imperialism) should not influence negotiation proceedings, b) water access should be equitable and states should agree upon the legal mechanisms which govern water usage and conservation, c) article 7 of the convention outlines the obligation to not cause significant damage to trans-boundary watercourses.[30] It is noteworthy that Kenya and Sudan, two states with limited power regarding the Nile resources, are the only two NBS that have signed the UN Convention on Watercourses. Though this international convention was not signed by many NBS, it seems to have influenced some of the more recent agreements which echo some of its tenants.

In 1999, the Nile Basin Initiative (NBI) was established with the goal of determining the legal relevance of the previous watercourse agreements made by NBS.[31] The NBI ultimately established the Cooperative Framework Agreement (CFA), which began with a panel of experts in 2000 working on the initial foundation of the agreement.[32] After almost one decade of committee meetings and negotiations between country representatives, on April 13, 2010, seven countries agreed to consider the final draft of the CFA, which Egypt and Sudan rejected.[33] By February 2011, Ethiopia, Rwanda, Tanzania, Uganda, Kenya, and Burundi had each signed the agreement. As of August 2019, Ethiopia, Rwanda, Tanzania, and Uganda ratified the CFA.[34]

Egypt and Sudan did not sign the CFA, since the framework did not explicitly safeguard their previous bilateral agreements or maintain "water security and current uses and rights of any other Nile River Basin State."[35] Egypt and Sudan noted that the CFA did not secure their previous access to Nile River resources. Ethiopia, a country that did not participate the 1959 agreement, argues that the Egypt-Sudan agreement is largely in favor of Egyptian interests. Shortly after Ethiopia signed the CFA in 2010, the government announced its plan to build the GERD along the Blue Nile, without Egyptian or Sudanese approval. In light of the GERD construction, Egypt, Sudan, and Ethiopia authored the 2015 Agreements on Declarations of Principles (DoPs) to outline the GERD operation and the need for Ethiopian communication with downstream states on dam reservoir filling, all rooted in international watercourse law.[36]

The Grand Ethiopian Renaissance River Dam (GERD)

As of October 2021, the GERD is still under construction with completion aimed for 2023, though the first and second fillings of the reservoir took place in 2020 and 2021, respectively.[37] Ethiopia notified Egypt and Sudan regarding the filling of the first, Sudan provided approval. The second took place without the approval of Egypt and Sudan.[38] The cost of the GERD project is an estimated $4.7 billion, with China providing the Ethiopian government with numerous loans, some totaling up to $1.2 billion USD, which likely contribute to the financing of the project.[39] China has also been contributing to the project through technical expertise on hydroelectric power.[40] It is important to note that China lacks transparency in its in overseas lending so it is challenging to calculate the exact lending contributions of China regarding the GERD.[41] Some estimate its contribution to be $1.7 billion, while others estimate more than $2.1 billion.[42] Estimates range due to lack of data and transparency on the lending altogether.[43] Currently, the GERD is the largest hydroelectric power plant across the continent, and will provide power to millions when at full functioning capacity.[44] While Egypt and Sudan were both originally against

this project, Sudan eventually approved the construction as the electricity provided by the dam may bolster its energy capacity.[45] The GERD is a source of pride for Ethiopia, but downstream states worry about the long-term impact the dam will have on the downstream groundwater flow of the Blue Nile.

According to a 2017 Atlantic Council and Sandia National Laboratory study, during filling stages, the GERD may decrease the Blue Nile water flow to downstream countries.[46] While the study took place prior to the first two fillings, few independent studies cover current groundwater flows considering the recent fillings. Notably, the study suggests that the dam will have less of an impact on water scarcity than population increase and economic and agricultural demand.[47] Nevertheless, it is important to monitor as dams are sometimes connected with reduced downstream water flow.[48] For example, the South African Incomati River Basin dam reduced water flow in Mozambique and the Lempa River reduced water flow in Central America.[49] If the GERD *does* indeed reduce water flow and increase water scarcity in the long-term, this could impact water access of up to 100 million people living downstream along the Blue Nile.[50] Regardless of its ultimate impact on groundwater resources for downstream states, the dam jeopardizes future Nile Basin agreements since it increases mistrust between downstream states and Ethiopia.[51]

The sheer size of the dam reservoir, with a capacity of 74 billion cubic meters, prompts geologists to question if the GERD is a geohazard.[52] Ethiopia already has active tectonic plates, and the construction of the dam could increase the frequency and severity of earthquakes in the East African Rift System.[53] The dam could jeopardize the equilibrium of the East African Rift System and lead to hazards and earthquakes through increasing seismicity by weakening rock strength, increasing tectonic strain, and changing pore pressure in rock layers with a heavy reservoir weight.[54] For example, geologists connect increasing earthquakes to the construction of dams, including the Zipingpu Dam in China, Aswan High Dam in Egypt, Koyna Dam in India, Kremasta Dam in Greece, and Kariba dam in Zambia.[55] Given the nexus between dam construction and earthquake, and the unique vulnerability of the East African Rift System, the crust beneath the GERD reservoir should be closely monitored during reservoir fillings to measure any impacts on tectonic block movements to preempt and prepare for any earthquakes and regional disasters.[56]

U.S. and Turkey: Priorities, opportunities, and leveraging points for successful NBS cooperation

The U.S. and Turkey are economic and diplomatic partners, a relationship that dates to the Ottoman Empire and the establishment of the Turkish Republic.[57] The countries are both North Atlantic Treaty Organization (NATO) members, have notable military ties, and remain modest trade partners.[58] In recent years, however, divergent geopolitical priorities strain the relationship. U.S. military and security support for Israel and its support of Kurdish proxies in the fight against the Islamic State of Iraq and Syria (ISIS) in Syria are both points of contention for Turkey.[59] In 2019, Turkey's purchase of an S-400 missile system from Russia caused the termination of the U.S. F-25 fighter jet projects in Turkey.[60] In early 2021, U.S. President Joe Biden used the term "Armenian genocide," despite the Turkish rejection of any claims of the genocide.[61] Even considering these tensions, NBS water cooperation is a strong foreign policy issue that the U.S. and Turkey can and should leverage to find common ground.

The government of Turkey sees itself as an essential player to maintaining regional peace.[62] Turkish President Recep Tayyip

Erdoğan has been a longtime proponent of United Nations Security Council (UNSC) reform, including the expansion of the five permanent and predominantly western members of the UN Security Council.[63] Turkey's involvement in the tense ongoing AU negotiations between NBS could increase its legitimacy as an international and regional security leader and could boost its own regional presence and relations with NBS.

Additionally, Turkey has experience dealing with regional watercourse tensions, especially considering its own tensions with Iraq and Syria resulting from its Guneydogu Anadolu Project (GAP). [64] The GAP project consists of more than 20 dams and numerous hydroelectric power projects across the Tigris and Euphrates Rivers. This project began under President Kemal Ataturk and led to immense tensions with Iraq, Syria, and the Kurdish population in Turkey.[65] The leverage Turkey has in the situation is its personal experience and challenges associated with its controversial GAP project.

In the case of Turkey and the Tigris and Euphrates River, Turkey, like Ethiopia, is an upstream state. The tensions of its hydro-hegemony and its hydroelectric projects have led to major water scarcity issues across the region, especially for Iraq and Syria.[66] If Turkey is willing to attest to its own inability to work with downstream states during its own hydro-electric power projects and the consequences of these actions, Turkey could be a beneficial player in the NBS situation. Though the acknowledgment of the failures and challenges of the GAP project on the part of Turkey are likely to remain unaddressed, if Turkey is willing to work with Ethiopia to encourage stronger communication and negotiations between Ethiopia and downstream states, this could support strong negotiations and bolster Turkey's regional presence and legitimacy on international watercourse agreements.

The U.S., a permanent member of the UNSC, also has leverage in the international watercourse arena. Additionally, the U.S. is certainly invested in the region, with Egypt being the third-largest recipient of U.S. foreign assistance in 2020 and Israel being a longtime ally and major U.S. foreign assistance recipient since its establishment in 1948.[67] Additionally, as the U.S. is one of the highest global carbon dioxide emitters, which has a direct tie to global warming and water scarcity, there is arguably a moral element to the involvement of the U.S. in this increasingly tense NBS watercourse situation: high-income countries that contribute to climate change and scarcity issues should intervene in climate-related issues impacting lower-income countries that have contributed less emissions.[68]

Building on the mutual goal of maintaining regional peace and stability and the U.S. obligation to emerge as a climate mitigation leader given its substantial historic and current emissions, the U.S. can partner with Turkey to bolster regional and international watercourse agreements between upstream and downstream NBS.[69] Importantly, to avoid neo-colonial influence in the situation, it is essential that the technical advice and financial support provided by the U.S. and Turkey remain limited; the states should only engage if asked by NBS and should aim to bolster the efforts and voices on the ground rather than intervening as parties themselves.

In July 2020, the African Union (AU), with support from the United Nations Environment Program (UNEP), continued negotiations with NBS to ease tensions associated with reservoir filling, with the most recent convening meeting taking place in July 2021.[70] These convenings have not been successful in easing tensions, though they did include interventions from

representatives, including those from Mexico, Niger, and India. These representatives discussed their own experience with regional watercourse agreements.[71] As Turkey has experience with trans-boundary waters and dam construction, Turkey could participate in future AU meetings, if NBS is willing. This would allow Turkish engagement on the issue, could bolster Egyptian-Turkish relations, and would provide a strategic opportunity for the government of Turkey to promote its own legitimacy in the trans-boundary watercourse arena. This would be an especially strategic maneuver considering some are critical of Turkey's ability to deal with the Kurdish population, Syria, and Iraq due to GAP.[72]

The U.S. should utilize its international system leadership by working with the UNSC to support stronger, less opaque international language surrounding the rights and responsibilities of international watercourse agreements. The U.S. should bring the issue of Ethiopia's failure to alert downstream states on the second filling of the GERD in 2021, which violated the 2015 DoPs, to the UNSC to determine whether this is breaking international watercourse law. Additionally, the U.S. can bolster the AU's negotiation efforts through financial and technical assistance through the U.S. mission to the AU.[73]

Since 2006, the U.S. Mission to the AU (USAU), located in Addis Ababa Ethiopia, has focused on deepening U.S. bilateral relations with the union through work with the African Centers for Disease and Control (CDC) on health initiatives and numerous efforts on good governance and democracy and peace and security. There seems to be a gap, however, on the USAU's support of climate change mitigation efforts and human security efforts, like securing water security and equitable international watercourse agreements. Like many other international missions in times of the global COVID-19 pandemic, the USAU is focusing its efforts primarily on public health, including equitable COVID-19 vaccine distribution across Africa.[74] To prepare for a resource scarce future and preempt regional resource security flashpoints, the USAU should expand its efforts and create an Environmental Security and Resilience task force.

The ESR task force can focus on climate change mitigation and resilience in the region with a special focus on water security given the drought-prone nature of the region. One of the first actions of the USAU task force could be to financially support independent African-led studies to determine whether the current operation of the GERD is impacting downstream water flows in Egypt. If USAU conducts additional studies, supported financially by the U.S., on the impacts of the GERD that conclude there is no apparent impact on downstream water flow, negotiators could use these analyses to reduce tensions. Turkey and the U.S. should consider jointly working with the AU to formulate an emergency plan in the event of a water crisis, where conflict appears imminent due to poor cooperation. In the event that Ethiopia fails to cooperate with the USAU, and tensions continue rising, the USAU could signal its willingness to relocate outside of Ethiopia until tensions subside.

The goals of this technical and financial support of Turkey and the U.S. should be to support the development of an inclusive legal framework, signed by all eleven member states. This framework should consider a) water allocation based on need and in the context of climate change, which the Environmental Security and Resilience task force can contribute to with the financing of third-party studies on regional water security b) discusses the operation of Nile dams during flooding, which Turkey and the U.S. can support through technical information on their unique

protocols established for U.S. and Turkish dams during emergencies, c) the divergent needs of both upstream and downstream states by outlining water allocation and minimum flows required to maintain health and ecology for downstream states, which Turkey could potentially contribute to given its own environmental and security challenges with its own dams, and d) work to be flexible, adaptive, and equitable considering the divergent needs of NBS and historic uses of the Nile.[75]

A partnership between the U.S. and Turkey is an opportunity for increased collaboration and engagement in NBS water cooperation. This bilateral support of ongoing negotiations would also be an opportunity to ensure that China does not increase its own technical and diplomatic support to Ethiopia or the African Union. If the U.S. specifically does not step up on this matter, China will likely increase its own diplomatic and financial efforts in the region.[76]

The U.S.-Turkish alliance could serve as an avenue to mend U.S.-Turkish bilateral tensions, while simultaneously supporting human security across the region through successful negotiations among NBS. Engagement on this issue will preempt and even prevent civil unrest and conflict, which is important to both Turkey and the U.S. given their investment in the region. Additionally, Turkey, with its own water course sharing experience, and the U.S., with its international and economic leadership, are each uniquely positioned to provide substantial support to NBS.

Concluding Remarks

The earliest documented war in human history is linked to the failure to cooperate on shared water resources. In the resource-finite world, the increasing capacity and development of one country often jeopardizes the security of another. This is certainly the case with the construction of the Renaissance Dam in Ethiopia. Unfortunately, the environmental cost is largely unknown, considering the potential impact on groundwater flow and seismic waves. In a country like Egypt, which has depended upon the Nile River for water and resources for millennia, the ramifications of the GERD are severe, especially considering social and political tensions.

As water scarcity continues to intensify, U.S. policymakers and the USAU should build upon shared strategic interests with Turkey to prepare for increased engagement in water cooperation between Egypt, Sudan, and Ethiopia. In the face of a water crisis, the U.S. can build upon common interests, like regional peace and stability, to leverage a partnership with Turkey to bolster regional African Union negotiations and watercourse agreements for Nile Basin States. The U.S. can also support the watercourse agreements by building upon the 1997 U.N. Convention on Watercourses, creating an Environmental Security and Resilience task force at its mission to the African Union, and bringing the current tensions to the attention of the UNSC. Through greater engagement, the U.S. and Turkey can work together to support diplomatic efforts to de-escalate tensions and strengthen trans-boundary watercourse cooperation along the Nile River Basin.

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Annex 1: Nile Basin State Watercourse Agreements and Implications

Agreement	Year	Signatories	Binding?	Details & Implications
Anglo-Ethiopian	1902	Great Britain and Ethiopia	Yes, for signatories	Focuses on the boundaries of the river; Ethiopia promised not to construct any water infrastructure along the Blue Nile that would impact Sudan's water access.
Anglo-Egyptian	1929	Great Britain (Sudan and other East African colonies) and Egypt	Yes, for signatories	Allocates a certain amount of water per state and established the water rights entitled by each signatory state.
Egyptian-Sudan	1959	Sudan and Egypt	Yes, for signatories	This treaty allows for the construction of the High Aswan Dam in Egypt, allocates more than 65 percent of the Nile water to Egypt. This treaty includes no upstream states and is the first to include no colonial power.
UN Convention on Watercourses	1997	International, two NBS: Kenya and Sudan	Yes, for signatories	Outlines the importance of state sovereignty during negotiations. Maintains that states should jointly agree on legal mechanisms for protecting and managing water and that states should have equitable water access. Article 5 outlines "Equitable and reasonable distribution" and article 7 outlines an "obligation to not cause significant harm" to international water courses.
Nile River Basin Initiative (NBI)	1999	Burundi, DR Congo, Tanzania, Rwanda, Uganda, South Sudan, Kenya, Ethiopia, Sudan, Egypt	Yes, for signatories	Legal agreement to determine the relevance of the previous treaties. Directed by the Council of Ministers of Water Affairs of Nile River states. Establishes the CFA.
Cooperative Framework Agreement (CFA)	2010	Ethiopia, Kenya, Uganda, Rwanda, Tanzania, Burundi. Ratified by Ethiopia,	Yes, if ratified by six signatories	Outlines water allocations, focuses on sustainable and equitable water distribution and management, and

		Rwanda, Tanzania, Uganda.[77]		economic and program implementation.[78] Makes no mentions of climate change, drought, and establishes no protocol on the operation of dams during flooding.[79] As of March 2011, the CFA was signed by six countries and ratified by four.
Agreement on Declaration of Principles (DoPs)	2015	Egypt, Ethiopia, and Sudan	Yes, for signatories	Trilateral agreement made considering the GERD construction. Broadly outlines equitable water sharing and cooperation agreements on water-resource use and obligates Ethiopia to notify Egypt and Sudan when filling the GERD reservoir. No protocol included on operation of dam in times of drought or flooding.[80]

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Assessing Chinese Nuclear Entanglement and Escalatory Risk via SSBNs in the South China Sea

Christopher Lay

This paper seeks to explore the extent of the People's Liberation Army Navy's (PLAN) nuclear entanglement within the South China Sea (SCS) via nuclear ballistic missile submarines (SSBNs) and analyze the risk this entanglement poses to escalation. To study these questions, this paper applies David Logan's framework for measuring entanglement and escalation variables to the behavior of Chinese SSBNs within the SCS. It will then discuss potentially effective U.S. responses to current and forecasted levels of Chinese entanglement and escalatory risks with the objective of limiting Chinese dominance in the region. In sum, this analysis finds that SSBNs are currently highly geographically entangled with moderate to low levels of operational and technological entanglements according to Logan's model. These levels are expected to rise significantly as competition over disputed territorial claims increases, Chinese military buildup continues, and Washington's Asia Pivot evokes responses from Beijing.

Background

In his assessment of Chinese nuclear capabilities, Admiral Liu Huaqing, referred to as the "father of the modern PLAN," stated that "fewer than 10% of China's land-based missiles would survive a large-scale nuclear first strike; less vulnerable submarine launched ballistic missiles (SLBMs) would preserve Chinese nuclear counterattack capabilities."[1] Since 2004, the PLAN has built six Type 094 Jin-Class SSBNs with four currently active. [2;3] Chinese strategists have favored the rapid buildup of SSBNs over ground based nuclear assets because their mobility and stealth enable an "expansion of the combat area" for Peoples Liberation Army (PLA) nuclear delivery systems while remaining difficult to detect and track. [4] While the rhetoric surrounding PLA SSBNs has been consistent with the Chinese desire to ensure second strike capabilities, these assets are becoming increasingly entangled with conventional forces within the SCS. With PLAN SSBNs sharing bases, patrol routes, operational procedures, and similar signatures with conventional assets, the potential for Beijing to mistake or interpret an altercation involving conventional assets as an offense against Chinese nuclear capabilities risks a dramatic escalation of conflict.

Understanding the level to which Chinese SSBNs are entangled with conventional forces in the SCS is imperative to understanding how low-intensity conflict with the Chinese in this contested region could escalate to a nuclear crisis. With Chinese claims to the SCS contradicting those of Brunei, Malaysia, the Philippines, Taiwan, and Vietnam, the likelihood of conventional conflict in the region is intensifying. [5] These territorial disputes come as the U.S. increases its operations and force posturing within the SCS in response to a resurgence of great power competition between Beijing and Washington. With Chinese conventional and nuclear assets competing with regional and global opponents in a territorially disputed space, understanding the relationship between Chinese nuclear entanglement and escalation will be key to informing the strategies of the U.S. and its allies seeking to contain China in the region.

Methodology

This paper applies David Logan's framework for measuring nuclear

entanglement and escalatory pressures to PLAN SSBNs within the SCS. As seen in Figure 1, this model divides the dimensions of entanglement into geographic, operational, and technological contexts, while escalatory pressures are classified as heightened vulnerability, target ambiguity, and warhead ambiguity.[6] This study will analyze the key examples within each dimension of entanglement and discuss them according to Logan's pressures for escalation to assess their current and future levels of entanglement and escalatory risks. These analyses will then be followed by the presentation of potentially effective U.S. responses, and a conclusion which assesses the overall extent of Chinese nuclear entanglement in the SCS.

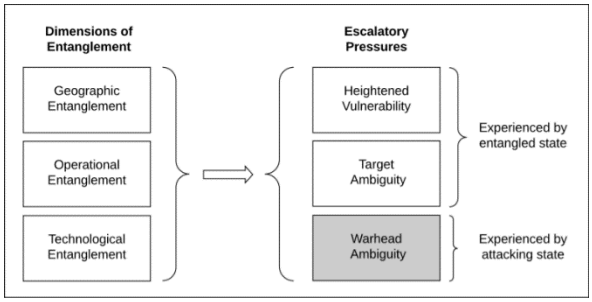

Figure 1: Escalatory Pressures from Nuclear-Conventional Entanglement[7]

Geographic Entanglement

Yulin Naval Base offers the most intense example of PLA geographical entanglement in the SCS. Located in southern Hainan, this base is the primary station for all PLAN SSBNs and attack submarines operating in the SCS.[8] While the base consists of multiple surface piers equipped for outfitting PLAN submarines and surface forces, satellite imagery also reveals submarines utilizing underground tunnels which allow them to be stored beneath the base itself.[9] Despite Zhanjiang Naval Base being the South Sea Fleet headquarters and station for its surface fleet, Yulin is also sizeable enough and outfitted to garrison a large amount of surface ships and air assets. Currently, Yulin can house at least two aircraft carriers and possesses an airstrip.[10] In 2020, Yulin also became the operational base for China's first domestically produced aircraft carrier under their Southern Theater Command.[11]

The entanglement of conventional and nuclear platforms operating from Yulin places the PLAN in a precarious position via Logan's heightened vulnerability and target ambiguity metrics. In terms of heightened vulnerability, any attack on Yulin, whether it be targeted at conventional surface warfare ships, attack submarines, SSBNs, or the base itself, would cause damage to PLAN nuclear strike capabilities. Even if it were possible to conduct an attack which only affected PLAN conventional assets, there would be an inevitable uncertainty for the PLA in assessing whether it was intended to diminish SSBN capabilities. This question would then be exposed to assessments from Beijing which may risk further escalation as party officials leverage the situation to pursue political objectives or misinterpret the intention of the strike due to prior biases. This is of particular risk to the U.S. as the American military strategy for a conflict with China seeks to rapidly target PLA bases to inhibit its ability to counter further U.S. actions in the region.[12] With SSBNs serving a crucial role in Chinese second-strike capabilities, this strategy would either directly target PLAN SSBNs or potentially promote enough uncertainty to incur a Chinese nuclear response.

This entanglement within Yulin and the escalatory risks associated are likely to increase. The current expansion of the base indicates the PLA intends to station more current and future assets at Yulin to pursue its strategic objectives. With the PLA increasing its operations and policing of unrecognized territorial claims in the SCS and Washington advancing its Asia Pivot, the PLAN will seek

to strengthen its position in the SCS through Yulin, intensifying the potential for escalation by entangling nuclear and conventional assets at the base.

Operational Entanglement

The PLA's willingness to employ nuclear forces for conventional operations exacerbate the entanglement and risks to escalation within the SCS. As the SCS is a contested territory for Beijing, PLA surface and airborne forces are routinely mobilized to inhibit foreign operations in the region, such as freedom of navigation and surveillance missions, and screen SSBN movements. With these conventional assets conducting anti-access and area denial (A2AD) operations to assert Chinese influence while also serving to protect SSBNs, any hostile action taken against them could be interpreted as a maneuver to jeopardize Chinese nuclear capabilities.

As the U.S. has a distinct interest in contesting Chinese attempts to dominate one of the most important maritime shipping routes in the world, U.S. naval operations in the region have steadily increased to support the freedom of navigation and collect intelligence. These missions have been met with Chinese A2AD operations and have led to continuous criticism from the U.S. over Chinese airborne and surface forces navigating dangerously close to U.S. assets. In 2009, the U.S. Naval Ship Impeccable, an unarmed surveillance vessel, found itself surrounded by five maritime militia ships in the SCS, and was eventually forced out of the region after the discharging of its water cannons failed to deter the vessels.[13] While Chinese officials claimed the Impeccable had strayed too close to the mainland, despite previous operations within the same space experiencing no Chinese response, it seemed more evident that the militia was mobilized to prevent information gathering on SSBNs deployed to patrol the region. [14;15] Had the Impeccable been outfitted and employed more destructive capabilities, the uncertainty surrounding whether these ships were protecting PLAN SSBNs or simply exerting control of territory may have led to an escalated situation.

Another factor increasing the operational entanglement of PLAN SSBNs is the vagueness surrounding how launch authority is to be transmitted to these submarines while operating. While deployed, SSBNs avoid maintaining constant lines of communication to better preserve their stealth. However, this lack of communication can exacerbate issues surrounding when and how nuclear weapons will be used in a crisis. While there was some debate as to whether Chinese SSBN nuclear weapons were under the authority of the PLAN or PLA Rocket Force, this conversation was remedied by China's 2013 white paper which indicated that no Ju Lang nuclear missiles fell under the control of the PLA Rocket Force, and that Chinese nuclear launches must be authorized by the Central Military Commission. [16;17] Therefore, this illustrates a risk to escalation borne from the difficulty in communicating with SSBNs after their departure from base. During conflict, PLAN SSBNs will need to rely on communication with the Central Military Commission which renders them more vulnerable to adversarial targeting systems. With no clear information on how SSBNs would respond if communications with their Central Military Commission were to be severed or the vessel itself were to be attacked, individual SSBNs may pose immense escalatory risks dependent on the conduct and training of each crew and the rapid threat assessments of the PLA and Beijing.

Technological Entanglement

While the delivery systems and payloads of SSBNs differ from their attack class counterparts, technological similarities

between PLAN SSBNs and attack submarines operating in the SCS illustrate a technological entanglement. As the PLAN submarine fleet continues to expand, more nuclear-powered attack submarines (SSNs) are entering the force, and they closely resemble the signatures and propulsion methods of their SSBN counterparts. This poses a direct threat of escalation to antisubmarine warfare (ASW) operations in the region, specifically those of the U.S. With Washington currently invested in maintaining their ability to target conventional Chinese submarines to deny Beijing's A2AD capabilities, the risk of misidentifying an SSBN as an attack submarine is considerable. Even Chinese researchers such as Wu Riqiang have stated that PLAN SSNs and SSBNs are likely difficult for U.S. sensory platforms to individually identify and will be even more so in noisy waters.[18] This potential for escalation from the difficulty of identifying the class of PLAN submarines in the field is further compounded by SSBN operations within the SCS. While attack class submarines are more effectively equipped for PLAN SCS objectives of A2AD and shipping lane protection than SSBNs, SSBNs are known to patrol similar routes with potentially armed nuclear warheads.[19] This intensifies the risk calculus for other actors when the presence of a nuclear-powered submarine its detected without confidently identifying its class.

In the case of an SLBM launch, there should be little ambiguity in terms of whether the warhead is nuclear. While PLAN SSBNs may be difficult to classify while submerged, their nuclear payload and delivery systems differ greatly from their conventional counterparts. PLAN SSBNs are the only submarines which categorize their SLBM capabilities as their primary weapon system. While PLAN Type 091 nuclear attack submarines carry the YJ-1 subsonic cruise missile and Type 093 attack submarines are rumored to possess land attack cruise missiles, their mission sets are meant to capitalize on their torpedo capabilities. [20] With cruise missiles less likely to be fired from attack submarines and being less than half the size of the almost eleven-meter and thirteen-meter Ju Lang nuclear missiles, payloads should be easily discernable. [21] So long as the PLAN separates the strike missions of attack class submarines and SSBNs, the potential for actors targeted by SLBMs to misidentify a conventional strike for a nuclear one should be limited.

U.S. Response Strategies

For the U.S. to ensure the containment of China in the SCS while limiting the risks to escalation from PLAN entanglements, it must set more clear standards for how it will respond to Chinese conventional and maritime militia hostilities. While some ambiguity aids deterrence, there is currently too much uncertainty in U.S. strategy in the region and too little understanding for how U.S. and Chinese forces should communicate to deescalate operational tensions. Additionally, the U.S. must leverage its advanced assets and regional alliances within the SCS against the less capable PLA platforms, alliances, and Beijing's vocal commitment to restraint to set SCS norms and define intolerable PLA actions in the region. Convincing the PLA of specific military, economic, and diplomatic consequences for actions deemed inappropriate will be key to fostering stability. Furthermore, this will enable better partnerships between the U.S. and its allies as a more cohesive strategy is presented which current and potential allies can better understand and facilitate.

Intensified U.S. investment in regional militaries will also be crucial in exploiting China's geographical disadvantage in the SCS. With Chinese

claims to this region enveloped by regional opponents and adjacent to powerful U.S. allies, a regional alliance could exert enough pressure on Chinese territorial claims to overly stretch PLA assets. U.S. strategy to improve relations, capabilities, and military stationing with states opposing Chinese claims should also be invigorated by recent PLA increases in hostilities and maritime buildup, thus allowing for a potential coalition approach to the issue. With groundwork already in place between major powers friendly to the U.S. in the region, such as the Quadrilateral Security Dialogue and partnerships with actors such as Taiwan and the Philippines, the U.S. certainly has a foothold for cooperation in the region.

Conclusion

While geographic entanglement and escalatory risks of Chinese SSBNs in the SCS are currently high, operational and technologic entanglements and risks are respectively moderate and low. Moving forward, intensifying competition between China and its regional opponents over the SCS, PLA military buildup, and increased U.S. force posturing in the region will drastically magnify Chinese nuclear entanglement across all dimensions. Specifically, through Yulin Naval Base's constant expansion and the increase of PLAN operations, more conventional assets will be stationed and operating alongside SBBNs in the region. [22] Future research should be focused on understanding how these developments will interact with the relationships between Beijing and its SCS competitors to influence escalatory risks. Currently, the U.S. must leverage its more advanced military capabilities, alliances, and geographical advantage in the SCS to better define the threshold for conflict in the region and mitigate the risks to escalation from expanding Chinese nuclear entanglement.

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Chris is a current student at Georgetown's security studies program with a background in research on emerging technologies, foreign policy, and national security which includes work for the Special Operations Joint Task Force Afghanistan, Department of State, and guest lecturing on artificial intelligence at American University. This May, Chris will be graduating from Georgetown with an MA in security studies and a concentration in international security.

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Blurring the Line of Foreign & Domestic

An Application of Terrorism Financing Laws to U.S.-Based Right-Wing Extremist Organizations with International Ties

Sarah M. Moore

U.S. counterterrorism scholars and policymakers often speak of domestic and international terrorism as mutually exclusive categories – though the reality of the situation is much murkier. This article argues that the transnational connections of U.S.-based right-wing extremist (RWE) organizations, such as Atomwaffen Division (AWD), The Base, and the Rise Above Movement (RAM), demonstrate this blurred boundary and allow for an expanded application of laws pertaining to "international" terrorism financing. Throughout this piece, readers will explore these actors' connections to groups in Western Europe, Russia, and Ukraine; examine U.S. terrorism financing laws writ large; and consider the application of such laws to U.S.-based RWE organizations with international ties. Overall, this article concludes that the U.S. should capitalize on the transnational connections of U.S.-based RWE organizations by designating them as foreign terrorist organizations (FTOs) to better track, surveil, and ultimately stop the financing of these dangerous groups.

Introduction

"All told, so-called domestic terrorists have gone global: they've become transnational in influence and impact…domestic terrorism isn't purely 'domestic' any longer, and must be treated with the same commitment and resources as the international terrorist threat."[1]

U.S. counterterrorism strategy has long maintained that a clear boundary delineates international and domestic terrorism. Yet, this distinction is often contested in practice, as pointed out above by legal scholars Joshua A. Geltzer and Mary B. McCord. From the international side, there are numerous cases of individuals within the U.S. inspired by a transnational ideology, such as the violent Salafi-Jihadist worldview of the Islamic State of Iraq and the Levant (ISIL) and al-Qaeda. This article, however, examines the reverse: individuals in the U.S. inspired by a violent "domestic" ideology, such as white supremacism, who form transnational networks to secure funding, establish paramilitary training camps, and seek protection from U.S. prosecution.

Some argue that comparing U.S.-based right-wing extremist (RWE) groups to international organizations like ISIL and al-Qaeda is fundamentally flawed, as RWE groups do not present the same level of threat to the U.S. They also claim that the international connections of these groups are largely fictional or mere op-ed fodder. However, U.S. Attorney General (AG) Merrick Garland stated on May 12th, 2021 that "the top domestic violent extremist threat [the FBI] faces comes from 'racially or ethnically motivated violent extremists, specifically those who advocate for the superiority of the white race…The government should also be concerned about interactions between domestic violent extremists, particularly racially motivated and ethnically motivated

ones where there are similar groups, particularly in Europe, with similar ideological ties, sharing information."[2] Ultimately, this article will demonstrate that U.S.-based RWE organizations represent a clear and present threat to the homeland, and their transnational connections enhance their lethality.

This piece opens with an exploration of RWE organizations and their international connections with actors in Western Europe, Russia, and Ukraine. Next, it analyzes the various legal routes in U.S. criminal code for tracking and surveilling the financing efforts of terrorist organizations. Finally, an application of these legal pathways to U.S.-based RWE organizations with established transnational connections will be considered, including both the strengths and limitations of such an approach. Overall, this article argues that the transnational connections of U.S.-based RWE organizations offer a unique opportunity for U.S. intelligence and law enforcement communities to surveil, track, and ultimately disrupt these groups.

The Transnational Connections of U.S.-Based RWE Organizations

Americans tend to conceive of RWE as a purely domestic phenomenon. However, growing evidence suggests increasingly frequent communications between leaders of domestic organizations, such as The Base and the Rise Above Movement (RAM), and foreign contacts, especially those in Western Europe, Russia, and Ukraine. According to Center for Strategic and International Studies terrorism expert Seth Jones, "right-wing extremists are increasingly traveling overseas to meet and exchange views with like-minded individuals. These foreign connections have provided far-right groups with an opportunity to improve their tactics, develop better counter-intelligence techniques, harden their extremist views, and broaden their global networks."[3] These foreign connections are further documented in the manifestos of "lone wolf" actors,[4] such as 2019 Christchurch, New Zealand shooter, Brenton Tarrant; 2019 El Paso, Texas shooter, Patrick Crusius; and 2011 Oslo, Norway shooter, Anders Breivik. RWE actors have gone global – and the U.S. needs to adapt its counterterrorism response accordingly.

In Russia, U.S.-based RWE organizations are forging connections with like-minded white supremacists, hosting paramilitary training camps, and finding haven from U.S. prosecution. In one such example, Jared Taylor, founder of American Renaissance, and Matthew Heimbach, Unite the Right organizer and leader of the Traditionalist Workers Party, met with ultranationalist Russian political leaders in 2015 and 2017, respectively.[5] Russia has provided safe haven for paramilitary training for white supremacist foreign fighters alongside groups like the U.S.-designated foreign terrorist organization (FTO), the Russian Imperial Movement (RIM).[6]

Russia has hosted leaders of U.S.-based RWE organizations and platforms. Rinaldo Nazzaro, leader of The Base and a U.S. citizen, is believed to be living in Russia and possibly working with the Kremlin – all while avoiding U.S. prosecution.[7] Another example includes the neo-Nazi forum, Iron March, which launched groups such as the Atomwaffen Division (AWD) and was hosted by the Russian site "International Third Position Forum," which was founded by Alisher Mukhitdinov from his home near Moscow.[8]

The tacit state sponsorship of these various U.S.-based groups likely furthers Russia's strategic goal of undermining Western democracies and with tensions increasing between Russia and former Soviet Union countries like Ukraine and Kazakhstan, foreign fighters from U.S.-based RWE organizations may soon have the opportunity to hone their fighting skills.

Like Russia, Ukraine has played an active role in currying favor among U.S.-based RWE organizations. The Ukrainian white supremacist paramilitary organization Azov Battalion has established its own "Western Outreach Office" to recruit foreign fighters from countries like the U.S and Western Europe.[9] The group has previously hosted U.S. citizens from RAM, as well as British citizens from the National Action organization and citizens from Norway, Italy, Germany, Brazil, Sweden, and Australia. Brandon Russell, one of the founders of AWD, has also alluded to sending members over to Ukraine to train in paramilitary camps and is working to establish a Ukrainian branch of AWD.[10] The attraction of both Ukraine and Russia to U.S. white supremacists has created a unique phenomenon in which ideologically-similar foreign fighters may end up on opposite sides of the battlefield in Eastern Europe.

The U.S. government is becoming increasingly aware of the threat posed by the transnational connections among domestic RWE organizations. In early 2020, the State Department considered adding AWD as an FTO at the behest of Congressman Max Rose and other think tanks and NGOs, including the Soufan Center and the Anti-Defamation League (ADL).[11] These requests for designation expanded into 2021, with Congresswoman Elissa Slotkin calling on the State Department to designate organizations such as AWD Deutschland, Azov Battalion, Feuerkrieg Division, RAM, and Sonnenkrieg Division as FTOs.[12]

Foreign governments, too, have recognized the danger of these transnational connections. In February 2021, Canada added three U.S-based RWE organizations – the Proud Boys, AWD, and The Base – to Canada's terror entity list.[13] Similarly, the United Kingdom listed AWD and its successor, the Nationalist Socialist Order, as terrorist organizations.[14] These efforts indicate a growing awareness amongst both the U.S. and foreign governments of the danger presented by U.S.-based RWE organizations and their international connections.

Anti-Terrorist Financing Laws in U.S. Code

Despite the clear threat presented by RWE organizations, U.S. counterterrorism efforts are often stymied by the "domestic" nature of the threat, as counterterrorism tools in the U.S. are designed to target "international" organizations – a problem especially prevalent when combating terrorism financing. The U.S. Department of the Treasury lists the following legal statutes as those primarily used to combat and prosecute terrorist financing[15]:

- 18 U.S.C. § 2339A – Providing material support or resources to terrorists
- 18 U.S.C. § 2339B – Providing material support or resources to designated terrorist organizations
- 18 U.S.C. § 2339C – Financing terrorism[16]

Despite the generic wording of these three statutes, the following analysis will

demonstrate that they are designed and/or used in practice to exclusively target international terrorism – leaving "domestic" terrorism largely unchecked.

Statute 2339B is the most explicitly international in scope, as it defines "designated terrorist organizations" as those listed by the State Department as *foreign* terrorist organizations (FTOs). Thus, material support,[17] including financial contributions, to any domestic terrorist organization or any group with transnational connections unlisted by the State Department as an FTO cannot be prosecuted under this statute.

While less explicit than 2339B, the jurisdiction of statute 2339C belies its primarily international focus. For an offense which takes place in the U.S. to be prosecuted under 2339C, it must either: 1) be perpetrated by a national of another state; 2) occur on-board a foreign vessel / aircraft; 3) target a national and/or affiliated institution of another nation; 4) compel another state or international organization in some way; or 5) further an act designed to be implemented *outside* the U.S. or to affect foreign commerce. A cursory examination of the Prosecution Project's (tPP) database shows that, of the 2,609 court cases involving extremism / terrorism in the U.S. since 1990, only one was prosecuted under 2339C.[18] This was the 2007 case of Abdul Tawala ibn Ali Alishtari, also known as Michael Mixon, a U.S. citizen who pled guilty for wiring money in support of terrorist training camps associated with the Muslim Brotherhood. Notably, Alishtari was unable to be prosecuted under 2339B, as the Muslim Brotherhood is not a designated FTO. Nonetheless, it is still noteworthy that this case involves support of a *foreign* terrorist entity.

Statute 2339A was ostensibly created as an alternative to 2339B and 2339C to allow for the prosecution of terrorists not linked to an FTO,[19] though this is not often the case in practice – most likely due to prosecutors' reluctance to engage in the political debate over who constitutes a "terrorist" in the court room without an FTO designation. The tPP database shows that of the 75 cases prosecuted in the U.S. from 1990 to 2020 under 2339A, 74 of the cases involved connections to FTOs, such as al-Qaeda, ISIL, Tehrik-e-Taliban Pakistan (TTP), and the Revolutionary Armed Forces of Colombia (FARC).[20] These cases often charge the defendant with one or more counts of 2339B in conjunction with 2339A. The one outlier is the 2014 prosecution of Eric Feight, a U.S. citizen and known associate of the American Christian Dixie Knights of the Ku Klux Klan (KKK).[21] Feight pled guilty for plotting to kill American Muslims with a truck-born radioactive weapon. The case of Feight demonstrates that, while it is possible to prosecute U.S. citizens with no international connections under existing terrorism financing statutes, these cases are extremely rare.

Critics may argue that, although U.S.-based RWE organizations are virtually unable to be charged under existing terrorism financing laws, other laws for criminal financing more broadly, such as the Racketeer Influenced and Corrupt Organization Act (RICO), will fill in the gaps. But this argument ignores that the majority of (known) U.S.-based RWE financing comes from licit transactions. Terrorism financing laws combat this by criminalizing *any* monetary support for the terrorist organization, even for funds which were lawfully obtained by their donor.

Terrorism financing laws are powerful in other ways. Following the events of September 11th, 2001, the U.S. Treasury Department was granted the ability to block the assets of foreign perpetrators, entities, and supporters who attempt to commit or facilitate acts of terrorism. The consequences of this law include 1) the deterrence of donations / contributions to designated entities; 2) disruption of terrorist networks by cutting off access to financial resources; and 3) legalization of the surveillance of financial transfers to designated entities.[22] Once again, designated entities here specifically refer to FTOs and a comparable act for suspected domestic terrorist organizations does not exist.

The application of terrorism financing laws is not only important to deny sources of funding, but is essential in identifying and disrupting terrorist networks, prosecuting financial backers and terrorist sympathizers, and granting authorities surveillance powers. Limiting these powers to only "international" terrorism – especially when U.S.-based RWE organizations have transnational connections – is a serious oversight in U.S. national security policy.

Application of Existing Anti-Terrorism Financing Laws to U.S.-Based RWE Organizations

In order to highlight the limitations of current terrorism financing capabilities for U.S-based RWE organizations, the following sections will examine what is known and unknown about these groups' finances. This is followed by an analysis of what is known about a group that *is* prosecutable under current terrorism financing laws – American ISIL supporters. This comparison aims to demonstrate the blind spots in tracking and disrupting U.S.-based RWE organizations that could be addressed, should U.S. intelligence agencies and law enforcement apply terrorism financing laws to these groups on the basis of their transnational connections.

The Known

Despite the lack of comparable terrorism financing laws for U.S.-based RWE organizations, researchers and legal scholars have been able to track a multitude of revenue streams. Reports from the ADL[23] and the Soufan Center[24] categorize the known sources of funding for U.S.-based RWE organizations into four buckets: licit business ventures, crowdfunding, cryptocurrency, and criminal financing.

Licit Business Ventures

Licit transactions make up the bulk of U.S.-based RWE organizations' funding. This is especially dangerous because, without applying terrorism financing laws to these organizations, these revenue streams may go completely undetected and unmonitored; they are unable to be surveilled under generic criminal financing laws. The first such type of licit transactions are various business ventures by RWE actors. Members sell white supremacist-related merchandise, such as T-shirts with white power symbology or slogans, on online sites like E-bay and Inktale.[25] Some of these sales even have international connections. RAM founder, Robert Rundo, for one, imports items from the clothing line of Denis Nikitin, a Ukrainian white supremacist, to sell in Southern California.[26] Other U.S.-based RWE organizations profit off the sale of white supremacist literature, such as *The Turner Diaries* or *Siege*, which are often

banned by regular booksellers. The sale of hate music is also a popular avenue for these organizations, especially those affiliated with the skinhead movement where hate-rock remains a powerful symbol of the subculture. Indeed, leaders in the RWE movement, like *The Turner Diaries* author William Pierce, have capitalized upon the hate music trend: Pierce purchased Resistance Records in 1999, taking advantage of the U.S.'s First Amendment protections to distribute hate-rock to those countries which ban its sale.[27] The sale of white supremacist-related merchandise will remain a source of revenue for these organizations as long as they continue to fill a gap in the market that other formal businesses are loathe to enter.

Beyond the sale of merchandise, RWE organizations also host a number of events which generate profit for their respective organizations. To have access to some of these events, membership and dues are required. The National Socialist Movement, for example, requires members to pay $10/month, which rounds to about $40,000 a year from its 300 – 350 members.[28] Events, such as white power music concerts and white supremacist conferences, also require tickets. The ticket pricing can run anywhere from a few dollars to see a local hate-rock band to $250 for entry to Richard Spencer's National Policy Institute conferences.[29]

Some of these events have an international nexus as well – highlighting the transnational connections of these groups. In 2018, RAM members traveled to Europe to fight in a number of mixed-martial arts events designed to prove their "warrior spirit."[30] This included events such as the Shield and Sword festival on Hitler's birthday in Ostritz, Germany, as well as boxing matches in Kiev, Ukraine organized by local white supremacist fight clubs. Events often serve a dual purpose: generating revenue for the organization and providing fertile grounds for recruitment and radicalization of potential new members.

However, not all of the business ventures undertaken by RWE organizations are related to their ideology. Many organizations rely on self-funding via paychecks from regular jobs and/or side ventures. U.S. citizen, Ben Klassen, founder of the Church of the Creator, funded his organization through profits generated via real estate dealings.[31] Additionally, AWD leader John Cameron Denton stated that members should "pool money to purchase lands in rural areas so they can get the f*** off of the grid."[32] Again, without the surveillance powers of terrorism financing laws, licit business ventures with no connection to an RWE ideology will likely remain undetected.

Crowdfunding

Another popular revenue stream for RWE organizations is crowdfunding via online social media platforms – a licit form of fundraising that is unable to be surveilled under generic criminal financing laws. These platforms range from popular sites like Twitter, YouTube, and Facebook; to specialized sites like GoFundMe, Patreon, FundRazr, and Kickstarter; and to explicitly RWE sites, such as GoyFundMe and Hatreon.[33] Crowdfunding on these sites can be extremely lucrative for RWE organizations. The 2017 WeSearchr campaign for Daily Stormer founder, Andrew Anglin, raised over $159,399 from 2,000+ donors to pay for Anglin's civil lawsuits.[34] Similarly,

Christopher Cantwell, who threatened to kill and maim counter-protesters at the 2017 Unite The Right rally, raised over $28,000 on GoyFundMe to assist in his legal defense.[35] Crowdfunding capitalizes upon the many RWE sympathizers internationally, including those who are unable or unwilling to actively participate in the movement, but are happy to provide passive support.

In selecting crowdfunding as one's revenue stream of choice, the selection of platform comes with both advantages and disadvantages. Larger platforms like Twitter and Facebook allow members to reach more potential donors. Algorithms of platforms like YouTube allow RWE users to target and even radicalize potential donors in a way that non-algorithmic platforms cannot offer. However, these larger sites have also increased their monitoring of hate speech online and have taken steps to remove RWE crowdfunding access to their platforms. For instance, RWE members were kicked off the crowdfunding platforms of GoFundMe, Patreon, and YouCaring in 2017.[36] Like many aspects of the U.S.'s online counterterrorism strategy, this is often like playing a game of whack-a-mole – RWE organizations are kicked off one platform, only to pop up under a different alias or creating a new site altogether. While this strategy makes it harder for RWE organizations to crowdfund online, they will never fully disappear, and any slip in content moderation allows their accounts to proliferate.

Cryptocurrency

As traditional means of digital payments such as PayPal and Google Wallet[37] increasingly deny access to RWE members, some organizations have turned to cryptocurrency as an alternative – which is another revenue stream unable to be disrupted, per U.S. terrorism financing laws. As stated by Matthew Parrott of the Traditionalist Worker Party, there's a "sweeping shift toward relying on blockchain-driven technologies [i.e., cryptocurrencies like Bitcoin or Ethereum] instead of traditional corporate internet."[38]

This technology allows for anonymity in terms of personal identification and limited government oversight, making it particularly attractive to RWE organizations. Bitcoin has allowed high-profile individuals to amass fortunes – including Daily Stormer members Andrew Anglin ($25 million in Bitcoin) and Andrew Auernheimer ($1 million in Bitcoin).[39] Richard Spencer has even called Bitcoin "the currency of the far-right."[40] While cryptocurrency is an increasing popular form of financial transactions for RWE organizations, little is known about these revenue streams beyond those virtual wallets with known identifiers.

Criminal Financing

While the previously listed revenue streams represent legal forms of financing, some RWE organizations also engage in illegal financing through various criminal activities – the only form of funding currently able to be combated by U.S. law enforcement without an application of terrorism financing laws. Examples of these crimes include drug dealing, robbery, petty theft, and counterfeiting. Of the various RWE organizations, white supremacist prison gangs like the Aryan Brotherhood (AB) tend to engage in this type of financing most frequently.[41] Examples of such crimes include:

- The Aryan Republican Army's bank robbery spree in the 1990s which raised over $200,000.[42]
- The 2011 – 2016 investigation into the AB Folsom Prison-based network, which was engaging in the sale of significant volumes of heroin and methamphetamine.[43]
- Robberies involving multiple members of RAM – including Tyler Laube, Robert Boman, and Matthew Branstetter.[44]

These illegal forms of fundraising have been prosecuted. There are numerous examples in which RWE organizations, specifically white supremacist prison gangs, are charged under the RICO Act and sentenced to prison terms.[45] Such charges allow for the close inspection of financing schemes, including an ability to surveil, trace, and block financial assets which are not available to law enforcement officials attempting to track *licit* RWE transactions.

In sum, while these four streams of revenue – licit business ventures, crowdfunding, cryptocurrency, and criminal financing – provide the best insight into the financial activities of RWE organizations, U.S. law enforcement is ultimately hindered by their legal inability to disrupt and surveil otherwise licit forms of fundraising.

The Unknown

While researchers have gathered some insight into RWE organizations' financial patterns, this pales in comparison to what researchers are able to gather regarding U.S-based supporters of FTOs. In 2020, George Washington University's Program on Extremism released a report on the financing patterns of American supporters of ISIL.[46] The granular level of detail within the report is astounding. The researchers were able to track "licit" forms of fundraising back to their sources – namely, donations, asset sales, new credit lines, injury lawsuits, and income tax returns. Similarly, researchers detailed the sources of illegal fundraising, including financial aid fraud, illegal sale of firearms, armed robbery, drug trafficking, bank fraud, and embezzlement. The report documented all financial transactions across the following variables: 1) transaction dates, 2) sender's name / city / country; 3) recipient's name / city / country; 4) monetary value of sent items; 5) acquisition methods (e.g. personal savings, bank fraud, robbery); 6) movement method (e.g. in-person transfer, bank wire transfer); and 7) service used (e.g. Western Union, Bitcoin, Visa prepaid card). Importantly, this information comes primarily from the court documents used to charge and prosecute the American ISIL supporters – meaning that this level of knowledge would be unavailable if there were no applicable criminal charges for the financial transaction.

This is the crux of the current dilemma: while researchers and scholars of RWE organizations can invest time and money into investigating the various revenue streams, there will always be barriers to the depth of knowledge available from these investigations, especially when the financial transactions undertaken by these organizations are licit. These organizations learn from both ideologically-similar and -dissimilar contemporary groups. For instance, the content moderation strategies aimed to target groups like ISIL online are the same strategies employed against hate speech / RWE content – meaning RWE organizations can therefore employ the same evasion tactics used by

ISIL.[47] RWE organizations are also historically tech savvy – in fact, Louis Beam, a key leader of the KKK, created an encrypted messaging board called Liberty Net in 1984, decades before similar encrypted messaging apps would be developed.[48] As technology evolves, so will these organizations. It is thus reasonable to conclude that there is much researchers are unable to learn about the financing of these groups since open-source investigation can only go so far. In order to develop a comparable level of understanding of RWE organizations' financing, steps must be taken to adapt the U.S.'s legal structure to the current (and future) threat.

This paper offers one such solution – utilizing FTO designations on the basis of the transnational connections of U.S.-based RWE organizations. By capitalizing upon the international relationships between these groups and foreign nationals in countries like Ukraine and Russia, the State Department can make the case for adding these organizations to the designated FTO list. Again, this designation grants the Treasury Department significant power in investigating the financial transactions of these various groups. Funding is the backbone of all terrorist organizations – cut off their revenue stream and you hinder the group's ability to radicalize, recruit, train, and execute plots. The U.S. should therefore list RWE organizations whose transnational connections meet the FTO threshold as such, and finally begin to surveil and stop the financial transactions which are the lifeblood of these dangerous groups.

Limitations

While there are many advantages of this recommended strategy, it is necessary to discuss the limitations. The first and most serious of these concerns is the potential negative impact on the civil liberties of U.S. citizens. Counterterrorism strategies straddle the line between national security and individual freedom. In the case of U.S.-based RWE organizations, the First Amendment provides protection for these groups in terms of freedom of speech, press, and assembly. These constitutional rights prohibit, for example, the creation of a comparable Domestic Terrorist Organization (DTO) list[49] – and for good reason.

Constitutional debates also arise around the criminal statutes that prosecute terrorism and terrorist financing. In one example, the Supreme Court considered the case *Holder v. Humanitarian Law Project,* which contested the legality of 2339B. Here, the court ruled that: "[t]he First Amendment does not protect political speech or expressive conduct that materially supports foreign terrorist organizations."[50] Because the U.S. has previously examined the ramifications on civil liberties in the prosecution of material support for FTOs, this article argues that the utilization of RWE organizations' transnational connections for FTO designations represents the best strategy for simultaneously monitoring and ultimately stopping the threat, while also building on case precedent and oversight concerns, which already exist to protect U.S. citizens.

Another limitation is the potential for abuse of such an application of terrorism financing laws. While the threat of RWE organizations is well-documented, it is possible that future politicians or scholars will support efforts to utilize the foreign connections of a politically controversial, non-

violent organization to list the group as an FTO and monitor their finances in the manner proposed above. For instance, though scholars tend to lean away from designating the anti-fascist (Antifa) movement as terroristic,[51] it is conceivable that politicians against the movement would capitalize upon their international origins and contemporary European compatriots to designate the movement as an FTO.[52] As with all laws, it is impossible to know how they will be used (and misused) in the future. Policymakers should therefore consider the future ramifications of adopting such an approach through 1) careful application, including clear analysis of foreign connections; 2) legal oversight, including Congressional committees to examine the actual outcomes of this approach; and 3) a re-examination of sunset provisions within the State Department's FTO list, so that organizations may be added and removed based on their *current* level of threat.

A third limitation associated with the proposed application of terrorism financing laws is the banking process known as "de-risking."[53] De-risking refers to the restriction of financial services from major global banks to certain regions where terrorism financing is perceived to be a high risk. One example is British bank, HSBC, which was charged nearly $2 billion after a Department of Justice probe found its money-laundering procedures inadequate.[54] However, de-risking can cause banks to refuse service to human-rights organizations that operate in conflict zones such as Syria and Iraq, out of fear that the charities and NGOs are actually fronts for terrorist organizations. In one study, 305 charities operating in these areas reported delays in wire transfers, requests for unusual additional documentation, increased fees, and account closures.[55]

In the case of RWE organizations, the potentially affected foreign region would be Europe (both Western – e.g., the United Kingdom, Germany, and France – and Eastern – e.g., Russia and Ukraine). Fortunately, this region in recent years has not seen large-scale conflict to the same extent as countries like Syria, Iraq, and Afghanistan. Furthermore, these countries tend to be wealthier than their Middle Eastern counterparts and represent a greater share of international commerce. Banks are less likely to enact de-risking in Europe following any designation of RWE organizations as FTOs, because it would have a greater impact on their business operations than retracting banking access in conflict zones. Although there are limitations to the adaptation of terrorism financing laws to RWE organizations, these concerns can be mitigated through careful application and oversight, as well as an understanding of the potentially dire consequences of leaving these revenue streams unchecked.

Concluding Remarks

"International terrorism by foreign white supremacy extremist groups warrants attention and action by the U.S. government synonymous to that afforded to foreign jihadist extremist groups; only then can the United States meet the challenge."[56]

In conclusion, this article proposes that the State Department add RWE organizations with existing transnational connections – such as AWD, The Base, RAM, and others – to their FTO list in order to allow for the full application of the U.S.'s terrorism financing laws. The preceding sections have laid out 1)

the extent of the transnational connections of these organizations, including to actors and groups in Ukraine and Russia; 2) the laws at the disposal of U.S. prosecutors in terms of terrorism financing; and 3) a glimpse into the financing patterns of U.S.-based RWE organizations. Ultimately, this paper finds that, while government and financial entities have some limited capacity to track and trace the financial transactions of the organizations, these tools would be strengthened significantly if the groups were designated as FTOs.

Although there are challenges to this approach, including potentially adverse effects on civil liberties, political abuse, and de-risking, the benefits of this strategy outweigh the concerns – and the implementation of certain oversight measures can help to protect against these outcomes. As global challenges arise, whether that be COVID-19, the Ukraine-Russia conflict, or contentious political elections, U.S.-based RWE actors with transnational connections will inevitably adapt and respond – and the U.S. must be prepared.

Recommendations

- Scholars, law enforcement, the intelligence community, and policymakers should work together to create a list of qualifying U.S.-based RWE organizations, such as the Base, AWD, and RAM, with clear, well-documented transnational connections to present to the State Department for FTO consideration.
- The State Department should carefully scrutinize the proposed organizations and designate FTO status as appropriate.
- The Treasury Department should then utilize the FTO designation to surveil and disrupt the financial transactions of these groups.
- Congressional oversight committees and presidential task forces should be tasked with examining the ramifications of such a designation and ensuring the protection of American civil liberties.
- Policymakers and State Department officials should re-examine the sunset provisions of the FTO list so that organizations are added and removed based on their *current* level of threat, thus preventing misuse of the designation.

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Magnifying Glasses and Masks
AI for Attribution and Counter Attribution in Cybersecurity

Karson Elmgren

"Who did it?" is a simple question that is not so simple to answer when it comes to illicit activities perpetrated through computer networks. Nevertheless, cybersecurity analysts have managed in many cases through painstaking efforts to identify organizations and individuals responsible for offensive cyber operations. Attackers, for their part, have invented countless clever tactics to evade identification, obfuscating their traces to frustrate and confuse analysis, and sometimes even planting red herrings in an attempt to pin the blame elsewhere.

In cybersecurity, continually evolving hardware and software systems create new opportunities for both offense and defense, sometimes suddenly and often unpredictably. Recently, machine learning-based artificial intelligence (AI) systems have garnered wide interest for their potential to automate aspects of both defensive and offensive cyber operations, such as detection and interdiction of intrusions, or propagation of malware. Less attention has been paid to the implications of AI for the offense-defense balance between attribution and its nemeses, obfuscation and deception. In this paper, I discuss to what extent emerging AI techniques might affect the dynamics of attribution and possible policy implications.

"Attribution" refers to the association of a threat activity with an adversary, either the operator or the ultimate sponsor. I use "obfuscation" to refer to attempts to prevent attribution entirely, "deception" to refer to attempts to cause incorrect attribution, and "counterattribution" to refer to all efforts to prevent specific, correct attribution in general, including both obfuscation and deception. By "AI," I refer to any automated system that is designed to perform tasks normally considered to require human-like intelligence. I focus on machine learning-based AI due to its recent progress and promise of further advances.

Attribution

Several experts have expressed optimism about the potential for AI to enable attribution. Wenke Lee, a computer science professor at Georgia Tech, described attribution as "very ripe" for machine learning applications based on forensic data from malware, hosts, and infrastructure.[1] Automated methods could enable clustering of more highly dimensional data at much higher volumes into activity groups across "horizontal linkages."[2] FireEye, a leading cybersecurity firm, has developed a machine learning pipeline which can automatically cluster new cyber-attack data with pre-existing data to accelerate attribution.[3]

One particularly relevant capability of deep learning for attribution is fuzzy pattern recognition, an ability which can replicate the split-second judgments and intuitions that humans develop through long experience in a certain domain. For example, deep learning systems have demonstrated superhuman performance on the classification of low-resolution satellite imagery.[4] Even more impressively, last year DeepMind's AlphaFold effectively solved protein-folding, a notoriously challenging task in biology that conventionally required extensive manual effort and hard-to-specify expert intuitions.[5] Cybersecurity analysts similarly rely on intuitions built up over long hours poring over artifacts from various threat groups as one type of clue to attribution. Igor Soumenkov, a highly respected analyst at Kaspersky Labs, expressed as much when he opined on the Olympic Destroyer attack that "Chinese

code is very recognizable, and this looks different."[6]

Given the right means of structuring input data, AI might prove capable of matching and surpassing expert human intuitions as to malware authorship as well. One recent study by Israeli researchers has shown a proof of concept for end-to-end use of deep neural networks for precisely this purpose.[7] Their work suggests that deep learning may be able to detect subtle similarities between separate cyber units from the same state that a human might miss, potentially providing a new type of evidence especially useful for never-before-seen threat groups. These researchers found that arbitrary hexadecimal values, which might usually be ignored by security researchers, were some of the most indicative features.[8] Even if AI techniques are not able to surpass the trained eye of an experienced analyst, a system providing decent guesses at machine speed could make a human analyst vastly more efficient.

Besides sophisticated pattern matching on forensic data, AI might also facilitate attribution in other parts of the intelligence cycle. For example, a participant in a workshop on AI and cybersecurity speculated that adversarial machine learning might be used to manipulate attackers into divulging identifying information.[9] One can imagine creating more convincing honeypots by generating realistic-seeming user behavior and network traffic using a generative adversarial network (GAN), which can produce extremely high-quality synthetic data mimicking whatever data distribution was used as training data.[10] AI also shows promise for open-source intelligence by aggregating unstructured internet data, filtering large quantities of data for relevance, and identifying entities in image data with computer vision.[11]

However, attribution often relies less on brilliant insights distilled from oceans of information than on an adversary's clumsy operational security missteps. Timestamps, reused passwords, distinctive strings, metadata, undisguised infrastructure — if an attacker is careful, they can scrub away these traces; often, however, they are not. Cybersecurity firm Fox-IT was able to infer one operation's links to China-based in part on an operator having typed in a Chinese expletive[12] when frustrated at having lost access to some compromised infrastructure.[13] Another clue was input language metadata left by the malware author's machine — in this case, the Simplified Chinese character set used only in China and Singapore. FireEye's attribution of TRITON, an attacker targeting industrial control systems, to a Russian government-funded research lab relied on a shared IP address and development environments as well as open-source information linking a certain lab employee to the malware development activity.[14] As long as humans remain directly involved in offensive cyber operations, human laziness and fallibility will continue to provide perhaps the most important cracks in the edifice of a campaign through which to observe the adversary. AI, at best, could only help to point them out. Additionally, techniques do not yet exist for explaining how deep learning-based AI systems come to the decisions they do.[15] An attribution by AI may have significantly less value for communicating to external audiences, especially the general public.

When it comes to national intelligence agencies, states will always seek to widen their aperture of visibility through all-source intelligence far beyond the digital forensic data generated by intrusions. With a mole in the attacker's organization, technical means of attribution may be superfluous, no matter how sophisticated and accurate. AI may have significant implications for the practice of covert intelligence as well, but this is beyond the scope of the current work.

Obfuscation and Deception

If machine learning systems will not bring the all-penetrating light of truth to cyber-attack attribution, will they conversely doom the world to grope hopelessly for phantasmal culprits amid miasmic digital shadows? As AI gains greater abilities to manipulate text data, including computer code, new methods of obfuscation and deception may also become possible.

In the last few years, large language models trained simply to predict the next word given a prompt have become capable of generating highly realistic text of almost any kind present in the data they are trained on.[16] This relatively simple approach has proven successful when applied to computer code, as well. OpenAI's Codex, for example, can solve 70% of a set of coding challenges when allowed 100 tries per problem.[17] This approach relies on access to massive amounts of training data. The training dataset used for Codex, for example, "[comprised] a significant fraction of publicly available Python code on GitHub, totalling hundreds of millions of lines of code." With additional data, the same approach could achieve even higher performance. Although it is unclear whether available data is sufficient for continued progress along these lines, the total quantity of computer code data in the world is quite large, suggesting there may be straightforward gains to be made from finding ways to collect more of that data for training.[18]

Large language models alone are not the only way machine learning might enable synthetic programming; researchers are also exploring other promising directions, especially combining symbolic AI approaches with machine learning or applying machine learning in a system architecture with more built-in structure for program synthesis.[19] Additionally, besides consuming ever-larger quantities of data, there are other promising sources of feedback with which to train deep learning models, such as compilers, automated software testing tools, and so on. In short, there is no reason to doubt that AI systems will eventually achieve a similar level of capabilities on computer code as they have already demonstrated on natural language text.

Analysts often avail themselves of data shared between operations as clues to attribution. Polymorphic and metamorphic malware, which modify their own code to evade detection,[20] already complicate forming horizontal linkages across activity threads.[21] Because their outputs are non-deterministic, deep learning systems may enable significantly more complex versions of polymorphic and metamorphic malware. An approach similar to the "maximum entropy" technique from reinforcement learning could also be used to automatically permute malware within the entire space of programs preserving the same functionality, rather than simply applying pre-determined rules.[22] Besides successfully evading detection, such malware may also display less obvious artifacts indicating a self-modification module shared across operations. If tools for this purpose became widely available to various actors, it may be difficult to distinguish the patterns of constantly shifting signatures from one another.

Novel AI techniques might also be used to deceive analysts into false attribution. Deep learning systems could also be used on malware for "style transfer," a capability well-established in computer vision[23] and emerging for text data as well.[24] Similar to how even an ardent fan of the action star might be fooled by DeepTomCruise,[25] even experienced malware analysts might struggle to notice that a DeepAPT41 is not the real thing. Someday, imitation learning[26] could perhaps be used by one group to fully emulate all characteristics of a different group's threat activity, from typical daily activity rhythms to idiosyncrasies of typing patterns.[27]

Modern machine learning systems also have their flaws. While GANs can

generate highly photorealistic synthetic portraits,[28] the images nevertheless display certain tell-tale signs of their inauthentic nature.[29] Backgrounds contain nonsensical swathes of pixels not corresponding to any real-world setting. Light glints off each pupil at different angles. Analogous artifacts are certain to be present in inauthentic data of other modalities. Reinforcement learning agents, besides being difficult to train, are brittle and unreliable. It will likely be years until they are robust enough to be useful for cyber operations.

As shown by the hacking of the 2018 Olympics in South Korea, some APTs can already masquerade as other threat groups fairly effectively, even without the use of deep learning systems.[30] Kaspersky researchers have documented a variety of apparent false flag operations, such as insertion of strings with conflicting linguistic clues. In one instance, a Russian group, having been detected by the victim, downloaded a piece of Chinese malware as a smokescreen before deleting traces of their own presence.[31] Indeed, stealing another group's tools and using them to perpetrate an attack is likely an easier and more effective means of deceiving analysts into attributing the attack to that group than using AI to try to emulate the group's activities.

Humans have created impressively nefarious obfuscation techniques as well, from run-of-the-mill packers to the monstrous achievements of participants in the International Obfuscated C Code Competition.[32] In most cases, the investment required to use AI would likely not merit the possible gain in quality. Even for mature applications of AI like computer vision, the work required to produce a convincing deepfake that satisfies multiple constraints, such as appearing to be a specified individual taking a specified action, is tremendous and multifaceted.[33] Conducting cyber operations often involves a vast range of software tools ranging from system utilities to encryption tools, custom malware and email services.[34] Integrating all of these into a deep learning pipeline and training the system would be a Herculean task.

In fact, the use of AI could in and of itself be a useful clue to attribution. When faced with the most sophisticated attacks, especially against targets of primarily national security strategic value, attribution largely boils down to a choice among a short line-up of usual suspects — China, Russia, Iran, and North Korea. Even fewer actors would have the capability to leverage bleeding-edge AI techniques, so any sign of their use would drain the pool of suspects to a small puddle. One expert noted that the countries most active in applying machine learning for cybersecurity are the United States, United Kingdom, Israel, and China.[35] Indeed, several APT-linked Chinese universities have researched AI applications for both offensive and defensive cybersecurity, including malware classification.[36] Unless attackers were quite confident the mere fact of their use of AI would not be detected, they might hesitate to deploy even well-developed capabilities.

More fundamentally, access to two of the three key inputs to machine learning — data and talent — will likely be a stumbling block for attackers. Machine learning requires copious data to achieve high performance. Although some APT malware samples are available in the open source such as on VirusTotal, only a small fraction of malware that is created or detected is publicly released, so attackers may struggle to obtain enough data to emulate another threat group. Defenders not only have complete access to their own data but also, in the case of cybersecurity firms such as FireEye, access to that of many customers. Talented machine learning practitioners are in short supply and attract stratospheric salaries in white-market industry employment. It is unlikely many could be attracted into the shadows for activities of ill repute at lower compensation.

Implications

Rebecca Slayton, a Cornell University professor who studies cybersecurity, has described the cyber offense-defense balance as a dyadic variable determined by organizations' ability to manage interactions between skilled personnel and technical systems.[37] Similarly, machine learning capabilities result from organizations' ability to manage interactions between talent, data, and computing power. Although well-resourced defenders would likely hold the upper hand in all three, the cybersecurity community should attend closely to trends in each.

Talent could proliferate in two ways. The level of skill required may decrease as more tools, such as machine learning frameworks like TensorFlow and PyTorch, and APIs like that offered by OpenAI, become more widely available and accessible. Attackers may also develop talent in house, particularly if there are lower-hanging fruit in applications of AI to cyber offense which allow them to bootstrap skills transferable to more ambitious applications.[38] Using general-purpose language models for automated spear-phishing and social engineering, for example, would be relatively straightforward and provide useful experience with generative text models. Other possible near- to medium-term applications of machine learning for cyber offense include modelling ICS or OT systems to facilitate attacks and forging biometric data to bypass authentication systems. Data, on the other hand, is perhaps most likely to proliferate accidentally, through the well-intentioned release of a dataset with unrecognized dual-use implications. As discussed above, cyber espionage operations targeted specifically at stealing source code may become an important channel of data proliferation. Computing power, whether through the purchase of hardware or use of cloud computing providers, is relatively centralized, providing a potential bottleneck to restrict undesirable AI development.[39] Yet it is unclear whether defensive or offensive uses of AI for cyber attribution and deception may have more favorable scaling laws.[40]

Machine learning systems may also increase incentives for cyber espionage. Georgetown University professor Ben Buchanan has explained that defenders already have a strong incentive to conduct offensive intelligence-gathering operations in order to defend more effectively.[41] One of the best ways to detect data generated by a machine learning model is to use the model itself to analyze the data, suggesting that stealing attackers' models may be the best means to defend against them.[42] The same increased incentive for espionage would apply even more so for attackers. Data gathered from other attackers could be used to mask one's own operations as another group's; data gathered from a victim could be used to mask one's presence in the victim's network as benign, organic activity. Thus, the proliferation of machine learning systems for cybersecurity data may lead to an increase in computer network exploitation, as well as a more confusing landscape for attribution.

For these reasons, machine learning is likely to reinforce the positions of the most capable actors relative to weaker actors. The "gods of the wires" in Five Eyes SIGINT agencies, with access to untold troves of data and legions of capable technical staff, are thus at an advantage regarding machine learning for attribution or counterattribution. Top APTs, such as from China and Russia, that have already penetrated an array of targets around the world may be in second place. States such as Iran and North Korea and cybercrime groups, on the other hand, have less hope to benefit from such systems.

With machine learning technology rapidly proliferating throughout the world, policymakers should consider proactive measures to shape the terrain of technical capabilities. For example, the U.S. government and cybersecurity community

could consider investing in research on methods for detecting AI-generated data in the cybersecurity domain to ensure that defense keeps pace with offense. Work is underway already on detection of AI-generated images, video, and text.[43] The text domain suffers particular challenges: words are discrete, not continuous like pixels, providing no subtle, dispersed erroneous patterns to notice like the slightly too-smooth skin or teeth misaligned by a millimeter that provide tells for a deepfake video. Language models are also developing so quickly that detection methods may quickly become outdated. For example, the GLTR system developed in 2019 was able to detect text generated by GPT-2, also developed that year, by estimating the likelihood of a certain word coming after the words before it.[44] Text generated by GPT-2 differs from human-written text because it is more predictable. Therefore, this same technique would be less effective in detecting text generated by GPT-2's successor model GPT-3, developed just a year later, which achieves better performance precisely by more accurately mimicking human language use, including a more human-like use of less-probable words. Fine-tuning a general-purpose language model on a single type of data (such as, for example, malware code) can significantly improve the model's performance, making it more human-like and thus less easily detectable.[45]

Because data is dual use, structuring its flow to enable positive uses and stymie malicious ones will also be important. Compiling attribution datasets and devising means to responsibly share them would help tilt the playing field in favor of defenders. One example of work in this vein is the EMBER dataset, which includes features pre-extracted from binaries and labelled as malicious or benign.[46] The sharing of features, rather than the malicious binaries themselves, reduces the risk of proliferating offensive tools. Structured transparency techniques such as fully-homomorphic encryption could also be used to enable information sharing between organizations without the need to share potentially sensitive data.[47] As a measure to decrease the chance of inadvertent leakage of dual-use information, establishing norms of responsible disclosure in the AI field, especially where it intersects with cybersecurity, would also be beneficial.[48] Promoting greater interaction between experts from the AI and cybersecurity fields could help researchers and engineers identify when their work may carry security implications. Organizing a conference specifically focused on uses of AI for attribution and counterattribution in cybersecurity would be a useful first step.

Finally, for AI applications with potentially transformative impacts such as code-generation models, legislators should consider know-your-customer requirements to ensure they do not enable malicious behavior. At a minimum, companies offering access to code-generation systems should know who their customers are, where they are located, and the purpose for which they are using code generation. As capabilities develop and use cases become more clear, more rigorous monitoring of customer usage may also be warranted.

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Endnotes

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[8] Rosenberg et al., p. 4

[9] Implications of Artificial Intelligence for Cybersecurity: Proceedings of a Workshop, p. 42

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[32] See: https://www.ioccc.org/
[33] Vincent, James. “Tom Cruise deepfake creator says public shouldn’t be worried about ‘one-click fakes.’” The Verge, March 5, 2021. https://www.theverge.com/2021/3/5/22314980/tom-cruise-deepfake-tiktok-videos-ai-impersonator-chris-ume-miles-fisher.
[34] Contrast this to video games like StarCraft or DOTA 2 (both mastered by reinforcement learning systems in recent years) in which the number of possible actions and their possible consequences is similarly vast, but all of which are available through the single software interface of the video game itself.
[35] Implications of Artificial Intelligence for Cybersecurity: Proceedings of a Workshop, p. 66
[36] Cary, Dakota. “Academics, AI, APTs: How Six Advanced Persistent Threat-Connected Chinese Universities are Advancing AI Research.” Center for Security and Emerging Technology, March 2021. https://cset.georgetown.edu/publication/academics-ai-and-apts/. Note that experience building malware classification systems would be quite useful for breaking or fooling such systems as well.
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[38] This personnel, once trained, may also find it relatively difficult to take those skills to industry, as the quality of their work products will be far less transparent to would-be future employers than those of an engineer who may have built a product used by millions, and they may not even be able to discuss details of their work outside their organization.
[39] Only a few companies produce the advanced chips used for AI workloads. In cloud computing, Google, AWS and Microsoft Azure are the dominant global providers, although Aliyun and Tencent also provide similar services which would certainly be available to Chinese government-associated hacking groups.
[40] I thank Girish Sastry for this point. For discussion of scaling laws in language models, see: Kaplan, Jared et al. “Scaling Laws for Neural Language Models.” arXiv, January 23, 2020. https://arxiv.org/pdf/2001.08361.pdf.
[41] Buchanan, Benjamin. “The Defender’s View.” In The Cybersecurity Dilemma, New York: Oxford University Press, 2017.
[42] Such was found to be the case with Grover, a text generation model developed by University of Washington and Allen Institute for Artificial Intelligence to study AI-generated disinformation. See: Zellers, Rowan et al. “Defending Against Neural Fake News.” arXiv, December 11th, 2020. https://arxiv.org/pdf/1905.12616.pdf.
[43] Lyu, Siwei. “Deepfakes and the New AI-Generated Fake Media Creation-Detection Arms Race,” Scientific American, July 20, 2020. https://www.scientificamerican.com/article/detecting-deepfakes1/. Jawahar, Ganesh, Muhammad Abdul-Mageed, Laks V.S. Lakshmanan. “Automatic Detection of Machine Generated Text: A Critical Survey.” arXiv, November 2, 2020. https://arxiv.org/abs/2011.01314.
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[48] Such norms have just begun emerging in the AI research community since OpenAI initially withheld GPT-2 from public release in early 2019 over safety concerns. Today, disinformation experts regularly disclose the artifacts they use to detect synthetic media in public reporting, providing attackers with useful, targeted feedback on how to evade detection.

Centripetal & Centrifugal Identities of the India-United States Civil Nuclear Agreement:
A Constructivist Analysis of the Negotiations that Transformed the Indo-American Relationship

Zachary Volpe

After three years of strenuous negotiations, the United States and India finalized the 2008 Civil Nuclear Agreement which inaugurated India as a de facto nuclear power, ameliorated Indo-American relations and challenged the Non-Proliferation Treaty regime. Both states brought centripetal and centrifugal identities to the negotiating table. Each states' nuclear narratives produced centrifugal identities, but each states' strategic narratives produced centripetal identities. Domestic actors, who represent different national identities of each state, competed in both democratic states for dominance. In other words, the national identities competed for dominance through each states' institutions.

In the United States, the centripetal identities overwhelmed the centrifugal ones due to political power realities. As a result, the United States bent further to India's position and accommodated India's centrifugal identities. Although India's centripetal identities controlled the government, its centrifugal identities posed a potent challenge. In the end, the centripetal identities of both states triumphed over the centrifugal ones to consummate the agreement. In the process, both states tried to understand each other's identities and historical origins to strengthen their centripetal identities and mitigate their obstructionist centrifugal identities. Through the agreement, the two states started to reconcile decades of tense relations and forge a new strategic partnership.

After the agreement, the two states established a complex framework for a series of dialogues and working groups to facilitate cooperation in counterterrorism, intelligence sharing, nuclear non-proliferation, regional stability, defense trade, technology transfers and geopolitical threats. Despite their robust framework, the two partners experience a great deal of friction in their relationship. The tension stems from divergent histories, natives, identities, and current geopolitical positions. In the future, both states must commit to understanding each others' disparate identities to advance their relationship and strengthen defense ties to advance their shared strategic interests.

Introduction—Competing Identities and Intersecting Narratives

How did the distinct and competing identities of the United States and India shape the India-United States Civil Nuclear Agreement? How does the agreement contribute to the distinct American and Indian narratives? Engaging the nuclear question, the agreement triggered the "exceptional" identities of India and the United States. After navigating misunderstanding and miscommunication

regarding their identities, the two states managed to accommodate each other and close on a final agreement—starting the long process of setting aside their centrifugal identities and prioritizing their permanent centripetal identities: innovative economies, democratic federalist politics, and the English tradition. The agreement inaugurated a new era for Indo-American relations and the nuclear non-proliferation regime by recognizing India as a de facto nuclear weapons power. In South Asia, the scales of regional power tipped to benefit India. In Asia, the China-India-United States Triangle started to focus on balancing China. The Treaty on the Non-Proliferation of Nuclear Weapons continued to suffer at the hands of strategic interests. Shedding Cold War tensions, the United States and India sought to strengthen their strategic ties.

International developments, including negotiations and agreements, fit into states' narratives. Such developments can shape states' narratives, but more often, state's narratives shape international developments. States' narratives include stories, most often of the past, that reinforce and explain national identities and represent the intersection of national identities, self-prescribed orientations, and national histories, synthesized perspectives of the past. Identities include primordial descriptors, attributed to nature; constructed descriptors, attributed to experiences and interpretations; and instrumental descriptors, attributed to context. In states, individuals and organizations represent different national identities and compete for dominance according to "rules"—institutions and legal codes. Domestic actors use a range of instruments to realize dominance including popular mobilization, communications, and legitimate authority. In international negotiations, states' dominant identities determine outcomes. Centripetal identities attract states to each other and forge agreements. Centrifugal identities repel states from each other and obstruct agreements. These modifiers— "centripetal" and "centrifugal"— do not describe identities in absolute terms. Instead, these modifiers describe identities in particular contexts. Often, shared identities are centripetal. However, exclusive shared identities are centrifugal. For instance, two states repel each other when they both identify as the "sole superpower." Similarly, distinct identities can be centripetal or centrifugal depending on the context.

In the India-United States Civil Nuclear Agreement, centripetal identities triumphed over centrifugal identities. In *The U.S.-India Nuclear Agreement: Diplomacy & Domestic Politics*, Dinshaw Mistry analyzes how domestic politics shaped the international agreement, but fails to analyze why domestic actors adopt their positions. International negotiators can sometimes close agreements by understanding and manipulating other states' "rules" for competing national identities—institutions and legal codes, but more often fail when they do not understand those national identities. Furthermore, international negotiators can increase their leverage and chances of success by understanding a foreign state's competing identities. The United States and India finalized the Civil Nuclear Agreement because their centripetal identities dominated, and each state accommodated the other's centrifugal identities. In future negotiations, each state must learn to recognize and accommodate each other's centrifugal identities while emphasizing their centripetal identities.

The Background—Indian History: Independence to Nuclear Power

At the outset of the Cold War, India emerged as a secular, socialist, democratic republic. Seceding from the British Empire, India scorned the West for its imperialist

record and championed socialism to provide for its large, impoverished population. As the leader of the Non-Aligned Movement, India rejected the bipolar paradigm. Championing peace and welfare, India summoned the two superpowers to end their nuclear arms race and resolve their ideological differences. Still, India established strategic ties with the Soviet Union, admiring its stunning industrialization. During the Cold War, the United States pursued strategic ties with Pakistan to facilitate detente and oppose the Soviet Union in Afghanistan. In effect, India and the United States diverged. After the Cold War, India started to eschew socialist economics and embrace international trade in telecommunications.[1] Yet, the nuclear question continued to monopolize the Indo-American relationship.

In 1962, India retreated in a border dispute with China.[2] The state's first major defeat dealt a blow to its national confidence and imbued its strategic elite with a disdain for its giant neighbor. In 1964, China's first nuclear test heightened India's fears.[3] Subsequently, India rejected the Treaty on the Non-Proliferation of Nuclear Weapons that included China as a "Nuclear-Weapons State."[4] Instead, India sought to showcase martial strength by testing nuclear weapons. In 1974, Prime Minister Indira Gandhi directed the denotation of the "Smiling Buddha," a "peaceful" nuclear device. In the 1998 arms race, Prime Minister Atal Bihari Vajpayee directed five nuclear weapons tests.[5]

After the Cold War, the United States campaigned against India's nuclear weapons. However, in the India-United States Civil Nuclear Agreement the United States recognized India as a de facto nuclear-weapons state because it sought to balance an emerging China. Furthermore, the agreement boosted India's international prestige. In the agreement, India authorized the International Atomic Energy Agency to regulate most of its civilian nuclear facilities. In return, the United States authorized American investment in India's civilian nuclear programs and trade nuclear technologies.[6] In addition, India agreed to "support international non-proliferation efforts," "strengthen ... the security of its nuclear arsenals" and "continue its moratorium on nuclear weapons testing."[7]

The agreement transformed Indo-American relations, poising the two states as partners— in security, economics, and politics.[8]

Timeline of the India-United States Civil Nuclear Agreement	
Step 1 July 18, 2005	President Bush and Prime Minister Singh announce Joint Statement.
Step 2 March 3, 2006	India finalizes its Nuclear Separation Plan.
Step 3 December 18, 2006	President Bush signs the Henry J Hyde United States-India Peaceful Atomic Energy Cooperation Act of 2006.
Step 4 August 3, 2007	Both governments release the "123 Agreement."
Step 5 July 22, 2008	Indian Parliament affirms the Government.
Step 6 August 1, 2008	International Atomic Energy Agency authorizes "India-Specific" Safeguards.
Step 7 September 6, 2008	Nuclear Suppliers Group authorizes trade with India.
Step 8 October 8, 2008	President Bush signs the "123 Agreement" after Congress ratified.
Step 9 October 8, 2008	Secretary Rice and Minister Mukherjee sign the "123 Agreement."

Table 1: Timeline of the India-United States Civil Nuclear Agreement in Nine Steps

The Negotiations—The India-United States Civil Nuclear Agreement

The two states negotiated the India-United States Civil Nuclear Agreement in nine steps. Before approaching the nuclear question, the two states conducted a series of important negotiations in preparation. In *Engaging India: Diplomacy, Democracy and the Bomb*, Deputy Secretary of State Strobe Talbott memorializes his dialogue with India's External Affairs Minister Jaswant Singh—a dialogue that Deputy Assistant Secretary of State for the Near East and South Asia Schaffer describes as "genuine … and led to the lifting of most of the sanctions the United States had been obliged to impose on India following the [1998] tests."[9] Although President Clinton hoped to forge a stronger Indo-American relationship, Talbott and Singh's dialogue occurred too late in his administration.[10] Instead, President Clinton neglected India until it emerged as a "nuclear problem."

On the other hand, President Bush sought to secure India as a major strategic partner. The administration recognized it needed to address the nuclear question, but started to engage India on other, more congenial but relevant topics: export controls and trade in advanced technologies. During President Bush's first term, the United States and India established the High Technology Cooperation Group and later the Next Steps in Strategic Partnership.[11] After swift success on the most basic matters and extensive confidence building, the two states, at the highest levels of government, decided to address the thorn in their relationship: nuclear weapons. In 2004, the Indian National Congress established a new government.[12] Prime Minister Manmohan Singh appointed J.N. Dixit, a realist expert, as National Security Advisor.[13] In 2005, President Bush, starting his second term, appointed Condoleezza Rice as the Secretary of State.[14] At the highest levels of government, both states prepared for extensive negotiations on the nuclear question.

On July 18, 2005, President Bush and Prime Minister Singh announced the terms of their nuclear cooperation.[15] The Joint Statement established the guiding principles and policies of future nuclear negotiations but remained vague in some of its references.

It indicated that the United States afforded India "the same benefits and advantages as other [responsible states with advanced nuclear technology]."[16] In return, India committed to "assume the same responsibilities and practices and acquire the same benefits and advantages as other leading countries with advanced nuclear technology."[17] After negotiating with the United States, on March 3, 2006, India finalized its list of "civilian" nuclear facilities subject to International Atomic Energy Agency safeguards.[18] India declared fourteen of its twenty-two nuclear reactor facilities along with other future reactors as "civilian."[19]

After President Bush submitted authorization legislation to Congress, the U.S. Congress publicized the negotiations in a series of committee hearings that included strategic experts, non-proliferation experts, and administration officials.[20] Congress passed the Hyde Act that authorized further negotiations but sought to preserve the Non-Proliferation Treaty— a matter President Bush and Prime Minister Singh preferred to ignore. Over sixteen months and eight negotiating sessions, the two states produced a "123 Agreement," named for a section of the United States Atomic Energy Act. In the agreement, the United States assured India fuel supplies for civilian reactors and authorized the reprocessing of those fuels for civilian reactors.[21] In return, India committed to negotiating "India-specific" safeguards with the International Atomic Energy Agency (IAEA).[22] The language circumvented the more stringent provisions of the Hyde Act. Significantly, the United States insisted on including "termination" and "right of return" (of exported technologies) provisions to preserve important stipulations of the Non-Proliferation Treaty.[23]

Protesting Prime Minister Singh's nuclear policies, the Leftist Coalition threatened to withdraw support for the government.[24] In response, Prime Minister Singh paused negotiations to consolidate support for his government by cutting deals with other regional parties in parliament.[25] After about a year, the Leftist Coalition reaffirmed its support for the Indian National Congress government, fearing association with the Rightist Coalition.[26] India proceeded to submit negotiated "India-Specific" safeguards to the International Atomic Energy Agency for successful authorization.[27] Then, the United States and India coordinated an international campaign to authorize the agreement in the Nuclear Suppliers Group. India launched a series of bilateral offenses to consolidate support, leveraging its international presence to persuade important developing countries.[28] The United States appealed to its European and Pacific allies, securing their support through top level consultations.[29] China opposed authorizing nuclear trade with India, but refused to veto the motion by itself.[30] The Nuclear Suppliers Group authorized the "123 Agreement." A month later in a lame-duck session, Congress ratified the "123 Agreement," conceding to President Bush.[31] On October 8, 2008, Secretary of State Condoleezza Rice and Minister for External Affairs Pranab Mukherjee signed the agreement— closing three years of intense negotiations, initiating the implementation process and forging a path for a future Indo-American partnership.[32]

Domestic Actors and their Corresponding National Identities***			
United States		**India**	
Domestic Actors	**National Identities**	**Domestic Actors**	**National Identities**
Neoliberals: Democrats (Congress), Non-proliferation bureaucrats, Arms Control Groups	Custodian of the Liberal International Order (Moralistic, Legalistic & Hegemonic)	**Marxists**: The Leftist Coalition (Parliament)	Leader of the Non-Aligned Movement (Anti-imperialist)
Neoconservatives: Republicans (Executive & Congress)	Moral Crusader	**Nationalists**: The Rightist Coalition (Parliament)	Hindutva (Militant)
Immigrants: Indian-Americans	"Melting-pot" (International)	**Scientists**: Nuclear establishment	Ancient Civilization (Orientalist)
Realists: Regional bureaucrats, Commercial interest, Strategic experts	Democratic State	**Realists**: Indian National Congress (Parliament & Government), Diplomatic Corps, Commercial Interests, Strategic experts	Democratic State

Table 2: Domestic Actors and their Corresponding National Identities
***Note: In the context of the India-United States Civil Nuclear Agreement, red indicates centrifugal national identities and green indicates centripetal national identities.

The Analysis— Centripetal & Centrifugal Identities

The interaction of centripetal and centrifugal national identities of both states determined the outcome of the negotiations. In the India-United States Civil Nuclear Agreement, each states' nuclear narratives produced centrifugal identities and each states' strategic narratives produced centripetal identities. India brought both more and stronger centrifugal identities to the negotiating table. As a result, the United States accommodated India's centrifugal identities to close the agreement: on non-proliferation provisions, the agreement bent further to the position of India. Table 2 illustrates the competing identities of both states and the domestic actors representing those identities; red indicates centrifugal identities and green indicates centripetal identities.

Throughout the negotiations, both states encountered obstacles; at times, the negotiations stalled, requiring the heads of governments' attention, and high-level officials often closed intermediate

agreements hours before public announcements. In general, "nuclear officials" in both states—non-proliferationists in the United States and scientists in India— obstructed negotiations, while strategic and administration officials advanced negotiations. The two states closed on the agreement after a series of haphazard stops and starts. According to Teresita and Howard Schaffer, experts on South Asia, "Exceptionalism is a mind-set common to Indians and Americans, and both express it in part by adopting governmental processes and procedures from which they try not to deviate."[33] Where do these "exceptional" identities come from? Why did the "nuclear officials" pose such an obstacle to an agreement? How did other officials advance negotiations and finalize an agreement?

Centrifugal Identities—Nuclear Narratives

The nuclear weapons question engages both states' foundational identities. As a symbol of the highest strategic power and international prestige nuclear weapons bear great significance to the United States—as the world's greatest superpower and nuclear weapons progenitor, and India— the world's largest democracy and internuncio of the world's oldest spiritual and scientific traditions. In the India-United States Civil Nuclear Agreement, both states brought centrifugal identities to the negotiating table. Each states' centrifugal identities originate in their unique nuclear narratives. In the United States, the neoliberals championed their state as the custodian of the liberal international order, touting moralistic, legalistic, and hegemonic identities. In India, the Marxists identified their state as the leader of the Non-Aligned Movement; the Nationalists promoted militant identities; and the scientists reflected ancient civilizational identities. What narratives reinforced and produced these centrifugal identities?

The United States—The Custodian of the Liberal International Order

Through the Manhattan Project, the United States invented nuclear weapons. Assembling a team of world-renowned scientists, the United States financed the project to acquire nuclear weapons before its adversaries. After testing the first nuclear weapon, Robert Oppenheimer, its chief architect, exclaimed, "Now I am become Death, the destroyer of worlds."[34] Ironically, the "Father of the Atomic Bomb" quoted the Bhagavad-Gita, the single most comprehensive source on the Hindu religions and philosophies. Demonstrating its "exceptional" power, the United States detonated the only two war-time nuclear bombs in Hiroshima and Nagasaki to end World War II. The nuclear weapon represented the superpower's newfound status in the post-war world—unleashing its human capital, industrial capabilities, and martial prowess.

As the inventor of the most powerful weapon, the superpower crafted its nuclear narrative around American exceptionalism, defined as "a crude appeal to primitive nationalism and … triumphalism based on the notion that Americans are not just different but also better than anyone else … [that] ignores the respects in which the United States is still subject to many of the same realities and limitations that other states are." [35] The nuclear weapon reinforced the state's illusions of limitless power and moral preeminence. When negotiating nuclear matters, the United States reflects its centrifugal identity as the moral custodian of the rules-based liberal international order, projecting moralistic, legalistic and hegemonic attitudes. In *American Negotiating Behavior: Wheeler-Dealers, Legal Eagles, Bullies, and Preachers*, Richard Solomon describes such moralistic negotiating as "fired with idealism" and passion.[36] George Kennan described this

American impulse as "self-righteous in the degree of high mindedness and rectitude."[37] In the legalistic tradition, the United States "focus[es] on the problem at hand … and emphasize[s] the practical advantages of resolving it along the lines proposed by the American side," often ignoring the identities and formative histories of other states.[38] As a result, the United States often obstructs nuclear negotiations, sometimes terminating them altogether. Other states disdain receiving orders from the world's strongest superpower.

Still, the United States often aspires to impose its nuclear order on the rest of the world without real regard for other states' concerns. In negotiating with India, non-proliferation bureaucrats often obstructed progress. Representing their state as the moral custodian of the rules-based liberal international order, these bureaucrats pushed India to observe the non-proliferation regime without considering India's impetus for acquiring nuclear weapons. In Congress, Democrats represented the same, proclaiming in the Hyde Act: "the United States should not seek to facilitate the continuation of nuclear exports to India by any other party if such exports are terminated under U.S. law [India conducts a nuclear test]."[39] The Democrats sought to prohibit India from conducting any nuclear tests—a goal outside of their limits of power. These neoliberals, committed to liberal international order, represented centrifugal identities, and obstructed an agreement on nuclear matters. However, in both the Department of State and Congress, these neoliberals lacked the power to prevent an agreement on the strategists' terms.

India—Anti-imperialist, Militant & Orientalist

In India, the nuclear bomb both reflected and contributed to its national consciousness and international self-image. Sloughing off colonialism, the political elite conceived of post-independence "India" as the inheritor of the British Empire in South Asia. As a result, India's first Prime Minister and External Affairs Minister Jawaharlal Nehru sought to assert India's autonomy and regional hegemony through an anti-imperialist agenda. In *India: Emerging Power*, Stephen Cohen describes the Nehruvian tradition as the pursuit of "realistic policies that advanced the national interest; these policies included a measure of idealism, or liberal internationalism."[40] Imbued with socialism, the Nehruvian tradition "included a skeptical view of the United States, on cultural as well as ideological grounds … and a romantic image of the economic and social accomplishments of the Soviet Union."[41] Although Prime Minister Nehru prioritized India's independence, he remained "concerned with the global spread of other states' nuclear weapons," toeing a moral line.[42]

The Treaty on the Non-Proliferation of Nuclear Weapons represented a global regime bent against developing countries, in particular India, as the leader of the Non-Aligned Movement. India feared that the great powers sought to impose an imperialist regime on the rest of the world and condemned their high-minded monopolization of strategic nuclear capabilities and consolidation of power. As the leader of the Non-Aligned Movement, India thought of itself as responsible for resisting the global imperial order. In the India-United States Civil Nuclear Agreement, the Marxists of the Leftist Coalition represented India as the leader of the Non-Aligned Movement, reflecting anti-imperialist sentiments. In *Engaging India: Diplomacy, Democracy and the Bomb*, Strobe Talbott claims, "the Indians will, under any imaginable government, continue to press for removal of the last, detested, though now mostly symbolic, vestiges of

what they see as discriminatory, U.S. conceived, and U.S. enforced nuclear order."[43] At their core, the Marxists reflect this anti-imperialist reflex. As a result, the Leftist Coalition threatened to collapse the Indian National Congress government when it thought Prime Minister Singh subjected India to international constraints.

Facing martial defeat to China, India interpreted China's nuclear capabilities as an existential threat. Recognizing China as a "Nuclear Weapons State," the great powers consolidated China's regional preeminence. As a result, Prime Minister Indira Gandhi founded a militant tradition to realize India's strategic goals. The militant tradition postulated that adversaries "feared the rise or the coherence of India" and "wanted to prevent the rise of an alternative power center."[44] Prime Minister Gandhi sought to navigate a "world of threats" with high-handed force.[45] She touted India's "civilizational greatness" in most of her foreign policies, even rejecting partition.[46] In time, she detonated India's first "peaceful" nuclear device, to reassert India as a regional hegemon and deter China.[47] Although Indira Gandhi led the Indian National Congress, the Bharatiya Janata Party (BJP) later adopted her nationalist policies. Founded on Hindutva, the BJP espouses a similar "civilizational warfare," aspiring to "Hinduize" South Asia.[48] In 1998, the BJP conducted nuclear tests as a part of its nationalist agenda to demonstrate India's strength— something they "want every bit as much as they want the bomb."[49] Representing a militant identity, the Rightist Coalition opposed the India-United States Civil Nuclear Agreement to pursue a more robust martial nuclear program. However, the Rightist Coalition remained out of government and failed to mobilize public opinion against the agreement.

As the bastion of one of the most ancient civilizations, India found the Non-Proliferation Treaty insulting: it relegated South Asian civilization to the ant heap of "Non-Nuclear Weapons States"— incapable or prohibited from harnessing their human and industrial capital to unleash the greatest power of man. In part, India rejected the Non-Proliferation Treaty because it championed Chinese and American civilization over the colorful and imaginative South Asian civilizations. Remembering that South Asians first conceived of "the atom,"[50] Indians felt humiliated that Americans tried to refuse them of the Atom-Bomb. Furthermore, India founded its nuclear program before gaining independence—a feat that demonstrated the state's high competence in science.[51] Recognizing Indians' contempt, Prime Minister Gandhi named India's first nuclear detonation the "Smiling Buddha": she connected its rich ancient philosophies with its greatest modern technologies.

Today, India exports its scientific expertise to the rest of the world in information technologies and medicines. In the India-United States Civil Nuclear Agreement, the nuclear establishment represented an orientalist tradition, lauding the splendor of South Asia's ancient civilizations. Still coping with the humiliation of the British Raj, the nuclear establishment sought to showcase India's greatness to the world in the most powerful terms— nuclear research and armaments. The nuclear establishment refused to accept restraints on its research because it thought of itself as representing South Asia's ancient civilizations. Thus, the nuclear establishment represented India's hardline in negotiations, securing significant concessions.

Centripetal Identities—Strategic Narratives

The agreement also engaged both states' strategic identities. Through their centripetal identities, the two states inaugurated a new chapter in Indo-American

relations, creating new opportunities and restructuring the balance of power in Asia. Each states' centripetal identities originate in their unique strategic narratives. In the United States, neoconservatives championed their state as the moral crusader, reflecting hegemonic and moralistic attitudes; Indian Americans represented the American "melting pot" and immigrant identities. Both the neoconservatives and immigrants sought better Indo-American relations for different reasons. In both states, realists identified their states as first and foremost democratic states in an international system of anarchy, prioritizing strategic interests to promote the security and welfare of their people. What narratives reinforced and produced these centripetal identities?

The United States—The Moral Crusader

In *Why America Misunderstands the World: National Experience and Roots of Misperception*, Paul Pillar describes Americans as forever "searching for monsters to destroy."[52] He explains, "Because Americans could not distinguish themselves culturally from the country against which they fought for independence, they had to distinguish themselves politically. As a result, Americans have continued to define their nation as the antithesis of and the leading challenger to all that was backwards and unfree, including … totalitarian ogres."[53] In other words, Americans must target anti-democratic monsters to maintain their sense of self. Throughout the Cold War, that monster bore the title of communism, incarnate in the Soviet Union. After the Cold War, Americans struggled to define their position in the world. For a short time, Americans confronted aggressor countries such as Iraq. Later, Americans prosecuted human rights abusers in Eastern Europe. However, these "monsters" proved too abstract and cumbersome for the public.

Soon enough, two new great monsters captured the public's imagination: terrorism and China. After the attacks on September 11, 2001, images of barbaric Islamists lusting to set aflame the American Order and supplant modernism with crude religious sectarianism dominated the public imagination. Searching for their monster, Americans barged into Afghanistan. In time, they found a monster of their own creation, the jihadis. After invading, Americans found no civilians eager to embrace their "liberation forces." Instead, they found chaos. While Americans fixated on a caricature of bearded jihadis, the neoconservative elite contemplated another emerging but slumbering "monster": autocratic China. As an idealist, President Clinton tried to mold China into a benign international actor, integrating it into the liberal international order.[54] Furthermore, President Clinton helped China into the World Trade Organization, hoping to liberalize and neutralize it.[55] President George W. Bush did not share President Clinton's stance on China. Instead of courting China, President Bush sought to impede China's rise as an autocratic superpower in East Asia, the fastest developing region of the world. As China integrated into the liberal international order, the neoconservatives feared its challenge to the United States' ambitions: global democratization and domination. While Americans focused on the War on Terror, these strategists focused on the threat of tomorrow: the "totalitarian ogre" of China.

As the neoconservatives faced obstacles in Afghanistan and Iraq, they realized that they needed to recruit allies in its geopolitical struggles— fighting the monsters of Islamism and China. At the intersection of these two lies another important emerging global power: India. Therefore, the neoconservatives sought a partnership with India, appealing for its potential and strategic position—neighbor to

China and hegemon of South Asia, the theatre of the Afghanistan War. In 2000, Condoleezza Rice stated George W. Bush's position on India in *Foreign Affairs*: "India is an element in China's calculation, and it should be in America's, too. India is not a great power yet, but it has the potential to emerge as one."[56] The neoconservatives coupled India and China in their geopolitical calculations—a failure to recognize India in its own right. In 2005, President Bush replaced Secretary of State Colin Powell with National Security Advisor Condoleezza Rice, promoting the neoconservatives to the highest foreign affairs posts. Thus, the administration represented the state as a moral crusader, pursuing monsters at all costs. In the India-United States Civil Nuclear Agreement, the neoconservatives reflected centripetal identities, forging a partnership with India to fulfill their moralistic quest and vanquish the monsters of totalitarianism and barbarism. Controlling the government and foreign affairs apparatus, the neoconservatives contributed the most to the agreement's success. The administration exploited other identities to advance its moral crusade: the state's immigrant "melting pot" and position as a democratic state in an international system of anarchy. Legitimizing their cause by claiming to represent important national identities, Indian-Americans, commercial interests, strategic experts and regional bureaucrats leveraged their political and financial power to pressure Congress into accepting the administration's negotiated agreement.

India—Post-Cold War Realignment

In the last chapter of the Cold War, Francis Fukuyama's speculation about "the end of history" rang somewhat true: in the global feud of ideologies, capitalism triumphed over socialism. Participating in a global trend, India started the long process of transforming its economy from state-centralized to free-market.[57] In the process, India started to contemplate new political philosophies. Although Prime Minister Nehru dominated Indian political and social thought at its conception, moderate and conservative groups emerged to challenge his socialist, anti-imperialist agenda. At the close of the Cold War, these groups exploited the international paradigm shift. In foreign affairs, realists stepped to the forefront. Stephen Cohen distinguishes among India's strategic elite: "The realists differ from the Nehruvians in that they believe the world has fundamentally changed."[58] Instead of emphasizing economic and political autonomy, the realists sought to integrate into the global financial regime and augment their state's power by establishing ties with the world's superpower, the United States.[59]

In a Bharatiya Janata Party government, Minister of External Affairs Jaswant Singh promoted the state's first realist foreign policy agenda.[60] After the Cold War, the BJP, the chief opposition to the Indian National Congress, started to adopt a more radical nationalist tone—shifting right in response to the international situation. As a result, Jaswant Singh struggled to implement realist policies as he faced mounting pressure from the nationalists. In response, the Indian National Congress adopted more moderate positions and absorbed most of the realist strategic elite. At the turn of the century, the party that once touted socialism and anti-imperialism promoted "rationalist" foreign policies. Once in government, Prime Minister Singh appointed realists to his Cabinet. Still, the realists shared the Nehruvians' "belief in India as a great civilization and militant Nehruvians' willingness to use force."[61] However, the realists sought to better balance idealism and self-interest.[62]

In addition, the realists sought close ties with the world's superpower, challenging their state's long-standing norms. Yet, the

realists remained firm on the nuclear question. Jaswant Singh once proclaimed: "Although nuclear weapons cannot be seen as a solution to India's myriad external and internal security problems, as a country of unique status and civilizational influence, India cannot do without them."[63] In essence, the realists maintained India's civilizational status but recognized the importance of an Indo-American partnership. In the India-United States Civil Nuclear Agreement, Prime Minister Singh and his government reflected this emerging realist tradition—pursuing policies that he thought advanced the security and welfare of his people. In negotiations, the government used its diplomatic corps to help it realize these goals. The government sought a congenial agreement but faced a host of obstructionist domestic actors it needed to appease.

Clash of Identities—Competing Centrifugal & Centripetal Identities

In retrospect, historical events sometimes seem inevitable. However, the India-United States Civil Nuclear Agreement demanded special attention and political will. The agreement rested on many contingent factors. Although centrifugal identities obstructed an agreement, centripetal identities dominated— in great part due to the intervention of the two heads of government: Bush and Singh. Both heads of government understood the impetus of each other's positions and respective narratives, establishing a powerful international partnership.

In both governments, political changes presented new opportunities. In 2005, President Bush replaced Colin Powell with Condoleezza Rice as Secretary of State.[64] In 2004, the Indian National Congress Party returned to government after a decade of misfortune.[65] Absent of a nationalist agenda, the new government reflected realist identities, prioritizing strategic interests and pursuing stronger ties with the United States. Representing the neoconservatives, Secretary Rice exploited the new opportunities to ameliorate the Indo-American relationship and address the nuclear question. Despite a strong desire for strategic cooperation, each government needed to appease obstructionist domestic actors. In the United States, these domestic actors included the neoliberals— Democrats in Congress, non-proliferation bureaucrats and arms control groups—representing centrifugal identities. In India, these domestic actors included the Leftist Coalition in Parliament, the Rightist Coalition in Parliament and the nuclear establishment—each representing distinct centrifugal identities.

To finalize the agreement, both governments had to manage and mitigate these obstructionist domestic actors that represented core, but centrifugal national identities. In *The U.S.-India Nuclear Agreement: Diplomacy and Domestic Politics*, Dinshaw Mistry proposes a robust framework to analyze how domestic actors interacted in the negotiations. Distilling the negotiations to a single metric, Mistry focuses on "non-proliferation provisions": the states define an agreement on a scale where zero represents no non-proliferation provisions and nine represents the strongest non-proliferation provisions (the non-proliferation regime).[66] In his "two-level framework," domestic factors determine a state's "win-set" or "set of all international arrangements that can win domestic approval."[67] States reach international agreements when their "win-sets" coincide.[68] Furthermore, he identifies five domestic factors that influence international negotiations: bureaucratic politics, political-institutional requirements, political power considerations (partisan politics), domestic mobilization and the media.[69] After separating the agreement into ten stages, he

analyzes how these factors influence each state's win-sets at each stage. In general, the media offered a platform for other domestic actors to spar instead of tipping the scales in

the agreement. In addition, the political-institutional requirements reflect the "rules" that regulate the formulation and implementation of policies. The media and political-institutional requirements influence the outcome of the agreement but remain static controls.

Therefore, an insightful analyst focuses on how the dynamic "independent variables" — bureaucrats, partisan politicians, and domestic interest groups — determine the "dependent variable" — the terms of the agreement. On net, the domestic actors expanded or contracted their respective states' win-sets according to Table 3. The magnitude of the domestic actors' impact correlates to their tact in manipulating the political-institutional requirements. Although Mistry's framework identifies the important domestic actors and their respective roles in the negotiations, he fails to emphasize why these domestic actors adopt their positions and pursue their goals. The two governments justified their pursuit of a strategic relationship, but the obstructionist domestic actors also justified their respective deep-seated positions — transcending individual or bureaucratic concerns and drawing upon core national identities.

Touting American Exceptionalism, the United States justifies its foreign policies with moral arguments— citing its status as the "birthplace of modern democracy" and the "guardian of human rights." The United States presents its non-proliferation policies as a moral pursuit of international peace and order. In *Why America Misunderstands the World: National Experience and Roots of Misperception*, Paul Pillar observes that often the public trumpets such moralism.[70] As the

Domestic Actors in Competition		
	United States	**India**
Expand Win-Set (Centripetal)	Republicans (Executive & Congress) Regional bureaucrats, Commercial interests, Indian Americans Strategic experts	Indian National Congress (Parliament & Government), Diplomatic Corps, Commercial Interests, Strategic experts
Contract Win-Set (Centrifugal)	Democrats (Congress) Non-proliferation bureaucrats, Arms Control Groups	Scientific establishment, The Leftist Coalition (Marxists), The Rightist Coalition (Nationalists)

Table 3: Domestic Actors in Competition

branch of government closest to the public, Congress represents the state's non-proliferation stance the strongest; hence, Congress established legal provisions that regulate direct and indirect nuclear trade. The Bush administration spent profuse human and material resources to persuade Congress to authorize the India-United States Civil Nuclear Agreement, recruiting help from Indian-Americans, commercial interests and other realists.[71] In the end, centripetal identities dominated political institutions: neoconservatives controlled the executive branch and immigrants and commercial interests leveraged their political and financial power to pressure Congress. These centripetal identities—moral crusader, "melting pot" and democratic state in an international system of anarchy—emerged as dominant. The United States accommodated for India's centrifugal identities to close on an agreement.

In India, the obstructionist domestic actors represent a more diverse cross-section of national identities. Originating in pre-

independence India, the nuclear establishment represents India's ancient civilizations. Furthermore, the nuclear establishment safeguards its freedom to preserve the sanctity of those ancient civilizations. In the spirit of Prime Minister Nehru, the Leftist Coalition pursues independence in foreign and domestic affairs, denouncing the non-proliferation regime as imperialist. Drawing from other independence figures, the Rightist Coalition champions India as a unique "Hindu" nation destined for global greatness. The nationalists refuse to listen to other states, in particular on matters pertaining nuclear weapons—the prime symbol of international prestige. In fact, the nationalists conducted nuclear tests first and foremost for domestic political reasons, not strategic ones. In the end, Prime Minister Singh struggled to suppress these centrifugal identities, bending to some of them. To close on the agreement, the United States accommodated for India's centrifugal identities. Despite India's persistent centrifugal identities, centripetal identities dominated on the whole because the United States expressed overwhelming centripetal identities.

Managing Centrifugal Identities

Former India Director in the Office of the Secretary of Defense, Benjamin E. Schwartz, claims, "The relationship between the United States and India is excellent proof that the dominant theory of international relations — nations form partnerships and alliances based on mutual interests or common values — is wrong."[72] In theoretical terms, the United States and India should cooperate to promote democratic values, advance global science regimes and balance China. However, a slew of centrifugal identities complicates the relationship—erecting obstacles and introducing more nuanced elements. In the Civil Nuclear Agreement, the two states managed their centrifugal identities to finalize the deal and strengthen their partnership. In the future, the partners must do the same to advance their common interests.

Americans struggle to understand Indians' conception of ancient civilization. Although both states operate in a democratic context, Americans tend to reject historical limitations and embrace the possibilities of the future— reflecting their abandon of the "Old World" and creation of the "New World."[73] On the other hand, Indians draw upon ancient traditions of ideological synthesis—some of the world's oldest philosophies— to accommodate their pluralism. In other words, the United States and India legitimize their democracies in opposite paradigms: one that transcends the past and the other that draws from a rich past. In addition, both states imagine themselves as "exceptional," threatening negotiations with others, in particular with each other. While India regards itself as the bastion of "exceptional" spiritual traditions that "enlighten" the rest of the world, the United States regards itself as the "exceptional" evangelist of human rights and democratic civilization. In some contexts, these identities manifest as centripetal. In other contexts, these identities manifest as centrifugal. Nonetheless, both states must understand each other's core identities and respective narratives to forge a stronger partnership.

Sustaining the Momentum of the Civil Nuclear Agreement

In "America's New Strategic Partner?" future Secretary of Defense Ashton Carter analyzed the costs and benefits of the Civil Nuclear Agreement. Recognizing its damage to the nuclear non-proliferation regime, he continues to tout the agreement for its strategic benefits.[74] Specifically, he highlights four areas of deeper strategic cooperation: defense trade and partnership, counterterrorism and nuclear non-

proliferation in South Asia, containing Iran, and balancing China.[75] Other proponents of the agreement emphasized "energy security, democracy promotion, global economic liberalization" and "maritime security."[76] President Bush focused on the agreement's potential for a more robust defense partnership (including defense trade) and balancing China. How did the agreement advance the bilateral strategic relationship? How can current negotiators analyze the Civil Nuclear Agreement to help them advance the strategic relationship?

Strategic Relations Beyond the Civil Nuclear Agreement—Defense and Security

Just a month after the signing of the agreement, terrorists bombed the Taj Mahal Palace Hotel in Mumbai, murdering over three hundred Indian nationals and six American nationals.[77] Riding a high in their relationship, the two states cooperated to manage the effects of the attacks. The states' intelligence agencies engaged in extensive exchanges and consultations and traced the perpetrators to Lashkar-e-Taiba, a terrorist organization based in Pakistan.[78] During the Afghanistan War, the United States partnered with Pakistan for geostrategic support. However, the Mumbai Attacks legitimized India's claims that Pakistan continued to mismanage terrorists within its borders. Furthermore, the attacks strengthened the budding Indo-American intelligence and counterterrorism partnership. Since the attacks and the agreement, the two countries have continued to cooperate to stamp out terrorism in the region. Such cooperation furthered counterterrorism interests and deepened the strategic relationship.[79]

In the Civil Nuclear Agreement, the United States integrated India into the nuclear non-proliferation regime as a responsible nuclear weapons power. As a result, India contracted a vested interest in promoting the nuclear non-proliferation regime. Despite the agreements' damage to the original non-proliferation regime, India continues to support nuclear non-proliferation efforts. As a responsible nuclear power, India secures its nuclear materials from destabilizing and nonstate actors. In addition, India supports the United States in its global nuclear non-proliferation efforts. For example, India tends to vote with the United States in the International Atomic Energy Agency and complies with American nuclear non-proliferation sanctions on third parties.[80]

After the agreement, India gained access to dual-use technologies and trade and India increased its defense trade with the United States over forty-fold.[81] Although the two states engage in increasing defense trade, American exporters continue to complain about Indian trade policies. For example, India designates its defense procurement policies as "economic development" policies.[82] In effect, India discriminates against foreign firms in defense procurement to boost its domestic economy. India maintains a host of regulations and bureaucratic red tape from its socialist policies that raise the cost of commerce in India, including defense trade. Therefore, the United States often criticizes India for failing to ease conditions for defense trade to strengthen strategic cooperation. Aspiring to promote India to "great power" status, the United States aims to "indigenize" Indian defense industries, bolstering Indian defense production capacities.[83] However, India criticizes the United States for pledging generous technology transfers to aid in "indigenization," but failing to follow through.[84]

In 2010, India and the United States conducted their first annual Strategic Dialogue in Washington D.C., consisting of an abundance of high-ranking officials.[85] The same year, the United States announced its support for India's permanence on the United

Nations Security Council.[86] As a part of President Obama and Secretary of State Clinton's "pivot" to Asia, the two states started to establish closer military ties. In 2016, President Obama designated India as a "major defense partner," a unique official classification, and granted it Tier One (T-1) Strategic Trade Authorization, expanding technology transfers.[87] In 2018, the two states participated in a 2+2 Dialogue in New Delhi between the two foreign ministers and two defense ministers.[88] Throughout the past decade and a half, the two states established a robust framework for their strategic relationship including the following: Defense Policy Group, Defense Procurement and Production Group, Joint Technical Group, Senior Technology Security Group, Military Cooperation Group, U.S.-India Maritime Security Dialogue, Defense Technology & Trade Initiative.[89] Through these bilateral forums, India and the United States signed the Logistics Supply Agreement, Communications Compatibility and Security Agreement, and Basic Exchange and Cooperation Agreement.[90] Although the two states refrain from signing onto an "alliance," such agreements constitute the foundations of many formal alliances.

In the past decade, the two states established similar policies to balance China. India touts its "Act East Policy" as an advancement for its former "Look East Policy."[91] In the United States, President Obama established "Rebalance to the Asia-Pacific."[92] In 2015, he identified India as an important part of his national security strategy.[93] Later, President Trump established the "Indo-Pacific Strategy."[94] In general, President Trump sought to transform the nation's strategy from active balancing to "offshore balancing."[95] In effect, President Trump sought to empower other states to balance adversaries and competitors such as China instead of bearing the costs of balancing alone. Furthermore, such offshore balancing implies a more important role of India. In their joint pursuit, the two states aim to contain China in the East, Southeast & South Asia, secure free trade in the South China Sea and promote good governance in the region.[96]

To advance their shared interest, the two states engage in various joint military exercises. However, they diverged in their goals for joint military exercises. While the United States aims to develop military interoperability, India remains wary of establishing such deep defense ties. Although India conducts joint military exercises more with the United States than any other defense partners, India has never established interoperability with any other partners in the past.[97] Instead of pursuing tangible military gains from joint exercises, India purses more diplomatic gains, demonstrating their high-level cooperation. As a result, the United States faces persistent disappointment on this front. In 2017, the United States conducted one joint naval exercise with India, 28 with its ally Japan and 8 with its non-ally Singapore.[98] To contain China, the United States established the Quadrilateral Dialogue between its regional partners in the region: Japan, Australia and India.[99] Some regional and security experts deem this as an attempt of a North Atlantic Treaty Organization (NATO) in Asia.[100] Even though India engages in the dialogue, it cannot accept an "alliance" structure. Instead, India maintains dialogue consultations, fearing entrapment from permanent alliances. In addition, India fears formal acceptance of the dialogue might incite Chinese aggression on its borders.

Characterizing the Strategic Relationship—Frustrated Cooperation

After the Civil Nuclear Agreement, the two states strengthened their strategic relationship, reaching historical highs. However, frustration continues to plague the relationship. Both states pursue their prime

national interests through their bilateral relationship. In other words, both fashion their relations with the other inside of their prevailing strategic goals. Furthermore, the United States determines its policies on India according to its policies on China. Although the United States "de-hyphenated" India from Pakistan, it seems to now "hyphenate" India with China. On the other hand, India seeks to leverage the bilateral relationship to launch it to great power status. Otherwise, India prefers maintaining strategic autonomy rather than engaging in political alliances with other powers. Even in their "joint" Indo-Pacific Strategy, India emphasizes securing the Indian Ocean (to protect the majority of its trade), whereas the United States emphasizes securing Pacific (to balance China and protect allies).[101]

Given their different historical and geopolitical situations, the two states diverge in their expectations for their bilateral relationship. Whereas Americans characterize the relationship as a "natural alliance," Indians prefer to describe it as a partnership of convenience.[102] Divergent expectations can produce resentment and distrust. At an extreme, divergent expectations can damage and even fracture valuable relationships. Therefore, the two states must understand the origins of each other's positions and accommodate each other's centrifugal identities.

Indian Approach — Superpower in Waiting

Although India does not declare a "grand strategy," its officials and strategic experts release signals that, when compiled, construct a grand strategy. India pursues its strategic interests on a host of different levels, including domestic, regional and global. Within its own borders, India aims to promote economic development through infrastructure investments and reforming economic regulations.[103] Economic development can boost government revenues and expenditures to strengthen diplomatic and defense capacities. In South Asia, India strives to deter security threats on its borders with Pakistan and China.[104] While American officials encourage India to concentrate its defense spending on its infant navies to balance China in the South China Sea, India continues to direct funds to its armies.[105] Due to frequent border disputes with Pakistan and China, India priorities its land-based capacities and remains a land-based power. Therefore, India fails to develop the power projection capabilities that the United States desires.

In addition, India pursues sustainability in the Indo-Pacific region from the Strait of Hormuz to the South China Sea.[106] On the international stage, India aspires to realize "great power" status. Exploiting the global diffusion of power, India hopes to secure a seat at the table as an international power, a status it has pursued for decades. India pursues its great power ambitions through both revisionist and status quo policies. In the Civil Nuclear Agreement, India persuaded the United States to revise the nuclear non-proliferation regime to accommodate India. Also, India continues to push for a permanent seat in the United Nations Security Council. At the same time, India increases its contributions to the institutions that constitute the liberal international order and address transnational challenges such as climate change.[107]

Although India aspires to great power status, it needs help to realize this goal. Therefore, India engages with the world's superpower, the United States, to help it obtain its domestic, regional, and international goals.[108] However, India does not want to appear to request help: such a gesture undermines its claims to "great power" status.[109]As a result, India refuses to engage with the United States as a "client" partner and instead insists that their

partnership reflect one of "equals." In other words, India demands to be treated as an equal, but cannot foot the bill to do so: it cannot finance the defense capacities that the United States requires of an "equal." In addition, India's economic development problems persist due to structural flaws in its political economy and perverse incentives. India cannot "grow out" of them.

American Approach — Global Hegemon

After the Cold War, the United States boasted unmatched power. Although the United States benefited from its short "unipolar moment," it squandered its international political capital in the Iraq War during President Bush's tenure. In response, President Obama sought to "do no harm" on the international stage but maintained the nation's hegemonic attitudes. Later, President Trump tried to assert the nation's "reigning superpower" status in bilateral relationships including with allies. Over the past few decades, the United States failed to cope with geopolitical realities. Since the end of the Cold War, international political power has diffused, replacing a hegemonic order with a multipolar or "regional" one. Still, the United States brings "hegemonic attitudes" to its bilateral relationship with India. As a result, it pursues a traditional alliance with India, similar to those it established by NATO. In such an arrangement, the superpower provides protection and defense for the "client state" and in turn the client state cedes some sovereignty in its foreign policies.[110]

For centuries, the United States eschewed permanent alliances, but after World War II, it forwent this tradition. Balancing the Soviet Union, the United States established its first permanent alliances as the world's strongest superpower. Preparing to balance China, the United States mimics its post-World War II attitudes. However, such an approach with India ignores current geopolitical realities and India's historical position in South Asia, a regional hegemon. Advancing its new strategy of "offshore balancing," the United States signals its struggle to "balance" on its own.[111] Despite the change in strategy, the United States continues to exude its hegemonic attitudes. In effect, the United States hopes to promote other states such as India to "great power" status but just to do its own bidding.

Suggestions for the Future— Exploiting Opportunities and Confronting Challenges

In the past decade, the partners established a robust framework to advance their shared interest. However, they must prevent themselves from complicating the existing framework and instead compliment their planning with resource commitments and action. Both states relish the politics of ostentatious announcements—offering domestic political benefits and signaling strength to China. However, political leaders must invest more into the relationship to reap tangible strategic benefits. To "mature" the relationship, the partners must increase both informal and formal connections, setting an example at the highest levels of government.[112] As government officials gain more exposure to their counterparts, they will start to better understand their counterpart's political and social culture and their motives. For example, post-World War II, the United States established its first alliances with Western European powers— an easier feat than establishing a strong partnership with India because it had originated from Western Europe, navigated the continent for over a century, and built upon previous cooperation.

In the case of India, the United States created opportunities for a partnership just two decades ago. In addition, the United States must learn how to better navigate the geopolitics of South Asia with greater cultural appreciation and understanding of

the Indian perspective—one rooted in powerful historical trends and customs. Cara Abercrombie recommends that the two states normalize practical cooperation through "more frequent and targeted engagements."[113] Furthermore, representatives of both states should remember how the past, narratives about the past and fundamental identities shape the present and current positions. Greater constructive engagement should enlighten both sides to the unique histories, identities, and positions of the other. As a result, the partners can better establish trust, resolve problems, and strengthen the relationship. Increasing communication and cultural competence may mitigate the effects of lingering divergent expectations and forge convergent expectations for the future.

India's insistence on strategic autonomy and great power ambitions originate from its historical policies of non-alignment and political forces of nationalism and orientalism. The United States' hegemonic attitudes originate from its political "exceptionalism" and produce moralistic and coercive overtones. The United States must recognize that India's position originates from geopolitical necessities and ingrained identities. In *Why America Misunderstands the World*, Paul Pillar explains the pernicious effects of American exceptionalism. With its privileged geopolitical position (a superpower bordered with two friends and two large oceans), the United States often fails to understand that most other foreign powers determine their foreign policies on the need to survive.[114] India continues to emphasize its land-based power rather than its maritime power out of geopolitical necessities. However, India's demands to be treated as an equal despite its asymmetrical capacities, originate from deep-seated identities and domestic political forces. At the same time, India must understand its partner's position and help the United States navigate the "new" multipolar or regional world—an unfamiliar landscape.

In the Civil Nuclear Agreement, both parties participated in constructive engagement at high volumes and at high levels—top political officials intervened to advance negotiations and the partnership. To continue fostering a productive relationship, both states must devote more material and human capital resources to increase constructive engagement and better understand the origins of the others' positions, often rooted in fundamental identities. In her article "Realizing the Potential: Mature Defense Cooperation and the U.S.-India Strategic Partnership," Cara Abercrombie recommends that both states adjust their bureaucracies to prioritize each other and strengthen their relationship.[115] Both should increase staffing for their bilateral relationship to manage its complex framework, and both should designate high-level officials to lead on bilateral policies.[116] Such changes prioritize the bilateral relationship relative to other ones and should help the two partners define their respective roles, set priorities and establish mutual understanding.

Conclusion

In the Civil Nuclear Agreement, the United States revised the global nuclear non-proliferation regime to accommodate India's rise as a regional and global power and transform their tenuous relationship into a productive partnership. Its American Exceptionalism manifested in the neoconservatives, forging the agreement, and neoliberals, obstructing the agreement. However, the neoconservatives managed to leverage their position in government to overcome opposition. On the other hand, Indian exceptionalism manifested in the nationalists, leftists and scientific establishment, obstructing the agreement. The realists in government failed to

overcome the prolific opposition forces. Nonetheless, the neoconservatives persisted to close the agreement, handing India a large symbolic prize—welcoming it into an exclusive group of "legitimate" nuclear weapons powers. After the agreement, the partners started cooperation on a host of fronts. However, the two states approach a crossroads in their relationship: after establishing a robust framework for partnership, can both follow through with material and political commitments? To prevent frustration from ruining the relationship, the two states must increase formal and informal constructive engagement with each other to better understand their counterpart's "unique" identities and deep-seated strategic positions.

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King of the War Gases
Examining the Military History of Mustard Gas

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Nearly all histories of chemical weapons start with the German release of chlorine at Ypres, Belgium in April 1915. While undoubtedly a seminal event in the history of chemical warfare, chlorine is not the most significant chemical weapon to emerge from the Great War. Instead, sulfur mustard has proven to be a much more impactful and durable weapon of warfare, from the trenches of Ypres in the First World War to the frontlines of Syria and Iraq today. Over the last century, sulfur mustard has been employed across more battlefields by more combatants than any other chemical weapon.

This article captures this history of use and explains why sulfur mustard is the most widely used chemical weapon in world history. This continuing popularity is the true test of a weapon's utility. Such a test looks beyond how effective the weapon is and addresses how effective it is believed to be (as measured by how many militaries choose to devote limited resources to its development, deployment, and use). Such widespread use is especially telling when it comes to a weapon that is so vilified that its employment must be denied and hidden. This article argues that sulfur mustard is widely used because it is uniquely effective as a psychological weapon of terror, which is the principal use of chemical weapons in warfare. [1]

Introduction

By straddling two separate, but related areas of study—military history and chemical weapons—this article seeks to fill an important gap in the literature. Most sources focus on either chemical or on warfare and treat them as if they are unconnected. Chemical weapons experts talk about issues specific to their agenda. Much has been written on the devastating effects of CW on the human body or the environment. The science behind the development and manufacture of massive stockpiles of CW is well-documented. The nonproliferation efforts embodied in numerous treaties are highlighted as key to ending CW use. In contrast, relatively little has been written about the impact of CW on the battlefield. This article focuses instead on the uses of sulfur mustard in conflict to better understand why it was used and what impact it had. As such, this is a *military history* of mustard gas.

Military experts, on the other hand, talk in minute detail about battles and conventional weapons but ignore the uses of chemical weapons as irrelevant distractions from the valiant efforts of men-at-arms. Chemical weapons, when they are mentioned at all, are only given cursory treatment. Chemical weapons are often ignored in traditional military histories in favor of more gentlemanly forms of warfare while the actual study of chemical weapons becomes niche, limiting its exposure to the broader study of military history. To understand the impact of sulfur mustard we must explore the military and political effects of these weapons. As a result, the focus of this article is on the strategic impact of sulfur mustard. This is not, therefore, a tactical exploration of the use of mustard in individual battles. Like other weapons, sulfur mustard has been so widely used, particularly in the First World War and the Iran-Iraq War,, that such a tactical examination is not practical. While the broader context of these wars and the results will be explored, the focus will remain

on the uses of sulfur mustard. Thus, only the Western Front in WWI and the Pacific Theater in WWII—the only areas that saw mustard use—will be discussed here. As such, this is a military history of *mustard gas.*

Defining Mustard Gas Use

The widely-used term "mustard gas" is misleading. More accurately described as sulfur mustard,[2] it is not derived from mustard and is not actually a gas, but rather a viscous liquid similar to motor oil at room temperature. Used as a chemical weapon, sulfur mustard is not actually vaporized, but dispersed as a fine mist of liquid droplets.[3] The mustard gas name, however, emerged soon after sulfur mustard was introduced in WWI because the impure form used in combat had a mustardy or garlicky odor and a yellow-brown color. The affected soldiers were already used to facing other poison gases (and probably did not care that a fine mist of liquid droplets did not meet the scientific definition of a gas) and so the popular name is based more on soldiers' perceptions than scientific fact. As a result, the terms "sulfur mustard," "mustard gas," and simply "mustard" will be used interchangeably.[4]

Sulfur mustard is a slow-acting vesicant that causes severe blisters from chemical burns. Within 24 hours of exposure, victims experience intense itching and skin irritation which gradually turns into large blisters filled with yellow fluid especially in the groin and armpits. Mustard also causes conjunctivitis in the eyes and bleeding and blistering of the lungs if inhaled. While unlikely to kill, mustard exposure is often debilitating with treatment potentially taking weeks and long-term effects possible. Sulfur mustard is a contact hazard able to penetrate most fabrics and thus a traditional gas mask only offers partial protection. As a persistent agent, mustard can exist in the environment for weeks making it an effective area denial weapon.

Finally, the focus here is only on uses of sulfur mustard, defined as a deliberate and harmful employment for political purposes. This definition is explicitly intended to eliminate accidental releases such as the 1943 release of sulfur mustard during the German air raid on the port of Bari. Although significant, such unintentional use does not help to understand the types of actors who might use mustard and the situations in which those actors would choose to cross that line. By focusing on deliberate attacks, the actor is placed in the primary role which aids in determining motivations for use and predicting scenarios for future use. Also, the inclusion of political purposes is designed to focus on uses by states and non-state actors in violent conflicts without making a distinction between interstate warfare, insurgency, and terrorism.

Challenges of Studying Mustard Gas

The study of chemical weapons in general faces many challenges, and the study of sulfur mustard in particular faces even more. First, chemical weapons are among the most well-kept secrets of governments. Simply acknowledging past or present possession of chemical weapons is rare, and admitting to actual use against opponents rarer still. More common are attempts to obfuscate or even outright lie. Efforts to destroy evidence of use frequently appear in the historical record. Adding to this challenge, several international actors have wrongly accused others of CW use, either mistakenly or for their own political purposes. Thus, demonstrating the use of mustard in combat is difficult, but excellent research has already been conducted on individual conflicts. This effort builds on that research to provide a comprehensive analysis.

Second, separating sulfur mustard from other chemical (or biological or toxin) weapons presents its own issues. Many sources in the historical record refer unhelpfully to "chem-bioweapons" or "poison gas" without making clear which agent was employed. Most research bypasses this issue by discussing chemical weapons in general without focusing on a single agent. Carving mustard out from the rest of chemical weapons is not impossible, however. When analyzing attacks, the effects of mustard on humans tend to be rather unique and make it easier to determine what was used. The tell-tale blisters of mustard exposure are fundamentally different from the respiratory or lachrymatory effects of chlorine or phosgene, and mustard gas is not as deadly as the later nerve agents.

Finally, many users of chemical weapons make this issue more difficult by using multiple types of CW in a single attack. In the First World War the Germans, British, French, and Americans all mixed CW such as chlorine, phosgene, chloropicrin, and sulfur mustard along with tear gases, smoke, incendiaries, and high explosives in their artillery bombardments for various tactical reasons.[5] The Japanese in WWII used a wide range of chemical, biological, and harassing agents (and extensively covered up their work), which makes differentiation of specific mustard attacks particularly challenging.[6] Later the Iraqi government mixed their CW (most often sulfur mustard and the nerve agent tabun) together in their attacks, complicating the investigations into CW use by the United Nations.[7]

Military History of Mustard Gas

With this background in mind, what follows is a military history of the uses of mustard gas over the past century. Sulfur mustard was introduced in WWI on the Western Front, used repeatedly in the colonial battles between the world wars, and appeared in WWII primarily in the Pacific. More recently, mustard has featured prominently in the battles for supremacy in the Middle East, including interstate wars and in conflicts with non-state actors.

First World War

Mustard gas was introduced in the First World War, where it quickly became known as the "King of War Gases" for its extensive use and significant impacts.[8] The Germans first employed sulfur mustard on July 12, 1917 during the Third Battle of Ypres.[9] Given the lack of defensive equipment against this new contact hazard, mustard was considered an instant success: "Within three weeks of introducing [mustard] shell, the Germans had caused as many gas casualties as had resulted from their entire gas shelling of the preceding year."[10] More importantly, mustard finally broke the stalemate between offense and defense that had prevailed since the beginning of the war.[11] "The Germans eventually broke the deadlock by introducing the Yellow Cross vesicant, mustard gas, which attacked the enemy's anatomy at a point not protected by the respirator."[12] The Germans would enjoy a virtual monopoly on sulfur mustard use throughout the remainder of their 1917 offensives.

The German Spring Offensives from March to July 1918 featured extensive use of sulfur mustard, but it was not the game-changing weapon that Berlin had hoped.[13] Mustard proved to be more effective on the defensive as an area denial weapon than as a tool of offensive maneuver, and the Allies were able to adjust to the agent better than expected. Thus, the German advantage in sulfur mustard did not stop the Allied counterattack and the Germans were forced to change tactics.[14] After the failure of the spring offensives, the Germans shifted to defensive use of sulfur mustard which

slowed, but did not stop, the Hundred Days Offensive launched by the Allies in August 1918.

The French were the first to retaliate with sulfur mustard of their own in June 1918, and the British followed a few months later in September as the war was nearing its end.[15] This delay in retaliation occurred because both nations suffered from a lack of existing facilities that could be converted to sulfur mustard production as the Germans had done and were forced to build new facilities and procedures to manufacture sulfur mustard.[16] The Americans would also employ sulfur mustard provided by Great Britain and France, but their own supplies did not reach Europe during the war.[17]

The lack of protective equipment contributed to sulfur mustard's effectiveness. Unlike chlorine and phosgene, the two most widely used chemical weapons before the introduction of mustard, for which a gas mask was sufficient protection, no effective defense against sulfur mustard was developed during the war despite several attempts.[18] During WWI, sulfur mustard made up just under 10 percent of all chemical weapons used, but resulted in more than 30 percent of all casualties from chemical weapons.[19] Thus, "Of all the casualty gases used in the war, mustard gas was by far the most effective."[20] Such statistics led mustard to be called "by far the most important CW agent of the war, not only from a battlefield point of view, but also…for the long-term development of CW."[21]

Spain in Morocco

Spain was the first country to use sulfur mustard after WWI. During the Rif War as the Spanish fought an uprising in Morocco in the 1920s, Madrid employed sulfur mustard on numerous occasions, most extensively from 1924 to early 1926.[22] In July 1921, the Spanish suffered their greatest defeat of the war, which became known as the Disaster at Annual and sparked calls for vengeance. After, Spain's desire to use any means necessary to punish the Amazigh tribes took center stage. The Spanish King Alfonso XIII spoke of defeating the rebellious tribes of the Rif "with the aid of the most harmful of all gases," which at the time was indisputably sulfur mustard.[23]

The first use of sulfur mustard likely occurred at the battle of Tizzi Azza on 15 July 1923 and mirrored WWI tactics using artillery.[24] By June 1924, however, the Spanish were dropping sulfur mustard bombs from aircraft, a new innovation not attempted in WWI.[25] By March 1915, the Spanish military claimed that all areas in enemy hands had been hit with sulfur mustard.[26] Around this same time, the French intervened in Morocco on the Spanish side, a fact which ultimately proved decisive in the Spanish victory the following year.[27] The primary reason the Spanish dialed back on sulfur mustard use after 1926 appears to be the presence of their own (and allied French) troops in enemy areas.[28] Casualties from sulfur mustard are well-documented despite Spanish denials and the Moroccan government's complicity in the Spanish coverup.[29] "By the end of the war…hundreds of Moroccans had been killed and probably thousands severely affected by the deadly chemical dropped on them over a four-year period."[30] The Spanish preference for bombing areas with high population density such as villages and markets was another change from WWI tactics and indicate a heavy civilian casualty toll was inflicted.[31]

Italy in Libya

The Italian pacification of Libya from 1923 to 1932 involved numerous allegations of the use of chemical weapons including sulfur mustard. While the specific dates and details of the attacks from 1923 to 1930 vary by source, the fact of Italian use of sulfur mustard is well-established.[32] According to

Sislin, "[t]here seems to be more of a consensus over the CW—phosgene and mustard gas—and the dissemination method—aircraft" than over the other details.[33] Such consensus is sufficient to determine that Italy used mustard in Libya in the 1920s with the bulk of the fighting taking place in the mountainous Jebel Akhdar region of Cyrenaica against the Senussi. The similarities to the Spanish use in Morocco—sulfur mustard dropped from aircraft on civilian targets—clearly demonstrates the shift of tactics from WWI efforts to defeat an enemy on the battlefield to breaking an entire nation's will to fight.

Italy in Ethiopia

Italy's use of chemical weapons during its invasion and occupation of Ethiopia (Abyssinia) in 1935 and 1936 is even better documented than the Libyan case.[34] The Italians launched their invasion in October 1935 and enjoyed initial success. The Ethiopians, however, organized their resistance by December at which point the Italians turned to more aggressive tactics including the use of mustard gas. Italy used sulfur mustard on at least thirteen occasions between December 1935 and April 1936 against the poorly-protected Ethiopian forces.[35] The Battle of Maychew on March 31, 1936 would prove to be the final major battle of the war and Italian forces would occupy the capital of Addis Ababa by May 5. While sulfur mustard was not the deciding factor in the swift Italian victory, "the use of sulphur mustard played an important role in shifting the momentum of fighting in favor of the Italian forces and in demoralizing the Ethiopian forces."[36] In terms of tactics, the Italians were also the first to use spray tanks on aircraft in dispersing sulfur mustard or, as Ethiopian Emperor Haile Selassie described it to the League of Nations, "Sprayers were installed on board aircraft so that they could vaporize, over vast areas of territory, a fine, death-dealing rain."[37] Again, a European colonial power had demonstrated its technological superiority (and arguably its moral inferiority) against an African nation by employing mustard.

Japan in China

In addition to their extensive use of biological weapons, Japan also used chemical weapons during the Second Sino-Japanese War from 1937 to 1945.[38] Virtually all sources agree that sulfur mustard, hydrogen cyanide, lewisite, and phosgene were used (in addition to various sneezing and tear gases).[39] The Japanese focus on sulfur mustard is indicated by the fact it was among the first CW to be produced and was done to a greater extent than other CW. Japan started its CW production in August 1929 with only two options—mustard gas and tear gas—before later expanding to include a broader range of chemical weapons.[40] At its peak, the main Japanese CW facility was able to produce 200 tons of sulfur mustard per month, far more than any other CW Japan was producing.[41] Between 1931 and 1945, Japan produced twice as many blistering agents (sulfur mustard and lewisite) than all other chemical weapons combined.[42]

Records of Japanese use of mustard are notoriously difficult to find and most have not yet made it into English translation, but the broad outlines are nevertheless apparent. The use of sulfur mustard at the Battles of Yichang and Wuhan, both in 1938, appear likely given the extensive nature of those battles and the preparations to use chemical weapons.[43] A rare surviving document from the Japanese military indicates their use of 28 artillery shells filled with a blister agent—likely mustard—in Shanxi Province in July 1939.[44] Perhaps the most extensive use of mustard occurred when Japanese forces were surrounded at Yichang in October 1941. The Japanese reportedly fired 1,000 mustard-filled artillery shells and dropped 300 bombs

with tear, sneezing, and mustard gases against Chinese forces.[45] Additional uses, each employing over 300 tons of mustard, occurred in October 1941 in Henan Province and in February 1942 in Shanxi Province.[46] As late as June 1944 the Japanese employed a vesicant agent (likely sulfur mustard) at Hengyang that produced blisters among the casualties.[47] The Japanese tended to use mustard as an area denial weapon either to defend their own perimeters or to contaminate areas where Chinese soldiers were likely to travel.[48] As with the Japanese biological weapons uses, the allegations are so numerous and enough supporting evidence exists to demonstrate mustard use even if the details are sometimes unclear. Although statistics are difficult to confirm, the bulk of evidence indicates the Japanese conducted hundreds of CW attacks with an apparent focus on sulfur mustard resulting in tens of thousands of casualties among both Chinese troops and civilians.[49]

Egypt in Yemen

The Egyptian intervention in the Yemeni Civil War in the 1960s included multiple confirmed uses of chemical weapons—primarily mustard and phosgene—by Egyptian forces.[50] Early use in June 1963 was likely experimental and Egypt refrained from additional uses for three years while negotiating an end to the conflict. As Egypt's desire to end the war increased, Cairo again returned to sulfur mustard.[51] From December 1966 until the end of Egyptian involvement in the war in July 1967, Egypt likely conducted between 30 and 40 separate chemical attacks in Yemen, primarily in areas north/northwest of Sana'a, where the royalist forces of Imam al-Badr were located.[52] In launching their attacks on royalist targets, the Egyptians preferred relying on their air superiority rather than sending ground troops into inhospitable territory. Initially these chemical attacks were a "concerted effort to destabilize royalist cave headquarters and terrorize Imam al-Badr's tribal supporters," but, after Egypt's defeat in the June 1967 war with Israel, sulfur mustard and phosgene attacks were used on an even greater scale to provide cover for withdrawing Egyptian troops.[53] Although questions remain about some of the alleged incidents, the totality of evidence confirms multiple uses of sulfur mustard resulting in "at least 1,400 dead and about 900 severely gassed" among the rebel forces and the civilian population.[54]

Iraq vs. Iran and the Kurds

Iraq's use of chemical weapons in the 1980s is the second largest use of CW in history. Baghdad targeted Iranian forces in their eight-year war, Iraq's own Kurdish population in the north in a genocidal campaign, and later in 1991 the Shia in the south during an attempted uprising (although the use against the Shia did not involve mustard). The war began with the Iraqi invasion of Iran on 22 September 1980, but the first major use of chemical weapons did not occur until August 1983 after Iran had repelled Iraqi forces and Iraq found itself on the defensive. According to the Central Intelligence Agency (CIA), Iraq's use of CW can be divided into three phases: From 1983 to 1986 Iraq used CW "in a strictly defensive role, to disrupt or halt Iranian offensives," then transitioned from late 1986 to early 1988 to using CW "preemptively against staging areas prior to Iranian offensives," before shifting in the spring and summer of 1988 to using "massed nerve agent strikes as an integral part of its well-orchestrated offensives."[55]

Mustard gas was by far the most common chemical weapon used by Iraq. The official U.S. government report summarizing the major uses of Iraqi CW includes thirteen uses of sulfur mustard, four uses of tabun, and seven uses of an undefined "nerve agent"

likely to be tabun, sarin, or some combination of the two given Iraq's production of those agents.[56] Significant Iraqi uses of sulfur mustard include Haji Umran and Panjwin in 1983, Majnoon Island in 1984, Hawizah Marsh in 1985, al-Faw and Um ar-Rasas in 1986, al-Basrah and Sumar/Mehran in 1987, and finally Halabja, al-Faw (again), Fish Lake, Majnoon Island (again), and the south-central border region all in 1988. In total, Iraq admitted it had "consumed about 1,800 tons of mustard gas" (in comparison to 140 tons of tabun and over 600 tons of sarin) between 1983 and 1988.[57] Iraq's use is well-documented by numerous United Nations specialist missions, Iraq's own admissions, and Iranian and Kurdish accounts.

The Islamic State vs. Iraq and Syria

The Islamic State in Iraq and Syria (ISIS) is the only insurgent/terrorist group confirmed to have used sulfur mustard.[58] The strongest evidence comes from the UN and Organization for the Prohibition of Chemical Weapons (OPCW) confirmation of multiple uses of mustard by ISIS in Syria in 2015 and 2016.[59] All told, ISIS launched dozens of attacks with crude chemical weapons including at least 17 attacks with sulfur mustard from July 2015 to May 2017 in both Iraq and Syria.[60] The center of ISIS's mustard capability appears to have been Mosul, with the resources of Mosul University playing a key role.[61] The loss of Mosul in July 2017 coincides with the end of ISIS's mustard gas attacks, but the knowledge and the capability likely remain. ISIS's use of sulfur mustard appears to have been too intermittent and small-scale to have had much impact on the overall trajectory of the war, or even specific battles, and was likely limited to a psychological impact.

Unconfirmed Uses

Additional uses of mustard remain unconfirmed, but worthy of additional research. The Polish resistance to Nazi invasion and occupation allegedly used mustard on multiple occasions.[62] Both Iran and Libya were accused of using sulfur mustard in the 1980s. Iran was alleged to have used mustard against Iraq late in their long war, although Tehran denies it.[63] Libya may have used sulfur mustard provided by the Iranians against Chadian forces on one occasion in September 1987.[64] More recently, both the governments of Sudan[65] and Burma[66] have been accused of using CW including mustard against the rebel forces in those countries, but those allegations thus far lack substantiation.

Analysis

Mustard gas is the most widely used chemical weapon in world history, but the question remains as to why. This analysis seeks to explain the extensive use of mustard by examining its unique characteristics among chemical weapons.

Longevity

While it is true that sulfur mustard is part of the first generation of chemical weapons along with chlorine and phosgene, the fact that sulfur mustard has existed for over a century does not by itself account for its continuing use. In fact, few of the chemical weapons used in WWI are still used. Chlorine was the first CW employed, but allegations of chlorine use between the world wars remain largely unconfirmed.[67] Since WWI, chlorine has seen only limited use with a single opportunistic attack by the Tamil Tigers in 1990[68] and a resurgence in use by the government of Syria[69] and the terrorist groups al-Qa'ida in Iraq (AQI)[70] and ISIS[71] in recent years. After WWI, artillery and sulfur mustard made chlorine largely irrelevant. "With the decline in importance of cloud gas attacks, and the development of more deadly gases, chlorine was all but discarded as a true war gas, but remained as

a highly important ingredient in the manufacture of other toxic gases."[72] Similarly, phosgene was used by more countries in WWI than any other chemical weapon,[73] but it has been used only rarely since including Japan in WWII[74] and Egypt in the 1960s.[75] The decreasing use of both chlorine and phosgene is likely due to the effectiveness of defensive measures against those choking hazards and the apparent preference for contact hazards such as sulfur mustard (and later the nerve agents). Thus, longevity alone does not account for mustard's continuing popularity.

Ease of Manufacture

Another possible argument is sulfur mustard's relatively low technology requirements encourages its manufacture and use. Sulfur mustard is, after all, a more than century-old technology originally discovered in the 1800s[76] and first successfully weaponized in 1917. The technology is widely available, with published patents available on the Internet. ISIS demonstrates the ease with which at least an impure, but effective form of mustard gas can be developed by a capable nonstate actor. Using resources and personnel from Mosul University, the group was able to effectively weaponize crude sulfur mustard in artillery shells within a year despite being in the middle of a war zone and lacking access to the latest scientific equipment.[77]

This argument, however, is insufficient. First, other chemical weapons such as chlorine and phosgene are equally (if not easier) to manufacture than sulfur mustard. Second, while the G-series nerve agent sarin is more difficult to produce than mustard, it has nevertheless proven to be within the capabilities of one particularly skilled terrorist group, Aum Shinrikyo.[78] Thus, ease of manufacture alone cannot account for mustard's popularity although it likely contributes to its appeal.

Ability to Win Wars

If longevity or simplicity are not the answers, then perhaps the key to sulfur mustard's continued use lies in its effectiveness.[79] Such a question, of course, depends on the measure of effectiveness being used. One criterion would be its ability to win wars. If mustard gas was a key component of victory, then its continued use would be logical (albeit morally reprehensible). The historical record, however, does not support this argument. The Germans were the first to introduce mustard in WWI, had a monopoly on its use for nearly a year, and used it more extensively than all other belligerents combined—and lost. Japan was the only country to use mustard in WWII—and lost. The Egyptians were the only side to use mustard in Yemen—and lost. ISIS is the only belligerent to use mustard on the Iraq/Syria battlefield—and lost. Iraq in the 1980s presents a middle case. Iraq certainly did not win the war against Iran, but it did not lose either. Only the colonial powers in Italy and Spain can argue they won their wars in which they used sulfur mustard, but it is difficult, and likely impossible, to prove they won those wars because of that use. In fact, their militaries were technologically superior on every level and sulfur mustard was just one component of that. The colonialists may have won, but mustard is unlikely to be the only or even the primary reason why. Thus, mustard gas does not win wars, but does it contribute to victory in other ways?

Even though mustard use has not won wars, analysis of the historical record indicates such use has hastened victory, forestalled greater losses, and even won battles. On the use of gas in general in WWI, Robinson and Leitenberg state, "While it was not a battle-winning weapon, and certainly not a war-winning one, there were a number of engagements on the European fronts

where the outcome would have been different had gas not been used."[80] Haber argues after WWI, "[I]t is certain that in the last three months of the war the Germans found the combination of machine guns and mustard gas invaluable: it gained them time, enabled them to retreat in good order, and kept the Allies at a safe distance. The retreat did not turn into a rout."[81] Even in wars where victory seemed assured, sulfur mustard accelerated the end. Utgoff claimed Italian use of mustard shortened the war in Ethiopia by at least nine months.[82] More recently, CW were apparently a factor in Iraq's ability to survive its war with Iran. CIA analysts argue in 1988 that "We believe that chemical munitions, in a few cases, have been significant in the context of specific battles."[83] Specifically, "Iraqi mustard use was a major factor in stopping an Iranian advance in Panjwin in 1983." [84] Hiltermann goes even further when he claims, "Iraq's chemical weapons use likely was the qualitative factor that led to the Kurdish insurgency's collapse, as well as the Iranian leadership's decision to sue for peace."[85] Thus, the use of sulfur mustard has clearly had an impact on the outcome of wars even if it does not lead to outright victory, but such effects alone are likely insufficient to break the taboo against CW use and risk an international response.

Weapon of Terror

If mustard does not win wars, then why is it so widely used, especially given its condemnation? The answer likely lies in the role of CW in modern warfare. Rather than being used to win wars as originally envisioned, modern chemical weapons are more likely to be used as a psychological weapon of terror to break enemy morale and induce fear.[86] Relying solely on casualty figures—a standard measure of a weapon's war-winning ability—overlooks the true role of chemical weapons in warfare. As Cook argues, "The role of morale, non-fatal casualties, battlefield cohesion, training and discipline, to mention but a few factors, were essential for bolstering or wearing down armies of millions. Those historians who focus only on the tangibles of war, the recorded fatalities, fail to grasp the true nature of poison gas."[87]

While all chemical weapons produce fears of an unseen enemy spreading poison, sulfur mustard is particularly effective at inducing these additional effects due to its distinctive features. First, mustard is able to bypass the standard protective measure of a gas mask and attack the skin directly as a contact hazard. Second, those exposed to sulfur mustard are often initially unaware and the effects of mustard only appear hours after exposure which increases feelings of helplessness. Finally, sulfur mustard is a persistent agent able to survive for days in the environment (and even weeks or months in very cold conditions) waiting to attack the unprepared. These factors combine to heighten fears of mustard exposure, an impact that was widely recognized as early as WWI.[88] By early 1918 the belligerents had changed their views on gas warfare and on sulfur mustard in particular. The new focus was not on breakthroughs but rather sulfur mustard's ability "to incapacitate, to lower fighting efficiency, cause panic, depress morale, and, by attrition, to wear down the opponent's manpower."[89]

Such goals seem to remain today. Hiltermann describes the psychological impact of Iraq's sulfur mustard use first against Iranian troops and later against the Kurdish insurgency and civilian targets. "Seeing the powerful psychological effect of this weapon [on Iranian forces], Iraq later applied it in two novel ways: by smoking out Kurdish guerillas barricaded in their formidable mountain strongholds, and—in a particularly cruel touch—by targeting civilian populations…in order to cause panic

and to undermine popular support for continued fighting."[90] Modern combatants continue to see the psychological value of mustard gas. One of the Iraqi scientists drafted into helping ISIS develop sulfur mustard describes their thought process: "It was important [for the Islamic State] to make something strong so that they could terrify. It was more about creating horror, and affecting the psychology and the morale of troops fighting them."[91] Thus, the perceived psychological impact of sulfur mustard seems to be a key factor in explaining its continuing use by combatants seeking an advantage over their enemies.

These psychological impacts of mustard are reinforced in the methods used. Since WWI sulfur mustard (like other chemical weapons) has not been used against a prepared military target. Instead, mustard is only used against military forces or civilian targets that lack sufficient protection. As such, sulfur mustard is used in part to demonstrate a level of technological superiority against an opponent and therefore the futility of resisting their onslaught. By using mustard against an enemy who has no defenses against it, the users try to break the will of the enemy to continue the fight against a seemingly superior enemy. Such attitudes can be seen clearly in the colonial battles of the Spanish and Italians in Africa and the Japanese in China. Italy and Spain offer particularly telling examples when they combined sulfur mustard with aircraft—two modern technologies their opponents lacked and had no hopes of matching. The Egyptians fighting Yemeni royalist forces and the Iraqis attacking Iranian troops and Iraqi civilians similarly pressed their technological advantage. Even the Islamic State limited their use of mustard to Iraqi security forces, Kurdish Peshmerga, and civilian targets who lacked protection and apparently did not target Syrian military forces that could retaliate in kind.

Lack of Reaction

These findings raise a final question: If sulfur mustard is so universally feared, why is there not more international opposition to its use? Forceful reactions would dissuade continuing use, but the historical record shows a decided lack of such a response from the international community. Predictably, the lack of an international response only fosters additional use.

Despite the protests from the victims and even with considerable evidence of use, the international reaction to the use of mustard (and chemical weapons in general) has generally been muted. Such hesitation may result in part from great power politics. Since WWI the user of sulfur mustard in conflict has been the more advanced country militarily, technologically, and economically while the victim is often less advanced and unable to respond in kind. This power disparity not only helps to explain why sulfur mustard is employed,[92] but also explains why other countries are less likely to sanction the user. After WWI, the use of mustard by the Spanish, Italians, and Japanese barely registered a response despite complaints at the League of Nations.[93] Although the League investigated and even (weakly) sanctioned Italy for its mustard use in Ethiopia, stronger action was not taken out of concern that any punishment would push Mussolini closer to an alliance with Nazi Germany.[94]

The U.S. threatened retaliation in kind if the Japanese used CW in China, but no such response occurred even though such use was widely reported in the press at the time and specific cases were documented by American military officers.[95] Following WWII, the United Nations did not fare much better in responding to Egyptian use in the 1960s as multiple countries were seeking closer relations with the Arab World's most important country. Muted reactions to Iraqi use in the 1980s can be traced in part to a

desire to support Iraq as the crucial bulwark against the spread of the Iranian Revolution.[96]

In addition to the realpolitik of such use, sulfur mustard may not trigger strong international reactions because it is relatively outdated technology that does not kill in large numbers. Syria's use of chemical weapons against its own citizens may be illustrative of this point (although the story does not involve the use of sulfur mustard). The international reactions to the Syrian government's uses of sarin and chlorine were considerably different. While chlorine use was largely ignored, the use of sarin in Ghouta on 21 August 2013 led to Syria being pressured to sign the Chemical Weapons Convention (CWC) and dismantle large amounts of its CW.[97] Later uses of sarin, especially the 4 April 2017 attack at Khan Sheikhoun, resulted in U.S. military strikes against the responsible military base that conducted the attack.[98] "The difference in response to the use of sarin versus chlorine may signal a bifurcation of the CW norm—or at least a bifurcation in the willingness of the international community to take strong action to enforce the norm. Consequently, some actors may decide to use more basic CW to harass and terrorize their populations, because even limited gains will outweigh the international condemnation it will draw."[99] In short, while a taboo against CW use may exist, not all CW are created equal and the reactions to CW use vary accordingly.

The different reactions to the use of WWI agents (including mustard gas) and more advanced nerve agents may come down to their lethality. In the Syrian case, "the use of sarin, a nerve agent with greater lethality, has attracted a stronger international response than the use of the relatively less lethal chlorine."[100] Sulfur mustard unfortunately fits into this "relatively less lethal" category since it generally kills less than five percent of those affected.[101] However, mustard has proven to be a more effective weapon of terror than chlorine or phosgene. Sulfur mustard has proven to be effective enough to make a difference in combat, but not so effective that its use might trigger a harsh international response.

By comparison, the resort to nerve agents may be considered an escalation by the victim or an unacceptable violation of the norm against CW use by the international community. This might help explain why nerve agent use has been relatively rare. Sarin has only been used by Iraq, Syria, and Aum Shinrikyo, while Iraq is the only country known to have used tabun. There are no confirmed uses of soman. More advanced nerve agents including VX and Novichok have not been used in combat, but have appeared in assassinations.[102] Although nerve agents are a more recent invention and more difficult to manufacture and store than sulfur mustard, the real reason for their limited use may lie in the inherent risk to the user. Nerve agents run the risk of sparking an international reaction or even an outside intervention if they kill too many people. The perception that nerve agents are breaking the CW taboo while older WWI- era chemical weapons are less heinous may be unstated, but no less real.

While a taboo against the use of CW undoubtedly exists, this analysis demonstrates some of the challenges in enforcing it. Countries seeking to enforce the taboo—either on their own or in concert with international organizations—by enacting sanctions or through military retaliation face considerable costs for doing so. As a result, potential enforcers of the taboo may seek excuses to avoid those costs; they may calculate that their relationship with the user of mustard is more important than their relationship with the victims or the maintenance of the taboo. When this occurs, weak sanctions and token opposition is likely to result. The relatively low numbers of

deaths from sulfur mustard may also minimize public pressure to respond and allow potential enforcers to ignore instances of use. Without dramatic evidence of significant deaths from sulfur mustard use, potential enforcers of the taboo can downplay such use and avoid the costs of having to enforce the taboo. Realpolitik and low lethality combine to allow mustard use to continue to slip under the radar of the CW taboo.

Conclusions

Sulfur mustard has been used across more battlefields and more years by more combatants than any other chemical weapon in history. Such extensive and repeated use is likely due to the fact that mustard is both technologically achievable and militarily effective while minimizing the risk of international response. First, mustard is century-old technology that is no longer limited to states, as demonstrated by ISIS's development and repeated use. Second, mustard is effective in unique military roles, especially as a weapon of psychological terror that injures far more often than it kills. By comparison to other CW, mustard is significantly easier to manufacture than the nerve agents while offering the same contact hazard threat, albeit a less deadly one. As a contact hazard, mustard is more effective against defensive measures than the choking and lachrymatory agents which are easier to manufacture than sulfur mustard. Thus, mustard fits a relatively unique niche of being easy enough to make and effective enough to work. Adding to its attractiveness, mustard is unlikely to spark an international outcry because its effects are well-known and it causes relatively few deaths. Such features enable mustard use to be inadvertently tolerated by the international community even if publicly opposed as a violation of international law. In sum, sulfur mustard fits into an odd "Goldilocks Zone" where it is widely seen as old enough, easy enough, effective enough, and reliable enough to be used without consequences. Mustard gas is the quintessential chemical weapon that highlights the continuing appeal of chemical warfare.

The most important policy implication of this analysis is clear: any use of chemical weapons must be stridently opposed. Little more can be done about the broad availability of the knowledge and the materials to manufacture and use chemical weapons. The awareness of their existence and their effectiveness cannot be completely eliminated. Instead, the reaction of the international community to CW use is the most important change that can be realistically achieved. Any use of chemical weapons—no matter how small and no matter how few casualties result—must be met by strenuous opposition. The user must face immediate and significant consequences. The alternative is the continuing use of chemical weapons—especially sulfur mustard—in the future.

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Endnotes

[1] Tim Cook, "'Against God-Inspired Conscience': The Perception of Gas Warfare as a Weapon of Mass Destruction, 1915–1939," War & Society, Volume 18, Number 1, May 2000, 47-69.
[2] Nitrogen mustard has also been developed as a chemical weapon, but unlike sulfur mustard has never been used in an attack. Therefore, all references in this article refer to sulfur mustard.
[3] Gerard J. Fitzgerald, "Chemical Warfare and Medical Response During World War I," *American Journal of Public Health,* Volume 98, Number 4, April 2008, 611-25.
[4] Other names from WWI have fallen into disuse. The original name assigned by the Imperial German Army was LOST after the scientists Wilhelm Lommel and Wilhelm Steinkopf who developed the German method of large-scale production. Later names included "Yperite" given the first use at Ypres, "Yellow Cross" from the German artillery shell markings, and "Hun Stuff" since mustard came from Germany.
[5] Julian Perry Robinson and Milton Leitenberg, *The Problem of Chemical and Biological Warfare Volume I: The Rise of CB Weapons* (New York: Humanities Press, 1971), 26-58 and 125-141.
[6] Ibid., 147-152.
[7] Charles Duelfer, ed., "Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD, Vol. III: Iraq's Chemical Warfare Program" (Washington, DC: CIA, 2004), 10.
[8] For an overview of "percutaneous casualty agents" (primarily mustard) in WWI, see Robinson and Leitenberg, *The Problem of Chemical and Biological Warfare,* 46-51.
[9] For reactions to this first attack on both sides of the war see L.F. Haber, *The Poisonous Cloud: Chemical Warfare in the First World War* (New York: Oxford University Press, 1986), 192-93.
[10] Robinson and Leitenberg, *The Rise of CB Weapons*, 46.
[11] Dorothy Kneeland Clark, *Effectiveness of Chemical Weapons in World War I*, Staff Paper ORO-SP-88 (Bethesda, MD: Tactics Division, Operations Research Office, Johns Hopkins University, 1959), 2.
[12] Robinson and Leitenberg, *The Rise of CB Weapons*, 56.
[13] The German use of sulfur mustard was so extensive in the spring that it was sometimes "running in the gutters in the streets." Charles H. Foulkes, *Gas! The Story of the Special Brigade* (East Sussex, UK: Naval and Military Press, 2009), 271.
[14] For a discussion of how mustard gas (and other CW) was used in WWI particularly the shift from a static to a mobile front, see Robinson and Leitenberg, *The Rise of CB Weapons*, 135-40.
[15] Robinson and Leitenberg, *The Rise of CB Weapons*, 49. This late British use included among its victims a young German corporal named Adolf Hitler. In an interview in the "Sunday Chronicle" on 25 June 1933 Hitler was quoted, "The end of it came on 14th October 1918, when with many of my comrades I was knocked out by the new mustard gas which the British were using for the first time." Quoted in Foulkes, *Gas!,* 326.
[16] For details on the Allied struggles to manufacture their own mustard gas see, Haber, *The Poisonous Cloud,* 161-68.
[17] For details on the first uses of mustard gas by the Allies, see Haber, *The Poisonous Cloud,* 218-19.
[18] Clark, *Effectiveness of Chemical Weapons in World War I,* 39-41. This lack of protective clothing likely also contributed to willingness to use mustard after the war. Even after effective defenses against mustard were developed in the late 1920s and early 1930s, the burden of using them remained considerable. As Utgoff argued, "The development of protective clothing simply transformed mustard gas from being a means of producing casualties to being a means of imposing significant burdens on an opponent." Victor A. Utgoff, *The Challenge of Chemical Weapons: An American Perspective* (New York: St. Martin's Press, 1991), 25.
[19] Overall, 12,000 tons of mustard gas were employed out of 125,000 tons of CW total. Mustard gas resulted in 400,000 casualties out of a total of 1,296,853 CW casualties. Note: Prentiss refers specifically to vesicants, but admits that the vast majority was mustard. Augustin M. Prentiss, *Chemicals in War: A Treatise on Chemical Warfare* (New York: McGraw-Hill, 1937), 661-2.
[20] Ibid., 661.
[21] Robinson and Leitenberg, *The Rise of CB Weapons*, 46.
[22] Sebastian Balfour, *Deadly Embrace: Morocco and the Road to the Spanish Civil War* (Oxford: Oxford University Press, 2002) especially "The Secret History of Chemical Warfare Against Moroccans," p. 123-56 and Anna Chotzen, "Beyond Bounds: Morocco's Rif War and the Limits of International Law," *Humanity* 5, no. 1 (2014): 33-54. Spain also used chloropicrin and possibly phosgene, but Balfour described the impact as "fairly ineffective," 134 and 139.
[23] Balfour, *Deadly Embrace*, 135.
[24] Ibid., 138.
[25] Balfour, *Deadly Embrace*, 142 and Chotzen, "Beyond Bounds," 41.
[26] Balfour, *Deadly Embrace*, 144.
[27] Allegations France also used mustard gas in Morocco in support of Spanish efforts remain unconfirmed. Balfour, "Deadly Embrace," 128 and John D. Sislin, "Chemical Warfare in the Interwar Period: Insights for the Present?," *Nonproliferation Review* 25, no. 3-4 (2018), 191-92
[28] Balfour, *Deadly Embrace*, 151.

[29] Ibid., 151-56.
[30] Ibid., 153.
[31] Chotzen, "Beyond Bounds," 42.
[32] For details of the Italian campaigns in both Libya and Ethiopia including CW use, see John Gooch, "Re-Conquest and Suppression: Fascist Italy's Pacification of Libya and Ethiopia, 1922–39," *Journal of Strategic Studies* 28, no. 6 (2005), 1005-32.
[33] Sislin, "Chemical Warfare," 192.
[34] Robinson and Leitenberg, *The Rise of CB Weapons*, 142-47 and Lina Grip and John Hart, "The Use of Chemical Weapons in the 1935–36 Italo-Ethiopian War," Stockholm International Peace Research Institute, SIPRI Arms Control and Nonproliferation Program (October 2009), 1-7.
[35] Grip and Hart, "The Use of Chemical Weapons," 4.
[36] Ibid., 3.
[37] Grip and Hart, "The Use of Chemical Weapons," 5.
[38] For Japanese biological weapons efforts, see Sheldon H. Harris, *Factories of Death: Japanese Biological Warfare, 1932-45, and the American Cover-up* (New York: Routledge, 1994). For Japanese CW efforts, see Robinson and Leitenberg, *The Rise of CB Weapons*, 147-52.
[39] Ping Bu, "A Research Report on Japanese Use of Chemical Weapons During the Second World War," *Journal of Modern Chinese History* 1, no. 2 (2007), 155-72 especially "Table 1. Chemical Agents Officially Used by the Japanese Army," 160 and Robinson and Leitenberg, *The Rise of CB Weapons*, 147-52.
[40] Yuki Tanaka, "Poison Gas: The Story Japan Would Like to Forget," *The Bulletin of the Atomic Scientists*, Volume 44, Issue 8, 1988, 12-14.
[41] By comparison, at its peak capacity the facility was only able to produce 50 tons of lewisite, 80 tons of diphenylcyanoarsine, 50 tons of hydrocyanic acid, and 2.5 tons of chloroacetophenone. Walter E. Grunden, "No Retaliation in Kind: Japanese Chemical Warfare Policy in World War II," in Bretislav Friedrich, Dieter Hoffmann, Jürgen Renn, Florian Schmaltz, Martin Wolf, eds., *One Hundred Years of Chemical Warfare: Research, Deployment, Consequences* (New York: Springer, 2017), 261.
[42] Japan produced 4,992 tons of blistering agents versus 2,384 tons of all other CW. Bu, "A Research Report," 161.
[43] Ibid., 165.
[44] "Report Documenting How Japan Used Chemical Weapons During Second Sino-Japanese War Found for First Time," *The Japan Times*, July 8, 2019, https://www.japantimes.co.jp/news/2019/07/08/national/history/detailed-report-documents-japans-use-nerve-agents-second-sino-japanese-war/.
[45] Tanaka, "Poison Gas," 16-17.
[46] Ibid., 17.
[47] Frederic Joseph Brown, *Chemical Warfare: A Study in Restraints* (Princeton, NJ: Princeton University Press, 1968), 250, note 148.
[48] Utgoff, *The Challenge of Chemical Weapons*, 30.
[49] Robinson and Leitenberg, *The Rise of CB Weapons*, 147-52.
[50] W. Andrew Terrill, "The Chemical Warfare Legacy of the Yemen War," *Comparative Strategy* 10, no. 2 (1991), 109-19 and Robinson and Leitenberg, *The Rise of CB Weapons*, 159-61 and especially "Appendix 1: Alleged Chemical Warfare During the Yemeni Civil War, 1963-1967," 336-41.
[51] For additional analysis of CW use by Egypt (and Iraq and Libya), see Chris Quillen, "The Use of Chemical Weapons by Arab States," *Middle East Journal* 71, no. 2 (2017), 193-209.
[52] Terrill, "The Chemical Warfare Legacy," 110-15.
[53] Asher Orkaby, *Beyond the Arab Cold War: The International History of the Yemen Civil War*, *1962-68* (Oxford: Oxford University Press, 2017), 136-38.
[54] Robinson and Leitenberg, *The Rise of CB Weapons*, 160.
[55] Director of Central Intelligence, "Iraq's Chemical Warfare Program: More Self-Reliant, More Deadly," SW90-100531X, August 1990, 25.
[56] Duelfer, ed., "Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD," 6. For additional context, see Joost R. Hiltermann, *A Poisonous Affair: America, Iraq, and the Gassing of Halabja* (New York: Cambridge University Press, 2007).
[57] Duelfer, "Comprehensive Report," 10.
[58] Chris Quillen, "The Islamic State's Evolving Chemical Arsenal," *Studies in Conflict & Terrorism*, Volume 39, Issue 11 (2016), 1025-26.
[59] For uses of mustard gas, see two reports from the OPCW-UN Joint Investigative Mechanism: "Seventh Report of the Organization for the Prohibition of Chemical Weapons-United Nations Joint Investigative Mechanism," S/2017/904, October 26, 2017 and "Third Report of the Organization for the Prohibition of Chemical Weapons–United Nations Joint Investigative Mechanism," S/2016/738, August 24, 2016 as well as one report from the OPCW's Fact-Finding Mission: "Report of the OPCW Fact-Finding Mission in Syria Regarding Alleged Incidents in Marea, Syrian Arab Republic in August 2015," S/1320/2015, October 29, 2015.
[60] Columb Strack, "The Evolution of the Islamic State's Chemical Weapons Efforts," *CTC Sentinel* 10, no. 9 (2017), 19-23.

[61] United Nations Investigative Team to Promote Accountability for Crimes Committed by Da'esh/Islamic State in Iraq and the Levant, "Seventh Report of the Special Adviser and Head of the United Nations Investigative Team to Promote Accountability for Crimes Committed by Da'esh/Islamic State in Iraq and the Levant," S/2021/974, November 24, 2021.
[62] Herman Ochsner, *History of German Chemical Warfare in World War II. Part I, The Military Aspect*, Chemical Corps Historical Studies 2 (Historical Office, Office of the Chief of Chemical Corps, 1949), 16 and Robert Petersen, "'When a Nation is Being Murdered': The Secret Biological and Chemical War Against the Third Reich," *Zeszyty Naukowe Akademii Sztuki Wojennej* 103, no. 2 (2016), 170.
[63] According to Iraqi military records, the Iranians used mustard gas against Iraqi forces on six occasions: 12 April 1987, 29 June 1987, 8 July 1987, 13 November 1987, 30 March 1988, and 28 May 1988. "General Military Intelligence Directorate Memos on Iran's Chemical Weapons Capability and Alleged Use," Conflict Records Research Center, CRRC Record Number: SH-GMID-D-000-898, October 1987-September 1988. See also Director of Central Intelligence, "Impact and Implications of Chemical Weapons Use in the Iran-Iraq War," NI IIM 88-10004C, April 1988, 6-7; Hiltermann, *A Poisonous Affair,* especially "Iran and the Use of Gas," p. 148-82; and U.S. State Department, "Compliance with the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction, Condition (10)(C) Report," April 15, 2019, p. 5-9.
[64] W. Andrew Terrill, "Libya and the Quest for Chemical Weapons," *Conflict Quarterly*, Volume 14, Number 1, Winter 1994, p. 55 and U.S. State Department, "Condition (10)(C) Report," p. 5-9.
[65] Amnesty International, "Scorched Earth, Poisoned Air: Sudanese Government Forces Ravage Jebel Marra, Darfur," 2016, especially "Chemical Weapons Attacks," 69-94.
[66] Gregory D. Koblentz and Madeline Roty, "Myanmar Should Finally Come Clean About its Chemical Weapons Past—with US Help," *Bulletin of the Atomic Scientists*, March 11, 2020.
[67] For a detailed table on which incidents were dismissed, see Sislin, ""Chemical Warfare," 199. The best-documented example of chlorine use in this time period is probably in the Russian Civil War. See Alexander S. Bobkov, "On the Issue of Using Asphyxiating Gas in the Suppression of the Tambov Uprising," *Journal of Slavic Military Studies* 25, no. 1 (2012), 65-104.
[68] Bruce Hoffman, "The First Non-State Use of a Chemical Weapon in Warfare: The Tamil Tigers' Assault on East Kiran," *Small Wars and Insurgencies* 20, no. 3-4 (2009), 463-77
[69] Tobias Schneider and Theresa Lütkefend, "Nowhere to Hide: The Logic of Chemical Weapons Use in Syria," Global Public Policy Institute, February 2019, especially "Annex: List of Confirmed Incidents (2012–2018)," 39-47 and Atlantic Council, "Breaking Aleppo," February 2017, especially 42-45.
[70] Bill Roggio, "Al Qaeda's Chlorine Attacks: The Dirty War in Anbar," *Long War Journal*, 17 March 2007, https://www.longwarjournal.org/archives/2007/03/al_qaedas_chlorine_a.php.
[71] Quillen, "The Islamic State's Evolving Chemical Arsenal," 1025.
[72] Amos A. Fries and Clarence J. West, *Chemical Warfare* (New York: McGraw-Hill, 1921), 117.
[73] Germany, France, Britain, Austria-Hungary, Italy, Russia, and the U.S. all used phosgene in WWI. The best comprehensive sources on CW users in WWI are Robinson and Leitenberg, *The Rise of CB Weapons*, 38-52 and Prentiss, *Chemicals in War* especially "The Effectiveness of Chemical Warfare," 647-84.
[74] Bu, "A Research Report," 160.
[75] Terrill, "The Chemical Warfare Legacy," 109-19 and Robinson and Leitenberg, *The Rise of CB Weapons*, 159-61 and "Appendix 1: Alleged Chemical Warfare During the Yemeni Civil War, 1963-1967," 336-41.
[76] Ronald J. Duchovic and Joel A. Vilensky, "Mustard Gas: Its Pre-World War I History," *Journal of Chemical Education*, Volume 84, Number 6, June 2007, 944-48.
[77] Joby Warrick, "Iraqi Scientist Says He Helped ISIS Make Chemical Weapons," *Washington Post*, January 21, 2019, https://www.washingtonpost.com/world/national-security/exclusive-iraqi-scientist-says-he-helped-isis-make-chemical-weapons/2019/01/21/617cb8f0-0d35-11e9-831f-3aa2c2be4cbd_story.html.
[78] Richard Danzig, et al., *Aum Shinrikyo: Insights Into How Terrorists Develop Biological and Chemical Weapons,* Center for a New American Security (2011).
[79] On the importance of military utility in CW decisions see David M. Allison and Stephen Herzog, "Gas, Norms, and Statistics: The Jury is Still Out," *Nonproliferation Review*, Vol. 26, No. 5-6, 2019, p. 397-401.
[80] Robinson and Leitenberg, *The Rise of CB Weapons*, 140.
[81] Haber, *The Poisonous Cloud,* 217.
[82] Utgoff, *The Challenge of Chemical Weapons*, 28.
[83] DCI, "Impact and Implications," 5.
[84] Ibid.," 7-8.
[85] Hiltermann, *A Poisonous Affair*, 14.
[86] Cook lays out the broader impacts of chemical weapons in WWI beyond merely casualties in Cook, "Against God-Inspired Conscience," 48-61.
[87] Cook, "Against God-Inspired Conscience," 54.
[88] The British military at a minimum recognized this impact early on. See Edgar Jones, "Terror Weapons: The British Experience of Gas and Its Treatment in the First World War." *War in History,* Vol. 21,3 (2014), 355-375.

[89] Haber, *The Poisonous Cloud,* 223.
[90] Hiltermann, *A Poisonous Affair,* 13.
[91] Warrick, "Iraqi Scientist."
[92] Chemical weapons are only truly effective if use can be limited to one side in a conflict. As Brown argued about CW use in WWI, "If [chemical warfare] could be used unilaterally, there was no question that it was effective. Unfortunately, however, it could not be used unilaterally. Once the enemy retaliated, the game did not appear worth the candle." Brown, *Chemical Warfare*, 37.
[93] Perhaps the most famous example is Ethiopian Emperor Haile Selassie's speech to the League of Nations in June 1936 describing Italy's use of chemical weapons against his country.
[94] Utgoff, *The Challenge of Chemical Weapons*, 28-9.
[95] Brown, *Chemical Warfare*, 250-51 and 296-97.
[96] Hiltermann demonstrates how even the gassing of thousands of civilians in Halabja did not lead to an impactful response from the world. Hiltermann, *A Poisonous Affair* especially "Chapter 6: The Halabja Demonstration Effect," 125-47.
[97] Geoffrey Chapman, Hassan Elbahtimy and Susan B. Martin, "The Future of Chemical Weapons: Implications from the Syrian Civil War," *Security Studies* 27, no. 4 (2018): 714-19.
[98] Ibid., 729-32.
[99] Ibid., 732-33.
[100] Ibid., 706.
[101] Prentiss demonstrated that "while gas caused 4.6 per cent of all battle injuries and 5.7 per cent of all nonfatal battle injuries, it caused only 1.32 per cent of all battle deaths." Prentiss, *Chemicals in War*, "Casualties," 649-55. More recently, Iranian medical researchers Belali-Mood and Hefazi found, "Among the survivors of mustard gas attacks in World War I and in the Iran-Iraq War, nearly all victims suffered from skin and eye burns and respiratory injuries. However, reported fatality rates were less than 2% in the exposed soldiers during World War I, and 3–4% in the casualties of the Iran-Iraq war." Mahdi Balali-Mood and Mehrdad Hefazi, "Comparison of Early and Late Toxic Effects of Sulfur Mustard in Iranian Veterans." *Basic & Clinical Pharmacology & Toxicology* 2006, 99, 273.
[102] Evidence that Iraq used VX in its war with Iran in 1980s is conflicting, thus leaving the allegations unproven. However, both Aum Shinrikyo and North Korea have used VX in efforts to kill specific individuals. For VX see Danzig, et al., *Aum Shinrikyo*, "Timeline of Aum's Biological and Chemical Weapons Activities," 18-19 and Tomomasa Nakagawa and Anthony Tu, "Murders with VX: Aum Shinrikyo in Japan and the Assassination of Kim Jong-Nam in Malaysia," *Forensic Toxicology* 36 (2018), 542–44. For Novichok see Stefano Costanzi and Gregory D. Koblentz, "Controlling Novichoks after Salisbury: Revising the Chemical Weapons Convention Schedules," *The Nonproliferation Review*, Volume 26, Number 5-6, 2019, 599-612 and Julia Masterson, "Novichok Used in Russia, OPCW Finds," *Arms Control Today*, November 2020, 25-26.

The Pacific Deterrence Initiative: Not Enough Money in Not Enough Places

Richard Nghiem

From reinforcing its claim to the South China Sea with artificial, militarized islands to annexing Hong Kong, Beijing has made numerous bold and successful strategic moves in the Indo-Pacific over the last decade. These increasing acts of aggression are an alarming sign that US conventional deterrence in the region is deteriorating. Washington, in response, has implemented the Pacific Deterrence Initiative (PDI), a specialized and targeted fund within the Department of Defense (DoD) budget, to effectively combat and roll back Chinese influence throughout Asia. However, the PDI does not focus on addressing and defending against the imminent threat of the PLA, but rather prioritizes the procurement of distant future cutting edge technologies. As a result, with this lapse in strategic thinking and China racing to achieve regional hegemony, the Pentagon needs a more robust PDI, and they need it now.

The Creation of PDI Due to the Rising Threat of China

Before leaving his position as commander of United States Indo-Pacific Command, retired four-star admiral, Philip S. Davidson, went before congressional armed services committees and warned that America's continued strategic complacency in the region and unwillingness to devote more military assets to the Pacific would only further embolden the People's Republic of China (PRC). To fully get their attention, he made a chilling prediction, suggesting that Beijing could attempt an amphibious invasion of Taiwan "in the next six years."[1]

With that statement, Congress quickly sat up and paid attention. Stunned by such a calculation made by a well-respected admiral, it immediately supported and funded a new Pacific Deterrence Initiative (PDI) which took into account many of Admiral Davidson's proposed weapon systems and investments. These requests included $1.6 billion for a 360-degree resilient and integrated air defense capability in Guam, built around an Aegis Ashore system, and $3.3 billion for forward-deployed long-range ground-based anti-ship cruise, ballistic, and hypersonic missile batteries on numerous small, un-inhabited islands within the 'first island chain'[2]. In addition, INDOPACOM wants more capable air defense systems such as THAAD, a "constellation of space-based missile-detection sensors," and a new "Tactical Multi-Mission Over-the-Horizon Radar," capable of detecting incoming air and surface threats, in Palau.[2]

Critical Shortfalls in the Current PDI

While this is a good start to counterbalancing China's rising power, the PDI is far from sufficient. The allocated budget of $27 billion dollars through 2026 and areas of investments are simply not enough. With hypersonic missiles costing tens of millions of dollars per unit, anti-ship cruise and ballistic missiles costing anywhere from $2-5 million each, air defense systems like THAAD costing $800 million per battery, and costly but critically needed investments in neglected island infrastructure and logistics, $27 billion is just a drop in the bucket.[3] The plan does not allocate specific funding for less flashy but equally important military assets like additional replenishment ships, oilers, amphibious ships, and distributed ordinance and fuel depots, all of which are critical for sustaining a Pacific war effort. It also does not outline the details of or foot the bill for the standing up and forward-basing of the First Fleet in Southeast Asia. More importantly, the PDI does not consider

the potential construction of additional Aegis Ashore air defense systems in Japan and Hawaii or contribute more money to hypersonic missile radar detection and interception capabilities. These last two omissions are especially glaring given China's massive ballistic missile arsenal and recent successful hypersonic weapon test.

The greatest paradox of all is that the Pentagon's 2022 PDI budget, meant to counter China's growing navy, has not boosted anti-ship missile procurement at all[4]. It also places little emphasis on purchasing HIMARS and autonomous Rogue Fires missile launchers for the Marine Corps and its new Expeditionary Advanced Base Operations (EABO) war fighting concept. This failure on the part of the Pentagon has forced Congress to add funding to increase the US Navy's and Air Force's procurement of LRASMs, tactical Tomahawk missiles, and MK-48 heavyweight torpedoes to prepare for conflict with China[4]. In addition to this, Congress has had to directly manage the Air Force and Army, in certain circumstances, by putting air base prepositioning sets into the Air Force's budget to support its "agile combat employment" concept in the Pacific and adding extra financial resources for the procurement of an Army "stop-gap" cruise missile defense system to help defend US Pacific bases.[4] Supported by the evidence above, it is very clear that recent DoD budget requests and PDI budgets are woefully insufficient and are not enough to meet the needs of the increasingly unstable Indo-Pacific region. Consequently, a more ambitious PDI plan, with more objectives and funding is required.

A More Comprehensive PDI Proposal: Targeted Territorial Use Negotiations with Allies

A modified PDI should first call for greater US military and diplomatic dialogue with Japan, Taiwan, Australia, the Philippines, and South Korea, in an attempt to woo these countries into permitting the forward deployment of American long-range cruise, ballistic, and hypersonic missile batteries along with air defense systems on their soil. This is crucial strategically as the US military can invest all the money in the world on new munitions, but they will be tactically useless if they cannot be deployed to areas close to potential conflict areas. Consequently, specific, relatively uninhabited, and well-placed territories or islands like the Senkaku Islands, Ryukyu Islands, Palawan, Bataan, Bathurst and Melville Islands along with mainland Japan and South Korea must all be targeted in negotiations as potential American offensive and defensive missile battery outposts. If successful, these talks will allow the United States to have considerably more forward island fire bases within the 'first island chain', and therefore more easily launch strikes, if conflict breaks out, against the strategic lynchpins of the PLA's formidable A2/AD apparatus: its land-based DF-21 and DF-26 long range 'carrier-killer' ballistic missiles, medium range land attack missiles, and sophisticated integrated air defense system. This is essential as if China's A2/AD defenses are not eliminated, US ships and aircraft will struggle immensely to just 'get to the fight' and defend themselves, never mind conduct large scale offensive operations.

More Advanced Weapon Systems & Sensor-to-Shooter Integration in Region

To ensure that these newly acquired territories will become hubs for America's most advanced long range offensive missiles, the PDI also needs to increase funding for the development and production of new, long range, highly survivable ground based precision fires like the Army's PrSM missile, deploy these weapons to the 'first island chain', the Northern Mariana Islands, Tinian,

and Saipan, and integrate them together in a sensor-to-shooter battle network, built around the Aegis Ashore Defense system in Guam. From this US island territory, America can control all of its offensive - strike systems and launch a coordinated attack against PLA A2/AD assets on the Chinese mainland. It can also conduct strikes using remote, autonomous unmanned missile launchers (NMESIS) and detect incoming attacks with data coming in from surveillance radars stationed on numerous islands throughout the region.

Figure 1: A map of China's 1st and 2nd Island Chains from *The Economist*

The new revised PDI, besides developing new deep strike weapons, also needs to devote significantly more money and resources to procuring and stockpiling LRASMs, Maritime Strike Tomahawk missiles, Naval Strike Missiles, SM-6 missiles, hypersonic weapons, and MK-48 heavyweight torpedoes to ensure that the U.S. Navy (USN) is properly equipped to fight and defeat the PLAN. Not only that, this targeted fund within the DoD budget must support the acquisition of significantly more HIMARS and Rogue Fires missile launcher vehicles to enable the Marine Corps to effectively assist the Navy in offensive maritime operations via its make-shift forward island fire bases, the main objective of the EABO concept. These anti-ship weapons are absolutely essential for America as with the PLAN already bigger than the USN in terms of number of ships and aggressively challenging the naval might of countries in the West Pacific, greater focus must be placed on countering China in the maritime domain.[5]

Leveraging Allies for Offshore Balancing

These weapon systems, while designed and manufactured primarily for the US military, should also be sold to Pacific allies, thereby strengthening their capabilities. Some potential allied customers are Japan, Australia, India, South Korea, Singapore, and Taiwan. If war were to ever break out between the US and China, these countries would be able to effectively assist America's forces in the region with their own capable militaries. This is especially the case with the island nation of Taiwan, despite its small population and dangerously proximity to China. America has consistently sold tens of billions of dollars-worth of defensive weapons to Taiwan over the years including Harpoon anti-ship missiles, HIMARS, F-16 fighter jets, Apache attack helicopters, and M1A2 Abrams tanks. However, the US ought to sell more anti-access area denial weapons to Taiwan such as torpedoes, mobile Harpoon II+ER anti-ship missiles, Naval Strike Missiles, Tomahawk missiles, sea mines, electronic warfare vehicles, F-21s, and SL-AMRAAM Upgraded Avenger Air Defense Systems to contain China within the 'first island chain' and deny the PLAN and PLAAF any save harbor. In a sense, Taiwan would serve as America's counter A2/AD forward fire base.

Expedited Modernization of US Nuclear Triad & Halt to Dismantlement Program

In terms of enhancing its military firepower, the U.S. must immediately stop its dismantlement of its strategic nuclear stockpile. In an era where China is rapidly building up its nuclear arsenal, constructing a massive 300 ICBM missile silo field, strengthening its nuclear triad, and potentially re-evaluating its 'no-first-use' policy, America cannot afford to show any weakness in its resolve and capability to conduct a 'knock out' first strike or carry out a devastating second strike.[6] This is essential for maintaining strategic nuclear stability and ensuring deterrence. To achieve this objective, the new PDI must demand that all nuclear weapon dismantlement be halted, the new, future *Columbia-class* SSBN fleet be expanded to 14 boats, B-21 bombers be hurried into service, B-2 stealth bombers not be retired and kept in America's bomber fleet, and that the LRSO nuclear missile be deployed on B-52 bombers as soon as possible.

Improvements to US Ballistic & Hypersonic Missile Defense

While offensive weapons are crucial to its strategy in containing China, the U.S. must also invest more heavily in its air and missile defense systems throughout the Indo-Pacific and if possible, in space. More THAAD, Patriot PAC-3, Aegis Ashore, and Iron Dome batteries along with laser defense systems must deploy to every single US base in the region. Particularly, in Japan, South Korea, and Guam where American forces are most heavily concentrated, the PDI should call for Congress and the Pentagon to make overwhelmingly enticing deals with these respective host nations to ensure that American forces and installations are protected from saturation ballistic missile attacks as best as they can. With regards to Guam, the new PDI also needs to make it mandatory that the seven engine-problem plagued *Ticonderoga-class* cruisers that the Navy plans on retiring will not be scrapped[7]. Instead, they will be repurposed as stationary, port-based Aegis ballistic missile defense systems as well as anti-ship missile batteries in Guam along with its island network of Tinian Island and Palau.

The U.S. should try to persuade Korea's government to allow for more THAAD batteries to forward deploy to its country by paying more annual fees for its bases usage and reducing Korea's financial obligations to maintain and help construct American installations. With regards to Japan, it must try to entice Tokyo to reinstate its Aegis Ashore air defense program by not only constructing two Aegis Ashore radar and interceptor installations for free, but by also maintaining these facilities with US taxpayer dollars and paying Tokyo an annual fee for its use of Japanese territory. These two installations will be free of charge to Japan and provide 24/7/365 protection of all four home islands against potential missile attacks from China or North Korea. They will have the most advanced, up to date SPY-7 radars, capable of detecting incoming ballistic missiles at 3.3 times the detection range of existing SPY-1 radars and engaging more than 100 targets simultaneously. Tokyo would most likely agree to this deal as the JSDF's current Aegis destroyer based ballistic missile defense system is spotty at best.

Radars on ships can only be so sensitive in their detection of incoming missiles, because if radars grow too big, they will eventually exceed the power-generating capacity of the vessel and drain power from other vital parts of the ship like the engines[9]. Land-based radars, comparatively, do not face this problem and can be upgraded to possess any power output and sensitivity required. Also, destroyers have limited

endurance and time on station as they must be periodically repaired, and their crews must be given time to rest. This constraint combined with frequent training exercises usually ties up five or six of Japan's destroyers at any given time, a significant chunk of its Aegis missile defense ship fleet, and dangerously exposes Japan to missile attack.[8] On the other land, land-based radars are always at the ready 24/7 for years at a time and can even be operated when they are undergoing maintenance or upgrades.[9]

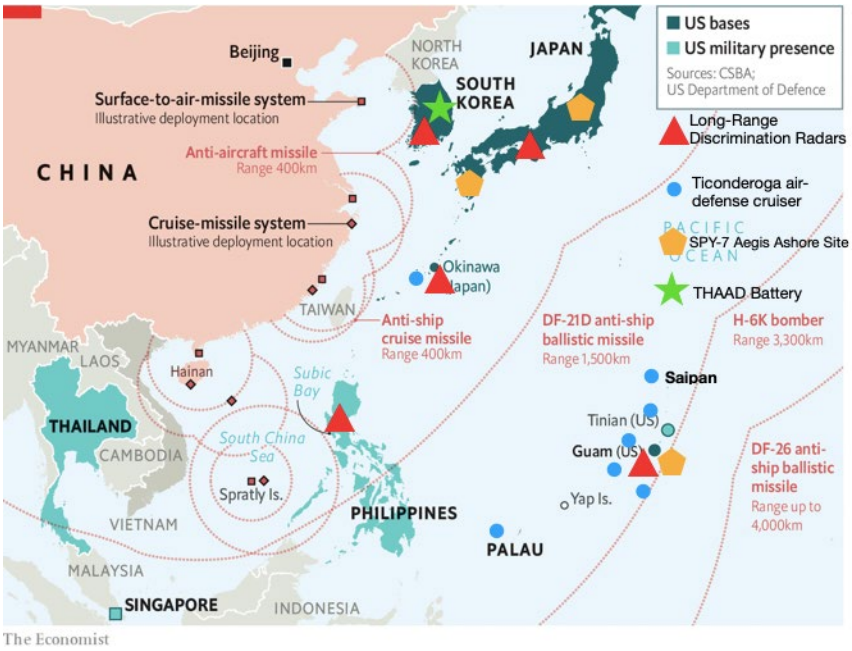
With regards to Guam, it's current THAAD, PAC-3 Patriot, and Iron Dome batteries and future Aegis Ashore system should be augmented by at least three repurposed port-based *Ticonderoga-class* ballistic missile defense (BMD) cruisers. With their own Aegis combat systems, powerful AN/SPY-1A/B multifunction radars, and 122 Mk 41 Vertical Launch System (VLS) cells, capable of firing various advanced surface-to-air missiles, including SM-2 and SM-6 air-defense missiles and SM-3 anti-ballistic missile interceptors, these ships, despite being no longer capable of maritime operations, can still be highly effective for island air defense.[10]

Soon-to-be-decommissioned cruisers, USS Shiloh, Erie, and Port Royal are highly potent BMD warships that can be moored in port and serve as SM-3 interceptor missile barges by leveraging their existing hundreds of VLS cells as part of a larger, more extensive, multi- layered defensive network around Guam[10]. These SM-3 munitions are strategically important as they can effectively intercept long range ballistic missiles, such as China's DF-26 missile and its ICBMs, outside the Earth's atmosphere. Consequently, one could make the argument that three of these repurposed vessels could provide similar radar coverage and missile interceptor capacity to three Aegis Ashore installations.

While these cruisers will be mainly focused on air and ballistic missile defense, they will still retain their ability to launch offensive attacks against Chinese warships approaching Guam and PLA troops occupying remote islands in the 'first island chain' or invading Taiwan. More importantly, they will be able to potentially shoot down incoming hypersonic missiles in the future. This is possible as VLS-launched SM-2s and SM-6s have secondary anti-ship capabilities against surface targets while VLS- launched Tomahawk missiles have long range land and maritime strike capability.[11] The Navy is also currently developing an enlarged derivative of the SM-6, compatible with the Mk 41 VLS, as an anti-hypersonic weapon interceptor.[12]

What makes this proposed idea of repurposing the navy's cruisers even more appealing is that these vessels can carry out this critical mission with no need for at-sea operations or navigation, allowing for the ships' propulsion systems to be in a state of reduced operational readiness and their crew sizes to be significantly reduced. They also do not need to completely rely on onboard sensors to engage aerial and surface threats. Instead, they can be effectively integrated into 'sensor to shooter' kill chains and receive significant targeting data from other air, land, sea and space assets.

As a result, three ships should be stationed at Guam while the other four should protect Tinian Island, Palau, Saipan, and Okinawa. This plan would provide a cost-effective way to develop even more defensive capacity in the near term while the Pentagon's brand-new SPY-7 Aegis Ashore site is being constructed on Guam.



The Economist

Figure 2: A map of Chinese offensive strike capabilities from *The Economist*

Lastly, but most importantly, besides enhancing its ground-based BMD interceptors, the United States must also focus more on defending against China's hypersonic missile threat. In terms of enhancing detection and early warning, additional Long-Range Discrimination Radars need to be constructed in Okinawa, South Korea, the Philippines, Guam, Alaska, and Hawaii. The construction and integration of new hypersonic missile space sensors into the Pentagon's "Next-Gen Polar" satellite constellation over the Arctic must also be expedited[13]. However, with every radar and sensor in America's battle network, there must be an equally potent 'shooter' to ensure an effective and efficient 'kill chain.' Groundbreaking satellite-based weaponry, as a result, must be urgently developed and deployed to space to constitute the first line of defense against new Mach 5+ glide vehicles. Such state-of-the-art protection systems include neutral particle beam weapons and lasers which are capable of intercepting hypersonic missiles both within Earth's atmosphere and in outer space[14].

Better Intelligence, Surveillance & Reconnaissance Capabilities

Overall, up to this point, the upgraded PDI has focused on fancy offensive and defensive weaponry. However, in a potential war with China, victory or defeat ultimately depends on which side can get the right intelligence first and act on it and which army has the better logistics and infrastructure. While the current Pacific Deterrence Initiative does somewhat address this by outlining the need for a "constellation of space-based missile-detection sensors", and a new "Tactical Multi-Mission Over-the-Horizon Radar", capable of detecting incoming air and surface threats, in Palau, it does not go far enough[2]. More radar installations like the one planned for Palau should also be constructed on islands in the 'first island chain', Okinawa, the Philippines, the Northern Mariana Islands, Saipan, and Tinian. Furthermore, dozens of additional long range Triton surveillance drones, RQ-180 UAVs, and P-8 Poseidon maritime patrol aircraft need to be procured and deployed throughout the Pacific to augment the US' early warning and surveillance capabilities.

Enhanced Base Infrastructure, Logistics, Air Ground Crew & Repair Training

These new assets along with U.S. forces in the region, will require more resilient island infrastructure and logistics to survive and sustain a fight against China. To meet these needs, the PDI must place a greater emphasis on constructing new munitions, ordinance, fuel, repair equipment, and spare part storage sites at all US bases throughout the Pacific, including small island bases. Secondary and tertiary back-up airfields, rugged runways, and fuel stockpiles also need to be erected on dispersed American territories and possessions such as Wake Island, Midway Atoll, and American Samoa. All PACAF bases' aircraft hangars and logistic sites should be hardened to withstand surprise saturation ballistic missile attacks which are bound to occur in any potential conflict with the PLA. To further prepare for such a scenario, runway and aircraft repair along with ground launch crews must consistently drill for quick response damage control, elephant walks, mass take offs, hot-refueling, and the use of highways and civilian airports as emergency alternative landing strips in the event that all major and backup bases are destroyed or rendered inoperable. This new PDI needs to invest more in strategic sea and air logistic capabilities including the procurement of new cargo vessels, replenishment ships, oilers, submarine tenders, air refueling tankers, and heavy transport planes such as C-130s, V-22s, and C-17s to ensure that desperately needed munitions and fuel are getting to America's warfighters.

These weapon systems, logistics, and new training drills are nothing short of essential for the U.S. if it desires to successfully deter and if necessary, win a war against China. However, they are not everything. The most important tasks and war-fighting domains for America to focus on in the Pacific theatre are re-instituting and forward basing its navy's First Fleet to Southeast Asia, permanently shifting one or two aircraft carrier strike group to Pearl Harbor along with nuclear attack submarines (SSNs) to Japan, Australia, Palau, and Guam, and the cyber and space domains respectively.

Standing Up the First Fleet in Australia & Singapore

Unlike the current PDI, which does not address any of these concerns, this new robust PDI should immediately demand that the Pentagon and State Department start serious talks with Canberra to negotiate the possibility of Australia's government allowing US aircraft carriers, amphibious assault ships, destroyers, cruisers, nuclear attack submarines, long range bombers, fighter jets, and additional Marine amphibious ready groups to be permanently based at northern Australian military bases, close to Southeast Asia and the South China Sea. Such installations include RAAF bases Darwin and Townsville, and RAN bases, Larrakeyah, Coonawarra, Perth, and Cairns. In exchange for these basing rights, America should be willing to pay Canberra handsomely for this access by making significant annual lease payments, constructing a naval port at Glyde Point for both the RAN and its own navy free of charge, and giving Australia further access to its nuclear propulsion technology under the AUKUS deal. It could even offer Australia discounted *Virginia-class* SSNs. With such enticing incentives, the government in Canberra will most likely agree to this deal. Consequently, the United States will be able to position a massive permanent military garrison close enough to potential conflict zones like the South China Sea or Taiwan Strait, but far away enough to be outside the range of most the PLA's long-range missiles. It will serve as a secure, regional staging area for U.S. forces and help augment the

firepower and presence of the Seventh Fleet, based in Japan.

In addition to Australia, the First Fleet should also have the Navy's new *Constellation-class* frigates, littoral combat ships, unmanned vessels, and P-8 Poseidon aircraft permanently based in Singapore. These assets would be valuable for maintaining a consistent US presence in the disputed South China Sea and the Malacca Strait, a major chokepoint. With ships and aircraft already rotating through the country, increased annual lease payments by America, arms deal sales, and more favorable terms for Singapore in the U.S.-Singapore Free Trade Agreement should persuade the Singaporean government to allow for this.

Forward Deployment of More Attack Submarines & Carrier Strike Groups

Besides Australia and Singapore, more American naval assets need to be forward deployed to other parts of the West Pacific. It is imperative that one or two carrier strike groups are permanently home-ported at Naval Station Pearl Harbor to provide a rapid surge capability into the Western Pacific in the case of armed conflict. More SSNs must also be stationed in the geo-strategic locations of Guam, Kure (Japan), and Palau (close to East and South China Seas, Philippine Sea) as they are the ultimate key to penetrating and effectively dismantling China's A2/AD defenses which pose the greatest threat to US forces.

Examples showcasing the Silent Service's capability and capacity to achieve this include its snap exercise deployment earlier this year in June, during which more than a third of its attack boats surged into the West Pacific within a matter of days[15]. This unscheduled, quick tempo, wartime-like drill caught the PLAN off guard, denying them the ability to deploy a significant portion of their undersea fleet and maritime patrol aircraft to monitor American submarine activity near China's shores.[15] Significantly, during this exercise, the Chinese had no idea that all of America's most advanced *Seawolf-class* attack submarines were deployed well within Tomahawk missile range of their coast, with the *USS Seawolf* surfacing near Japan, the *USS Jimmy Carter* in the Philippine Sea, and the *USS Connecticut* in the South China Sea.[16] This was quite like a 2010 incident in which three *Ohio-class* guided missile submarines, carrying 462 land-attack Tomahawk missiles, all surfaced simultaneously in Pusan, Subic Bay, and Diego Garcia much to the surprise of the PLAN.

With their unmatched stealth and ability to get past China's A2/AD defenses, the US Navy's submarines, particularly its *Seawolf-class* SSNs, can penetrate deep into Chinese territorial waters and launch hundreds of Tomahawk cruise missiles 2,500 km into China, specifically targeting and destroying mobile 'carrier killer' missile launchers wherever they are located[16]. Similar anti-ship missile batteries, surface-to-air missile defense systems, radar sites, and command and control bunkers along the coast or deep inland can also be neutralized by America's four *Ohio-class SSGNs* which can collectively fire a staggering total of 616 Tomahawk missiles in less than ten minutes.[17] This suppression of the PLA's DF-21 and DF-26 'carrier killers' and national air defense system will allow for US carrier strike groups to sail closer to China's coast before launching their stealth strike aircraft, maximizing their reach into China, and for American land-based fighter jets and long-range stealth bombers in the region to operate more freely inside China's A2/AD zone. Together, the 7th and 1st Fleets, with extra surge forces from Hawaii and additional SSNs, will be better able to quickly respond to crises and conflicts, penetrate the PLA's A2/AD zone, cut off China's oil lifeline in the strategic Malacca Strait, and hold the line

against the PLA until reinforcements arrive from the American West Coast.

Enhanced Defensive & Offensive Cyber Capabilities

With regards to the asymmetric, relatively new, but equally important war-fighting domains of cyber and space, the U.S. must immediately make significant investments in these areas as it is currently extremely vulnerable to attack. In any conflict with China, America's battle network, command and control systems, and communications and GPS satellites will certainly be targeted and suffer persistent hacking, jamming, and cyber, laser, missile, and "kamikaze" satellite attacks[18]. These assaults are meant to immediately render U.S. forces 'deaf, blind, and dumb' right at the onset of hostilities. To counter this, the PDI must devote hundreds of billions of dollars more to strengthening the cyber defenses of critical domestic and military infrastructure including power grids, transportation hubs, nuclear power points, and command and control centers, shoring up the DHS' cyber division, and increasing America's domestic semi-conductor microchip manufacturing capacity along with its strategic stockpile of rare earth minerals. These funds are also necessary for the federal government to implement Zero Trust Architecture more rapidly in its computer systems which is designed to protect modern digital environments via network segmentation, lateral movement prevention, Layer 7 threat prevention, and the simplification of user-access control. This security system overhaul is necessary as current, traditional security models within the government operate on a highly flawed and outdated assumption that everything inside an agency's or department's network should be trusted.[19] However, this is a vulnerability because once foreign state sponsored hackers are inside the government's networks, they are free to move laterally at will and extract whatever valuable information that they are looking for[19]. Expanded cyber security budgets will also enable the U.S. military to have specialized cyber-defense units, like the Navy's 10th Fleet, embedded in all of its branches all the way down to the smallest unit level. Together, these actions will not only better prevent shutdowns of critical infrastructure, but also make the country more self-sufficient in terms of advanced manufacturing and essential natural resources. These goals are essential, but solely focusing on increasing the nation's security in the digital domain does not contribute to deterrence. To effectively limit Chinese cyber operations, the DoD needs to demonstrate that it has the necessary cyber weapons to conduct a retaliatory attack and inflict considerable damage in response to any assault. Deterrence can only work if there is the threat of devastating retribution. A more robust PDI ought to demand that the US government start more aggressively utilizing the NSA, CIA, and CYBERCOM along with vetted civilian hacker contractors with security clearances, to constantly rehearse malware, 'zero-day' exploit, and distributed denial of service (DDoS) cyber-attacks. These exercises will showcase America's formidable offensive capabilities in the digital domain and send a stern warning to CCP leadership and the PLA's infamous Cyber Unit 61398.[20]

Improved Satellite Defenses & Offensive Space Warfare Capabilities

Despite not even being referred to in the original PDI, the other domain in which the United States is incredibly vulnerable to attack is space. Any assaults on its GPS and communication satellites would completely disrupt not only its military capabilities, but also its everyday economic and societal functions. China is rapidly developing various forms of anti-space weaponry,

ranging from anti-satellite missiles and land based lasers and jammers to "kidnapper", "stalker", and "kamikaze" satellites.[18] The PDI must be revised to ensure that the US Space Force will be expanded to include more personnel and AI software usage to monitor all satellite activity 24/7/365. Investments should also be made in more maneuverable, electronically hardened, and jam-resistant satellites that are equipped with lens shutters. This will enable them to withstand hostile satellite, jamming, EMP and laser attacks. However, while it is undoubtedly important for the US Space Force to keep on safeguarding America's space assets from attack, it must be able to go on the offensive as well to deter adversaries from even contemplating space combat operations against it in the first place. As a result, the PDI must allocate tens of billions of dollars for the development, production, and deployment of new laser weapon systems, armed space drones like the X-37B, and anti-satellite missiles and jammers. Large constellations of "guardian" satellites and "cubesats" also need to be procured and built to intercept enemy space weapons before they can destroy vital American GPS or communications satellites. These same space assets can also create multiple redundancies for critical space networks in the case of a massive surprise attack.

"Whole of Country" Approach

Even if the United States manages to fulfill every facet of this new, more comprehensive PDI plan as laid out so far, it still will not succeed in totally deterring China. To achieve such a feat, America ultimately needs to have the same successful "whole of country" approach it had during the Cold War against the Soviet Union. Without political-military alliances, economic pressure, technological advances, and united and well-educated population, it would have lost the Cold War. And if such an approach is absent today, the United States will certainly not outlast China. Consequently, the last pillar of this new, modified, more robust PDI plan is to combine the US' military, economic, diplomatic, technological and soft power together to keep China in check.

Military Domain

America must be more proactive and carry out significantly more air, naval, and marine expeditionary training exercises with its allies and security partners. This could entail more drills like RIMPAC and Talismann Sabre. The Pentagon must also maintain a constant rotation of larger security assistance brigade forces throughout Southeast Asia, conduct more dual or triple carrier strike group operations in the East and South China Seas, and expand its training and advising of allied militaries in the region. Lastly, in terms of hard power, the United States should significantly increase both the tempo and size of its freedom-of-navigation operations in all contested areas including the Taiwan Strait.

Diplomatic & Economic Domains

Besides its military power, America must skillfully wield its diplomatic and economic might and exploit its advantage with allies and security partners. To pry smaller nations away from China's growing sphere of influence, the U.S. needs to counter President Xi Jinping's ambitious One Belt One Road Initiative. The government can do this by increasing its the U.S. Agency for International Development (USAID) budget and encouraging hundreds of billions of dollars-worth of private investment into new critical, green infrastructure projects in ASEAN and Pacific Island countries. These infrastructure investments can include new power grids, high-speed-rail, ports, hydro-electric dams, and wind and solar farms.

Congress should allow for unconditional humanitarian disaster relief missions and help disaster struck Pacific countries via financial aid and US military medical, logistical, and search and rescue support. In this current era of COVID-19, America can exploit vaccine diplomacy and boost its vaccine, mask, personal protective equipment (PPE), and ventilator shipments to Indo-Pacific countries which are in desperate need of these critical medical supplies. This will enable it to strengthen its traditional alliances even more, gain more clout in traditionally Chinese dominated countries, and possibly sway certain nations who are "on the fence" towards its own sphere of influence.

Strategic Importance of Rejoining TPP & Forming FTA With ASEAN

While the diplomatic and economic actions outlined above are crucial to the US successfully rolling back Sino influence, rejoining the Trans Pacific Partnership (TPP), forming a Free Trade Agreement with ASEAN countries, and economically and politically sanctioning Chinese companies along with senior CCP officials are also arguably very effective soft power actions to undertake. By rejoining the TPP and conducting free trade with ASEAN, America will be able to increase trade to all of these countries, gain export surpluses due to reductions in tariffs, and economically isolate China. And with the trade war still raging on and the US getting more market share in these nations' economies, China's export economy will be weakened. Furthermore, American sanctions on Chinese defense and tech companies along with PLA-related telecommunications businesses and senior CCP officials will deny many countries around the world the ability to purchase Chinese weaponry, defense equipment, civilian technology, and 5G telecommunication networks, severely cutting into China's corporate profits. Senior Chinese Communist Party (CCP) officials will also potentially have some of their financial assets frozen and some travel restrictions. As shown above, these diplomatic and economic actions can seriously damage China's economy and senior leadership's interests without escalating tensions between the two great powers to the point of military conflict.

Strengthened Political-Technological-Military Alliances

The most valuable tool that America has in its arsenal and needs to exploit is its alliance advantage as China, comparatively, has very few allies and most of them are poor states.[21] With rich and relatively powerful regional allies and security partners like Japan, South Korea, Taiwan, Singapore, Australia, India, and Canada, the United States must continue to further strengthen its defense and diplomatic ties with all of these countries as they host many US bases that will be crucial in any conflict against China. Finally, but most importantly, America must do everything in its power to transform and expand the Quadrilateral Security Dialogue (QUAD), consisting of Japan, Australia, and India, into a larger, official military, political, economic, and technological research alliance whose sole mandate is to counter the growing threat of China. Under the new PDI proposed by this paper, the U.S. must try to expand the QUAD to include other powerful regional allies such as South Korea, Singapore, Taiwan, and NATO allies as well, including the UK, France, and Canada. By successfully achieving this, America will have a collective Rim of the Pacific + QUAD + NATO alliance and be able to multiply its military power and contain the PLA in the region. It will also be in a better position to compete with China economically and technologically due to its numerous trade accords and multi-national tech development

and R&D cooperation agreements in cutting edge areas like 5G, artificial intelligence, cybersecurity, robotics, semi-conductor manufacturing, space, and defense.

Conclusion

Overall, supported by the evidence laid out in this paper, it is very clear that the Pentagon's current Pacific Deterrence Initiative is woefully inadequate to deal with the threat of China and the needs of an increasingly unstable Indo-Pacific region; a new, more comprehensive deterrence initiative that focuses not only on advanced, capital-intensive weapon platforms, but also other equally important, regionally specific objectives, is desperately needed. This new plan must place a large emphasis on targeted territorial use negotiations for military purposes with US Pacific allies, anti-ship and deep strike missiles, enhanced sensor-to-shooter integration, a stronger offshore balancing strategy, increased weapon systems interoperability with allies, and the urgent modernization of America's nuclear triad. By focusing on and investing more in these areas, the United States military will be better able to conduct strikes against the lynchpins of the PLA's A2/AD zone, hold all Chinese military assets at risk, shorten its 'kill chains,' fight seamlessly alongside its allies, and maintain strategic nuclear stability for decades to come. Furthermore, increased concentration on ballistic missile defense, ISR, base infrastructure, logistics, and aircraft ground crew training will ensure that America will be able to credibly support, maintain, and defend newly acquired missile fire bases close to China along with existing US installations in the region in an actual sustained conflict. Taken altogether, these investments, objectives, and focus areas are absolutely essential as without them, the United States military cannot demonstrate that it can successfully penetrate and fight inside China's A2/AD zone and if necessary, conduct offensive operations against the Chinese mainland in a potential conflict. This would make conventional and nuclear deterrence almost impossible to achieve.

Lastly, but most importantly, America's presence west of the international date line, from its forward deployed military forces to its economic and diplomatic engagements in Asia to its regional political-technological-military alliances, must be enhanced. There is no question that the United States needs to have the same successful "whole of country" approach it had during the Cold War against the Soviet Union to successfully deter and contain China today. America did not defeat the USSR by destroying it militarily, but by wearing it down economically and containing it with NATO, CIA operations, and proxy wars. And if it is to be victorious once again in the 21st century, it will need to do the same. Consequently, any new revamped PDI cannot be solely focused on US military power. It must be multi-faceted and designed to utilize all of America's forms of influence, ranging from its economic might to its diplomatic and cultural clout to its technological prowess, to ensure that the 21st century will be another "American century."

Today, many politicians, policymakers, and citizens believe that it is time for the United States to rein in military and defense spending and focus more on domestic social welfare programs. However, such a decision would have devastating and lasting consequences not only for America, but the entire world. Without sustained defense budgets and a more robust PDI, not only will the US certainly not be able to deter, outlast, or if necessary, militarily defeat China in a great power conflict, but it will also face the dire prospect of losing all of its influence in the West Pacific and having to retreat all the way back to Guam. Authoritarian Communist China, as a result, will be free to dominate Asia-Pacific and

other regions around the world at will, ultimately spelling the end of the post-WWII US-led international order and the dawn of a Sino-centric world order, under which the United States and other liberal democracies will undoubtedly pay the ultimate economic and political price.

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