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FEATURE

Managerial Technicalism

The Evolving Nature of Canadian Decision Making in the Afghanistan War, 2001–2014

Anvesh Jain

More than 40,000 members of the Canadian Armed Forces (CAF) served in Afghanistan between 2001 and 2014, operating under the aegis of three separate prime ministers, from across partisan lines.[1] Measured in blood, treasure, and prestige, it was the costliest and most significant deployment of Canadian soldiers since the Korean War. Canadians served bravely and with great distinction in defending the nation's interests overseas, enabling security and development for the beleaguered Afghan populace, and demonstrating to allies that Canada was a serious and dependable multilateral partner. In the name of these interests, more than 2,000 members of the CAF incurred wounds or injury over the duration of the conflict. By the end of the mission, 165 Canadians, among them seven civilians, had paid the ultimate price.[2] It is in their name, their memory, and their debt to which Canada's strategic community must faithfully and honestly account for why we fought in faraway Afghanistan and identify the lessons that must be learned from the nation's lethal experience there.

Canada's involvement in Afghanistan began in the days and weeks immediately after the dreadful events of the 9/11 terror attacks, with combat operations drawing to a close a full decade later in 2011. In the three years following, a contingent of Canadian advisers stayed on to train and strengthen the Afghan National Army before they too at last returned home as well. To date, there is still much lingering ambiguity as to the purpose and objectives of the Canadian war effort. In a 2009 interview with *Maclean's*, General Rick Hillier, a pivotal figure in the army leadership, doubted the efficacy of the state's messaging to the public, wondering out loud "where the communications [are] being done because hundreds of thousands of Canadians don't know what's happening."[3] Similarly, the war and its historiography has been associated with "epistemological confusion," existing in a state of "almost suspended animation" and characterized by a surreal feeling of "sleepwalking through history."[4] To start sifting through and making sense of the heuristic murk of Ottawa's policy-making, some base recognitions are necessary.

Canada's obligation to its allies and to the Afghan people evolved in several distinct phases. To bureaucrats and governmental apparatchiks, each phase came

with its own goals, opportunities, and difficulties and were seen as natural responses to the commensurate threats facing the mission in Afghanistan. To the public, poor communication and divides in regional attitudes turned the populace's perception of the conflict into an ungainly and unending military morass. From the wider strategic perspective, Canada's involvement in Afghanistan must be viewed through the lens of the American unipolar moment at its imperious zenith, facilitating an international superstructure that permitted and encouraged such an outsized Canadian contribution.

When contextualized alongside Canada's own long history of external engagement, the Afghan effort can be considered an elaborate balancing act between multiple theoretical and tactical trends, including internationalism in its active and liberal subvariants, forward security and neoclassical realism, alliance dynamics, and physically building the Afghan nation from the ground on up. This precise balancing act, fought partially in briefing books and the allocation of departmental budgets, exhibited elements of managerial and technical doctrines, producing a discrete philosophy of war and decision making that can be retroactively construed as *managerial technicalism*.

"Managerialism," in a critical definition provided by the sociologist Thomas Klikauer, is the application of "one-dimensional managerial techniques to all areas of work, society, and capitalism on the grounds of superior ideology, expert training, and the exclusiveness of managerial knowledge necessary to run public institutions and society as corporations."[5] Its contemporary corollary—technicalism—can be deemed as the excessive intrusion of technical acronymization, terminologization, and proceduralization into a policy-making method that found itself more concerned with minute details and the "objective" measurement of success than on sweeping ideas or the articulation of a grand stratagem that incorporated the anxieties and emotions of the public with it.

As planning for Afghanistan fell deeper and deeper into the hands of bureaucratic Svengalis and professionals besot with their own expertise—obsessing over episodic questions of logistics, multilateral haggling over troop contributions, financial inlays, and developmental assistance—the farther it drifted from the imagination of the Canadian public. Expectations of peacekeeping clashed with the violent realities of war being broadcast on the nightly news. Casualties mounted, support dropped, and beyond a small clique in Ottawa few could remember the valid and noble reasons why Canada was continuing to fight the Taliban insurgency. As General Hillier put it, "[W]hat I would actually like to see is a strategic discussion, not just about what we do in Afghanistan but about Canada's place in the world. But in this constant minority government, always in election campaign mode, with a very vitriolic Parliament, it's impossible to have

that sort of strategic discussion."[6] Perhaps now, from the vantage point of hindsight, is a good time to have the kind of discussion that General Hillier had envisioned, beginning with the international context precipitating the Canadian intervention in 2001.

9/11 and the Unipolar World

The ignominious events of 11 September 2001, acted as the unquestionable catalyst for Canada's involvement in Afghanistan. As Bill Graham, Canadian minister of foreign affairs between 2002 and 2004, and minister of defence between 2004 and 2006, later reflected: "[T]he tragic truth was that Canadians had been killed in the World Trade Center. September 11 was—and felt like—an attack on us, as well as on the United States."[7] Twenty-four Canadians perished that day, bringing home a new international paradigm in which further globalization and economic integration was threatened by acts of terrorism concocted on the other end of the world. In this instance, it was the harboring of al-Qaeda extremists by the Afghan Taliban regime that demonstrated how instability manifesting in failed states on the periphery of global affairs can have deadly consequences for those living in its core. The grounding of flights and tightening of the US–Canada border in the days following 9/11 exposed Canada's economic vulnerabilities, and there was "no question that Canada shared the U.S goal of eliminating al-Qaeda and preventing another attack from occurring in North America."[8] If it was New York City on that day, it could easily have been Toronto or Montreal on another.

Within the context of America's unchallenged unipolar moment, Canada therefore had two immediate priorities after 9/11: first, to prevent its territory from being used as a potential staging ground for attacks against its hegemonic neighbor; and second, to visibly assure the United States that Canada remained a committed and supportive ally. Given time, a third priority developed, consistent with Canada's traditional policy: constraining the America's unilateralist impulses through coordination in international institutions—principally NATO and the United Nations. In service of the first priority, Canada's House of Commons passed the far-reaching Anti-Terrorism Act (Bill C-36), receiving royal assent on 18 December 2001. The second priority was achieved with Canada's immediate secretive deployment of Joint Task Force 2 personnel to Afghanistan alongside their American equivalents, followed up by the arrival of CAF regular units in January and February 2002.

These initial, limited liability actions were combined with outreach on the diplomatic and political fronts, as Canada vociferously supported the American self-defense invocation of NATO Article 5 on 4 October 2001. Along with the passage of United Nations Security Council (UNSC) Resolution

1378 on 14 November 2001, the Article 5 invocation formed the international legal basis for Canada's involvement in the Afghanistan conflict. The importance of abiding by international law and operating with international sanction was a central consideration for Canadian diplomats and military leaders. As Minister Graham has since mentioned:

> I had to sometimes remind people like [Secretary of State] Donald Rumsfeld, my American counterpart, that Canada was a signatory to the International Criminal Court, and that circumscribed certain things we could or could not do. This was a constraint that international law had placed on us. All operations of armies today are very much now governed by these whole, very sophisticated concepts that have developed from the Rome Statute. I'm very proud of our troops for being consistent with that.[9]

This dedication to international norms can be seen as a natural outgrowth of Canada's Cold War foreign policy consensus, one focused on "policies and actions designed to contribute to the maintenance of order in the international political system."[10] Of course, the bilateral relationship with the United States will always take foremost precedence for Canada, and with the United States emerging from the Cold War as the singular hegemon, the Canadian state was presented with a new opportunity to reassess its strategic mandate within a more flexible and permissive structural environment.

In a bipolar world, Canada is far more constrained in its ability to showcase leadership or to deviate from the expectations of its allies. In a unipolar system, one might have expected Canada to free-ride off American preeminence, and yet, curiously, this was not the case. In outsize proportion to its material capabilities, Canada on average "supported the sixth largest troop contribution to NATO operations from 2001 to 2011, and the fifth largest in Afghanistan from 2002 to 2011."[11] This can be explained by the Canadian desire to maintain a positive and productive relationship with the United States, along with converging interests and values in prosecuting the "War on Terror." Another, more subtle reasoning might have been to downplay American questioning and criticisms of Canada's defense capabilities by participating substantially in the US-led combat mission, as has been previously suggested by scholar Claire Sjolander.[12]

Canada's commitments in Afghanistan between 2001 and 2005, at first under the American-led Operation Enduring Freedom (OEF), and later as part of the joint NATO International Security Assistance Force (ISAF), furthermore gave the country a valid excuse for not following the United States into Iraq in 2003. Thankfully, despite strains in the transatlantic relationship owing to contrasting views on the Iraq War, the mission in Afghanistan was not jeopardized operationally. As Minister Graham admitted: "[I]n terms of the politics of the Afghan

mission, the split between NATO members as to whether they approved of the Iraq mission or not didn't spill over to Afghanistan."[13] Moreover, the Americans themselves knew that the increased Canadian commitment to Afghanistan practically prevented any ground involvement in nearby Iraq.

For the Liberal cabinet of then–Prime Minister Jean Chrétien, "U.S. support for Canada's participation in Afghanistan, it was hoped, would temper U.S. frustration with Canada's decision with respect to Iraq. A significant deployment to Afghanistan also allowed the government to demonstrate to its own parliamentary backbenchers (as well as to some members of Cabinet), to the Canadian public, and to the international community, that Canada was a stalwart ally in the fight against terrorism."[14] In hindsight, the US–Canada bilateral and economic relationship was not adversely impacted by the Iraq deliberations, but this was by no means guaranteed at the time. While Canada would have likely returned to Afghanistan anyways under its Article 5 remit, a renewed investment in the mission there served as useful political cover for when the Iraq issue reached its crescendo in March 2003.[15] Afghanistan, in its international context, and as decided by the managerial class, was always the "right war" for Canada to be fighting. This continued to be true, even as the parameters of the mission grew and changed over time.

The Evolution of Canadian Decision-Making

In Afghanistan, the appetite grew with the eating. Not out of greed, or malice, or unwitting overextension, but out of a rather real and pressing sense of necessity. As Canada's stakes in Afghanistan grew, alongside those of its British, Dutch, American, and other NATO allies, so too did the threats it was exposed to by a resurgent Taliban. Though the Northern Alliance had with the help of Coalition forces been able to retake the capital of Kabul within months of the 9/11 attacks and establish a fledgling government there, instability continued to plague the country as a whole.

Under these circumstances, Canada wanted its contributions to stand out and be felt. Initially, when the British declined Canadian participation in ISAF (back when its mandate was still restricted to Kabul and surrounding areas), before then requesting a mere token contingent of forces, Canadian officials "rejected the ISAF option on the grounds that it was not adequate for Canada's rank as a prominent ally. In February 2002 Canada therefore deployed to [Operation Enduring Freedom] the fourth largest contingent of troops after the United States, Germany, and Turkey."[16] After a difficult decade for the CAF's domestic and global reputation in the 1990s, Canada's defense leadership sought to restore public trust in the military through successful participation in OEF. By April 2002,

the country received shocking news of its first deaths in a combat zone since Korea, when four members of the 3rd Battalion, Princess Patricia's Canadian Light Infantry Battle Group, were killed in a fratricidal incident near Tarnak Farm, Kandahar. After a monthslong counterinsurgency campaign in southern Afghanistan, driving much of the Taliban across the border into neighboring Pakistan, the bulk of Canadian ground forces were brought home by the summer to much public and media fanfare.

This initial deployment was light but highly successful and popular. Those who remained did so in a minor capacity, securing Kabul and training the inchoate Afghan National Army and police forces until Prime Minister Chrétien decided once again to ramp up Canada's local presence, in conjunction with ISAF's reorganization under NATO command in 2003. The in-and-out, rotational nature of Canada's Afghanistan policy in these years was perfectly calibrated for the demands of the mission at the time. The Taliban itself had not yet fully regrouped or mutated into the murderous and well-financed insurgency it would soon become. Minister Bill Graham has emphasized the phased manner of Canadian operations in Afghanistan:

> Don't forget that our mission there took place in various phases. The first phase was when we went over.… We arrived to be too late to be of any significance. The next phase was ISAF in Kabul itself, which was a limited mission relating to that. Then our rather enlarged and rather significant mission in Kandahar. Those phases, each one of them was different in their nature and what they called for.[17]

For the next two years, Canadian units were primarily occupied with stabilization duties, even as a new prime minister (Paul Martin) was reduced to a minority government back home in 2004. In the lead-up to 2005 and the major decision to take responsibility for securing and reconstructing Kandahar Province, the spiritual birthplace of the Taliban, an upswell of new technical jargon entered the war-fighting lexicon of military and civilian authorities. Among these included the twenty-first-century notion of a "three-block war," adapted by Chief of Defense Staff Gen. Rick Hillier from an earlier American theory, taken to mean an approach to warfare (especially in failed states such as Yugoslavia and Afghanistan) where military forces had to be prepared to "conduct humanitarian, peacekeeping/stabilization, and combat operations simultaneously on three separate city blocks, or more widely."[18]

The three-block concept was one of many floated as Coalition planners searched for an intellectual foundation to counter the Taliban insurgency running rampant across the Afghan countryside. Where allied forces managed to flush out terrorists in one encounter or village, the combatants seemed to melt away before sud-

denly emerging and striking elsewhere. The Taliban guerrillas were able to blend in among and gather intelligence from the citizenry, usually under threat of violence, then retreat across the mountainous border into Pakistani tribal lands to rest and regain strength. Canada and its allies first tried an "ink blot" or "lily pad" strategy, in which territory taken from insurgents would be converted into a stronghold for the Afghan National Army, setting the stage for "a lasting security environment in the Canadian area of operation," supposedly allowing for "more interaction [of] troops and civilians . . . with the local population, [and] the more development can be done."[19] Though a 2008 Senate report contends that "the ink blot is spreading," this did not significantly manifest or take hold.[20] With time, much of the advances made were rolled back by the Taliban due to inexperience and low morale among Afghan national forces, corrupt authorities, and the inability to effectively administer services or facilitate governance within rural jurisdictions. To put it more bluntly, Canada's ink often dried and faded unless subject to continual (and costly) reapplication.

These complications were by no means unique to the Canadian experience of the war. To approach the conflict and the challenges facing Afghanistan in a more holistic fashion, policy makers championed a "3D" design that emphasized defense, diplomacy, and development in tandem.[21] Recognizing that the war could not be won on the battlefield alone, Ottawa poured billions into its "whole-of-government" concept that combined the energies of the Department of National Defence, the Department of Foreign Affairs and International Trade, and the Canadian International Development Agency, among others, to advance national interests in Afghanistan.[22] These proposals sounded good in theory and existed in line with the philosophy of managerial technicalism but, as Canada found time and time again on the ground, proved lacking in application. As soon as Canada and its allies attempted to innovate on the policy-making side, just as quickly the Taliban responded with new tactics aimed at undermining the Coalition's efforts. The "nature of the mission changed, because what the Taliban did changed."[23]

When Canada attempted to improve its public diplomacy and direct outreach among the Afghan people, those same innocent civilians suddenly became targets to be exploited and extorted by the Taliban under the cover of night. As the Taliban "adopted their tactics of IEDs [improvised explosive devices] and blowing up their vehicles on the road, in many ways [Canada's] whole concept of reaching out to people made it too dangerous."[24] Similar thinking led to the advent of the Provincial Reconstruction Teams, whereby civilian and military units guided by scores of well-trained experts were meant to operate together in each of the Afghan provinces with the objectives of improving living standards and facilitating institutional development.

It was this model of regional responsibility—where members of the international coalition would commit themselves to a particular Afghan province—that informed Prime Minister Martin's decision to tie Canada's destiny with that of Kandahar in the south. It could have been westerly Helmand, with its poppy fields and opium farms, or Uruzgan to the north, but ultimately Canada was transferred authority of the volatile Kandahar Province, bordering Pakistan, on 16 August 2005.[25] The assignment was foreboding: to combat the insurgency as it entered its worst phase, to win the hearts and minds of a beleaguered civilian population, and to seal off the porous border that allowed Taliban agents to infiltrate every other sector of the country at the time and place of their choosing. Kandahar was critical not only for the Canadians but also for the entirety of the multinational effort taking place across the territory of Afghanistan. And yet, Canada did not shirk its duties—and neither did it waver from its obligations.

Instability abroad was similarly reflected by instability on the home front. Between 2005 and 2006, a Liberal minority government gave way to a Conservative one under Prime Minister Stephen Harper, producing the first Canadian Parliament to be helmed by a Tory since 1993. In the months and years to follow, Prime Minister Harper stamped his authority on the war, especially as it intensified in Kandahar. It became synonymous with his premiership, as Kandahar went on to enter the exalted realm of Canadian martial history, a site of the nation's finest military endeavors alongside the reified fields of Kapyong, Vimy Ridge, and Passchendaele. At some point, Afghanistan would well and truly become Stephen Harper's War.

Mr. Harper Goes to War

The results of that year's general elections, conducted on 23 January 2006, confirmed the return to power of the federal Conservatives after a gap of nearly 13 years (albeit in the form of yet another minority government). Prime Minister Harper quickly differentiated himself from his Liberal predecessors with a more muscular rhetorical line on Afghanistan and other aspects of Canadian foreign affairs. In reality, the trend toward remilitarization and reinvestment in the languishing armed forces had begun under Bill Graham in his time as minister of defence, but Harper's Conservatives happily ran with these developments. Within two months of his electoral victory, Harper's team planned a bombastic surprise visit to Canadian troops in Kandahar, marking his first official foreign trip as head of government.

In the March 2006 speech delivered at Kandahar Airfield, Harper succinctly and robustly clarified Canada's war aims and rationale for fighting. As he exhorted

the soldiers: "[Y]ou have put yourself on the line to defend our national interests; protect Canada and the world from terror; help the people of Afghanistan rebuild their country."[26] The speech noted that, under the Taliban, "Afghanistan often served as an incubator for al-Qaeda and other terror organizations," leading to the loss of two dozen Canadians during the destruction of the World Trade Center.[27] Here Harper lays the groundwork for the forward security agenda, recognizing that "Canada is not an island," and "what happens in places like Afghanistan threatens and affects all of us back home in our own country."[28] Finally, and most impactfully, the prime minister places the Afghan mission within the lineage of Canadian external relations, consistent with the state's core values and principles of conducting foreign policy. Afghanistan became a test of the Canadian way of life and of the ability of Canada to take a leadership role in sharing those virtues with others:

> You can't lead from the bleachers. I want Canada to be a leader. And I know you want to serve your country, a country that really leads, not a country that just follows. That's what you are doing. Serving in a UN-mandated, Canadian-led security operation that is in the very best of the Canadian tradition, providing leadership on global issues, stepping up to the plate, doing good when good is required. . . .
>
> Of course, standing up for these core Canadian values may not always be easy at times. It's never easy for the men and women on the front lines. And there may be some who want to cut and run. But cutting and running is not your way. It's not my way. And it's not the Canadian way. We don't make a commitment and then run away at the first sign of trouble. We don't and we won't.[29]

Despite statements intended to rally the forces serving honorably in Afghanistan alongside Canadians following from back home, the expansion of the mission in Kandahar coincided with flagging public support and a steadily increasing death toll. The conditions facing Canadian units in Kandahar were torpid and brutal. The 2006–2008 period saw a "sharp increase in Canadian casualty rates in Afghanistan, as Canadian Forces personnel routinely engaged in combat operations—offensive and defensive—in Kandahar."[30] Among these engagements included Operation Medusa in the fall of 2006, during the Battle of Panjwaii, which has since entered the canon as the largest land battle undertaken by NATO in its history as an alliance. High-visibility (and high-cost) operations such as Medusa led to a dramatic drop in public support,[31] thereby complicating the task of military planners and Canadian political figures as the insurgency wore on.

The new prime minister was a shrewd operator, and though cognizant of the authority of the Canadian executive office in defense matters,[32] he looked at

Afghanistan as a potential wedge issue to advance his caucus's standing in a tightly balanced minority Parliament. The Opposition Liberals were undergoing a contentious leadership race after their general election defeat, and Prime Minister Harper believed that Afghanistan could be used to expose divisions within the Liberal caucus. The Opposition benches were simultaneously flanked by the Bloc Québécois (an antimilitarist and separatist party) and the leftist New Democratic Party. These latter two groups were united in their opposition to the war, leaving the future of the Canadian mission to be decided by the two main traditional parties.

On 15 May 2006, the government announced a surprise debate in Parliament to vote on an extension of the Afghan mission until February 2009. Members of the House of Commons were given only two days to prepare their thoughts for the six-hour, nonbinding debate. In any case, the vote seemed premature to observers, given that the operation was not set to expire for another 10 full months.[33] Before the motion was even introduced into the House, the prime minister announced that he would be extending the mission regardless of the vote's outcome. Requiring a flurry of last-minute lobbying and the backing of a group of moderate Liberal MPs led by former minister Graham, the motion ended up passing by a slim 149–145 margin. While not legally binding, failure to pass the motion could have been a political disaster for the minority Conservatives, possibly triggering a third election in the span of three years. Moreover, the government would have had to explain to NATO allies why it engaged in such a risky and overtly partisan ploy, one that had the potential of derailing Canadian participation in ongoing ISAF operations.

Once the results were made known, Prime Minister Harper offered the following comments: "I'm obviously pleased, the vote was obviously much closer than we thought even 24 hours ago. . . . Support for the mission is a lot stronger than the vote. There were a lot of people in there who just wanted to vote against the government."[34] Beyond considerations of the parliamentary balance of power, another explanation for the sudden decision could be that a NATO meeting had been scheduled for the last week of May, wherein the future of the Afghan mission was to be further deliberated. Senior officials in the government revealed that "Canada has been asked by NATO to consider taking over the command of the entire Afghanistan mission in 2008," plausibly informing the reasons for calling the debate so early.[35] Either way, the prime minister and his team witnessed firsthand how political gamesmanship held the potential of jeopardizing both Canada's international reputation as well as the stability of the Afghan mission. Having matured from the experience, the prime minister took steps to depoliticize Afghanistan while promoting a new bipartisan consensus on the future of the Canadian commitment.

The result, hailed by analysts as "politically brilliant," was the October 2007 creation of a five-person panel tasked with assessing the trajectory of the Afghan mission, while also providing recommendations for its continuation after February 2009 (the then–end date of Canadian operations).[36] The panel was chaired by respected former Liberal cabinet minister John Manley, thereby undercutting insinuations of partisanship in advance. After all, the Liberal Opposition could hardly argue against a committee steered by one of their own, deliberating on a war that they themselves had led the country into back in 2001, at least not without massively exposing the party to accusations of hypocritical conduct at a time when its image had already taken a severe beating among the public.

The Manley Report, as it was monikered, unveiled several key findings and proposals for restructuring the Afghan mission beyond February 2009. It judged that a combat withdrawal by that date was simply not a "viable option."[37] Furthermore, the report maintained that "the effectiveness of Canada's military and civilian activities in Afghanistan, along with the progress of Afghan security, governance and development, must be tracked and assessed more thoroughly and systematically," while recommending that Canada begin transitioning to a less combat-oriented and more training-focused posture to better develop the strength of the Afghan National Army.[38] In encouraging the Afghan forces to take on a "greater share of the security burden," Canada could begin to proportionately draw down its own involvement while Afghan authorities gained skills, technical know-how, and practical war-fighting experience.[39] The move toward a more systematic and statistical benchmarking of the Canadian mission in Afghanistan helped remove ideological influences from the decision-making process while fulfilling the numerical expectations of a managerial technical war-fighting style.

The Manley Report gave Canada's political class a road map to disengagement in Afghanistan with clear markers and milestones that could be adhered to beyond February 2009. For Prime Minister Harper, it was an opportunity to defuse Afghanistan as an electoral issue, even in an environment of perpetual minority rule, so that Canada's foreign policy agenda would be able to enjoy continuity and support with the buy-in of the nation's bureaucratic and governing elites. There would be no more partisan crises when it came to Afghanistan, as a March 2008 bipartisan vote (at a 198–77 margin) confirmed with the final extension of the combat mission until 2011.[40]

Harper had managed to successfully depoliticize Afghanistan, gradually incorporating more and more of the planning for the war under the centralized purview of the prime minister's office. This did not, however, imply that all was well on the home front. As public frustration with the war wore on, and communication from the government faltered, Canada once again found itself vul-

nerable to a set of deep anomic fissures, dividing the nation's citizenry along distinct regional and cultural fault lines that had complicated Canada's strategic mandate for centuries.

Competing Traditions in Canadian Foreign Policy

Much like the Boer Wars and the two world wars of the preceding centuries, the Afghan War reactivated and exposed the cracks in Canada's unitary concept of foreign policy. Though Canadian statecraft traditionally prides itself on upholding tenets of internationalism, liberalism, multilateralism, peacekeeping, and the rule of law in global affairs, the reality is that regionalism continues to dictate Canada's strategic line, particularly when its participation in external conflicts goes on for too long and is perceived as costing too many Canadian lives. This had become the case for Afghanistan as Canada entered the Kandahar phase of the war.

Justin Massie, in a seminal 2008 article, explains the numerous regional "strategic subcultures" that have existed in Canada historically, as well as the ways in which those regional dynamics have gone on to impact the state's use of force in the Middle East at the start of the twenty-first century. "Regionalism," referring to "the politics of territory and place," has manifested in Canadian foreign policy in three distinct traditions identified by Massie: Québécois pacifism, English-Canadian Anglo-Saxonism, and Albertan continentalism.[41] While Canadian confederation does not seem to be under existential threat these days, leaders would have been much more circumspect throughout the 2000s. In the 1990s, Canada had seen national unity strained by constitutional debates at Meech Lake and Charlottetown, culminating in the razor-thin Quebec sovereignty referendum of 1995. That wartime duress might reignite regional divides was a real consideration, one that demanded tactful negotiation by Canada's political class.

In his research of public support for the Afghan War, Massie finds that the clearest disconnect occurs between Albertans and Quebeckers regarding the use of force exogenously. From 2001 to 2005, most Canadians were strongly in favor of the nation's participation in the coalition efforts, with a pan-Canadian average of 74 percent approving.[42] In March 2006, that support experienced a universal drop as Canadian casualties were reported in far greater numbers than was the case previously, coinciding with the shift of operations to Kandahar Province. From 2001 to 2007, the period studied by Massie, a "systematic [negative] gap distinguishes Quebec from the rest of Canada, ranging from 7.3 points in October 2001 to 25.4 in July 2007, for an average of 19.6 points [of deviation]."[43] For Albertans, the positive gap in opinions between them and other English Canadians "ranges between 7.2 points in July 2005 to 24.8 in

August 2007, for an average of 12.7 points of difference."[44] While attitudes did not systematically diverge across the majority of English Canadian provinces, Massie observed that Albertans were diametrically opposed to Quebeckers in their higher support (to the tune of a 20 point average gap!) regarding the use of force internationally, particularly if those operations were to be conducted alongside the US military.

Clearly, divergent regional strategic subcultures impacted Canada's ability to act with cohesion and oneness in its external affairs, especially given Quebec's outsized electoral importance and unique sense of cultural distinctiveness. Responsibility for the Afghan War swung between two successive Liberal prime ministers representing Quebec ridings, to the first Albertan prime minister since 1980. Multilateralism and international sanction was not necessarily enough to bridge the gap either: When it came to Afghanistan, Quebeckers found themselves in opposition to a war that possessed a strong UNSC mandate and was commanded by NATO; contrast this with the question of Iraq, where "Albertans massively rejected the Canadian government's decision not to take part in the war against Iraq, a decision justified by the absence of a consensus at the UNSC."[45] The astute management of regional cleavages between different Canadian provinces is a hallmark of the nation's war-fighting history, marked by episodes of great turbulence such as the conscription debates of World War I and World War II, and opposition to participation in the imperial Boer Wars at the turn of the twentieth century. Afghanistan was no different, and future wartime Canadian leaders should have every expectation that similar difficulties may once again arise.

Even when Canada has been able to act as a concerted polity, it has still had to balance competing trends and tendencies in its concept of foreign policy. Among these rhetorical constructions include two kinds of Canadian internationalism, "an active internationalism, supporting the general principle of global involvement and rejecting isolationism, and a more 'liberal' internationalism favoring humanitarian causes such as 'development assistance, a reduction in poverty and inequality, and the protection of human rights.'"[46] Sjolander argues that this latter variant, as deployed in Afghanistan, had reached the status of a "Canadian brand," reflecting Canadians' image of themselves at home and abroad, while assuming a "central place in the construction of what it is to be a Canadian."[47] The management of the Afghan War by Liberal and Conservative government therefore also became a question of the management of a cherished Canadian identity. This can be seen by the emphasis on development projects such as dams and schools in addition to Canadian military operations undertaken on the ground.

Yet both the Liberal and Conservative governments oversaw a definitive shift across the duration of the Afghan War, slowly moving away from the humanitarian impulses of Canadian foreign policy of the 1990s toward embracing a more muscular and credible allied standard. Noting that significant underinvestment in the CAF had tarnished its war-fighting potential during the initial stages of the Afghanistan deployment, including small overall troop numbers and a lack of modern equipment, Prime Minister Paul Martin had asked Defence Minister Bill Graham to begin shifting away from the Lloyd Axworthy "Human Security" agenda of the previous decade toward a more active "Forward Security" posture in the 2000s.

Without belittling "what Lloyd did, because he was an extraordinary Foreign Minister," Graham admits that Canada's initiatives in the immediate wake of the Cold War were "basically soft power" and that "when there was a problem that required the military support, for a United Nations or other initiative, our military were not in a position to respond to it."[48] To restore Canadian leadership in a more uncertain and interventionist international order, where ideas like the Responsibility to Protect doctrine were now commonplace, it had become imperative for Canada to rebuild its operational capabilities. Under both the Liberals and the Conservatives, Afghanistan proved a tremendous stress test for the forward security concept in practice. While Canadians themselves may have felt more comfortable with the language of peacekeeping rather than combat operations, this was perhaps a naive point of view in a world of resurgent threats.[49] Diplomacy and peace was best undergirded by the demonstration of strength, as Graham himself explains: "We did have to build up our capacity for sure. A country like Canada cannot expect that, if it is going to be a significant contributor to peace and security in the world, if it is only contributing to one dimension of that peace and security. It needs the credibility to project its interests. Maybe we were like an airplane that had two motors on one wing and one on the other . . . it was about balance."[50]

In balancing these multiple considerations and competing trends in Canada's storied foreign policy tradition, successive policy makers turned to a philosophy of "managerial technicalism" in their handling of the Afghan conflict. By turning the war over to those mavens deemed best qualified to handle it, leaders in Ottawa were able to shield themselves from accusations of ideologically infused decision-making. Through coordination between civil sector and military expertise under the whole-of-government approach, to the depoliticization of the war on a partisan level, to the highly precise and surgical nature of the operations, actors in the Canadian establishment sought to remove dogma and focus on interests wherever possible when it came to waging the conflict over the course of a decade.

The technical and terminology-laden nature of Canadian participation in the Afghan War will continue to stand out among historians as a defining feature of the nation's intervention there. This will continue to hold true, even as a review of allied successes and failures considering developments in Afghanistan since 2014 might eventually reveal a more mixed record.

Canada's Legacy in Afghanistan

The notion of historical legacy can be ambiguous in even the most definitive and lapidary of circumstances. This is especially so for a conflict as intractable and muddied as that of the one in Afghanistan, with its perpetually shifting alliances and ill-defined parameters. Several truths, however, remain self-evident: that Canadian soldiers fought with dignity and distinction, that the war set the nation's armed forces on to a respectable path earning it the gratitude of its allies and peers, and that the civilian population of Afghanistan did and continues to suffer unjustly under the menace of Taliban rule.

Today, the Taliban gains ground in Afghanistan while the Americans have set a withdrawal date of 11 September 2021, at last nearing an end to its "forever war." As the Taliban movement takes over the administration of vast swathes of the rural countryside, ceaselessly contesting the authority and legitimacy of the elected government in Kabul in the process, some have ominously observed that the Taliban is "no longer just a shadowy insurgency; they are a government in waiting."[51] Despite upbeat rhetoric from officials and military leaders, it is difficult to feel triumphalist or victorious about the Canadian experience in Afghanistan.[52] Public fatigue had set in long before the last Canadian soldiers arrived home from the training mission in 2014. Afghanistan in 2021 is not a functioning liberal democracy, and Kandahar has since returned to its status quo ante as a major insurgent stronghold. To determine if the mission was a success, it may be worthwhile to revisit the initial objectives of Canadian participation iterated back in 2001 under Prime Minister Chrétien and again in 2006 under Prime Minister Harper.

First, the positives: North America avoided another 9/11-style attack, and Canada did not serve as the staging ground for an extremist assault on the United States; Canada advanced its national interests by developing a more assertive presence on the international stage while going above and beyond to prove its credibility to its American and NATO allies; and last, Western intervention helped curb Afghanistan's vulnerabilities as an incubator of global terrorism. If the purpose of Canadian involvement, however, was to "create an Afghanistan in which women would be free to be doctors and television presenters, a civil society would be developed in Afghanistan, respectful of what we would consider to be

international norms of human rights," then it is obvious such optimistic intentions have not come about in actuality.[53] Likewise, if Western intervention was a delaying action intended to buy time for the training of Afghan forces and the institutional development of the Afghan state, then rampant governmental corruption and regrettable military weaknesses have dashed those hopes too.

The mistakes that Canadian planners made were not uniquely attributable to Ottawa alone and represented shortcomings that every major NATO participant repeated while operating in Afghanistan. These included a poor examination of preexisting regional dynamics among neighboring Iran, Pakistan, and India, particularly regarding the interests these states held in Afghanistan. Western officials have been right to blame themselves for not adopting a more exacting approach toward the Pakistani government, who actively aided and abetted the Afghan Taliban, along with the failure to better cordon off and monitor insurgent movement across the Durand Line. Taliban fighters consistently struck Western interests in Afghanistan before retreating across the border, with the mountains in between serving as a strategic reserve base for the insurgency and its leadership. Minister Graham, echoing the sentiments of other allied authorities since 2014, made the following observations:

> It turned out to be more challenging than we had appreciated at the beginning. We should have thought more about the role of the porous border and of Pakistan. The duplicity of the Pakistani government, their support for the Taliban, was unknown to us. You have to be able to close off the area from outsiders. . . .
>
> You say insurgency, but it's even broader than that. The Pashtun people are on both sides of the border, and if you look at the role of Pakistan . . . President Obama one time made this crazy statement that in order to solve Afghanistan we have to solve Kashmir. What he was saying was that Afghanistan was a factor in the rivalry between Pakistan and India. Anything they can do in Afghanistan that would upset India, they would do.[54]

Greater historical competency and training could have perhaps prevented some of these complications from derailing the mission, but certainly not all. Canada was but one actor in the messy Central Asian milieu, and Western assumptions and expectations were not easily mappable on to the cultural vicissitudes of traditional Afghan life. Only time will tell what exact lessons Canada has learned and will carry forth from the Afghan interlude, particularly as the West prepares to leave Kabul to its fate while turning to face the more fractious grand strategic challenges looming on the horizon throughout the 2020s and beyond.

Conclusion

With Afghanistan, there were never any easy or straightforward answers. That was the case during the active and evolving phases of Canada's involvement, and that remains to be the case now even with the benefits of hindsight. Perhaps that was why it became so impossible to rally the Canadian public and remind them of the noble intentions of the initial "limited liability" intervention. No amount of explaining or exhorting could have made up for the lack of visible and quantifiable results, especially when combined with the bloody toll incurred in human life and treasure. At some point the average Canadian found themselves unable to understand or relate to the strategic aims of the highly technical operation, as it was taken over in an increasingly abstract fashion by Ottawa's self-appointed professional class. The doctrine of managerial technicalism did not prove to be a winning concoction when subjected to fire-testing in the crucible-like conditions of Central Asia.

The Canadian state in all its component parts, including its bureaucratic and political organs, along with the leadership of the Canadian Armed Forces, certainly matured as a result of the decade spent in Afghanistan. The rosy view of post–Cold War life in the 1990s came crashing back to earth as Canadian units were exposed to the vulgarities of combat after a gap of nearly 60 years. War-fighting techniques were refined and reorganized, and CAF soldiers would have undoubtedly gained much experience in conducting modern counterinsurgency operations. The various departments of the government had to learn how to coordinate their functions to most effectively amplify Canada's material capabilities in the service of its foreign policy aims, eventually nearing something close to the much-vaunted whole-of-government ideal.

Over the course of a decade and more in Afghanistan, thousands of Canadians, both enlisted and civilians, touched down on Afghan soil in service of the national cause. Tragically, 165 were never to return. With them, some small corner of a maple leaf will forever and always remain at rest in Kabul and Panjwaii and, of course, among the scraggled hills and sacrificial fields of southerly Kandahar Province, the everlasting site of a young nation's reinvention. ✪

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FEATURE

The Second Nagorno-Karabakh War

Takeaways for Singapore's Ground-Based Air Defense

Ben Ho

Over the years, the defense commentariat has widely acknowledged that the Republic of Singapore Air Force (RSAF) is arguably the most potent of its kind in Southeast Asia.[1] The service's esteemed repute derives in large part from its tactical aircraft force comprising some 100 F-15s and F-16s, many of which are late variants of their types.[2] And with the F-35B Lightning II stealth fighter slated to be delivered to the RSAF around 2026, Singapore's air force will undoubtedly cement its primus inter pares status in the region.[3] Playing a no less significant role in protecting the Lion City's skies, however—and they are often overshadowed by the fast jets—is the RSAF's ground-based air defense (GBAD) force. In fact, with asymmetric threats in the air domain such as unmanned aerial vehicles (UAVs), popularly known as drones, as well as rocket, artillery, and mortar (RAM) fires becoming more ominous, GBAD is perhaps more relevant than ever. After all, it is better suited to deal with these two threats compared to traditional fighter planes and would complement the latter well in the overall scheme of things.[4]

The air war over Nagorno-Karabakh in autumn 2020 offers three broad takeaways (two material and one nonmaterial) for Singapore's military planners as they fine-tune the city-state's Island Air Defense (IAD) system going forward.[5] The three lessons are: (1) an integrated air defense system is critical; (2) the role of electronic warfare should be accentuated; and (3) the human factor is key, and it underpins the other two factors. To be sure, these insights—which should be applicable to any state's air defense—are hardly groundbreaking, for various other commentators have already made them—but only in relation to major powers such as the United States and medium powers in Western Europe.[6] This analysis therefore adds to the discourse on the lessons of Nagorno-Karabakh 2020 by distilling what is pertinent from the war for Singapore.

Although the war in the Caucasus seems far-flung from Singapore both geographically and in terms of their respective security environments, the conflict is relevant to the Southeast Asian state in that it offers valuable broad insights on how better to strengthen its defense against unconventional aerial challenges that may surface *beyond the near future*. This is in view of the potentially volatile strategic environment in Singapore's immediate environs, whose security outlook seems

fairly optimistic for the near future, but it is anybody's guess beyond that.[7] What is more, the increasing democratization of technology going forward would enable malign entities, *perhaps in the more distant future*, to gain access to higher-end capabilities, especially in terms of unmanned systems, which could be used to threaten Singapore's interests. Indeed, this is a point not lost on members of the republic's defense establishment.[8] Ultimately, the Lion City's potential adversaries (whether state or nonstate) should be cognizant of the republic's overwhelming conventional military superiority and realize that to confront it head-on would likely be courting defeat. Therefore, expect asymmetric capabilities such as massed UAVs and RAM fires to dominate any aerial operational calculus of Singapore's likely foes.[9] All that being said, before delving into the three insights, a short account of Nagorno-Karabakh 2020 is in order.

Brief Overview of the War

The fighting in 2020 between Azerbaijan on one side and Armenia as well as the self-proclaimed Republic of Artsakh on the other was the most recent escalation of tensions over the much-disputed Nagorno-Karabakh enclave.[10] This clash of arms, variously known as the "second Nagorno-Karabakh War" or the "Six-Week War," began on 27 September 2020 when Baku launched an offensive into the southern Nagorno-Karabakh with the aim of conquering that area's less mountainous districts. In the words of one expert, Yerevan was "out-fought, out-numbered, and out-spent" in the war.[11] Forty-four days later, on 10 November 2020, a cease-fire agreement was signed whereby Baku emerged as the clear victor. Among other terms, Azerbaijan was allowed to retain control of land captured during the war. What is more, all Armenian-occupied territories surrounding Nagorno-Karabakh were ceded back to Azerbaijan by 1 December 2020. Currently, some 2,000 Russian peacekeepers are stationed along the strategic Lachin Corridor between Armenia and Nagorno-Karabakh.

The toll of the war was high. There were more than 6,000 combat deaths (about 3,360 Armenians and 2,820 Azeris), as well as some 150 civilians killed.[12] Yerevan also suffered much heavier matériel losses. While definitive information about the war is limited (and is still being revealed with the passage of time), an informed source puts Armenian equipment losses as including 245 main battle tanks, while the corresponding figure for Azerbaijan is only 36.[13] A similar disparity—profoundly in favor of Baku—is also seen in other categories such as artillery pieces and infantry fighting vehicles lost.[14] Azeri dominance in the air through its UAVs is one key factor behind this lopsided state of affairs. Uzi Rubin, the first director of the Israel Missile Defense Organization, describes the war as "the first post-modern conflict, in that it was the first in which unmanned aircraft overwhelmed

a conventional ground force, grinding it down to the point of impotency and paving the way for the Azeri ground forces to roll in."[15] And what underpins this was the neutralization of Armenia's (weak) air defenses, largely by Azeri drones. This constitutes the war's first lesson for Singapore's GBAD and will be discussed next.

Takeaway 1: Air Defense Must Be Integrated

According to a report by the Center for Strategic and International Studies, the primary lesson from the air war over Nagorno-Karabakh is the necessity of an integrated air defense system (IADS) to counter modern aerial threats.[16] Such a setup, with different layers of modern and well-networked capabilities, would better enable handling the plethora of challenges ranging from traditional jets on one end to UAV swarms on the other.

Armenia did not have such a system in place during the war, and this contributed profoundly to its defeat in the field. While Yerevan possessed various GBAD capabilities for different threats, those capabilities were not properly integrated. It is a truism in air defense planning that simply owning individual capabilities to counter a range of threats does not translate automatically into an IADS.[17] To compound matters, most Armenian surface-to-air missile (SAM) platforms were designs several decades old. For example, the Soviet-designed short-range 9K33, which was fielded in the early 1970s, was the mainstay of Karabakh's air defense. To be certain, Yerevan had made upgrades to this system throughout the years, but the inescapable fact is that these tweaks improved incrementally at best a Cold War relic. It is also telling that Armenia's most capable SAM—the long-range but 40-odd-year-old S-300—was conceived to handle higher-end threats such as larger-signature manned aircraft (which played a minuscule role on either side in the conflict). However, the S-300 was unsuited to counter smaller UAVs such as the Israeli-made Harop loitering munitions and the Turkish-made TB2 drones in Baku's arsenal. In fact, Azeri UAVs managed to destroy undetected several Armenian S-300s.

A credible short-range air defense (SHORAD) system is what is needed to alleviate the drone threat, and there was a substantial Armenian capability gap in this regard during the conflict. After all, Yerevan's SHORAD inventory consisted largely of the obsolescent 9K33s. What is more, Armenia did not seem to take heed of the Azeris' nascent UAV fleet following the latter's exploits during the 2016 Four-Day War and continued to let its decrepit SHORAD capabilities wither in the period since.[18] The exploits of drones in various Middle Eastern and North African conflicts in recent years should also have made Armenia's military bigwigs sit up and take note, but this did not seem to be the case.[19] It is telling

that Yerevan had bought 27 secondhand 9K33s from Jordanian sources for $35 million as recently as January 2020. Unsurprisingly, Azeri drones destroyed many of these Armenian platforms during the fight for Nagorno-Karabakh.[20] To be certain, experts have urged caution over reading too much into the ascendancy of UAVs over GBAD in the war, as this was achieved under highly favorable conditions unlikely to be repeated elsewhere, but the fundamental lesson of the relevance of an IADS still holds true.[21]

This takeaway about Armenia's unintegrated and obsolescent air defenses therefore affirms Singapore's prudence in constituting a sophisticated, layered, and networked system in the form of the Island Air Defense setup.[22] In principle, at least, the IAD is properly designed and integrated to function in the twenty-first-century air domain. The Singapore Ministry of Defense (MINDEF) states that the IAD system is "multi-layered, networked, and intelligent," adding that it "integrates advanced sensors, capable weapon systems, command and control elements, and decision-making tools."[23] A sophisticated Combat Network fuses these components of the IAD into an integral whole. MINDEF also says that the IAD is "capable of neutralising a wider spectrum of air threats to protect Singapore's skies day and night."[24] On that note, given the rising threat posed by UAVs and RAM fires, it is laudable that the Island Air Defense system pays close attention to capabilities that would be instrumental in countering those two threats. After all, there is a capability overlap between the anti-UAV and -RAM portfolios. In this regard, the IAD has credible assets. Regarding sensors, for example, the Agile Multiple Beam Radar is designed for surveillance of drones and RAM fires. As for shooters, the IAD has the high-tech SPYDER SAM platform.

However, deploying the latter, with its limited missile magazine capacity (of only four weapons), against massed drones/air munitions would put Singapore on the much-talked-about "wrong side of the cost curve."[25] Put simply, it would be financially unfeasible to deploy SAMs priced at many thousands of dollars or more against targets costing much less. On this note, Defense Minister Ng Eng Hen of Singapore has stated that it would neither be "proportionate cost-effective nor sustainable" to use sophisticated assets to take down improvised aerial threats such as hobbyist drones.[26]

It bears consideration that the drones used in the September 2019 attack on Saudi oil installations had a unit cost of $20,000 or less, while Riyadh's Patriot SAM that should have protected the kingdom against attack but did not for various reasons was priced at $3 million.[27] In the same vein, engaging with pricey missiles $800 per unit homemade rockets, such as the Qassam frequently used by Palestinian militants, does not make much financial sense.[28]

It is also worth noting that Indonesian authorities in August 2016 foiled a jihadist plot to launch rockets from the Indonesian island of Batam at Singapore's upscale Marina Bay area. It is not known what kind of weapons the Islamic State–linked militants possessed. Nevertheless, experts maintain that, for the attack to succeed, it would necessitate capabilities of higher sophistication than the Qassam.[29] However, even if such weapons cost significantly more, they would still seem low-cost in comparison should they be engaged with high-end missiles.

Looking ahead, as mentioned earlier, advancements in dual-use technologies and their increasing off-the-shelf availability portend cheaper yet more lethal weaponized drones. The democratization of technology could also accentuate the RAM threat to Singapore. Therefore, what is needed is a solution to put the defender on the correct side of the cost curve. Singapore's IAD system, which has been based solely on missiles ever since its 35mm Oerlikon guns were phased out years back, is possibly one area for improvement. Interestingly, recent editions of the *Military Balance* cite Singapore as possessing antiaircraft artillery (AAA), but this capability is not listed in the RSAF's order of battle on the MINDEF website.[30] The flagship publication of the International Institute of Strategic Studies, however, lists the 20mm GAI-C01 cannon in the city-state's inventory. Even if Singapore does have the GAI-C01, it is unsuited to counter swarm threats given its relatively small magazine size and low rate of fire.

In view of the massed drone/RAM threat, some have argued that there should be perhaps greater emphasis placed on cost-effective solutions. For one, Mike Yeo asserts in a piece for the Singapore state media outlet *CNA* that Singapore should consider reintroducing the old-fashioned AAA—in its modern incarnations, of course.[31] Citing the Phalanx and Skyshield, he is on point, as such weapons have a much higher rate of fire—a vastly desirable attribute against swarms—compared to missile launchers, and the interceptors AAA use have a much lower unit cost in comparison to missiles.[32] AAA is useful as it meets both the antidrone and RAM requirements. What is more, certain antiaircraft gun platforms, such as the Oerlikon Skyranger 30, can also engage ground targets.[33] Thus, beside further strengthening the IAD, the AAA capability could also dovetail with the trope of "doing more with less (or the same)" in Singapore's military discourse given the city-state's projected manpower shortfalls.[34]

Takeaway 2: Electronic Warfare Is Crucial in the Antidrone Effort

Another salient point about the Nagorno-Karabakh air war is how easily Azeri UAVs took out many Armenian air defense systems. That Azeri drones managed to remain undetected at close range might hint at electronic warfare (EW), which blinded Armenian radar.[35] After all, there were instances where Armenian radars

could not pick up the Azeris' Turkish-made TB2 unmanned aircraft, which has a significant radar signature.[36] In fact, the Turkish-made Koral EW system was possibly used to enable Azeri drone operations akin to what Turkish forces did in Libya and Syria. And much like how electronic warfare could "kick down the air defense door" of the enemy, the other side of the coin is that it also provides for a credible air defense—and therein lies the next lesson from the second Nagorno-Karabakh War: EW contributes to a credible antidrone edifice. Indeed, Michael Kofman of the CNA Corporation avers that it is "a truism that air defense should be supported by electronic warfare and specialized counter-unmanned aircraft systems."[37] This view is echoed by Russia, which has experience in dealing with hostile drones in theaters such as Syria and Ukraine. According to the Russian defense ministry, a robust EW suite is central to the "echeloned defense" deemed adequate against UAVs.[38]

Analysis of Armenia's EW performance against enemy drones paints a largely dismal picture. One analysis contends that Armenian EW was "completely incapable of hindering UAV operations over Nagorno-Karabakh even in the slightest way."[39] Another, more balanced report notes that Yerevan's Russian-made Polye-21 jammer had some success, but only for a few days.[40] That Armenia's counterdrone EW capabilities could be inherently ineffective could explain their travails; there could also be the issue of "operator fault," discussed in the next section.

Nevertheless, there is definitely a place for EW in a counterdrone system given that most UAVs are reliant on data links to function. In fact, even the high-end unmanned platforms of the American and British militaries have faced challenges in Syria from Russian EW.[41] However, as one study incisively puts it: "EW alone, however, is no panacea and needs to be integrated with other air defense systems to effectively defend against aerial threats."[42] It should also be noted that electronic warfare has limited effects on UAVs utilizing the Global Positioning System for navigation. These vehicles could fly a preprogrammed route to its target and need not communicate with their operators. Under such circumstances, a kinetic response might still be necessary.

Coming back to the Singapore context, Yeo has correctly stressed the need for the republic's IAD to defend against EW being applied against it considering its role in the Nagorno-Karabakh War.[43] The flipside of the issue is true as well, and one way the role of electronic warfare in Singapore's Island Air Defense should be accentuated is through the acquisition of dedicated EW assets. Currently, the IAD does not possess a stand-alone EW component (as opposed to one this is organic to another platform such as the republic's F-15SG multirole jet and *Formidable*-class frigate). This is so according to open sources, such as the infographic on the IAD that MINDEF has released.[44] In the same vein, according to

the 2021 edition of the authoritative *Military Balance*, the Lion City's armed forces do not own any dedicated EW platforms whatsoever.[45]

Obtaining individual EW capabilities would layer another level of redundancy into Singapore's air defense system. However, acquiring single-role platforms such as a standalone EW asset would seem counterintuitive considering the Singapore military's desire of "doing more with less." Nevertheless, this issue is something that bears deliberation for Singapore's military planners given the increasing significance of electronic warfare (and not just for air defense purposes) in the twenty-first-century operational environment. At the very least, there should be a conversation about the possibility of acquiring dedicated air defense platforms with some EW capabilities, such as the Oerlikon Skyranger 30.[46]

Singapore's IAD setup should also emphasis electronic warfare given that another appeal of the latter reduces collateral damage. While kinetic measures (whether they be missiles or AAA shells) certainly have a place in any air defense system, stray projectiles, jettisoned missile boosters, or remnants of a successful missile kill could land on civilian areas. In fact, the risk of collateral damage from these due to Singapore's highly urbanized and built-up landscape could potentially be more serious than anything inflicted by the hostile platform itself. Indeed, a jettisoned missile booster over the republic's highly industrialized Jurong Island or the Senoko Power Plant on mainland Singapore itself could be disastrous.[47]

All that being said, Singapore's aerial threat landscape currently and in the near future does not necessitate the utmost urgency in acquiring AAA and/or EW assets, as the most pressing security challenges the city-state faces do not emanate from the air domain. Of course, circumstances can change. For example, Indonesia could significantly beef up its armed UAV fleet, which currently stands at only six Chinese-made Rainbow CH-4s.[48] Or Malaysia could procure longer-range munitions for its Astros II multiple rocket launchers that could target its southern neighbors from farther out.[49] Additional electronic warfare and/or antiaircraft gun capabilities are useful to the extent that they add more layers of insurance to Singapore's already credible IAD setup.

Takeaway 3: The Human Factor is Key

> *The Armenian side clearly did not show a serious attitude to the preparation of defense, long-term fortification, camouflage, reconnaissance. Moreover, all these shortcomings in Armenian planning were noticeable even during previous outbreaks of conflict with Azerbaijan, starting in 2016, but Armenia did not draw any conclusions.*
>
> —Vasily Kashin

These words, by Carnegie Moscow Center's Vasily Kashin, are echoed by various other pundits who maintain that Armenian military personnel did not carry

themselves well against Azerbaijan and that this contributed substantially to Armenia's defeat.[50] One expert poignantly notes that, while Baku revamped its military instrument, this was hardly the case for its adversary, which was "preparing its army for military parades."[51] Although such comments are directed at the Yerevan's military as a whole, they also apply to its GBAD force or any other military arm. And this brings us to the third and arguably the most important takeaway for air defense from the second Nagorno-Karabakh War: the aphorism that "the human factor is the most crucial in warfare" must be always borne in mind. Ultimately, the most exquisite military capability is only as good as its handler. One may possess on paper the best EW, SAM, or any other capability, but all would be for naught if their users lack competency.

Examples abound of how Armenian forces often appeared tactically inept and disorganized in the field. For instance, former U.S. Army officer Robert Bateman writes in *Foreign Policy* that armored platforms were often found "clumped together in tight clusters . . . not maneuvering while dispersed widely as the conditions in combat would warrant," and this is evidence of poor training and/or general tactical incompetence.[52] It will be surprising if Yerevan's air defense forces were an exception to this. According to an informed source's account of the travails of Armenian SAM sites: "During the war, Bayraktar TB2s literally flew circles near three S-300 sites while waiting for the ballistic missiles and loitering munitions directed against them to strike their targets before doing damage assessment and flying away. Shockingly, the launchers in some of these SAM sites were not even in deployment mode, as if no war was going on in the first place."[53]

The last sentence, on the total lack of combat readiness, is particularly noteworthy, especially for a country that was in the middle of a war. While Azeri EW could explain this anemic situation, it is also conceivable that operator ineptness was responsible.[54] One Armenian commentator also makes an informed speculation that his country's GBAD personnel could suffer from "lack of situational awareness."[55] Armenian battlefield incompetence in terms of air defense could also be seen in the fact that the SAMs were deployed in "relatively exposed fixed positions, in a mountainous region where air defense is even more difficult by virtue of the terrain."[56] To be sure Azeri forces also displayed signs of field ineptness, especially during the initial stages of the war.[57] However, these were arguably mitigated to some degree by their material superiority.

There were already cautionary tales of operator fault vis-à-vis air defenses prior to the second Nagorno-Karabakh War, and Armenia ostensibly did not heed them. For one, think of how the lack of training time by Syrian forces on their Russian SAM systems has bedeviled air defense over their country in recent years. In the same vein, Saudi Arabia owns on paper a high-end air defense system

made up of Western assets such as the American Patriot SAM. Operator fault due to lack of proficiency, however, contributed to the failure of Riyadh to defend against the September 2019 drone and cruise-missile strike.[58] Last of all, the tragic accidental shootdown of a Ukrainian airliner in January 2020 by Iranian forces shows how complex and error-prone air defense can be, even with a modern SAM system such as the Russian-made Tor-M1.

Relating this lesson about the centrality of the human factor to the Singapore context, the republic's air defense chieftains should consider measures to beef up the "soft" aspects of the Island Air Defense edifice. One way to do this is to hold a drill that tests the IAD system in its entirety against unconventional aerial threats such as massed drones/RAM fires. (Let us just call this notional "Exercise Red Aegis" in reference to its protective nature as well as one of the city-state's two national colors.)

To be sure, the Lion City has held major air defense drills in recent years, but they were not directed against UAV/RAM threats. Case in point: Exercise Vigilant Shield.[59] This whole-of-government event (the police and civil aviation authority were also involved on top of air force jets and GBAD units), last held in 2019, stimulated responding to a passenger plane hijacked by terrorists. In years past, the RSAF also held the Flaming Arrow Challenge, which pitted land-based air defense units against one other. However, it merely tested these units' "ability to engage fighter aircraft and helicopters simulating as aerial threats" and not explicitly against nontraditional challenges such as massed UAVs and RAM fires.[60]

Another element of Exercise Red Aegis should be to incorporate the newest capabilities introduced into Singapore's Island Air Defense system, an example being the Aster-30 SAM system. After all, the most recent iterations of Exercise Vigilant Shield and the Flaming Arrow Challenge saw the venerable I-HAWK SAM deployed, and this is a capability that is gradually being replaced by the Aster-30. Red Aegis should also purposely allow "leakers" past the outer rings of the IAD to better gauge its SHORAD performance, which would be crucial in defending against drones. To be certain, an endeavor such as Red Aegis would take up a great deal of time and resources in terms of planning and execution. However, it is arguably the only way to test the credibility of a system that was conceptualized in 2006 and will continue to serve Singapore for decades to come. Equally significant is the fact that a well-run Red Aegis would no doubt strengthen deterrence and make potential malign actors think twice about targeting Singapore with unconventional air threats.

Overall, the centrality of the human factor in warfare cannot be overemphasized, and one critique of the 2020 Nagorno-Karabakh War and its lessons for the American military makes the following points, which are just as applicable to the

Singapore context (or any nation's armed force): "Materiel solutions are not enough by themselves. Nonmatériel solutions (e.g., doctrine, training, etc.) must be synchronized with materiel to maximize their effectiveness. The right system with the wrong TTPs [tactics, techniques, and procedures] for employment will be ineffective."[61]

This brings us to another instructive point made about the importance of the soft elements for air forces (or any military entity in general): "[I]n its totality, airpower is a complex amalgam of equipment and less tangible but equally important enabling ingredients bearing on its overall effectiveness, such as employment doctrine, concepts of operations, training and tactics, leadership quality, adaptability, operator proficiency, boldness in execution and practical combat experience. . . . They also largely account for why some air forces are simply better and more combat effective than others."[62]

The Singapore Armed Forces (SAF) no doubt already has the hardware. But the software is especially important for Singapore given that its military is a relatively small one in terms of numbers. In such an organization, the competence (or lack of it) on the part of its personnel would be amplified.

Conclusion

In the final analysis, the Caucasus and Singapore are certainly worlds apart in many ways. Besides the more than 7,000 kilometers separating them, a high-intensity clash along the lines of Nagorno-Karabakh 2020 is extremely unlikely to occur in Singapore's environs in the near future given the current trajectory of regional geopolitics. A conflict of this nature involving the Lion City would be the rarest of black swans. And there is a danger that the recent Armenia-Azerbaijan duel has unique features that make generalizations difficult, and there is the risk that the wrong observations will be drawn from it. Nonetheless, the conflict offers valuable general takeaways for Singapore's military planners in various aspects going forward, not least in terms of air defense.

Three insights, which cut across any GBAD force, stand out: (1) the cruciality of an integrated air defense system against modern aerial threats; (2) the role of electronic warfare should be accentuated, especially in the light of the rising drone challenge; and (3) the human factor is key, as it matters most in any military entity. In an ideal world, the Singapore government could heed *all* the suggestions put forth above by procuring antiaircraft guns and electronic warfare capabilities, as well as running a full-scale drill involving the Island Air Defense system. The main challenge in implementing these suggestions, if it comes to that, would be resource limitations. While Singapore has often spent generously on defense, hard choices must be made in the real world. A dollar spent on a certain area or capa-

bility means a dollar less in another place, unless MINDEF's share of the budget pie could be enlarged. Indeed, as the Singapore Armed Forces transitions toward a next-generation fighting force as per the SAF's 2030 vision, acquisitions of new land and naval platforms, not to mention a possible purchase of more F-35B jets, will impact whether the suggestions put forth in this analysis can be implemented.[63] Ultimately, it boils down to Singapore's more pressing defense needs. While more assets such as fighter planes no doubt strengthen the Lion City's deterrence, a case can also be made for its GBAD force, especially in view of the changing operational environment.

Speaking in December 2020 on the IAD's completion, Singapore Defense Minister Ng said: "Even with these air defense systems, you can never be immune. But you can significantly reduce the level of threat so I take great comfort in that."[64] Incorporating even partially the above-mentioned insights from the second Nagorno-Karabakh War should go some way toward making the IAD more future-ready and alleviate even greater aerial threats. After all, as Yeo puts it: "[J]ust because the system appears ready to deal with potential adversaries today, it would be foolish to assume that the status quo would hold in the long or even medium term."[65] On that note, in an essay on black swans penned by three RSAF officers, they rightly state that "[e]ven if solutions [to such low-probability scenarios] are impractical or prove to be too costly to implement, the very fact that debates and discussions have been carried out would already enhance the preparedness of the commanders and planners."[66] Thus, at the very least, just bringing the three main takeaways into Singapore's air defense discourse should stand the republic in good stead as the Lion City, in Ng's words, looks "towards the next phase of the Island Air Defense System . . . to threats that are not only on horizon, but I am sure will be developed over the years.[67]

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Notes

1. Western observers have often lauded Singapore's air force. To illustrate, a 2011 analysis describes the RSAF as "Southeast Asia's preeminent air power: capable, well balanced, technological advanced, and staffed by skilled personnel." It adds that "[a]dvanced weapon systems are complemented by excellent indigenous technical services, a first-class training organization, and modern command control practices." Alan Stephens, "The Asia Pacific Region," *Global Air Power*, ed. John Andreas Olsen (Lincoln, NE: Potomac Books, 2011), 327. Similarly, a 2020 report speaks of the RSAF as "unmatched" among regional air forces. Greg Waldron, "Singapore's Air Force Eyes Long-Term Challenges," *FlightGlobal*, 4 February 2020, https://www.flightglobal.com/.

2. *The Military Balance 2021* (London: International Institute of Strategic Studies, 2021), 298.

3. With Singapore joining the F-35 club, the republic will be the first in Southeast Asia to operate fifth-generation aircraft. For the possible reasons behind the purchase, see Ben Ho, "Analysing Singapore's F-35B Acquisition," *Asian Military Review*, 2 April 2020, https://asianmilitaryreview.com/.

4. RAM munitions are simply too fast for fighters to counter. The latter may also have difficulty keeping station and maintaining visual contacts with low-flying and relatively slow drones, which is why the Apache helicopter gunship typically used in surface attack also has an air-defense portfolio in the RSAF. *See* Mike Yeo, "Singapore Confirms It's Using Apache Helicopters in Air Defense Role," *Defense News*, 13 February 2018, https://www.defensenews.com/.

5. For a concise and cogent analysis of the aerial domain in the second Nagorno-Karabakh War, see Shaan Shaikh and Wes Rumbaugh, "The Air and Missile War in Nagorno-Karabakh: Lessons for the Future of Strike and Defense," *Center for Strategic and International Studies*, 8 December 2020, https://www.csis.org/.

6. A good source for the lessons for US armed forces would be Nicole Thomas, Matt Jamison, Kendall Gomber, and Derek Walton, "What the United States Military Can Learn from the Nagorno-Karabakh War," *Small Wars Journal*, 4 April 2021, https://smallwarsjournal.com/. For the war's relevance for medium powers, the following video conference is particularly thoughtful: International Institute of Strategic Studies, "The Nagorno Karabakh Conflict: Military Lessons for Middle Powers," *YouTube*, 18 December 2020, https://www.youtube.com/.

7. Chinese-majority Singapore is sandwiched between two Muslim-majority states, Malaysia and Indonesia. Over the decades since Singapore's independence in 1965, bilateral ties with its two neighbors have occasionally been fraught with tensions over various issues. While the near-term regional security outlook for Singapore seems positive, the volatile nature of regional geopolitics means that the situation could deteriorate unexpectedly.

8. To illustrate, when asked during a media interview about the aerial challenges Singapore faces in the future, Defense Minister Ng Eng Hen stressed the need to "deal with the whole spectrum," whether the threat be "longer range munitions, as we saw for example in the missiles [attack] against the oil depots in the Middle East, or non-traditional from terrorist attacks, things that you can buy on the web, or the dark web." "Transcript of Doorstop Interview with Minister for Defence Dr Ng Eng Hen During Visit to RSAF Island Air Defence Operations," *MINDEF Singapore*, 17 December 2020, https://www.mindef.gov.sg/. In recent years, a number of RSAF officers have also spoken of the need to counter aerial asymmetric threats such as massed drones, as they argue in *Pointer*, the official journal of the Singapore Armed Forces. *See*, for example, Captain (CPT) Daryn Koh, "How Singapore and the SAF Can Get Ready for the Era of Swarm UAVs," *Pointer* 46 No. 2 (2020): 32–42; Lieutenant-Colonel (LTC) Ho Sen Kiat, Major (MAJ)

Lee Mei Yi, and CPT Sim Bao Chen, "The Emergence of Small Unmanned Aerial Systems: Opportunities and Challenges," *Pointer* 44 No. 2 (2018): 35–44; as well as LTC Ong Tiong Boon, MAJ Joseph Peh, and CPT Daxson Yap, "The Future of Singapore's Ground-Based Air Defense," *Pointer* 40 No. 2 (2014): 14–23.

9. Unconventional aerial threats to the city-state are not new. In 2016, for example, Indonesian jihadists plotted to fire a rocket at a popular Singapore waterfront. And in 2002, extremists planned to hijack a plane and crash it into the republic's Changi Airport. *See* Kanupriya Kapoor, "Police Find Bomb-Making Materials for Alleged Singapore Attack," *Reuters*, 6 August 2016, https://www.reuters.com/.

10. For a thoughtful overview of the conflict and its genesis, see Cory Welt and Andrew S. Bowen, *Azerbaijan and Armenia: The Nagorno-Karabakh Conflict* (Washington, DC: Congressional Research Service, 2021).

11. John Antal, "The First War Won Primarily with Unmanned Systems: Ten Lessons from the Second Nagorno-Karabakh War," *United States Special Operations Command*, https://www.socom.mil/.

12. Welt and Bowen, *Azerbaijan and Armenia*, 11.

13. Stijn Mitzer and Joost Oliemans, "The Fight for Nagorno-Karabakh: Documenting Losses on The Sides of Armenia and Azerbaijan," *Oryx* (blog), 27 September 2020, https://www.oryxspioenkop.com/. The *Oryx* military affairs blog is considered one of the most authoritative open sources when it comes to documenting losses on both sides during the second Nagorno-Karabakh War.

14. Mitzer and Oliemans, "The Fight for Nagorno-Karabakh."

15. Uzi Rubin, *The Second Nagorno-Karabakh War: A Milestone in Military Affairs* (Tel Aviv: Begin-Sadat Center for Strategic Studies, 2020), 5.

16. Shaikh and Rumbaugh, *The Air and Missile War in Nagorno-Karabakh*.

17. Michael Kofman, "A Look at the Military Lessons of the Nagorno-Karabakh Conflict," *Russian Matters*, 14 December 2020, https://www.russiamatters.org/.

18. On UAV operations during this conflict, see Azad Garibov, "Karabakh: A New Theater for Drone Warfare?," Jamestown Foundation, 11 May 2016, https://jamestown.org/.

19. On UAV operations in Libya, for instance, see Tom Kington, "Libya Is Turning into a Battle Lab for Air Warfare," *Defense News*, 6 August 2020, https://www.defensenews.com/. As for how the drone war in Syria unfolded, see Alex Gatopoulos, "Battle for Idlib: Turkey's Drones and a New Way of War," *Al Jazeera*, 3 March 2020, https://www.aljazeera.com/.

20. While Armenia reported losses of 15 9K33s, Azerbaijan said it destroyed 40 of them, so the truth is probably something in between. Slavisa Milacic, "The Lessons for Armenia from the Defeat in Nagorno Karabakh," *World Geostrategic Insights*, 5 December 2020, https://wgi.world/.

21. As one analyst observes: "Bad weather, effective air defense, and Counter Unmanned Aerial Systems (CUAS) could have worked against the Azerbaijanis. As it turned out, the weather was good up until the last week of the war, the Armenian air defense was not effective against the Azerbaijani UAS onslaught, and the few Russian-made CUAS systems that the Armenian's possessed proved ineffective." Antal, "The First War Won Primarily with Unmanned Systems." For a similar argument, *see* Rubin, *The Second Nagorno-Karabakh War*. 13–15.

22. For details on the IAD, *see* "Fact Sheet: See More, Shoot Further, Smarter—RSAF's Island Air Defence System," *MINDEF Singapore*, 17 December 2020, https://www.mindef.gov.sg/.

23. "Fact Sheet."

24. "Fact Sheet."

25. This is an issue that also bedevils major powers, including the United States. For a discussion of this quandary, see Tom Karako and Wes Shambaugh, *Distributed Defense: New Operational Concepts for Integrated Air and Missile Defense* (Washington, DC: Center for Strategic and International Studies, 2018), 13–14.

26. Tang See Kit, "Singapore 'Quite Confident' of Detecting and Neutralising Drones Used in Saudi Attacks: Ng Eng Hen," *CNA*, 7 October 2019, https://www.channelnewsasia.com/.

27. Michael Knights, "Continued Houthi Strikes Threaten Saudi Oil and the Global Economic Recovery," *Washington Institute for Near East Policy*, 12 March 2021, https://www.washingtoninstitute.org/.

28. Yonah Jeremy Bob, "How Much Does Hamas's Rocket Arsenal Cost?," *Jerusalem Post*, 17 May 2021, https://www.jpost.com/.

29. Jeremy Koh, "'Military-Grade Rocket Needed' to Hit S'pore from Batam," *Straits Times*, 6 August 2016, https://www.straitstimes.com/.

30. *The Military Balance 2021*, 298. See also *The Military Balance 2020*, 308, and *The Military Balance 2019*, 305.

31. Mike Yeo, "Fighter Jets Get Attention but Defending Singapore Against Rockets and Drones Require Very Different Tools," *CNA*, 14 February 2021, https://www.channelnewsasia.com/.

32. Yeo, "Fighter Jets Get Attention."

33. Paolo Valpolini, "Rheinmetall Air Defence Unveils Its Skyranger 30 (Upgraded)," *European Defence Review*, 3 March 2021, https://www.edrmagazine.eu/.

34. "Speech Transcript by Minister for Defence Dr Ng Eng Hen at the Ministry of Defence Committee of Supply Debate 2018," *MINDEF Singapore,* 30 June 2018, https://www.mindef.gov.sg/.

35. Rubin, *The Second Nagorno-Karabakh War*, 9.

36. Rubin, 13.

37. Kofman, "A Look at the Military Lessons of the Nagorno-Karabakh Conflict."

38. The other components of this system are antiaircraft and early-warning radar systems. Samuel Bendett, "Russia's Real-World Experience Is Driving Counter-Drone Innovations," *Defense News*, 23 May 2021, https://www.defensenews.com/.

39. Stijn Mitzer and Joost Oliemans, "Aftermath: Lessons of The Nagorno-Karabakh War Are Paraded Through the Streets of Baku," *Oryx*, 26 January 2021, https://www.oryxspioenkop.com/.

40. Shaikh and Rumbaugh, *The Air and Missile War in Nagorno-Karabakh*.

41. Tom Kington, "The Drone Defense Dilemma: How Unmanned Aircraft Are Redrawing Battle Lines," *Defense News*, 14 February 2021, https://www.defensenews/.

42. Franz-Stefan Gady and Alexander Stronell, "What the Nagorno-Karabakh Conflict Revealed About Future Warfighting," *World Politics Review*, 19 November 2020, https://www.worldpoliticsreview.com/.

43. Yeo, "Fighter Jets Get Attention."

44. "Infographic: RSAF's Island Air Defence System," *MINDEF Singapore*, 17 December 2020, https://www.mindef.gov.sg/.

45. *The Military Balance 2021,* 297–98.

46. Valpolini, "Rheinmetall Air Defence Unveils Its Skyranger 30."

47. Ong et al., "The Future of Ground-Based Air Defense," 20.

48. Ridzwan Rahmat, "Indonesia Receives First Batch of Chinese-Made AR-2 Missiles for Its CH-4 UAVs," *Janes*, 13 April 2021, https://www.janes.com/.

49. Malaysia uses the SS-30 rocket (30-kilometer range) for its Astros II. *The Military Balance 2021,* 282. The platform can also receive the 80km-range SS-80 munition and the 150km-range SS-150.

50. *See*, for example, Gady and Stronell, "What the Nagorno-Karabakh Conflict Revealed About Future Warfighting." Russian analysts echo their views. Alexander Stronell, "Learning the Lessons of Nagorno-Karabakh the Russian Way," *International Institute of Strategic Studies*, 10 March 2021, https://www.iiss.org/.

51. Sergey Sukhankin, "The Second Karabakh War: Lessons and Implications for Russia (Part One)," Jamestown Foundation, 5 January 2021, https://jamestown.org/.

52. Robert Bateman, "No, Drones Haven't Made Tanks Obsolete," *Foreign Policy*, 15 October 2020, https://foreignpolicy.com/.

53. Mitzer and Oliemans, "Aftermath."

54. On this point about user competency, it bears consideration that Baku announced the procurement of TB2 in late June 2020 with delivery of the drone taking place thereafter, so there were barely three months for the Azeris to acquaint themselves with it before fighting broke out with their archenemy. Experts therefore believe that Turkish—not Azeri—personnel were controlling the TB2 during the war, though this has not been confirmed. *See* Alexander Yermakov, "Unmanned Aerial Vehicles over Nagorno-Karabakh: Revolution or Another Day of Battle," *Valdai Discussion Club*, 4 December 2020, https://valdaiclub.com/; and David Hambling, "The 'Magic Bullet' Drones Behind Azerbaijan's Victory Over Armenia," *Forbes*, 10 November 2020, https://www.forbes.com/. This then raises the question of "What if the Azeris were the ones operating the platform and would this affect the course of the war?" Given Azeri inexperience with the TB2, it is likely that the Azeris would not handle the TB2 as well if they did not have at least some Turkish help—and the course of the war might have been less favorable to Baku.

55. Alek Elbekian, "The Second NK War: Lessons Learned and Future Expectations," *Armenian Weekly*, 17 December 2020, https://armenianweekly.com/.

56. Michael Kofman and Leonid Nersisyan, "The Second Nagorno-Karabakh War: Two Weeks In," *War on The Rocks*, 14 October 2020, https://warontherocks.com/.

57. Robin Forestier-Walker, "Nagorno-Karabakh: New Weapons for an Old Conflict Spell Danger," *Al Jazeera*, 13 October 2020, https://www.aljazeera.com/.

58. Michael Knights and Conor Hiney, "Plugging the Gaps in Saudi Arabia's Air Defenses," *Washington Institute for Near East Policy*, 25 September 2019, https://www.washingtoninstitute.org/.

59. "SAF Air Defence Task Force Leads National Air Defence Exercise," *MINDEF Singapore*, 14 March 2019, https://www.mindef.gov.sg/. It is worth noting that the 2016 iteration of Exercise Vigilant Shield also involved a simulated hijacked plane. *See* "RSAF Exercises National Air Defence Capabilities," *MINDEF Singapore,* 28 November 2016, https://www.mindef.gov.sg/.

60. "Fact Sheet: Flaming Arrow Challenge 2017," *MINDEF Singapore*, 18 January 2017, https://www.mindef.gov.sg/.

61. Thomas et al., "What the United States Military Can Learn from the Nagorno-Karabakh War."

62. Benjamin S. Lambeth, "Airpower Anatomy," in *Routledge Handbook of Air Power*, ed. John Andreas Olsen (New York: Routledge, 2018), Kindle ed.

63. For a list of new capability procurements for the SAF going forward, see Matthew Mohan, "'Significant and Steady Investments' in Defence Required to Keep Singapore's Future Secure: Ng Eng Hen," *CNA*, 1 March 2019, https://www.channelnewsasia.com/.

64. "Transcript of Doorstop Interview with Minister for Defence Dr Ng Eng Hen During Visit to RSAF Island Air Defence Operations," *MINDEF Singapore*, https://www.mindef.gov.sg/.

65. Yeo, "Fighter Jets Get Attention."

66. LTC Goh Sim Aik, Military Expert 4 Soon Yi Xiang, Andrew, and CPT Vanessa Lim, "Black Swans Need Not Be Black: Preparing the RSAF to Succeed in Spite of Future Uncertainties," *Pointer Supplement: Beyond the Horizon: Forging the Future RSAF* (2016), 67.

67. "Transcript of Doorstop Interview with Minister for Defence Dr Ng Eng Hen During Visit to RSAF Island Air Defence Operations."

FEATURE

India's Acquisition of the S-400 Air Defense System

Implications and Options for Pakistan

Shaza Arif

Abstract

India's quest for attaining superior military technology has materialized in New Delhi's purchase of the S-400 air defense system from Russia. Adhering to the principles of offensive realism, India is aspiring to accumulate maximum power and establish its hegemony in the region. The Countering American Adversaries Through Sanctions Act (CAATSA) obliges the US president to impose sanctions on any state making a significant arms deal with Russia. However, considering India's strategic partnership with the United States, New Delhi is confident that it can circumvent CAATSA sanctions and secure a waiver. India's acquisition of this state-of-the-art technology will have a negative impact on the strategic stability of the region, providing a robust false sense of security to the Indian policy makers to execute lethal adventures in the region, with the assurance that India is invulnerable from any retaliatory attack. India's acquisition of the S-400 will alter the strategic stability momentarily; however, Pakistan has the capability to counter this perceived advantage and rebalance the shift in strategic stability.

Introduction

The S-400 air defense system has emerged as an eye-grabbing technology, compelling several states to acquire it. Developed by the Almaz Central Design Bureau of Russia, the S-400 is a mobile air defense system that serves to engage intruding aircraft, unmanned aerial vehicles, cruise missiles, and ballistic missiles. It has surfaced as an antiaccess/area denial (A2/AD) asset designed to protect military, political, and economic assets from aerial attacks and has been tagged as "one of the best air defense systems currently made" by the *Economist* in 2017.[1]

An S-400 comprises two batteries, each with a command-and-control system, one surveillance radar, one engagement radar, and four launch trucks that are termed "transporter–erector–launcher."

In comparison to its predecessor S-300, the S-400 sports an upgraded radar system and a software update that enables it to fire new types of missiles.[2] The S-400 is equipped with four different types of missiles: short-range 9M96E

(40km), medium-range 9M96E2 (120km), long-range 48N6 (250km), and the very long-range 40N6E (400km).[3]

The S-400 operates in the following way:[4]

Long-range surveillance radar tracks object and relays information to command vehicle for target assessment.

After the target is identified, missile launch is ordered by the command vehicle.

The launch vehicle which is placed in the best position gets the launch data and releases the missile.

The missile is guided toward the target with the help of the engagement radar.

The S-400 has drawn the interest of US allies and adversaries alike. China and Turkey have deployed this system, and Qatar, Saudi Arabia, and Egypt have shown interest in acquiring it.[5] At the 2016 BRICS summit, an agreement was finalized between Russia and India for the purchase of five S-400 regiments.[6] In October 2018, both states formally inked a US$5.43 billion deal in the annual India–Russia bilateral meeting in New Delhi.[7] The Indian government has paid US$800 million to Russia as an advance payment and is expected to receive the first shipment of the S-400 regiments in late 2021.[8]

This article will analyze the impetus for India to acquire the S-400 air defense system. It will also analyze whether India would be able to attain a waiver from the United States regarding the purchase from Russia. Furthermore, it will shed light on the implications of this deal and discuss the options for Pakistan with respect to India's acquisition of the S-400.

India's Quest for the S-400 Air Defense System

India's quest for acquiring military hardware seemingly remains insatiable. India continues to spend billions of dollars in the procurement of arms and is one of the largest arms importers in the world.[9] Several factors have pushed India to opt for the S-400 air defense system.

First, realist hegemonic aspirations have always inspired India, which envisions itself as superior to other states in the region. The postulates of John Mearsheimer's theory of offensive realism, according to which states must accumulate maximum power for themselves and should contend to flip the balance of power in their favor, have enticed Indian policy makers. Following these assumptions, New Delhi is on the path to hegemonize India's neighbors, project itself as the most powerful state in the region, and emerge as a major power in the long run.[10] There are certain determinants to qualify as a major power, and military might is one of them. India has found this state-of-the-art weaponry instrumental to ordain its military, as it will serve as a strategic upgrade in the Indian military. The system is integrated with autonomous detection and targeting systems, launchers, multifunctional radars, and command

and control and is equipped with the capability to fire multiple missiles to create a layered defense. Furthermore, it can track 80 targets simultaneously and can be made operational within five minutes. Major powers such as the United States, China, and Russia already possess robust air defense systems, and India wants to avoid lagging behind in this race.[11]

Second, India is keen to draw a multilayered defense shield over its capital New Delhi and Mumbai in the initial phase, with the same patterns to be replicated in other cities at subsequent stages.[12] India already has its own indigenous two-tiered ballistic missile defense (BMD) system, which is already operational. The BMD system encompasses the Prithvi Air Defense (PAD) and Advanced Air Defense (AAD) systems for high-altitude interception and low-altitude interception, respectively. The outermost layer of the Indian multilayered shield will constitute India's indigenous AAD and PAD,[13] with the new S-400 air defense systems comprising the second layer. The Barak-8 medium-range surface-to-air missile system, codeveloped by India's Defence Research and Development Organisation and the Israeli aerospace industry, will form the third layer. The Aakash area defense missile system will constitute the fourth layer. The National Advanced Surface-to-Air Missile System II (NASAMS-II) represents the innermost layer, aimed at protecting the cities.[14] Indian policy makers claim that the S-400 system, due to its sophistication, will serve as a cornerstone in the Indian air defense shield.[15]

Third, India aims to curtail Pakistan's capabilities by denying it ingress to the Indian territory in case of an aerial engagement, for which India is augmenting both defensive and offensive capabilities. On the offensive side, India is making major arms deal for different weaponry; the most prominent one is the agreement with France for the acquisition of 36 fighter jets. For defense, it has resorted to S-400 as a prime shield in this regard. The former Indian Chief of Air Staff, Air Chief Marshal (ret.) B. S. Dhanoa, in an interview stated that "the purpose of the S-400 missile system and Rafale is to hit Pakistani aircraft inside Pakistani air space and not when they come inside Indian territory."[16]

Likewise, New Delhi holds the view that the S-400 will act as a critical factor and a force multiplier to the Cold Start doctrine (CSD), first publicly discussed in 2004. New Delhi denied the mere existence of the CSD until 2017, when the Chief of Army Staff, Gen. Bipin Rawat, acknowledged it.[17] India's armed forces would be more optimistic about executing this doctrine under the umbrella of its revamped air defense system. The S-400 would make India more resolute in allowing a conflict to escalate with assurance that the S-400 would be able to shield its territory from any incoming attack.

Last, the fact that China already deployed the S-400 air defense system in 2018 is also another impetus for India to acquire this system, noting its strained relations and competition with its neighbor.[18]

Thus, India is acquiring its new air defense system to assert itself both regionally and globally.

Prospects of a Waiver for India

Taking into account the Russian aggression as seen with the annexation of Crimea in 2014, its aggressive behavior in Syria, and Moscow's alleged involvement in meddling in the 2016 American elections, the Donald Trump administration introduced a set of sanctions (CAATSA) in 2017, calling for the enforcement of sanctions against any country making an arms deal with Russia.[19] Under CAATSA, countries are directed to avoid making significant transactions with the Russian defense industry. Following Beijing's purchase of the S-400 system and Sukhoi Su-35S, Washington triggered a set of economic sanctions against China.[20] Likewise, Turkey was penalized when it signed a deal worth US$2.5 billion[21] to purchase the S-400 and was deprived of acquiring F-35 fighter jets, despite the fact that Turkey was part of the consortium responsible for developing and funding the F-35 fighter jet program.[22] However, American officials expressed concerns that the S-400 would precipitate problems of interoperability within NATO systems and more pointedly that Turkey's acquisition of the S-400 would pave the way for intelligence regarding the fifth-generation fighter jets to make its way into Russian hands through the technicians who are going to be present in Turkey for the installment of the S-400.[23] Thus, Ankara was formally excluded from the F-35 fighter jet program on 22 April 2021 with an official notification.[24]

India and the United States have signed the Communication Compatibility and Security Agreement, which lays the foundation for interoperability and sharing classified data. There is a prevailing perception in Washington that the S-400 deal serves as a potent threat to intelligence sharing under this agreement.[25] In June 2019, American diplomat Alice Wells stated that the S-400 will put a constraint on the extent to which the interoperability between India and the United States can be increased.[26] Washington has requested that New Delhi opt for the Patriot Advanced Capability (PAC-3) or THAAD defense system instead of the S-400. However, India has opted for the S-400 for its stated greater capabilities. Moreover, the THAAD defense system cannot intercept fighter aircraft, whereas PAC-3 has a limited range of 180km for aerial targets and 100km for ballistic missiles.[27]

According to the National Defense Authorization Act, the US president is authorized to grant waivers from punitive sanctions to states if transactions with the Russian defense industry is less than US$15 million. However, India's S-400

deal involves the large sum of US$5.43 billion, dwarfing the set criteria. Interestingly, there is another clause that asserts that waivers can be given to America's strategic partners—provided that US interests remain intact.

Washington has warned India that the purchase of S-400 could invoke CAATSA sanctions, yet India remains undeterred, deciding to shun the threat and proceed with the deal. In January 2020, a senior official of the State Department informed India that it will not be subjected to any exception on its deal and will not be given a blanket waiver.[28] However, he further added that "while there's not a blanket waiver, there's also not a blanket application. And so what I mean by that is there is a case-by-case analysis on where CAATSA sanctions could be applied."[29] This leaves the room open for certain relaxations for India.

With the new US administration in office in January 2021, there were renewed its attempts to convince India to scotch the deal. During the visit of Defense Secretary Lloyd Austin to India in March 2021, he raised the issue of the S-400. Austin raised concerns with his counterpart, Minister of Defense Rajnath Singh, regarding the Russian air defense system.[30] The two did not discuss sanctions, as India has not received the systems yet, hinting that Washington is still looking toward the possibility of India backing out of the deal. However, shortly after Austin's visit, the Russian ambassador to India reiterated the firm determination to proceed with the S-400 deal, keeping in mind the "agreed timelines and other obligations."[31] According to the *Hindu*, India is expected to start receiving the shipment in November 2021.[32]

Although there is speculation that the deal will have an adverse and detrimental impact on US-Indian relations, these claims are exaggerated, as there are slim chances that the strategic altruism that India is enjoying will cease to exist. There are enough reasons to suggest that the acquisition of the S-400 will not lead to sanctions. Previously, India has enjoyed exceptional behavior from the American administration. In 2007, India was able to secure a nuclear deal despite being a nonsignatory to the Treaty on the Non-Proliferation of Nuclear Weapons. Similarly, the United States has approved the sale of NASAMS-II to India,[33] ignoring concerns that New Delhi is opting for the S-400 and that compatibility issues can surface. Furthermore, Washington is advocating for India's membership in the Nuclear Supplier Groups, disregarding India's proliferation record. Moreover, it seems logical to assume that New Delhi will be able to secure a waiver from Washington for several reasons.

First, the United States values India as a vital partner in its Indo-Pacific strategy. Washington is trying its best to strengthen India to contain China. Thus, the Indian inclination to acquire the S-400 system will not endanger the bilateral relationship, as Washington will avoid jeopardizing its strategic partnership with India.

If Washington damages its relations with India over this deal, it will erode America's larger objective of containing China and thereby undermine US regional strategy, as there is no other country in South Asia that is in a position or has an appetite to contain China. Thus, the potential benefits of sanctioning India would not be proportionate to the risk of losing it as a strategic partner. Moreover, sanctioning India would push it further toward Russia, which is not what Washington would like to see.

Second, Russia has been the prime supplier of arms to India for a long time. According to the Stockholm International Peace Research Institution, between 2012 and 2016, Russian arms imports accounted for 68 percent of India's total arms imports.[34] However, India has diversified its arms imports, and Indian imports from the United States increased by 557 percent between 2008 and 2017.[35] As a result, the US military-industrial complex would not like to be deprived of this thriving market.

India itself appears confident that it would be able to secure the waiver. After General Rawat assumed office as India's first Chief of Defense Staff, one of his initial decisions was to call for the creation of a joint air defense command and to issue a deadline of 30 June 2020 for a proposal in this regard.[36] The issuance of this order appears to be in line with the arrival of the S-400 regiments by late 2021. The S-400 system is expected to be integrated with the Indian Air Force's Integrated Air Command and Control System, which is an automated command-and-control system for air defense integration of air- and ground-based sensors and weapon systems.[37]

Thus, it is expected that the United States will provide India a waiver as part of a strategic understanding between the two countries. Even if India does not secure an absolute waiver, the sanctions might be less intense or delayed to avoid straining relations between the two strategic partners.

Implications of India's Acquisitions of S-400

New Delhi's inclination to opt for the S-400 air defense system signals India's firm determination to hegemonize its neighbors and share the table with the other major powers of the world in the longer run. These hegemonic aspirations of India will cause some repercussions, as it will alter the strategic environment of South Asia, which is already very vulnerable, ambiguous, and conflict-prone.

The deployment of air defense systems along with other latest weaponry that India is acquiring is destabilizing, as it will give it a highly deceptive and absurd sense of security. This may provoke India to take more risk to prevail in a future conflict. India would exhibit wishful thinking that, in the event of a conflict esca-

lation and possible Pakistani retaliation, India would be able to deny the penetration of Pakistani aircraft.[38]

Stephan Evera's assertion that war is more likely when conquest is easy fits aptly in the South Asian environment. The military institutions in India have instilled a sense of assurance in the Indian leadership that the acquisition of the S-400 along with its other military procurement will give a strategic edge over Pakistan. Therefore, India would believe that it has the space to take risk and carry out military adventures in Pakistan with the assurance that the S-400 will be able to defeat any counterattack.

The deployment of the S-400 in South Asia will alter the deterrence equation in the region. For deterrence to hold, both states must be assured that they are mutually vulnerable. According to rational deterrence theory, to deter the adversary, a state should be able to persuade its adversary that it can inflict unacceptable damage and will not be hesitant to make use of its capabilities.

Deterrence is a product of credibility and capacity. "Capacity" refers to the presence of the weapons and delivery systems to execute an attack; "credibility" refers to how well the capabilities are signaled to the other side. India's acquisition of the S-400 air defense system will not impact Pakistan's capacities, as it can still respond to Indian aggression with its existing capabilities and employ new measures to curtail the threat from this air defense system. However, the credibility would be undermined, as India may not be convinced that it is prone to unacceptable damage from Pakistan owing to the presence of its newly acquired air defense system, therefore impacting deterrence in an adverse manner and making it less hesitant to engage in a conflict with its archrival.

The Indian narrative being instilled with the acquisition of this air defense system is that it can target aircraft deep inside Pakistan's territory (i.e., if deployed in Himachal Pradesh, the region of Kashmir would be well covered). Deployment of the S-400 in Jalandhar, Punjab, the system would be able to shoot down aircraft in Islamabad, and if the Indian forces decide to deploy the system even further to Amritsar, Punjab, it would bring Peshawar into the range of the S-400.[39] However, these claims are hypothetical, and they do not take into account the response options, tactics, and concepts of employment from the Pakistani side.

The desires of Indian hegemony will materialize at the cost of stability in the region. The strategic stability of the South Asian region will be the victim and would have to bear the assault of India's offensive actions. The S-400 will alter the minimum deterrence levels, provoking an arms race between the archrivals, with each side upgrading and reinforcing its capabilities. Similarly, Prime Minister Narendra Modi is obsessed with Pakistan and would like to carry out "surgical strikes" in Pakistan's territory on the pretext of attacking terrorist base camps.

The strong sense of assurance of invincibility can also make India less hesitant to let a conflict escalate on the assumption that it has the capability to counter any sort of aerial attack from Pakistan. Such circumstances can lead to any conflict taking a lethal form—especially over Kashmir, which remains a nuclear flashpoint and can spark major conflict that could stir implications for the whole region.

Furthermore, India's so-called no-first-use (NFU) policy has been diluted to a great extent over the years. Several prominent Indian strategists have openly advocated for abandoning the NFU policy. Recently, while addressing the press at Pokhran, Indian defense minister Rajnath Singh stated that India can have a circumstantial departure from the NFU. Massachusetts Institute of Technology nuclear affairs expert Vipin Narang rightly points out that India is cruising toward an ambiguous policy that could render the NFU obsolete without formally changing it. Therefore, it would not be rational to rule out the possibility of India carrying out preemptive strikes in Pakistan, which would be lethal not only for the region but also for the world at large, noting that it can spark a major conflict between the two nuclear-armed countries.

All these factors add up and compound the threat to the regional peace of South Asia, making it more unstable.

When one analyzes the political implications of India's acquisition of the S-400 air defense system, it becomes apparent that this deal has dispatched a message that Indo-Russian bilateral ties are still strong at a time when questions were raised regarding the future trajectory of the relations, as there was speculation that India would be in a severe dilemma regarding its overlapping and conflicting relations with Moscow and Washington. However, New Delhi has signaled that it will adhere to a policy of multi-alignment, and India's intensifying relations with Washington will not alter relations with the former's old ally—rather India will resort to other states for its vested interests whenever deemed necessary. This was affirmed by a statement by Gen. Bipin Rawat, Indian Army Chief at the time. During his keynote address at the General K. V. Krishna Rao inaugural memorial lecture, General Rawat stated: "When Russians asked about the American sanctions, my reply was, 'yes, we do appreciate that there could be sanctions on us, but we follow an independent policy."[40] In response to a question, the general replied, "there is no end in sight to the manner in which" India and Russia can cooperate.[41]

Likewise, New Delhi has also attempted to pacify Moscow due to the animosity that emerged following India's withdrawal from the codevelopment of the fifth-generation jet fighter program with Russia.

At a more local level, New Delhi's sense of superiority will further jeopardize relations between India and Pakistan, as the former will be dismissive toward en-

gaging in any constructive dialogue with Islamabad. India and Pakistan have not engaged in any productive dialogue following an aerial engagement in February 2019, and India's unilateral action taken in Kashmir by the abrogation of Article 370 has further impaired the already strained relations between the two countries. With the delivery of the S-400 system in late 2021, Indian leadership likely will be even more reluctant to terminate the deadlock in the bilateral relations.

Therefore, the arrival of the S-400 will be destabilizing for the region.

Vulnerabilities of Air Defense Systems

The invulnerability claims made by India are absurd, as there is no country in the world that can render its territory absolutely invulnerable from incoming attacks. There are several examples that prove that air defense systems have vulnerabilities and can fail to produce the desired results in certain circumstances either due to errors, operational failure, or tactics employed by the other side. Recently, Russian air defense systems have failed to perform optimally, particularly in Syria, Libya, and Armenia.

In April 2020, the Syrian military raised concerns over the performance of S-300 air defense system when its radars failed to detect and target Israeli cruise missiles on various occasions. On 28 February, Syria lost three Pantsir-S1 and one Buk-1 air defense systems deployed in Idlib.[42] These systems became a target of Turkish drones, which employed electronic warfare to evade the air defense systems. Ironically, the Pantsir-S1 is perceived as one of the most advanced air defense systems in the Russian inventory and is designed specifically for short-range air defense. However, footage showed that the radars of these systems were active before they were hit, which raises concerns over their effectiveness.[43]

The S-400 has not been used by the Russians in Syria to counter Israeli strikes. This development implies that even the Russian operators are aware that, in the likely event that the incoming aerial vehicles are more than the handling capacity of their state-of-the-art air defense system, some of them will go unintercepted, which will raise questions over a system tagged as the world's best air defense system.

The recent Nagorno-Karabakh conflict in late 2020, is another example where the vulnerability of air defenses against drones has been exposed. In the conflict between Azerbaijan and Armenia, the former prevailed over the latter by employing Turkish and Israeli drones, which neutralized the air defense systems of Armenia.[44] To destroy the air defense systems, Azerbaijan used decoy aircraft in Armenian territory, which were shot at by the deployed air defense systems. This action exposed the locations of those air defense systems, which were then neutralized by drones. Russian air defense systems such as the 2K12 Kub, 9K35 Strela-10, 9K33 Osa, and 2K11 Krug could not intercept a number of drones,

which either reached their intended targets or destroyed the air defense system itself. Azerbaijan has also claimed that it destroyed several batteries of the S-300 air defense systems[45] and circulated footage in this regard. This is highly concerning, as it suggests that the S-400, which is the successor of S-300, could have similar vulnerabilities.

In May 2020, the Libyan army was also successful in destroying nine Russian Pantsir-S1 air defense systems.[46] These systems were under the control of forces led by Khalifa Haftar.[47] The Libyan army used Turkish Bayraktar drones to destroy these air defense systems. This campaign has helped the Government of National Accord to take large territories previously under the control of Khalifa Haftar's forces.

The point is simple: if there are more incoming drones than the intercepting capacity of the air defense system, some are bound to pass through without interception despite the technological advancement of any air defense system.

Second, evolving tactics, concept of employment, and better training in air warfare can become a critical factor that can play an effective role in making such systems more vulnerable. Moreover, air defense systems were more optimal for Cold War–type scenarios, in which the travel time was at least 30 minutes. As far as India and Pakistan are concerned, the proximity would leave very minimal reaction time. In addition, the air defense systems act optimally when they are integrated effectively with other weaponry. If we look at India's weapons procurement, it is relying on diverse suppliers, acquiring the Phalcon AWACS from Israel, NASAM II missiles system from the United States, Rafale jets from France, and the S-400 from Russia. This diversity will pose compatibility issues when deployed, which can pave the way for errors. Furthermore, there are ample chances that the NATO countries may not be willing to allow the integration of Russian weaponry with their equipment, which will greatly impact the effectiveness of the S-400.

Thus, Indian claims are misleading due to the fact air defense systems have vulnerabilities that can be exploited, impacting their performance. With effective strategies they can be destroyed, deceived, and overwhelmed. Pakistan can take certain steps that can bring it to the position where it can employ an effective strategy to counter this impending threat.

Options for Pakistan

Indian media and policy makers have instilled an absurd narrative, claiming that New Delhi's acquisition of the S-400 would enable India to control Pakistan's airspace, thereby claiming an extreme strategic edge over Pakistan. However, the S-400 cannot protect the whole length and breadth of Indian territory from all potential attacks and does not act as a concrete assurance of invincibility. The

notion that is being ignored is that all military equipment has vulnerabilities, and the S-400 is no exception.

The balance of power will be temporarily shifted, as India envisions itself as dominant over Pakistan and would be more willing to create turmoil in the region. Consequently, Pakistan would have to take countermeasures to rebalance the shift in strategic balance—not by choice but by compulsion. The last section of this article will analyze the possible options for Pakistan considering this impending threat.

The first option would be to follow the Indian example and pursue the S-400 air defense system. However, acquiring the S-400 would be an extremely irrational choice, noting that it is an exorbitantly expensive piece of military equipment and Pakistan would have to spend a hefty sum to acquire it.

Second, Pakistan is either developing or already possesses delivery systems that can counter the threat from the S-400. A milestone achievement of Pakistan was to develop the Ababeel multiple independently targetable reentry vehicle (MIRV),[48] with a range of 2,200km. In March 2017, Lt. Gen. Robert Ashley, US Army, then–director of the US Defense Intelligence Agency, confirmed that Pakistan possesses MIRV technology.[49] Ababeel was one of the projects that took the future strengthening of enemy's defense capabilities into account. Pakistan's MIRV technology with multiple warheads and in-built decoys can exhaust the S-400 and have a substantial impact on its effectiveness.[50] In the future, it is imperative for Pakistan to reinforce this technology to deter India.

Pakistan's indigenous missiles, with multiple stealth capabilities, have the capability to penetrate the S-400. The current missiles such as the Babur cruise missile system, the Raad air-launched cruise missile, and the Ghaznavi, Abdaali, and Shaheen are capable of firing from a safe standoff range and can be deployed to preempt and attack the S-400 system itself.

Babur, which is a nuclear-capable air-, land-, and sea-launch–capable missile with advanced features such as digital scene matching and area co-relation and terrain contour matching, can target even without the navigation of the GPS system, rendering the S-400 across the border incapable of intercepting the missile.[51] In addition, since Babur has a terrain-hugging trajectory and can fly a mere five meters above the ground, it can evade being intercepted by the S-400 by moving undetected by the adversary's radars. Moreover, the shield can also be pierced by using ballistic missiles with very high-altitude capability. Thus, the S-400 cannot impair Pakistan's defensive and offensive capabilities.

Third, the attainment of supersonic and hypersonic missiles is one way in which the S-400 will not be able to intercept the incoming missiles. Hypersonic missiles travel at the speed of Mach 5, which is five times faster than the speed of sound

(one mile per second), which would make it nearly impossible to intercept them. In the future, Pakistan should invest its efforts and resources in this regard.

Fourth, the Pakistan Air Force should work for the improvement of electronic countermeasures to disrupt the radars of the S-400 by employing both active and passive jamming techniques. It needs to invest in developing nonkinetic electronic counter-countermeasures. Pakistan should also resort to missile approach warning systems for its aircraft to mitigate the threat posed by the S-400. Likewise, new training programs should be developed, which involves low flying and new tactics to avoid detection by the S-400.

Last and most important, given the vulnerability of the air defense systems against drones as witnessed in several recent conflicts in Syria, Libya, and Armenia, Pakistan should invest considerably in this technology, as it has proved notably effective in neutralizing various air defense systems. Drones and decoy aircraft can saturate an air defense system and counter its effectiveness, thereby piercing the defense shields. It should look into indigenous development of drones and acquiring advanced drones from friendly states.

Thus, the threat from the S-400 might not be as lethal as it seems. With the help of better training, tactics, and emerging technologies, Pakistan can mitigate the threat from India's new adventure.

Conclusion

The S-400 air defense system has emerged as an impressive technology that has drawn the attention of Indian policy makers. The Indian regime is all set to obtain this technology, despite the fact that the purchase could invoke CAATSA sanctions. However, it is likely that India will be able to get a waiver or some relaxation from the United States, an important strategic partner. The introduction of the S-400 will have significant consequences for regional stability, creating a negative impact on the arms race and vertical proliferation in South Asia. The perceived assurance of invulnerability provided by the S-400 could provoke India to carry out surgical strikes in Pakistan. Likewise, Pakistan will also develop capabilities to counter this threat. Furthermore, the presence of the S-400 will make the South Asian environment prone to conflicts that could escalate and take a dangerous form between nuclear-armed states.

Although the S-400 represents an extremely advanced technology, the advent of new technologies always triggers the development of equally impressive countermeasures. Thus, in the future, there will be several ways to counter the threat posed by the S-400.✪

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FEATURE

The Provisional Air Corps Regiment at Bataan, 1942

Lessons for Today's Joint Force

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We're the Battling Bastards of Bataan,
No Mama, No Papa, No Uncle Sam,
No aunts, no uncles, no cousins, no nieces,
No pills, no planes, no artillery pieces,
And nobody gives a damn!

—Frank Hewlett, "The Battling Bastards of Bataan"

War Creates the Unforeseen

Frank Hewlett would have known an iron law of warfare: war indeed creates the unforeseen—for those in command and on the front lines. As Manila bureau chief for United Press (the news agency known later as UPI), Hewlett was the last war correspondent to evacuate Corregidor during the fateful events that led to the destruction and capture of the men of the Provisional Air Corps Regiment (PACR) on the Bataan Peninsula—one of the US military's great defeats.

During desperate times throughout World War II, troops were compelled to perform actions and duties beyond their training and intended purpose. Ad hoc battalions of sailors and Marines were ordered to carry out raids on land. The Luftwaffe and Kriegsmarine had to fight under unfamiliar circumstances to meet the Allied advances toward Germany from east and west.[1] Before that, Soviet Marines joined Red Army comrades to fend off Hitler's invasion, and Soviet sailors fought to the death against the Nazi invaders despite their lack of training to fight Hitler's SS or Panzers.[2] In the Pacific, when Imperial Japanese Navy units fought US Marines and Army formations at Guadalcanal, Attu, Tarawa, Saipan, Leyte, Luzon, and Okinawa, it did not matter whether the Japanese soldiers and sailors were front-line combat units or construction battalions; everyone was expected to take part in the defense. And at Bataan, American airmen were ordered to move up to the front lines and fight alongside infantry, tanks, and artillery.

Many airmen today have extensive counterinsurgency experience fighting on the ground, calling in airstrikes, and rescuing wounded troops from hostile insurgent strongholds. But there are no incoming aircraft to strafe their positions, or enemy artillery batteries hammering away at their trench lines day and night, or frontal as-

saults by infantry and armor. Supply is not an issue today, as American troops in the field benefit from secure routes of communication, supply, and support. Thus, few airmen today can comprehend the hardship their predecessors endured between December 1941 and April 1942 on Bataan, a tiny peninsula in the Philippines. Many will recognize the American struggle in the Philippines as the "Death March." But that is only the aftermath of a desperate. In the end, a joint American–Filipino force was compelled to surrender, and that is the narrative we describe in this article.

War Plans

Before the war, the United States had multiple war plans, including the Rainbow war plans (the plans for war with Japan were Orange). In 1939, the Joint Army and Navy war plans were approved; Rainbow 4 was the strategy to secure and control the Western Pacific as rapidly as possible and maintain the defense.[3] Under Rainbow 4 in 1941, War Plan Orange-3 (WPO-3) was approved, although it was already outdated. Under WPO-3, "American troops were not to fight anywhere but in Central Luzon. . . . The mission of the Philippine garrison was to hold the entrance to Manila Bay and deny its use to Japanese naval forces."[4] WPO-3 was flawed because the plan called for a tactical withdrawal from Luzon to the Bataan Peninsula by all Allied divisions to establish a series of defensible lines of resistance (LORs), utilizing terrain and concentration to create a headache for any attacking force attempting to push the defenders from the Philippines. A series of island forts was constructed at the mouth of the bay, directly under the Bataan Peninsula. The island of Corregidor would become the HQ for MacArthur and his staff during the campaign.[5] Servicing large shore batteries as large as 14 inches, Corregidor and the surrounding island forts prevented any shipping from reaching Manila by sea and provided significant fire support to Bataan itself. WPO-3 was opposed by many in the Army and Navy. Planners saw the island archipelago as indefensible if invaded by a significant and determined force.[6] Other officers, including General MacArthur, believed that with the influx and training of new Filipino reserve divisions and additional supplies from Washington, he could establish a new war plan that would repel the invaders at the water's edge and undertake a more active defense. The general saw WPO-3 as a "defeatist" plan, and unfortunately the war would come sooner than anticipated. What's more, the active defense of Luzon, and a campaign that would be waged with the understanding that America's full might would be directed toward Hitler and Europe first, meant that MacArthur would start the conflict against the Japanese with one hand tied behind his back. Washington also determined that the defenders in the Philippines, including the Filipinos, were expendable.

During the Japanese campaign to take the Philippines, the United States Army introduced a new fighting unit to its Bataan defense: the Provisional Air Corps

Regiment. This new ground infantry formation was formed from airmen whose jobs were no longer germane to the military situation. Men were drawn from maintenance, ordnance, communications, intelligence, ground staff, and aircrew squadrons. The regiment comprised two battalions: 1st Battalion (Headquarters Squadron of the 20th Air Base Group, 19th Air Base Squadron, 27th Materiel Squadron, 28th Materiel Squadron, and 7th Materiel Squadron); 2nd Battalion (2nd Observation Squadron, 48th Materiel Squadron, Headquarters Squadron of the 27th Bomb Group, 91st Bomb Squadron, and 17th Bomb Squadron). Each squadron represented roughly a company-sized element in infantry terms. This formation was extraordinary in concept and something that American airmen had never been asked to do in mass prior to the Japanese offensive. To understand how and why this formation was created to defend the Bataan Peninsula, we must look back.

On Sunday, 7 December 1941, the six carriers of the Imperial Japanese Navy launched their aircraft for a surprise attack on the US Pacific Fleet at Pearl Harbor. The attack destroyed an overvalued portion of our fleet but failed to locate and destroy the main assets that would determine victory or defeat in the Pacific—the aircraft carriers. As battleship row and the many Hawaiian airfields burned, the Japanese blitzkrieg that followed Pearl Harbor attempted to seize and secure the resources and defense perimeter necessary to maintain the integrity of the empire. On 8 December, across the international date line, other Allied installations such as Guam, Wake Island, Hong Kong, Malaya, Dutch East Indies, and the Philippines were also attacked.[7] As the bulk of the Imperial Japanese Army was bogged down in heavy combat on the Chinese mainland, the task of securing this "defense perimeter" and raw materials would fall to the Imperial Navy.

At 0230 hours on 8 December 1941, Asiatic Fleet HQ in the Philippines received a radio message that Pearl Harbor had been attacked.[8] The Philippines was 18 hours ahead of Hawaii time.[9] The first Japanese aircraft took off to hit Davao on Luzon from the light carrier *Ryujo* at 0400 hours.[10] At 0500 hours, Gen. Lewis Brereton, commanding general of all Far East Air Forces (FEAF), the largest concentration of American aircraft outside the continental United States, requested permission to launch his B-17 squadrons against Japanese air bases on Formosa (Taiwan). Gen. Douglas MacArthur's aid, Gen. Richard Sutherland, told Brereton that MacArthur did not have time to see him.[11] At 0900 hours, Brereton launched his available B-17s to conduct naval reconnaissance to spot any potential landings by the Japanese, the only course of action he could take to get his air assets off the ground to avoid being attacked while sitting on the tarmacs.[12] Unfortunately for the FEAF, the launch of the B-17s at this time would be based on false alarms; the main Japanese attack on Clark Field would not arrive until 1245 hours that day, just as the bombers were being refueled and respotted.[13] Nearly 10 hours and 15 minutes after being notified

that the United States was at war with Japan, General MacArthur had failed to appreciate one of the most important principles of modern warfare: time. The advantage in the coming struggle had been lost. On the morning of 8 December, the FEAF possessed roughly 277 aircraft.[14] By early afternoon, this robust force was diminished to a shadow of its former self while inflicting acceptable losses to the Japanese attacking force. The American forces in the Philippines had effectively lost air superiority due to MacArthur's lack of action. The loss of air supremacy so early in the campaign would prove to create an even more untenable situation for an already doomed defense. Herein lies the origins of the PACR and the situation that required its formation as a ground combat unit.

WPO-3 as a concept may have looked well constructed on paper, but in reality it was far from effective. The first brigade of 3,000 Japanese troops landed on Northern Luzon at Aparri and Vigan.[15] These initial landings received little opposition from Gen. Jonathan Wainwright's Northern Luzon Force. With the loss of critical air cover to attack landing forces, incoming convoys, and enemy aircraft, the situation quickly spiraled out of control. MacArthur's strategy for an active defense had stalled, and after two weeks of what must have been considerable internal debate and careful calculation, he decided to call for all available units to fall back to Bataan and establish and hold a series of defense positions until relieved. The lull in allowing subordinate corps commanders to take necessary actions to properly prepare the defenses and logistics required to hold Bataan according to plan had been cut short. Massive amounts of food stocks, ammunition, medical supplies, and other material needed to be transported from locations across Luzon and the rest of the Philippines to the peninsula.

This large and complex logistical operation also required that most valuable asset in military affairs: time. With the loss of air superiority or even having a properly contested airspace above the battlefield, the Allied troops faced overwhelming odds. Several large delaying actions were needed to block the masses of Japanese units landing at multiple points on Luzon's endless coastline. From Northern Luzon to Lingayen Gulf, the Japanese landed and advanced, squeezing the Allies and pushing them back farther and farther. This great withdrawal is another key moment to consider for the formation of the air regiment we are looking back on in this article. The men who formed the PACR would be forced to travel the packed roads of troops, trucks, and Filipino civilians back to Bataan to defend themselves while undermanned and undersupplied. Engineers painfully awaited orders from commanders to blow a bridge, knowing that a friendly unit was just up the road, across the river, holding back the tide of Japanese troops to buy precious time for retreat. When the order was sent down to destroy the bridge, many of these Allied units were cut off and could no longer retreat. The men re-

treating to Bataan were aware of the necessity and held tight to the belief that the US Navy would soon charge to the rescue at the last moment. This hope of eventual relief and reinforcements ensured by General MacArthur would also seep into the ranks of the PACR as they began to experience ground combat on Bataan.

The Beginning of the End

With the war on and the Japanese actively attacking US forces in the Philippines, logistical and manpower issues became evident immediately. During the first air raids by the Japanese, barely anyone could receive medical attention before the next round of Zeros would come in to finish off anything moving or shooting.[16] Pfc. Lee Davis, a future PACR member, and 2d Lt. John Posten, a pilot with the 17th Pursuit Squadron, recalled that aircrews and maintenance workers on the airfields would take cover under anything available. Fuel trucks and containers were the first targets to explode, leaving the ground covered in charred bodies.[17] Although most of the aircraft on the ground were destroyed by bombs or bullets, some pilots would still try to take off to defend the airfields. Lieutenant Posten stated that, even though he was able to take off his P-40 Warhawk, eight other aircraft were lost on the strip.[18]

A month later, at the beginning of January, US forces were ordered to leave the airfields; the Japanese were pushing through Lingayen Gulf, so the aircraft, food, and supplies that could be taken to Bataan were burned.[19] Across the forces retreating to Bataan, such decisions would only exacerbate the logistical issues and starvation that haunted many troops later in the war.

Early Reflections

One of the most important lessons to draw on from the beginning of this campaign is the loss of air supremacy. To lose control of the air is a painful experience to those who must fight it out on the ground. When a military force controls the air, it also holds an important tactical advantage against enemy ground forces. To control the air is to control all who dwell underneath. The failure to adhere to available signal and physical intelligence and take decisive and swift action was the first blunder for the United States Army Forces Far East (USAFFE). In fact, Japanese reconnaissance aircraft had been spotted over Luzon as early as 5 December![20] This observation should have triggered a maximum alert combined with the war warnings that Washington was sending to all US outposts. Had the information confirmed at 0230 hours on 8 December been acted on, and had the commanding general acknowledged the necessity to meet with his primary air commander in the region on urgent request, we might have seen a different start to this "second Pearl Harbor."

As events unfolded, General Brereton continued to ask throughout the early morning on 8 December for permission to at least conduct a reconnaissance flight/sortie of the Formosa bases to update his crews' target folders, but he was further delayed. It is fair to say that, short of violating orders, Brereton did all he could to try and launch the FEAF to make an early impact, but MacArthur did not appreciate the urgency. The FEAF, after being notified, could have launched a strike on the Japanese airfields on Formosa just as the fog lifted later that morning over the island. Some Imperial Japanese Army Air Force (IJAAF) aircraft, runways, ammunition, and support facilities could have been knocked out early in the campaign. Allied dispersion airfields that were unknown to the Japanese planners could have been utilized to recover the B-17s after a first strike on Formosa. The large B-17 force in the Philippines could have been preserved for a longer duration of this battle, rather than suffering the fate of being struck on the ground and rendered useless due to lack of preemptive action taken by MacArthur.

The failure to decisively release the airpower under MacArthur's command was not the only initial mistake made in December 1941. Due to the known Japanese assault on multiple heavily contested regions of the Pacific, any staff would have recognized that the Imperial General Headquarters could not afford to send an overwhelming mass of forces to the Philippines for an initial assault.[21] The Allied forces in the Philippines were anything but an offensive force, and the reserve Filipino division lacked modern equipment and a standard language to communicate, therefore making them an inferior force compared to the Japanese. Oftentimes, officers and enlisted personnel could not understand each other due to the multiple languages spoken on the islands.

The failure to pick a plan and stick to it is relevant as well. If the generals on the Philippines had been more proactive during the early morning hours of 8 December—with the clear understanding that the United States had been attacked by Imperial Japan—the forces in the Philippines could have begun unloading the warehouses and deploying all units to Bataan. Food stocks could have been organized, ammunition and supply stationed properly, and the refugee crisis diminished with an orderly and smooth transition to the peninsula. All these actions could have taken place with time to spare. Full units with intact formations would not have had to sacrifice precious lives and materiel holding back Japanese advances at the last moment. An aggressive attitude by the air forces and the relocation of all ground forces combined could have created a serious headache for Gen. Masaharu Homma, the Imperial 14th Army commander, and his troops. Homma knew that his timetable for taking the Philippines would not rest solely on his ability to take Manila. That objective would be a breeze, as MacArthur decided not to defend it. If any Filipino units were to be used before the Bataan defense,

it would be in Manila. A city battle would be the last entanglement that the Japanese would desire to tackle while attempting to concentrate on the multiple Allied corps placed in well-prepared defensive positions along a narrow front and a defense in depth with strong interior lines.

This scenario, however, was only a fantasy in hindsight. The decisive actions needed to be taken according to the war plan had been scrapped for two weeks and then reinstated. On 24 December 1941, MacArthur had changed his mind and committed to the defense of Bataan. MacArthur was trapped by his vanity, and his inability to estimate the combat potential of his adversary would cost him his garrison and the Philippines.

The men of the PACR would now be placed at the front to fight the Emperor's soldiers face to face. With the loss of the majority of USAFFE airpower, either destroyed or on the way to safety in Australia, the men of the air corps were left without a job and no aircraft to support. Once behind the first defensive line on Bataan, the Mauban–Abucay Line with a volcano at its center, the PACR began field training as infantry. Some men in the air regiment had been prior infantry or combat branch personnel before service in the Air Corps, which would soon come in handy. There would be two corps-sized units operating in Bataan: I Corps under the command of General Wainwright, and II Corps under Gen. George Parker. The PACR would be under the jurisdiction of II Corps on the eastern side of the Bataan front. These two corps would take direction from General MacArthur, stationed in his bunker on "the Rock" (Corregidor Island). It must be appreciated that the general officers on Bataan spent much of their time at the front or close to it. General Wainwright was famous for directing troops while under heavy air and artillery fire. During the retreat to Bataan, Wainwright's Northern Luzon Force held the line against Japanese assaults as General Parker's Southern Luzon Force made the long and difficult journey to Bataan from south of Manila.

Formation of the PACR

Airfields were few and hastily constructed on Bataan.[22] The few remaining aircraft, including a few beat-up P-40s provided the main air cover for the defenders. The airfields were located at Pilar, Orani, Cabcaban, Bataan Field, and Mariveles.[23] Available aircraft support personnel were far in excess to theater requirements. For example, a full squadron of A-24 Banshee maintainers, ordnance specialists, and aircrews had arrived in the Philippines before their aircraft could be flown to the islands in time to meet the Japanese attack.[24] By 6–7 January, all available units had successfully withdrawn to the peninsula to set up the first line of defense. The Japanese were slow to pursue the Allied positions and did not make contact with the main LOR until 9 January due to a lack of concentration,

as many other Japanese units were still en route after securing other sections of Luzon. The initial LOR was referred to as the Abucay Line but was quickly broken and reestablished farther south. The second and more permanent main line would be referred to as the Orion–Bagac Line and extended across the peninsula from east to west with a volcano at its center. Meanwhile, behind the II Corps sector on the western end of the line, the PACR was under initial formation.

2nd Lt. John Posten, the fighter pilot with 17th Pursuit Squadron, recalled the start of the PACR, stating that some of the best crew chiefs (all enlisted men) now had to be a part of squadrons that would make up infantry units.[25] Cpl. Fred Gifford from the 21st Pursuit Squadron mentioned that he hated being in the Army as an infantryman.[26] The 21st and 34th Pursuit Squadrons early on were tasked with flushing out an entire division of Japanese, but instead they were stuck and had to retreat, forced to give up ground while taking heavy losses.[27]

As the PACR trained for ground combat, it was frequently interrupted by attacking aircraft, a result of the miscalculations early in the campaign. Advanced infantry training is a very difficult course for modern US military personnel to complete, not to mention while under constant air and artillery fire while learning the realities of the front. The regiment was officially formed on the night of 8–9 January outside Barrio Bilolo, 2 kilometers west of the town of Orion. They were assigned to take positions along the II Corps front, specifically a 2,000-yard section codenamed "Subsector B."[28] On their flanks would be Filipino army elements with the US 31st Infantry Regiment in reserve to plug any holes or to check infiltration of the lines by the Japanese.[29] The prepared defensive positions were well constructed with clear and interlocking fields of fire located on terrain at the foot of rising ground that merged into a rice paddy.[30]

Their weaponry consisted of a hodgepodge of available arms taken from crippled bombers and fighters along with assorted small arms. The standard World War I–era Springfield 1903 bolt-action rifle was a mainstay, along with Tommy guns and BAR light machine guns. Air-cooled machine guns and jerry-rigged .50-caliber aircraft machine guns were fitted into defensive positions and on several vehicles. They had outdated World War I pineapple grenades, and some men were able to trade their cigarettes for a precious new weapon, the M1 Garand, from the Philippine Scouts.[31] Uniforms consisted of Air Corps variants with the occasional flyer wearing a flight jacket or cap. World War I–style pot helmets were standard during the Bataan campaign as well. Many do not remember that the standard-issue helmet worn by US personnel when World War II broke out was of relic design and resembled those of our British and Commonwealth Allies. The regiment had no antitank weapons available and relied on the 192nd or 194th Tank Battalions to come to their relief when Japanese tanks broke through. The

US forces also possessed several M3 gun motor carriages (half-tracks), mounting a 105mm gun on a fixed chassis that could knock out armor when employed properly. These limited armored formations were held in reserve for both corps fronts to react to any breakthrough and provide an antitank capability, which all units along the LOR would need at some point during the campaign.

The approximate strength of the PACR for front-line duty ranged from 1,000 to 1,400 personnel, with some squadrons being recalled to the rear airfields to perform their primary functions as air support personnel. Capt. John S. Coleman, commander of the 27th Materiel Squadron, described his men's equipment and tactical situation when he stated: "We had 163 men of which an average of about 100 were on the front lines near Orion. We had about 44 back at PNAD [Philippine Air Depot], some on crash boat crews, some driving half-tracks, and tanks. We had on the frontline 3 machine guns, of which 2 were water cooled Browning's and one marlin machine gun. We had two BARs; the rest of the enlisted men had .30 caliber rifles and officers had one pistol each. We had 2 grenades each. Some carried 4 each on patrols. The first battalion had about 34 machine guns. About two-thirds of them were machine guns taken off wrecked airplanes, of the .50 caliber class and were too heavy to carry around. Most of these were in front-line trenches and offsets well concealed and fortified by sandbags and sod."[32]

Throughout the beginning of the PACR's front-line duty, technical advisers from the US 31st Infantry were spread throughout the squadrons to assist in developing fighting skills and preparing defenses.[33] Along with their barbed-wire entanglements and prepared defensive positions, tin cans were secured to the wire in order to trigger the presence of oncoming Japanese infiltrators at night (flares were in short supply). The PACR positions were bombed daily by dive-bombers such as the Ki-30 Ann and Aichi D3A Val, which were consistently striking the lines and producing casualties.[34] As bombers roamed at will without any presence of Allied aircraft to interdict their strikes, the morale of the regiment diminished. On 28 January, the regiment was called for main front-line combat duty when the 51st Filipino Division disintegrated and a large Japanese force began to infiltrate along the left flank of the II Corps line. The PACR filled the gap, cut off the infiltrators, and restored the line. Some units of the regiment were withdrawn to the rear of the line to conduct offensive combat training, due to speculation that a relief force was making its way to the Bataan Peninsula.[35]

This further exemplifies the lies told to the troops fighting tooth and nail to hold fast and await a rescue that would never come. President Franklin Roosevelt, General MacArthur, and rumor intelligence continued to provide false hope of rescue, but this hope gradually faded as the men on Bataan grew more aware of their doomed situation. The regiment's morale slightly increased when a convoy

with .50-caliber machine guns shot down two dive-bombers. However, this small victory would not clear the skies above or stop the bombing.[36] Other than patrols, antiair activity, and static defense, the regiment settled in for a siege. The Japanese did not launch any air attacks on the line at night, which helped morale and the ability to get some sleep.[37] If this brief period of rest had been interrupted, as with the Marine and Army units on Guadalcanal more than a year later, the men's ability to function and maintain their sanity would have decreased.

Starvation and One Final Stand

On Bataan, the PACR and the other forces defending against the Japanese were not only undermanned and undersupplied but also faced starvation. By January, all personnel were placed on half-rations, and in March this amount was reduced to quarter-rations. Their daily two slices of bread were no longer available, and the calories fell well below 1,000 daily.[38] Two 1-pound cans of salmon were issued to a group of more than 100 men at a time, and sugar was rarely available at the amount of 2 pounds per squadron.[39] The men crafted substitutes for their coffee, such as dried leaves of the mango trees. Some Clark and Nicholas Field personnel had brought stocks of canned and perishable foods to Bataan, but those were confiscated by the Quartermaster Corps in January to be redivided among the garrison. These food stocks were never seen again. It was rumored that rear-echelon and commanding officers were eating better than the front-line troops, and PACR troops sometimes passed out in the chow line due to malnutrition. Many diseases such as malaria, scurvy, and beriberi took root in the ranks and severely diminished the ability to defend positions. The CO of the 27th Materiel Squadron described his squadron's combat readiness, reporting that every man but one had malaria before the surrender; only 47 men were able to walk when surrender came due to starvation and malaria.[40] Some units issued patrolling troops with one sandwich per man for 36 hours.[41] Sometimes when the artillery and air attacks became intense, baby monkeys would scurry into the men's fox-holes. Many of these monkeys were eaten out of desperation, but many men found it impossible to eat them due to their humanlike appearance at that age.[42]

Malnutrition was destroying the fighting strength of the PACR troop as well as the garrison on the peninsula. General Parker, the II Corps commander, on 15 March reported that his combat efficiency was at 20 percent. Antimalarial drugs such as quinine were quickly becoming unavailable, and overall medical care for the wounded was below standards, with many wounded men who, under normal circumstances, would be evacuated took their place back in the lines. As March arrived, Gifford of the Philippine Army and Posten recalled that the food situation was now at its worst.

The men had resorted to eating monkeys and even lizards. Many reportedly were too weak from hunger to fight or fly.[43]

The month of April 1942 marked the beginning of the end for Bataan's defenders. Bataan was on its last levy, and the Japanese blitzkrieg down the peninsula began pushing them closer and closer to the shores of Manila Bay.[44] Airmen acting as infantry had to conduct a fighting retreat not only through infantry but also armor and air forces. This retreating action lasted three days, and the Provisional Air Corps Regiment heroically broke out of pending encirclement. But this small feat of American stubbornness by unlikely soldiers would not produce a different outcome. On the morning of 9 April, Gen. E. P. King Jr., without the blessing of General Wainwright, ordered all Allied forces on Bataan to surrender, although Corregidor still held.[45] After hearing of the surrender, General Wainwright sent a cable to President Roosevelt, stating "I have done all that could have been done to hold Bataan, but starved men without air support and with inadequate field artillery support cannot endure the terrific aerial and artillery bombardment that my troops were subjected to."[46]

The Death March

When Americans think of the Philippines during World War II, they normally refer to the Bataan Death March as if it were the only source of knowledge associated with the fall of the garrison, but this article explores more than the horrors following the Allied surrender. The only situation worse than the five-month campaign was what followed the men who had thought they lived through hell. Upon the surrender of General King, General Homma and the leadership of the Japanese 14th Army assured the American general and his staff that they would be treated humanely by their captors. The orders from Homma's General Headquarters, however, would not be carried out by the lower levels of command responsible for transporting the roughly 75,000 prisoners north into central Luzon. Many of the lower-level commanders allowed their soldiers to act with extreme brutality against the American and Filipino prisoners.[47] To surrender in Japanese culture was to bring dishonor upon yourself and your family. The way of the warrior (the Bushido code) did not allow the soldier to fall into enemy hands, and to the Japanese such men were a disgrace. American troops had not faced a surrender to the Japanese before this moment and found out the hard way what would happen to them and other Allied troops who decided to surrender to the Imperial Japanese military, which for years had been brainwashed to take their ancient Samurai traditions to the extreme.

Men were forced to march with little food or water and subjected to Japanese troop columns thundering south while laying siege to Corregidor and the final

American holdouts. Along the road, crowds of Filipino civilians would stand on the path and toss the Americans water and food, but when the troops would reach for them, the Japanese guards would shoot or bayonet them. They would be subjected to moments of sheer terror as men who fell out of line due to extreme exhaustion, thirst, or hunger would be killed by the Japanese. There were many accounts of Japanese troops riding on trucks or tanks laughing with their swords and bayonets out as they traveled along the road, slicing into the dazed prisoners as they shuffled north.[48] Thousands of Americans and Filipinos would die on the march, and many more would perish in captivity from hunger, disease, and brutality. The mentality of the soldiers can only be described by someone who lived it. Staff Sgt. Alf Larson told his story: "One the march started, everything just sort of froze in my mind. I was pretty numb the whole time. I didn't think and I didn't feel. I was like a robot and just kept moving. Other than daylight or dark, I lost all track of time. I had to blank everything out and focus straight ahead. I lived from day to day, in fact, hour by hour. The only thing I thought about was the moment and 'The good Lord willing, I'll get through the day."[49]

The men of the PACR who remained alive after the desperate fight on Bataan would endure this road of death alongside their Navy, Army, Marine, and Filipino comrades. Another account of the march from Cpl. Hurburt Gater of the 200th Coastal Artillery mentioned that "[o]ccasionally, a Jap would run out and hit one of us with his rifle. No one slept."[50] Canteens were taken from the men and sometimes used to beat the already old, weak, and sick military forces or civilians in the Death March. Each morning, everyone would be woken up to start marching; the Japanese soldiers would order the weakest to start in the front of the two columns, and as the day wore on those at the front would drift to the back. Some of their comrades would try to hold them in the middle, pushing them along, because if they reached the back of the line and could no longer walk, they were shot on the spot.[51]

Concentration Camps

After the Death March, many of the forces still alive were kept in concentration camps; there the men would have to learn how to survive and scrape by until either death or liberation. One of these was Camp O'Donnell, a former American airfield. There, Americans were stripped of everything they had. One US officer possessed a Japanese fan, which he was accused of stealing; he was then given a death sentence for stealing items off of dead Japanese. Those who remained at Camp O'Donnell were put to work; one, Pfc. Andrew Aquila, was placed on graveyard duty. Aquila reported a death rate of 40–50 people per day; 1st Lt Mark Herbst stated that on the Filipino side 100 were dying each day, as they were called out as traitors by the Japanese.[52] In order to survive the killing and disease, many volunteered for detail work.

Capt. Theodore Bigger was placed on detail to rebuild bridges that the Americans destroyed when retreating to Bataan.[53] Hard labor and volunteering for detail duty was one of the only ways to survive the hardships while waiting to be liberated. Anyone caught trying to fight or run suffered grave consequences. TSgt. James Caire and Captain Bigger recalled how one man successfully escaped. On 11–12 June, the prisoners heard that Japanese soldiers were shot, and one man escaped, and for this action the Japanese soldiers rounded up 10 other men who worked alongside the escapee, stood them in front of the other prisoners, and shot them, stating that for every one who escapes 10 will die.[54]

Another POW camp was located at Cabanatuan City. There, prisoners heard of the 10 men executed at Camp O'Donnell. Much of the same treatment occurred at Cabanatuan, but Private Aquila reports that many had to deal with dysentery and malaria while enduring hard labor. Some of the men would even crawl under the huts and die in the excrement. Others learned to survive by trading within the camp. Due to the unsanitary conditions, rat colonies were plentiful, and Sgt. Forrest Knox recalled that men would collect rat carcasses to trade for cigarettes; some men would eat the rats to prevent starvation.[55]

Many would later be packed like sardines into the dark bowels of "hell ships" bound for the Japanese home islands or Taiwan. Many of these ships would be mistaken for regular transport ships by American submarine wolf packs and sunk during the journey.[56] Many POWs did not survive the rest of the war.

They had been left behind, but they had not been forgotten. On 9 January 1945, MacArthur would return to the main island of the Philippines, which he had considered home for most of his professional life. Nearly three years after their capture, the few survivors of Bataan and Corregidor would be liberated—and not a moment too soon. Militarily, the invasion of the Philippines defied the strategy MacArthur had used in campaigns throughout the Southwest Pacific, but for him the liberation of the Philippines was personal. The need to redeem himself for his initial failure and the presidential-ordered escape from his situation took precedence over the more efficient Central Pacific strategy of island-hopping and the isolation of large pockets of Japanese forces by cutting off their supplies. The liberation of the Philippines was not a linchpin in the surrender of the Japanese home islands, as were the losses of Tinian, Guam, Saipan, and Iwo Jima. This time, Manila would not be spared; it would be engulfed in a desperate and fanatical defense that mirrored Stalingrad.

Legacy and Heritage

The story of the Provisional Air Corps Regiment is one of desperation and heroism. The airmen who performed their part in America's attempt to hold fast in the

face of overwhelming odds should be a moment celebrated across the United States Air Force today. Maintainers, aircrews, communications, munitions, signals, intelligence, and staff personnel of all types picked up a weapon and went up to the line. It was a moment rarely experienced by Americans and was one that likely will never happen again—but the possibility never fades completely away. This regiment must be remembered, and lessons provided to us by these men's actions must not be lost to history. The PACR will go down as a unit that fought a much better equipped and experienced enemy, but the overall campaign for Bataan and Corregidor should be studied intensely by future joint force air war planners. Never in our history has the lesson of controlling the air been so well instructed.

Lessons

Today in the Pacific we can observe the capability of the People's Republic of China (PRC) to present the Allies with the problem of defending the sovereignty of a vast area far from American shores. The first advantage lies with Beijing and time is with the People's Liberation Army (PLA) if it attempted to achieve President Xi Jinping's stated goal of reuniting the Chinese mainland with the free and democratic Chinese Nationalist bastion of Taiwan. The first 12 hours of any move by the PRC to achieve that reunification will be decisive in the determination of the outcome. Learning from MacArthur's hesitation, the US reaction would have to be swift and determined. Hesitation due to lack of political will and domestic political divisions could create a disaster. During the decisive first 12 hours, the United States would have to respond with any allied forces in the Pacific as well. Like the Filipinos assisting the Americans in World War II, a twenty-first century conflict would require the South Koreans, the Japanese, the Australians, and possibly the Filipinos to come together to face the Chinese adversary. Assets that are deployed far from the arena of battle will be required to respond as quickly as possible to repel or stem the crossing of the Taiwan Strait by the PLA and Chinese navy. Air supremacy would be contested in a way not experienced since World War II. The few main US air bases we possess within range of the first island chain are pretargeted and could be hit and neutralized on the first day of battle. The Chinese can also opt to avoid direct combat with the United States and its allies if they chose not to strike our bases first and only assaulting Taiwan. This would be their best chance of causing maximum hesitation among the Americans, because, unlike the Imperial Japanese, the PRC would not gift a Pearl Harbor first strike to unite American resolve. If the United States attempted a relief expedition to Taiwan, the PRC could redirect reserve assets to strike forward bases as well as naval assets making their long voyages across the Central Pacific and into the Philippine Sea. Many new technologies would be tested for the first time in a near-peer conflict.

War is a contest of wills and is never certain. In a war that includes multidomain capabilities, full-spectrum dominance is never guaranteed. There are great powers with the political will to compete, contest, and conquer to achieve geopolitical interests. To prepare for the conflict before the worst-case scenario is crucial, especially in the Pacific theater. Air defenses and multidomain defense and capabilities do not begin and end with basic security forces and basic air defense systems. In the twenty-first century, to prepare for such a conflict the United States should integrate forces with joint operations and equipment plus combined multinational forces. Air bases as well as strategic domestic installations should possess all means necessary to sustain operations in a near-peer environment. This lesson comes from the Philippines directly: the US forces on Bataan and Corregidor did not have the necessary equipment to endure a long conflict and instead ran out of supplies. Instead, the United States should dedicate resources such as surface-to-air missiles, antimissile defenses, and counter-UAV operators so that coalition bases can defend against complex attacks in each domain, which is what can be expected from the Chinese adversary. To balance the scales, a multinational coalition in the Pacific needs to be formed; combined air defenses should include the most advanced and capable systems to avoid a worst-case scenario in the Pacific theater.

In the Pacific, misinterpreting intelligence, or disregarding intelligence to sustain the status quo, can create the very worst scenario. As in the Philippines and at Pearl Harbor, we may fail to identify clear signs of a buildup due to a lack of acceptance that the unthinkable is really taking place. Beijing might bet that the West has no stomach for a high-end fight or is unwilling to spend lives and treasure necessary to decisively contest the battlespace. Miscalculations can lead to a war that neither side wants and can cause unintended disasters that no side could foresee.

If a worst-case scenario takes place, the air bases that provide the first line of air assets in response would be subject to attack from cruise missiles or amphibious assaults. This seems characteristically outrageous to contemplate; however, one mistake that is regularly made in war planning is not believing that one's opponent will act within your own parameters of what you believe possible or likely. If air bases and installations are attacked by a conventional force, the support personnel at those locations must be willing and able to supplement the defense of their positions to hold until relieved. Of course, the battles on Bataan are an extreme case, but history has a nasty habit of repeating itself. Only the names, dates, places, and technologies change. The nature of war remains the same. However unlikely it may seem, the senior airmen working the flight line at Kadina may find himself or herself loading an M4 rifle or manning a 240 machine gun on a line next to the local Marine Detachment as PLA Marine Corps units move across the tarmac. ✪

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Changing Political Dynamics in South Asia

The Belt and Road Initiative and Its Effects on Indian Regional Hegemony

Virain Mohan

Abstract

India's dominance in South Asia is due to its large geographical area, economic might, military strength, and strategic positioning over the Indian ocean. But the coming of China's Belt and Road Initiative (BRI) has shaken up this hegemonic balance and given other, smaller regional nations a chance to rise up against the dominant influence in the region. China has been penetrating regional diplomacy in South Asia, all the while keeping in mind its larger aim of further securing its sources in the West. For countries in the region such as Bangladesh and Sri Lanka, the BRI is seen as a more neutral, if not benign force and has pushed India to become more considerate of changes and more responsible for its own actions. With the rise of China, many scholars and think tanks have aggressively researched this issue and proposed theories such as the "String of Pearls," which has become a topic of discussion and worry not only for India but also for the nations that have become a part of China's projects. This article will delve into the issue and discuss how China's rise in South Asia has changed the course of India's regional and bilateral policies and relations. Although China may seem to have a drastic impact on India's position, it has not panned out that way. India has been a dominant power in the region and unilateral in its diplomacy, but the rise of China gives smaller nations power at the negotiating table with India and thus pushes India to place more focus on neighbors.

Introduction

China initiated the BRI in 2013 when Chinese president Xi Jinping officially visited Kazakhstan. BRI is considered to be the cornerstone policy of the Chinese Communist Party's economic policy and is aimed at strengthening China's ties with the globe through the expansion of infrastructure, policy, and cultural ties. The goal to achieve connectivity has been both land- and sea-based, namely the Belt (i.e., land-based) and the Road (the so-called Maritime Silk Road). The Maritime Silk Road aims to connect China to the North Sea, linking Singapore,

Malaysia, Sri Lanka, Djibouti, Suez Canal, Turkey, Greece, and Italy in between. Through this connectivity, China aims to not only connect itself to its oil sources in the West[1] but also to effectively counter its drawbacks in South Asia and Southeast Asia; front-burner issues include the presence of US and Indian troops in the Indian Ocean, fear of a blockade of the Strait of Malacca (through which passes most Chinese imports), and piracy in the Indian Ocean threatening China's mercantile business.[2] This region plays a huge role in the BRI project, and China has initiated massive plans enabling China to connect to the Indian ocean, minimizing the threats posed. These include the China–Pakistan Economic Corridor (CPEC), Gwadar Port, the Rahim Yar Khan Power Plant, and various wind, solar, and coal power projects in Pakistan, as well as Hambantota Port, the Norochcholai Power Plant, and the Colombo Port City project in Sri Lanka along with various other projects in Myanmar.[3] China has pulled smaller nations such as Nepal, Bangladesh, and Maldives into its orbit of influence as well, targeting their fear and insecurities regarding India and a lack of international funding to enable and support their economic growth. India's neglect of smaller nations' demands, both political and economic, have been sidelined for a long time. These nations are now part of the BRI and have been promised massive funding under its banner; some have already received billions of dollars of investment to fund infrastructure projects. But the funding came with drawbacks, such as massive debt on loans, increased Chinese bureaucratic influence, high interest rates, various labor and working rights issues, as well as, in some cases, complete takeover of ports and land to counterbalance increasingly negative trade imbalances.[4] Despite these challenges, politicians in the debtor nations have advanced relations with China as the most viable and/or logical partner against India as well as to maintain standing in the economic development race. China has thereby been able to grow its influence over smaller South Asian countries to support its aims and to counter India. As for Indian foreign diplomacy, we see a change in the decisions taken by the current ruling government. India has started to look at neighboring nations, especially in the East and South East, to expand its influence, as is evident in its Look East policy, the Bangladesh–Bhutan–India–Nepal initiative, and the "Neighbourhood First" and other funding projects that India has established individually or through partnership with nations such as Japan and the United States.[5] We next begin to look into the multipolar aspects of policy changes and diplomatic exchanges resulting from the increase of Chinese influence and interests in the region among the affected countries of South Asia, India, and China.

Chinese Foreign Policy Initiatives and India's Responses

The BRI in South Asia aims to build economic partnerships and fulfill geostrategic ambitions. After 2013, Chinese investment and other diplomatic strategies gained ground among Indian Ocean littoral nations. Chinese authorities developed mechanisms to create cultural and economic links, boosting China's aims and image.

Pakistan

China's relations with Pakistan have been the most notable. They signed a memorandum in 2013, a landmark agreement for long-term planning and development of CPEC, the BRI's flagship project. It is one of the six branches that serve China's aims and aims to give China access to the Indian Ocean through the construction of a 3,000km pipeline with road infrastructure. The access to Gwadar Port will put China just 400km away from the Strait of Hormuz and would link Xinjiang to the Indian Ocean. Apart from serving trade and commerce, the base could provide naval support to Chinese forces in the region and help China secure its sea lines of communication, as well as counter the so-called Malacca Dilemma and Indian and US troops in the region.[6] The projects have also brought worry for Pakistan's politicians and bureaucracy, as the debts to China keep mounting and resulted in the speculative "Dept-Trap" diplomacy, a tool utilized by lending nations to burden borrowing nations with huge dept so as to influence its internal and external affairs.

However, bilateral relations have remained strong since 1951, when diplomatic relations were established. China and Pakistan have backed one another in international disputes. Relations hardened with the advent of the BRI in Pakistan. Increased Chinese interventions in the disputed region and the Indian Ocean caused India to pay greater attention in the region, with the development of Indian naval capabilities to protect Indian interests.[7] The increased cooperation has also resulted in US concerns, not only regarding Chinese activity but also the significance Pakistan plays due to its strategic geographical position.[8] China tried a counterbalance strategy, supporting Pakistan through political, military, and economic fulfillments while trying to allay India's suspicions by offering antiterror cooperation.[9]

India worries about the repercussions that could follow its rivals' coordination in areas of interest to India. China's BRI passes through Pakistan-occupied Kashmir, and China's construction activity threatened India's sovereignty. China and India have many conflicts on its long borders, adding to mutual discontent among populations in both countries. Pakistan and India also have disagreements and refuse to solve mutual conflicts, even though the United States and China would

like to see peace and stability in the region. Pakistan's foreign policy aims to relieve some of this tension and enmity, if one is to believe Imran Khan, the current elected prime minister of Pakistan. Moreover, Pakistan's military has a propensity of exerting intervention into Islamabad's external political affairs, and terrorism emanating from Pakistan's territories has frequently thrwarted efforts to calm simmering conflicts.[10]

Pakistan has taken a positive attitude toward China, the BRI, and its foreign policy despite harsh allegations over how Chinese investments function in the country. The International Crisis Group reported discontent among local populations from regions such as Balochistan and Sindh, the fruits of the investments have not trickled down. The vast amount of raw materials being mined, the huge number of illegal Chinese laborers being granted work permits, and the displacement of communities have created resentment.[11] Also, Pakistan has a $62 billion debt to China, causing not only Pakistan but other international players to worry. Pakistan has no other option but to take loans from China.[12]

India–Pakistan relations have not seen drastic changes as a direct result of the BRI and Chinese intervention. India has always been critical of Pakistan and vice versa, but Chinese investment in Pakistan creates reasons for worry in India. The ruling government there shows no desire to mend relations in light of issues such as the Pulwama attack and the eradication of Article 370. The attack at Pulwama, by a suicide bomber, was one of the deadliest against the Indian military, killing 40 military personnel on the Jammu-Srinagar National Highway. Responsibility owas claimed by a Pakistan-based terrorist group, Jaish-e-Mohammed, adding to the anger. The eradication of Article 370 in the Indian constitution, which gave special status to the region of Jammu and Kashmir, meant that India now had more administrative control over the region, adding to Pakistan's resentment. Relations have soured as a result of these events, with no clear resolution on the horizon.

Sri Lanka

Sri Lanka has also received massive funding under the BRI. Sri Lanka provides China various naval capabilities to function in the Indian Ocean. Sri Lanka's geostrategic location and its geographical terrain provides China the ability to make deep seaports for docking heavy and large ships and easing the passage of Chinese mercantile ships through the region.[13] As another benefit, the Sri Lankan port could function as a checkpoint between China and its source nations in the West, and China's plans to set up oil refineries in Sri Lanka could bolster that goal. China has also funded the Colombo Port City and other infrastructure projects to the tune of almost $15 billion.

The debt trap is an important issue (as it is in many other nations taking BRI funds), but recent studies have shown that only 5–6 percent of Sri Lankan GDP is owed to China, comparatively much less when taking into account that its other external debts owed including bonds (18 percent), multilateral lenders (6.3 percent), and bilateral lenders (6.3 percent).[14] The decision to lease ports and giving up land on a 99-year lease resulted from Sri Lanka's foreign reserves falling too low, as well as the fact that China was the only lender that could provide Sri Lanka the type of investment it desired. Many Chinese BRI projects have been unable to produce results promised, and, until recently, statistics associated with projects such as Colombo Port City and Hambantota Port have been left out of analyses altogether.[15] All of these issues combined create an atmosphere of concern for India.

Relations between India and Sri Lanka have not been ideal since India's intervention in Sri Lanka in the 1980s, when India deployed peacekeeping force. Although India wanted to resolve the issue within Sri Lanka (which also affected the southern regions of India), things got out of hand and India had to withdraw its forces within two years, creating a rift. India's attempts to fulfill its objectives in Sri Lanka have been seen as leading to instability. And Sri Lanka politicians have always criticized the bossy nature of Indian politicians,[16] with allegations from previous presidents such as Mahinda Rajapaksa and Srisena expressing India's negative attitude toward their governments. India did not help Sri Lanka with its developmental projects and backed out of the Hambantota Port development, which eventually led to China's entry into the country's economics.[17] Sri Lanka–China relations have progressed as a result of Hambantota, and today China's investment stands at almost $15 billion, mostly after 2013; the Hambantota deal was revised in 2017 under the BRI banner. Since 2015, India–Sri Lanka relations have remained sour, with the outgoing president even stating India's role in his defeat. But India has been cautious with the government established in 2019. India has offered investments such as the Eastern Container Terminal, with the aid of Japan, lease of the Colombo airport, and a $450 million pledge to Sri Lanka. All this could be seen as an effort by India to reduce China's hold over Sri Lanka.[18]

Relations between India and Sri Lanka, although sour, have never led to a great conflict, as in Nepal, Bangladesh, and Pakistan. India has always been a reliable ally for Sri Lanka, and it has only been India's pessimistic attitude that led to discontent. India still plays an important role in influencing Sri Lanka's foreign policy. Sri Lanka had instructed China not to use Hambantota for military purposes in 2018, after India objected when submarines entered the port in 2014;[19] India's investments are also welcomed by Sri Lankan politicians. All that the Sri Lankan governments have desired is mutual respect and cooperation, but India's

foreign policy has not been very cooperative due to internal political issues, such as the ongoing Tamil dispute, or simply negligence. With the rise of China, India increased its interactions with the Sri Lankan government. India's largely forgotten "Neighbourhood First" policy has started to gain importance.[20]

Bangladesh

Bangladesh joined the BRI in 2016, and bilateral relations with China have been growing since, much to India's dismay. Geographically, Bangladesh is covered by India on three sides, with the Bay of Bengal on the other. It shares 54 rivers with India and thus is susceptible to water-based natural disasters. Bangladesh's population and vegetation are often damaged due to floods, and underdeveloped infrastructure adds to the misery. Bangladesh's severe lack of infrastructure, including ports, power plants, and roads makes the BRI a perfect platform to pursue improvements. Padma Bridge has become symbolic of China's growing relevance in Bangladesh's politics, largely due to the neglect that Western nations have shown toward Bangladesh.[21] The bridge was not among the seven to be built by China and being funded by the World Bank, but issues of corruptioncaused the World Bank to withdraw its support to the project, a vacuum that China filled. Fear over the debt trap is being applied to Bangladesh, but Bangladesh has been careful. Bangladesh received investments from the Japanese International Aid Agency, private investors, and public-private partnerships, and Bangladesh's foreign minister stated it will "never will" ask for more loans from China (i.e., to put a cap on the loans received).[22] Other reasons for this careful approach has been fear of Indian hostility, as well as the current leaders' close relationship. India's close proximity and geography will always be dominant factors in Bangladesh's foreign policy. Currently Bangladesh owes $10 billion to China out of a total $33 billion, but its growth in recent years has been immense, even matching and surpassing India in measures such as expected life span, GDP growth, and income per capita (perhaps in 2025).[23] So it seems that the reason for worry in Bangladesh is getting more investments; the nature of those investments is secondary. Bangladesh has received investments for two ports, Matarbari and Payra (from Japan and China, respectively). But China influence and desires have shifted toward Kyaukpyu Port in Myanmar, which provides China better accessibility to the Bay of Bengal as well as gas and oil pipelines directly to China. Thus, China's role in Bangladesh could be decreasing, but China would no doubt benefit from a reliable partner in such close proximity to India. Lately, the leaders of Bangladesh and China have become closer, which is visible through statements from both the leaders, Sheikh Hasina and Xi Jinping.

India–Bangladesh relations as well have surely been boosted since the coming of the National Democratic Alliance (NDA) in 2014, Prime Minister Narendra Modi's visit to Bangladesh to solve the contentious border issue, as well as the resolution of the maritime dispute under the United Nations Convention on the Law of the Sea. But the counter is also true, and much discontent has sprung up in Bangladesh due to the Citizenship Amendment Act being passed in India. That act has led to fears in Bangladesh of illegal migrants living in India being sent back to Bangladesh, and with the already existing Rohingya crises and migrants in Bangladesh, the issue adds concern in the Bangladesh population due to added migrants. Adding to it are the disrespectful remarks by Amit Shah regarding infiltrators, which was visible during the prime minister's visit on the fiftieth anniversary of Bangladesh's independence day and riots following his visit. India also lost support from Bangladesh when issues in Ladakh propped up,[24] with Bangladesh expressing neutrality in the case. If bilateral relations are made and destroyed on the basis of fulfilling mutual interests, then India needs to do more.

Bangladesh is being aided by China, but India–Bangladesh cultural and geographical proximity will dominate. India and Bangladesh have mutual issues and interests that can be used by India to strengthen relations at any point. Prime Minister Modi has always shown a positive attitude to Sheikh Hasina, and signing trade deals, bridge projects, and other transport-related deals would help India maintain balance with China.[25] India would be pressurized to solve other concerns, such as the Teesta water dispute, which is based on water-sharing rights of Teesta River, a tributary of the Brahmaputra between India and Bangladesh. India has shied away from discussing the issue and has dissapointed Bangladesh, the lower reparian nation, which is affected by Indian projects on the river. Also, India needs to provide clarifications to Citizenship Amendment Act, because India does not want to lose a reliable partner in the East. China's entry into Bangladesh has thus made India more accountable to Bangladesh.

Nepal

Nepal is another nation bordering India that signed a BRI agreement with China in 2017. Under that agreement, China agreed to build a trans-Himalayan connectivity network costing $2.75 billion, the Koshi economic corridor, the Gandaki economic corridor, and Madam Bhandari University for Science and Technology, plus other agreements of cultural and social relevance.[26] Other than technology and infrastructure deals, the two nations have also signed agreements on security elements, with China foreseeing an extradition deal in the future with Nepalese authorities. Nepal also recognizes the "One China" policy and has in instances helped Chinese authorities to catch and return Tibetan infiltrators. The

Chinese Communist Party's influence in Nepal, exerted largely through strong political links to the ruling communist bloc in Kathmandu, has also enabled China to create strong political links in Nepal's political sphere and influence its foreign policy, as during the conflict with India in border skirmishes. Although India has the upper hand in terms of cultural dominance in Nepal, China has furthered its approach by establishing Confucius centers in Nepal and also has furthered its desire to introduce Mandarin language teaching in elementary schools.

But India's dominance in Nepal's day-to-day matters cannot be rivaled by the Chinese as of now. India and Nepal have open borders, with people travelling from Nepal to find work in the neighboring country, and the majority Hindu population enables increasing people-to-people connections. India has held strong bilateral relations with Nepal since the signing of the Treaty of Peace and Friendship, and India's vaccine diplomacy to treat COVID-19 has played a major role in strengthening relations. Although India and Nepal have experiences some troubled waters in their relations since 2015, such disputes have not become consequential. For smaller nations such as Nepal issues can turn into bigger issues, as is the case with the Nepal–India border dispute.[27] Thus it becomes necessary for India as the larger to address such issues to counter Chinese growing influence.

China has economically dominated Nepal's foreign direct investment (FDI), with 90 percent of FDI coming from China in 2020.[28] China has flexed its economic might in other South Asian regions as well, and India in this respect needs to invest more in the Nepalese economy. India is not as strong as China in economic terms, but close proximity and cultural links (in addition to economic aid) can play out well for India. Similar to the case of Bangladesh, China's entry into Nepal has made India more accountable and increased Nepal's importance to India's foreign policy. Nepal also plays a major role in the Bangladesh–Bhutan–India–Nepal initiative, and India needs to further such initiatives to balance out Chinese investments.

Maldives

Maldives is a nation of great geographical significance in the Indian Ocean, including 1,200 small islands with major sea lines of communication that are important strategically to China and India. India and Maldives held strong bilateral ties until 2012, when President Mohamed Nasheed was ousted by President Abdulla Yameen; various projects that were initially promised to India were given to Chinese-owned companies. The growth of relations between Maldives and China gained momentum with Yameen at the helm, and massive FDI and other agreements were signed by the leaders. The nations also signed a free trade agreement and a memorandum of understanding that linked Maldives to the BRI

network. China's investment focused on infrastructure, road connectivity, upgrades to airports, and tourism. China's FDI enabled development of the international airport near Male, several islands such as Feydhoo Finolhu, Kunaavashi, and Male, the iconic bridge linking the capital to the airport, and many other housing and development projects. The country's major GDP contributor is tourism, which is dominated by Chinese aid as well as Chinese tourists visiting the country.[29] Under the leadership of President Yameen, China saw major developments in political, economical, as well as military terms. But after the change in government and the new government under Ibrahim Solih, Yameen faced allegations of corruption and favoring the Chinese government. The allegations were proven in subsequent court proceedings showing that Yameen had been bribed to favor Chinese builders and projects under his rule.[30] The deepening of Chinese loans and concerns over Chinese projects gained greater transparancy when the finance minister, Ibrahim Ameer, during his visit to Japan stated that Maldives owned 38 percent of its national debt and 78 percent of its external debt to China.[31]

With a new president in Maldives in 2018, India has been able to again gain importance in the oscillating relations. India and Maldives signed various bilateral deals that focus on infrastructure, India's $1.4 billion line of credit and currency swap to backset China's loans, and the provision of medical equipment in response to COVID-19.

India's relationship with Maldives backtracked with the incursion of China's influence, as when President Yameen's cancelled development projects and redirected them to China. Under Yameen's presidency, China was able to dominate Maldives infrastructure projects (similar to Cambodia's Sihanoukville). China has dominated the country's real estate market with the help of Cambodian politicians, brought in Chinese builders, and changed the ethnic composition of the region.[32] Similarly, China gained growth in the building and tourism sectors under Yameen's rule. China was also at the forefront in developing several islands, and although none has proven to be under military use, as was feared by many in India. With the increase in China's dominance in the Maldives, Maldives has been successful to date in averting that possibility thanks to Indian aid.[33] The new government, concerned about China's tightening grip, has leaned India's support. India cannot let go of this opportunity and should follow through on aid to Maldives as guaranteed to President Solih.

Bhutan

Adding to a sense of relief in India is Bhutan. Bhutan has been dismissive of China's intrusion into the country, whethert in economic or political terms. Bhutan–China relations have traditionally been scarred due to the continuous border

issues cropping up between the two nations. Both nations have had informal relations since 1950 and have had 24 bilateral talks on issues relating to the border.[34] The India–China border conflict in 2020 caused indirect effects in Bhutan, when China challenged Tibet in the eastern territories, which it had never contested previously. China has aggressively tried to build official bilateral relations and partner with Bhutan on the BRI, but Bhutan has continuously declined despite the pressure.[35]

Over time, relations between Bhutan and India have been politically and economically strong. India has developed major hydropower plant projects in Bhutan and has also proposed the Bangladesh–Bhutan–India–Nepal initiative, in which Bhutan is an observer. India, in coordination with Japan, has merged the objectives of India's Act East policy and Japan's Free and Open Indo-Pacific policy and has proposed connecting the landlocked nation of Bhutan to Dan Nand in Vietnam.[36] The current Indian government is open to Bhutan's desire to gain greater importance within India's foreign policy, as Prime Minister Modi's visit to Bhutan showcased. India–Bhutan relations have been constructive and optimistic throughout, and each country plays an important role in the other's policies to achieve a mutual goal of protecting their borders from China.

India's Response

The Look East/Act East policy, as it morphed under the leadership of Prime Minister Modi, emphasizes acting toward change and pushing relations further in the nations in East Asia and Southeast Asia. The Act East policy is the cornerstone of Indian diplomacy to develop relations with nations such as Japan, South Korea, and those in ASEAN. Under Act East, India launched initiatives to increase trade, improve bilateral relations, and bring investments to multiple sectors such as highways, food processing, auto components, and others. India initiated a development project for the North Eastern Region (NER) in collaboration with Japan. The two nations combined the aims of India's Act East and Japan's Open and Free Indo-Pacific, with both nations signing an agreement in 2017 to form India–Japan Act East.[37] Under the agreement, Japan aided the growth of the NER and the construction of highways and other projects that could link the region to Southeast Asia. Thus, this plan will be able to bring in smaller nations such as Bangladesh, helping India counterbalance Chinese aims and aid development of trade mechanisms leading to mutual growth. India has also collaborated with the Quad to further its aims of a free and open Indo-Pacific. Such initiatives would ensure that smaller nations enjoy opportunity of growth and development in a diversified manner rather than being dependent on a single nation. The prograes have also envisioned projects to counter the BRI such as the US Pivot

Toward Asia, Japan's China Plus One and Democratic Security Diamond, and the Asia–Africa Growth Corridor by India in collaboration with Japan.[38]

It may seem that India pursued a great through the Act East policy, but it has not been so. India has not been able to reach $200 billion in trade between South Korea and Japan, which still stands at $80 billion; apart from that, Act East, which had focused on pursuing the strengthening of relations through ASEAN, has seen a dilution in its "ASEAN centrality."[39] Thus, there are concerns that the policy is losing its core focus, rather than focusing on developing relations through ASEAN in the numerous multilateral cooperation agreements. India should clarify its priorities and form a path to ease future decision-making; it could highlight its desire to aid neighboring nations and thereby counterbalance Chinese investments and China's political grip over the Indian Ocean littoral nations.

Apart from broader international programs, India has increased its focus on developing transport connectivity and infrastructure in neighboring regions under the banner of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC). India is also a member of other regional bodies, but the inability of countries to find a consensus, and the presence of China in other regional forums, limited opportunities for India to further its aims in regional development. But India has been able to achieve better results in terms of BIMSTEC, with the finalization of the BIMSTEC Master Plan for Transport Connectivity,[40] signing of the Agreement on Mutual Assistance on Custom Matters, and other plans for programs to help member nations tap into resource-rich areas and create mechanisms to boost trade and investment.[41]

India also launched the MAUSAM Project in 2014, an initiative to reestablish India's maritime routes with the traditional trade partners located around the Indian Ocean. The project would enable economic and cultural ties, placing emphasis on monsoons, the natural wind patterns that guide trade routes in the region. Currently, the plan has not been able to garner much support from the 39 countries that had been included as probable partners, and the project has not advanced very far in terms of planning and functioning.[42] If operationalized correctly, the project could lead India's political goal to increase its relevance in the Indian Ocean.

India has also signed multiple bilateral agreements and worked on constructing practical and beneficial relations among neighboring countries. Projects such as the Chabahar Port in Iran, which aided India's links to Russia and Central Asia, have also been seen as a way to counter the Chinese Gwadar Port experiment. India could in the future focus more on building such projects, as they not only aid India in trade and commerce but also increase India's credibility on the global stage.

Conclusion

China is the second-largest economy in the world and one of the fastest-growing. China is the largest importer of crude oil, and it needs to find effective measures to secure energy sources. China wants to lead economic advancement in Asia, with BRI leading the way. Keeping in mind all its aims and objectives, China brought BRI to most nations in South Asia, except for India and Bhutan. Countries that signed agreements with China under BRI have surely seen growth in economic sectors but have not been free of the drawbacks that come with Chinese investments. Along with internal turmoil, there was the ability to challenge India's hegemonic position and make India more accountable to its neighbors. India has reciprocated the change and has surely been increasing its interests and attention in the region. With various international actors wanting to subdue China's growing power in the region, India has various avenues to counterbalance China. India also holds cultural and well as geographical superiority over China, and it would be difficult for China to remain relevant in times of conflict due to fundamental strategic vulnerabilities.[43] Thus, there hasn't been any radical policy changes by either sides, but the value and importance of the region have been brought to light, which has made this region an important component of many countries' foreign policy. ✪

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The China–Australia Cold War

Unpacking National Security Concerns and Great Power Competition

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Relations between Australia and China are underpinned by strong trade bonds, with China being Australia's largest trading partner in 2019–20 for both exports and imports.[1] However, this strong trade relationship is not immune to the divergent interests and values of China and Australia, as highlighted by recent changes in Canberra's China-related policy, and China's corresponding willingness to use economic coercion to settle political disputes.[2] Australia's long-standing alliance with the United States adds yet another dimension to the Australia–China relationship, with China often characterizing Canberra's actions as part of a US-led effort to smear, defame, and ultimately contain China.[3]

We have seen a significant change in the relationship between Australia and China. The governments of Malcolm Turnbull (2015–2018) and Scott Morrison (2018–present) have attempted to stave off perceived aggression, angering Chinese counterparts. There is no doubt that China has made a systematic bid to expand its long-term economic, political, and strategic influence in Australia by deploying its financial resources to recruit sections of the political class, the business elite, academia, Chinese-language media, Chinese students, and other sectors of the Chinese Australian community to its advantage.[4]

Australia and China's BRI Project

In 2013, during official visits to Kazakhstan and Indonesia, President Xi Jinping launched the world's most ambitious infrastructure initiative, designed to connect countries through economic corridors. This trillion-dollar effort is the Belt and Road Initiative (BRI). Since then, China has strategically targeted countries from East Asia to Europe to be a part of the initiative, luring potential partners with promises of economic gains, while expanding China's economic and political influence in these regions. As part of its global grand strategy,

China has utilized BRI infrastructure projects as physical links in enhancing global commerce, social contract, and influence within regions of the world.

The BRI is China's long-term, transcontinental, maritime policy/investment infrastructure program aimed at connecting and accelerating economic integration of countries along the route of the historic Silk Road, once connecting the East and West on religious, political, economic, and cultural lines from the second century BCE to the eighteenth century CE. Primarily, the term "Silk Road" refers to "all the different overland routes leading west out of China through Central Asia to Syria and beyond."[5] The official outline[6] of the BRI is adjacent to that of the Silk Road, aiming to "promote the connectivity of Asian, European and African continents and their adjacent seas, establish and strengthen partnerships among the countries along the Belt and Road, set up all-dimensional, multi-tiered and composite connectivity networks, and realize diversified, Independent, balanced and sustainable development in these countries."[7]

In a span of less than a decade years, more than 60 countries have joined the initiative,[8] together representing more than one-third of the world's GDP and two-thirds of the world's population. This involves cross-national and regional cooperation among countries involved in the BRI with macro-level policy exchange, intergovernmental cooperation, communication coordination among countries, trade, and policy support for large-scale infrastructure projects.

In 2018, the government of Victoria, Australia, signed a nonbinding Memorandum of Understanding (MoU) with China's top economic planning organization, the National Development and Reforms Committee (NDRC), to promote cooperation in infrastructure development, livability, health, science and technology, and agriculture. In 2019, the government of Victoria signed a subsequent nonbinding Framework Agreement allowing companies in Victoria to cooperate with Chinese ones on infrastructure projects in third countries.[9] This was met with raised eyebrows by the Quad (the United States, Japan, India, and Australia). However, in December 2020 the Australian federal government passed a law giving the foreign ministry the ability to stop any previously signed arrangement between an overseas government and Australia's eight states and territories. Passage of the law resulted in cancellation of the 2018 MoU and 2019 Framework Agreement between Victoria and China in a move that has further strained the relationship between the two nations.[10]

Australia's National Security Concerns and the BRI

China–Australia relations flared up after Australia's move to cancel agreements between the BRI and the Victoria state government. This decision was taken under Australia's Foreign Arrangements Scheme, keeping in view of Aus-

tralia's national interest and foreign relations. So far, out of "over 1000 arrangements," a total of four were cancelled, including two with China and one each with Iran and Syria. Australian foreign minister Marise Payne stated that "I consider these four arrangements to be inconsistent with Australia's foreign policy or adverse to our foreign relations."[11] The invoking of the Victoria–China Belt Road Initiative is another big shot to the China–Australia diplomatic ties, especially since Canberra's call for an international probe into the origins of COVID-19 in April 2020.

In response to the cancellation of agreements with Victoria, the NDRC "indefinitely suspended" all activities under the China–Australia Strategic Economic Dialogue and blamed Australia for "ideological discrimination" and a "Cold War mindset."[12]

The ramifications of the China–Australia diplomatic crisis will have an enormous impact on the bilateral relations of both countries, as well as a pivot to Asia politics. However, Australian strategic experts say that the BRI does not have an appreciable value for Australia's interests, since Australia can give the opportunity to Australian companies and extend its investments to Japan, India, and other countries in the region.

For China, it is a big blow on Chinese economic and strategic interests when it has been expanding its global dominance through the BRI. There seems no possibility of one-on-one dialogue in the current scenario where officials and politicians from both sides are taking aggressive postures. Australian politicians such as Defense Minister Peter Dutton said that "we don't support the militarization of ports, we don't support any foreign country trying to exert influence here via cyber or other means," adding that war with China over Taiwan should not "be discounted." He further added that Australia intends to work very closely with the United States and other allies to maintain peace in the region. Home Affairs Secretary Michael Pezzullo said that free nations continue to hear the "drums of war." Former Australian prime minister Kevin Rudd joined the fray, expressed concern over China's growing economic and geopolitical coercion, and advised countries to unite against it rather than go it unilaterally.[13] The countries are in their worst phase of bilateral relations. One of Australia's former top generals, Maj. Gen. Adam Findlay, reportedly said that China was already engaged in "grey zone" warfare and that Australia must prepare for the "high likelihood" of war.[14] The Australia–China conflict is no longer limited to bilateral trade relations; it has enormous implications for the Asia Pacific, and great power competition, and security.

Security in the Indo-Pacific: Ramifications of the China–Australia Diplomatic Crisis

Chinese communist leader Mao Tse-tung coined the infamous phrase "political power grows out of the barrel of a gun." This Chinese aphorism produced policy that has allowed China to continue to successfully enhance its power and influence in the Indo-Pacific. In April 2021, when considering Chinese political aspirations, military tensions rise in the Asia Pacific region. The current conflict plays out along multiple dimensions, from economic grand strategy to potential armed conflict.

In the short term, Australia's relationship with China is a lynchpin for influence and regional stability in the Indo-Pacific. The economic access provided through Australia to emerging economies enables key supply routes and transport of raw materials. Emerging economies account for three-quarters of gross domestic product growth in recent years, now exceeding 50 percent of world GDP.[15] These elements of power and influence, which can enhance mobility and economic equality, will be carefully considered by emerging economies as they consider whether and how to interact with China.

International alliances will remain critical to Australian diplomacy as it relates to the economic relationship with China as well as security in the region. As the Donald Trump administration announced an Indo-Pacific policy to replace policy for the Asia Pacific region, Australia followed suit as one of the leaders to build up and test NATO's ability to adapt and maintain peace in the region. The Joseph Biden administration has thus far generally continued an assertive posture toward China, from trade relations to human rights issues as well as military aggression. However, all nations recognize that, if escalation occurs, Australian bases are critical for US armed forces in any direct military action with China.

Additionally, Australia's willingness to challenge China on issues such as human rights, transparency, and foreign interference has placed the country squarely at the center of the economic security debate. While these positions are consistent with US foreign policy toward China, there are other nations within the Indo-Pacific, including fellow Five Eyes partner New Zealand, who do not share the same willingness to publicly challenge China in this way. In March 2021, New Zealand's foreign minister noted that it will not let the US-led Five Eyes alliance set China policy; rather, the nation would evaluate how a relationship with China would impact it domestically.[16]

The growing economic power of China is an important consideration for all nations as they weigh their unique vulnerabilities in the context of potential economic coercion from China. However, collective deterrence can be possible through enhanced economic and military cooperation among allies and partners.[17]

United States–Australia Security Cooperation

As an evolving component of a country's national security posture, the emergent mission set has focused on space activities within military forces. President Trump, in 2019, officially created the Space Force as the sixth branch of the US Armed Services, stipulating that space has become the world's newest war-fighting domain. Notably, both China and Russia have had existing space units within their militaries since 2015. In May 2021, Australia followed suit by appointing a senior female air force officer as its first Space Commander. As part of this emergent military domain, regional alliances and agreements for space collaboration have become increasingly critical to ensuring appropriate defense posture.

Defense Security Cooperation

The United States and Australia have had a close partnership in security, with the first formalized security treaty in 1951 with Australia, New Zealand, and the United States (or ANZUS). Australia is one of America's biggest defense customers, and the United States has more than $27 billion in active government-to-government defense sales to Australia. Both countries have signed agreements on the Status of United States Forces in Australia (1963), Logistics Support Agreement (1989), the Acquisition and Cross-Servicing Agreement (2010), Treaty concerning Defense Trade Cooperation (2013), and the Force Posture Agreement (2015).[18]

The United States–Australia defense and strategic partnership is expected to deepen with Australia's 2020 Defense Strategic Update and force structure plan,[19] given the growing defense budget to $73.7 billion over the next ten years.[20] Australia's new strategic update aims to shape Australia's strategic environment, deter actions against Australia's interests, and respond with military force when required.[21] That would also lead to maximizing joint defense capabilities and a robust US presence in the Indo-Pacific.

Economic Security Cooperation

The United States has made an explicit commitment to supporting Australia after tensions with China were heightened as Beijing suspended strategic economic dialogue. Both US Secretary of State Anthony Blinken and the Biden administration Indo-Pacific coordinator Kurt Campbell have committed that the United States "will not leave Australia alone on the field . . . in the face of economic coercion" from Beijing. The economic security issues follow a series of US efforts to use greater national technology and industrial base (NTIB) integration to leverage the capabilities of the United States, Australia, Canada, and the United Kingdom—at a time when this expansion is viewed as a return to great power competition.[22]

The need for an integrated industrial strategy between the United States and its allies is grounded in the need for economic security, as well as the future application of technologies for more traditional military and defense application. Controls within the NTIB must balance the economic considerations of "free and open trade" with the opportunistic nature of using investments to achieve military gains through civil-military fusion technologies.

However, tactical issues remain with the practical application of the theoretical constructs behind NTIB integration. While the allied nations agree in principle with the goals of the initiative, many of the US acquisition systems and export control laws are inherently protective of foreign participation. This has slowed the progress of protecting intellectual property as well as defense against potentially hostile foreign investments. Many have argued that the United States and Australia will need to reevaluate how NTIB is applied between the allied nations in order to accelerate the efforts associated with the original vision of the program; the joint military and economic capabilities of this alliance depend on it.

Space Cooperation

The United States and Australia share a long history of cooperation in space. Beginning with the 1969 Moon landings and the 1970 installation of the US intelligence base at Pine Gap, Canberra has materially supported the US space program and the US intelligence satellite infrastructure.

A truly bilateral intelligence enterprise, the base at Pine Gap is a testament to the strength of US-Australian entente. Collecting signals intelligence from US intelligence and communication satellites, Pine Gap is "the most significant American intelligence-gathering facility outside the United States" and provides Australia with "access to intelligence and early warning on terrorist activities, proliferation of weapons of mass destruction and regional military developments."[23] Through the relationship built at Pine Gap, Australia has proven to be not only a trustworthy military and diplomatic ally; it is also an ally that can be entrusted with basing and partly managing space-based US national intelligence gathering.

Today, the United States has the unique opportunity to support its most trusted ally in developing next-generation space capabilities. At a time in which multipolar competition is challenging Washington's preeminence in space, an Australian entrance to the technological and geopolitical space race could critically bolster the security of the US satellite constellation and the security of the global commons. Australia's desire to become an active stakeholder in the space domain is something Washington should welcome and strongly encourage.

The antisatellite (ASAT) challenges posed by America's revisionist adversaries are threatening the vital satellite lifeline upon which the US military relies. If

Washington wishes to counter China's aggressive behavior and reaffirm the rules of the road in space, it will need the full support of its allies. Materially committed to supporting the United States in its competition with China, Australia is the best positioned for that role. The political and military conditions in Australia for cooperation are ripe, and the American administration should act now to support Canberra's rise as a commercial and military power in space.

Supported by the recently established Australian Space Agency (ASA) and a burgeoning private commercial and defense space sector, Australia is poised to become a power in space. Furthermore, Canberra has a clearly defined grand strategic focus in space, one that closely mirrors that of the United States. Noting the importance of space-based assets for Australian national security, and advancing Australia's defensive doctrine through a focus on developing space situational awareness sensors (SSA), the national government has given both its Defense Department and the Australian private defense sector a clear mandate to become world leaders in SSA.

The United States can support and benefit from Australia's leadership in SSA technology by deepening the existing partnership through Canberra's Jindalee Operational Radar Network (JORN). Providing a geographically unique SSA capability as the latitudinally southernmost downlink point of the US Space Surveillance Network, Australia's JORN contributes enormously to US space security. Expanding JORN at joint defense facilities while supporting the Australian private sector's cutting-edge SSA research technologies would bring clear advantages to both Australia and the United States. Small, highly specialized companies such as Australia's Electro Optic Systems (EOS), which contributes daily to the US Satellite Surveillance Network, hold great promise for the future of Australian space power and, incidentally, the strength of the US-led order in space.[24] EOS represents a broader reserve of technical expertise that both Australia and its allies can and must leverage in the modern space race.

Like Canada's specialization in robotic arms, Australia's unique contributions to SSA can become part of a broader division of technological and military labor between the United States, Canada, and Australia. In an age of growing ASAT threats, an aggressively postured Chinese ballistic missile system, and an increasingly polluted orbital environment, the United States should consider working with Canberra to integrate Australian SSA capabilities into its own satellite infrastructure. Fostering an alliance that emphasizes and integrates joint technological expertise will improve early-warning capabilities, tracking, and space debris management for both nations. The technological edge provided by advanced SSA sensors will also allow the United States, Australia, and their allies to safeguard the security of the global commons on land, at sea, and in space. The United States

Space Force can also work with the Australian Department of Defense's JP9380 project, "which seeks to . . . look at commercial solutions to jamming threats," a highly relevant initiative in facing the ASAT threat.[25] The benefits of deeper cooperation are twofold: Australian national security benefits from the network power of the US satellite constellation, and the United States benefits from enhanced Australian SSA capabilities.

The commercial and scientific aspects of US-Australian space cooperation can build on the existing relationship between NASA and Australia's Canberra Deep Space Communication Complex. Working with the civilian focused ASA and the military's Australian Geospatial-Intelligence Organization, Australian leadership can incentivize commercial and scientific cooperation with the United States. The current government should simultaneously consider increasing Australia's stake in the Wideband Global SATCOM communications satellite system in which the country currently holds a mere 10 percent. [26]

Finally, integrating joint capabilities with Australia will also strengthen the US constellation through asset diversification. Installing dual-use military hardware on Australian commercial satellites, and vice versa, will make a Chinese or Russian attack on critical satellites more complex and more difficult to execute, thereby increasing asset resilience. A future dispersal of a part of the US constellation onto a relatively size-capable Australian constellation would "also enhance deterrence by reducing the likelihood that China could deny the United States access to space—and by increasing the likelihood that Beijing would need to target satellites owned by other nations if it tried."[27]

Conclusion

Australia's relationship with the United States, and the current diplomatic tensions with China, will have larger geopolitical impacts than just within these nations. China's growing economic and geopolitical influence, which in some cases has bordered on coercion, has caused grave concern in the Asia Pacific region and globally. Any conflict arising out of territorial disputes—specifically on Chinese sovereignty over Taiwan—will only further exacerbate diplomatic tensions around the world. China has expanded its boundaries in the South China Sea, and its claim on islands in the East China Sea have caused anxiety in Southeast Asian nations. If the United States or China prove incapable of avoiding direct military conflict, it will be unavoidable for Australia to become deeply involved and at great cost. ✪

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Stewards of the Status Quo

US Air, Space, and Cyber Imperatives in the Indo-Pacific Gray Zone

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In 2019, the commander of US Indo-Pacific Command (USINDOPACOM), Admiral Phillip Davidson, testified before the Senate Armed Services Committee regarding the theater's command posture.[1] In his statement, Admiral Davidson stated that "[US] adversaries are pursuing their objectives between peace and war [and] USINDOPACOM must compete in the gray zone."[2] As national security practitioners, we ask: What are the imperatives to enable this kind of competition within the gray zone? *Specific to air, space, and cyber power, the United States must apply new ideas, innovate new technology, and reorganize its forces to meet the imperatives of the gray zone.* Each of these imperatives is best understood through I. B. Holley's classic framework on the evolution of warfare as relating to either ideas, tools, or groups.[3] This article interprets the framework as *application* (ideas), *technology* (tools), and *organization* (groups). First, the United States and its allies must leverage the full range of air, space, and cyber power in proactive ways to create dilemmas and uncertainty for the Chinese government and, if necessary, impose costs. Next, they must develop airpower technology focused on dispelling ambiguity, increasing attribution, and illuminating malign activity. And finally, the United States must orient a portion of its air, space, and cyber forces toward frustrating China's coercive gradualism.

Conceptualizing the Gray Zone

Nadia Schadlow, the architect of the 2017 *National Security Strategy*, observes that the "space between war and peace is a landscape churning with political, economic, and security competitions that require constant attention."[4] Gray zone warfare occupies this space by melding the political, economic, and security aspects of strategic competition into what Hal Brands of Johns Hopkins University characterizes as "activity that is coercive and aggressive in nature, but that is deliberately designed to remain below the threshold of conventional military conflict and open interstate war."[5] In relation to security competition specifically, if a revisionist state wanted to increase its power relative to a status quo power, it would historically pursue that objective through conventional military force. However, nuclear deterrence, economic interdependence, and US conventional military

superiority have all pushed conflict down into the gray zone—where states are now less likely to pursue their political aims through traditional warfare.[6]

Globalization and the liberal world order, instead of creating a "global village" of interconnected and interdependent nation-states, inadvertently invited revisionist powers to manipulate the system in "insidious ways."[7] Patient practitioners of gray zone warfare seek gradual victories by nibbling at the edges of the status quo.[8] When fought in the shadows, gray zone actions range from cyberattacks, electronic warfare, propaganda, political warfare, misinformation, economic coercion, and the use of proxy fighters.[9] When fought in the open, gray zone forces remain ambiguous for as long as possible, quickly seize the objective once identified, and promptly "de-escalate and negotiate from a position of strength."[10] Understanding the conceptual framework of gray zone warfare will help shed light on America's primary gray zone competitor—China.

China and Competition in the Gray Zone

Within the context of strategic competition with China specifically, "gray zone warfare" can be defined as a deliberate approach taken by a revisionist power to alter the geopolitical status quo commensurate with its national objectives, utilizing actions that frustrate the status quo power's efforts to detect, attribute, and respond.[11] Hal Brands observes that the goal of a revisionist power in gray zone warfare is to "modify some aspect of the existing international environment" and to reap gains "normally associated with victory in war."[12] The first step in understanding China's intent in pursuing a gray zone warfare strategy is to understand the political aims it is trying to achieve. The Chinese Communist Party (CCP) embarked on an ambitious plan, the "Hundred-Year Marathon," designed to transition communist China from "rule taker to rule maker" by 2049,[13] requiring strategic patience and opportunistic dexterity.[14] According to a 2016 study by RAND, the CCP's pursuit of its own security architecture in the Indo-Pacific is meant to serve as a counterbalance—and as an eventual replacement for—the US alliance system in the region.[15] Furthermore, the evolutionary transition from cultural revolution to peaceful modernization has led to an emboldened China proudly flying the banner of scientific socialism.[16] Through gray zone warfare, the CCP is pursuing its strategic objectives by replicating Sun Tzu's "acme of skill," where the foe is subdued without a conventional fight.[17] Ultimately, China will compete in the gray zone until it can win a "black and white victory."[18]

Particularly disturbing is the fact that China continues to make strategic gains within the gray zone while incurring few (if any) costs from its coercive actions.[19] By utilizing its so-called Three Warfares doctrine, which calls for manipulating legal, psychological, and media targets, China has in short order undermined international

institutions, unlawfully seized and militarized islands in the South China Sea, set up Air Defense Identification Zones over disputed islands, and subverted the international media—all "without firing a shot."[20] Furthermore, the information domain now plays the "leading role" for Chinese strategy, while the domains of space and cyber are seen as the "commanding heights of strategic competition."[21] In cyberspace alone, China accounts for 90 percent of America's cyberespionage instances.[22] Furthermore, according to open-source reporting, China has hacked into 141 companies while stealing intellectual property valued at 0.87–2.61 percent of America's GDP annually.[23],[24] These actions may seem like minimal annoyances in their immediacy, but such threats accumulating over months, years, and decades could further China's pursuit of regional hegemony and challenge the existing liberal world order.

US Strategic Considerations

Strategy is not only about setting political goals; it is about choices—often hard choices—that require prioritization.[25] However unpleasant it may sound to Western ears, America's loss of deterrence toward China, closely coupled with an unwillingness to use compellence to reverse the gains already achieved, could be interpreted as appeasement. This dynamic does not mean that the United States needs to be lulled into playing a tit-for-tat gray zone game, one in which China always gets the first move. Short-sighted US actions with limited objectives constitute tactics masquerading as strategy. However, the United States does not need to entirely rethink the character of its deterrence posture toward China. Decades ago in another era, George Kennan designed his containment strategy against the Soviet Union during the Cold War to be "a long-term policy of firmness, patience, and understanding, designed to keep the Russians confronted with superior strength at every juncture where they might otherwise be inclined to encroach upon the vital interests of a stable and peaceful world."[26]

The gray zone as well as the means used within it may have changed the character of deterrence, but the nature of deterrence remains the same. As articulated by Henry Kissinger, "deterrence requires a combination of power, the will to use it, and the assessment of these by the potential aggressor."[27] The White House's March 2021 *Interim National Security Strategic Guidance* confirms that the United States will "develop capabilities to better compete and deter gray zone actions."[28] Air, space, and cyber power offers attractive options for the United States to do so in concert with other instruments of national power. The options outlined below do not merely seek to increase US military power in the region; they are also designed to sever the connection between China's actions and its political objectives by exploiting Beijing's vulnerabilities. Strategic competition requires foresight, patience, and the will to confront this challenge.

Air, Space, and Cyber Application Imperatives

The United States and its allies must leverage the full range of air, space, and cyber power in proactive ways to create dilemmas and uncertainty for the Chinese government and, if necessary, impose costs. As Michael Mazarr observes: "[T]he central strategic concept of gray zone strategies is to confront their targets with a conundrum."[29] The imperative for air, space, and cyber power in the gray zone is to create a presence of aircraft, satellites, and/or computer code that may appear limited and measured in application but through which the United States can gain an outsized advantage. Air, space, and cyber power can create a dilemma by presenting a situation in which the adversary becomes an aggressor for responding in an escalatory manner.[30] Just as China's activities in the South China Sea are incremental actions specifically designed to be viewed as trivial in isolation, the United States can also employ air, space, and cyber tools in the Indo-Pacific in a way that does not provoke a Chinese response and is still viewed as legal under international law.

Flexible and Responsive Regional Deterrence

Conventional US military power underpins the traditional tools of statecraft used to maintain the status quo in the Indo-Pacific.[31] However, China's Anti-Access/Area Denial (so-called A2/AD) and long-range hypersonic weapons threaten the survivability and effectiveness of conventional forces, with the goal of denying US influence inside the first island chain. The distribution of conventional forces can be achieved through Agile Combat Employment, whereby aircraft can launch, recover, and rearm at forward locations such as partner forces' airfields, civilian airports, and even long highways.[32] By distributing forces throughout the Indo-Pacific and launching more sorties from sanctuary bases such as those in Australia and even India, the United States can increase its avenues of approach to the South China Sea and induce uncertainty into China's air defense networks. Furthermore, the continued application of the Department of Defense's (DoD) plans for Dynamic Force Employment in the region will ensure that deployments of aircraft carriers and bombers remain unpredictable to the adversary.[33] As part of this continual rotation, the US Air Force and US Space Force should institute requirements for airmen and guardians to participate in multinational exercises focused on the Indo-Pacific to encourage exposure to the region after two decades of American military involvement in the Middle East.

Operational Preparation of the Environment

US special operations forces are seasoned in the art of special reconnaissance and exploiting unique access and placement. In routine circumstances, Operational Preparation of the Environment (OPE) involves special operations forces conducting activities in a potential operating area to shape the environment.[34] In the gray zone, OPE provides US special operators access to create nonattributable disruptions to China's air and space infrastructure located outside Chinese borders. The United States must expand its thinking and actions beyond the Indo-Pacific geographical limits to hold critical Chinese infrastructure at risk anywhere on the globe. Critical to the US ability to surveil CCP-affiliated infrastructure outside the Chinese mainland is the support of host nations, requiring robust and parallel diplomatic efforts. Aviation foreign internal defense teams on officially sanctioned theater engagement missions with partner forces can provide access vectors in places such as Africa and South America in addition to the Indo-Pacific. By gaining unique access and placement on the ground, the US special operators can sow doubt in the integrity of China's air and space infrastructure to create what David Kilcullen characterizes as "internal challenges" designed for distraction.[35] The *Interim National Security Strategic Guidance* highlights the imperative for the United States to "maintain the proficiency of special operations forces" even during a shift to strategic competition by focusing on "unconventional warfare missions."[36] Using elite special operations forces to conduct OPE is one way in which the United States can capitalize on talents and capabilities honed since 2001 for countering violent extremist organizations.

Resilient Satellite Constellations and Information Operations

Space and cyber power enable the United States to further its political objectives in the information and cognitive domains. In 2020, the US Air Force partnered with SpaceX to test encrypted military internet connectivity using the company's Starlink satellite constellation.[37] Spaced-based internet has several implications for what air and space power can do within the gray zone battlespace. First, because the Starlink constellation will have 4,425 satellites (when fully operational by 2024), it renders Chinese antisatellite weaponry obsolete by saturating low-earth orbit with too many targets that can feasibly be destroyed with direct-ascent antisatellite weapons.[38] Next, the US military's encrypted internet communications will enable the connectivity required to conduct Joint All-Domain Command and Control (JADC2) to fuse real-time intelligence regarding Chinese activity across all domains.

Last, and most significant, space-based internet carries the potential to reach millions of Chinese citizens who currently consume information only behind CCP firewalls. One significant barrier to any deep-penetrating information operations in China is censorship controls placed on internet consumption, including software installed on Starlink receiver terminals. A coordinated effort by the international community to clandestinely insert unblocked receiver terminals into China could theoretically enable the United States to provide counternarratives to the CCP's misinformation. Unblocked Starlink receiver terminals in China offer a high-speed, high-bandwidth opportunity to circumvent CCP censorship, deliver Western narratives, and exploit Chinese vulnerabilities in the information domain in areas such as human rights abuses in Hong Kong, Xinjiang, and Tibet.

Air, Space, and Cyber Technology Imperatives

The United States and its allies must develop air, space, and cyber technology to dispel ambiguity, increase attribution, and illuminate malign activity. As Hal Brands observes, China undermines the established international order through "ambiguity and incrementalism."[39] Chinese actions viewed by themselves might seem de minimis, such as the theft of intellectual property from US companies, but in the aggregate they serve to further China's revisionist strategic objectives.[40]

Cyberspace Situational Awareness

One of the primary challenges the United States faces when confronting Chinese activity in the gray zone is closing the information gap between the CCP's version of events and reality on the ground. As Anthony Cordesman of the Center for Strategic and International Studies observes, "information is a powerful weapon against concealment and disinformation," and the United States has several technological options to that end.[41] To increase attribution for CCP activity, such as human rights abuses and COVID disinformation, the United States could exploit China's existing electronic surveillance state. China's ubiquitous use of facial recognition, social credit scores, and required cellular phone applications such as WeChat provides unique access to internal conditions and decision-making.[42] Such exploitation could assist with ongoing US efforts to "name and shame" rogue Chinese hackers stealing intellectual property and to expose human rights abuses. Additionally, it would also provide more information so that the United States could choose to publicly release as part of a coordinated effort with partners and allies to illuminate a pattern of malign Chinese activity.[43] During conflict, access to the CCP's surveillance state network could potentially help the United States locate and target People's Liberation Army units by monitoring the

online behavior of Chinese military personnel. And finally, the exploitation of China's surveillance state could also allow the United States to measure the effectiveness of counternarrative efforts spread through the space-based internet.

Aircraft Optimized for Gray Zone Activity

While conventional aircraft designed for high-end operations in major war underpin US conventional deterrence in the region, they are generally expensive to operate, require longer runways, and carry with them the potential for increased escalation. A fleet of smaller, lighter, and cheaper aircraft could perform reconnaissance, logistics, and infiltration missions in the Indo-Pacific with a lower risk of detection.[44] Shorter runways and island beaches enable such aircraft to covertly insert or extract small teams, place sensors, collect signals from adversary activity without a noticeable military presence, and even carry weapons.[45] Both manned and unmanned aircraft with a civilian design could hide in plain sight among other aircraft at nonmilitary airports of partner nations. By effectively "flooding the zone" with a sustainable fleet to augment traditional conventional aircraft, the United States could force China to suffer from what David Kilcullen calls a "bandwidth problem."[46]

Nonlethal Innovations to Confront Aggression

China's continual use of military assets to bolster its territorial expansion for economic advantage presents a quandary for US forces. If the United States does not protect the territorial and economic sovereignty of its partners and allies in the region, then it loses credibility. At the same time, if the United States responds kinetically, it risks escalation and appearing like the aggressor.[47] Chinese ships and aircraft routinely challenge freedom of navigation in places such as the South China Sea. Chinese aircraft have conducted provocative training missions off the coast of Borneo, where China and Malaysia have overlapping territorial claims.[48] Provocative actions such as these are designed to probe the responsiveness of US capabilities in the region and test the resolve of our alliances and partnerships. In these situations, nonlethal capabilities could allow the United States and its allies to enforce sovereignty and freedom of navigation while avoiding the dangers of escalation and the miscalculations that any loss of life could trigger.[49] Technological innovations such as directed energy, when used in a nonlethal manner, could be employed to disable a ship's powerplant or render an aircraft's onboard systems unusable. Deescalatory action with these tools could force vessels or aircraft to disengage from their malign activity and return to their ports or bases safely. Ultimately, nonlethal innovations increase the options available policy makers and commanders in the field when they are forced to confront provocative Chinese actions designed to elicit a response.

Air, Space, and Cyber Organizational Imperatives

The United States must orient a portion of its air, space, and cyber forces to frustrate China's coercive gradualism. Those in the top tier of the US military establishment are deeply entrenched with planning the next generation of warfighting. The Third Offset Strategy, JADC2, and the All-Domain Operations Joint Warfighting Concept are designed to ensure that the United States regains its technological edge, fights from a shared situational awareness platform, and is able to operate in "information-based wars using enormous amounts of fast computer analysis across the land, air, sea, space and cyberspace domains."[50] There is a comparative lack of discussion focused on how to organize for gray zone competition. The DoD is making progress in organizing air, space, and cyber forces for this competition, even if current efforts are piecemeal. Due to the importance of space, cyber, and information operations in both gray zone and high-end warfare, the time has come for the DoD and other government stakeholders to undertake a comprehensive mission portfolio and service responsibility review. The modern military has seen many organizational transformations, beginning with the National Security Act of 1947 and subsequent reorganization efforts in 1949, 1953, and 1958—culminating in the Goldwater-Nichols Act of 1986.[51] Similarly, the US military establishment of the twenty-first century must evolve its organizational construct to account for the advent of new warfighting domains and the changed character of war—including gray zone warfare considerations.

Prioritized and Dedicated Space Cadre

The prioritization of space as a warfighting domain has spurred the United States into taking bold but necessary steps in professionalizing a dedicated space cadre. The creation of the US Space Force, a joint space development agency, and a Geographic Unified Combatant Command focused on space, will help ensure that the United States is organized to compete in this vital domain.[52] Moreover, the United States will now have space professionals dedicated to organizing, training, and equipping space guardians, developing next-generation space capabilities, and remotely operating in the space and counterspace arena.

Cyber Organizational Transformation

Cyberspace has similarly been declared a warfighting domain but has yet to have its windfall organizational transformation. From 1998 onward, the DoD's cyber organizations have evolved into what is today the Unified Functional Combatant Command known as US Cyber Command (USCYBERCOM), with the Air Force, Marines, Navy, and Army acting as force providers as well as cyber

service components.[53] Currently, USCYBERCOM's Cyber Mission Forces have approximately 5,000–6,000 personnel spread across 133 teams supporting joint operations and combatant commanders. Not only are these forces considered to be in the low-density, high-demand category; the detachment of cyber professionals from the rest of the joint force inevitably results in cyber planning and operations remaining in relative obscurity.[54] The DoD's expertise in cyber is maturing, and the concern now is the rate of maturation and scale. Finally, without a dedicated cyber service providing both functional expertise and the organizing, training, and equipping role, cyber forces will remain reliant on the four services with cyber missions. A cyber service solves the prioritization dilemma because each service's primary mission domain takes precedence. However, the creation of a sixth military service could create additional bureaucratic hurdles and further inhibit the United States from responding to gray zone activity quickly. Therefore, given the relatively small size of the DoD's cyber and space cadres, it would be prudent to merge these professionals together into one service focused on remote warfighting in a digitally networked environment.

Information Environment Fusion

The USAF has subtly postured itself to compete in the gray zone with China. The activation of the Sixteenth Air Force took place in October 2019 and, with it, the Air Force's first operational unit dedicated to information warfare was created.[55] The Sixteenth is composed of 44,000 airmen spread across 10 wings and 178 squadrons, fusing the Air Force's global Intelligence, Surveillance, and Reconnaissance (ISR), electronic warfare, cyber, targeting, and information operations missions.[56] Placed squarely in the information environment, the mission of the Sixteenth Air Force is to "integrate information warfare by creating dilemmas for adversaries in competition, and if necessary, future conflicts."[57] The Air Force perceives this unit to be on the front lines in the gray zone competition with China.[58] Additionally, given traditional airpower's inherent strengths as both a flexible military arm and deterrent force, the USAF should ensure that a robust complement of airpower is postured in the Indo-Pacific. With an adequate force posture, the Air Force could actively compete in the gray zone by conducting air policing in the East and South China Seas, ISR operations, and shows of force through exercises focused on adaptive basing and multilateral large-scale force employment.[59]

Partners and Allies in the Indo-Pacific

As Michael Green recently noted in *Foreign Affairs*, many countries in the Indo-Pacific struggle to resist China's attempted economic and military coercion.[60] Any air,

space, and cyber initiatives must involve close coordination with allies and partners in the region. These initiatives must seek to reaffirm common values among allies and partners without imposing undue costs and increasing risks for those nations.[61] A model for this kind of coordination is the Pacific Defense Initiative (PDI), which funds deterrence-related security cooperation and allocates resources to defense infrastructure programs that can help make countries in the region more resilient in the face of Chinese economic pressure.[62] In a departure from normal weapons and defense program procurement, PDI ensures investments in important programs that have no natural constituency, such as missile defense for Indo-Pacific countries. A similar model could be used to fund the needed air, space, and cyber imperatives in conjunction with partners and allies in the region.

Fortunately for the United States, nations throughout the Indo-Pacific region are increasingly viewing China as an imminent threat and are taking steps to balance the scales. While gray zone strategies can achieve significant short-term gains, the irony is that their reliance on long-term, patient, and gradual strategies can backfire.[63] China could very well end up isolated in its own backyard if its coercive tactics continually build resentment throughout the region. Furthermore, a clear benefit for the United States is that many of the nations throughout the region share the goal of a free and open Indo-Pacific that values sovereignty, economic growth, international law, and fair competition in accordance with the US State Department's 2019 vision.[64] The United States should take advantage of this to strengthen bilateral relationships and to build a flexible, resilient network of like-minded security partners.[65] These networks could look like what Michael Green calls "hub-and-spoke" between formal allies or "spoke-to-spoke" between nontraditional partners in the region such as Vietnam to increase connectivity.[66] While long-term allies such as Japan and Australia should form the backbone of any coalition, partnerships with nations such as Sri Lanka and Bangladesh should also be strengthened.

Conclusion

Traditional armed conflict in the Indo-Pacific between the United States and China is not inevitable. Air, space, and cyber power offers unique value to a whole-of-government approach to gray zone competition with the goal of maintain the status quo in the region. The United States must apply new ideas, innovate new technology, and reorganize its forces to meet the gray zone's imperatives. Each of these imperatives resides in I. B. Holley's classic framework of ideas (*application*), tools (*technology*), or groups (*organization*). These air, space, and cyber imperatives contribute to a larger effort to compete with China below the threshold of armed conflict. ✪

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COMMENTARY

Geopositional Balancing

Understanding China's Investments in Sri Lanka

Don McLain Gill

China's rapidly expanding mega-investment projects in key littoral countries of the Indian Ocean such as Sri Lanka are fueling speculation over Beijing's attempt to constrain India's influence in the region.[1] Observers consider such activities to be part of China's "String of Pearls" strategy, which centers on developing a series of naval facilities across the Indian Ocean for use by the Chinese navy in case of conflict to alter the balance of power against India.

Though the idea of such a strategy has been around since at least the mid-2000s, it still lacks conceptual and theoretical clarity. In fact, most non-Indian security scholars are skeptical whether such a strategy even exists and, if so, whether any such facilities would be limited in utility and vulnerable to attack.[2]

The String of Pearls concept informs a general viewpoint about the strategic end of Chinese investments, but it seems to lack the explanatory power to flesh out the dynamics involved to alter the balance of power in the region. To add some heft to the analysis, I utilize Dr. Jeremy Garlick's concept of geopositional balancing to supplement our understanding of the String of Pearls beyond merely that of another buzzword.[3] This article deepens the knowledge of China's activities in the Indian Ocean by also utilizing an understudied variant of balancing. I examine China's engagement with Sri Lanka as a case study.

Unpacking the Concept of Geopositional Balancing

The concept of "balancing" is analyzed extensively within the field of international relations to explain how the global distribution of power affects relations among powerful countries. There are three popular variants: *traditional*, *soft*, and *offshore*. By contrast, the geopositional variant of balancing is not studied as rigorously.

Traditional balancing involves the formation of military alliances or ad hoc strategic arrangements among countries to ensure that the stronger country does not achieve a dominant position. *Soft balancing* indicates that weaker countries utilize economic and diplomatic means to match their positions with a powerful country. *Offshore balancing* refers to a strategy recommended for a dominant power to motivate its allies in a specific region to bolster their own defenses to check a potential rising power in their geographic vicinity. In a 2018 article, Jeremy Garlick explains the foundations of *geopositional balancing*:

> Geo-positional balancing aims to establish physical footholds in selected countries with a view to establishing a stronger long-term geo-strategic position about a regionally more powerful rival. The aim of geo-positional balancing, in this conception, is neither to build up onshore military bases nor to remain entirely offshore, but instead to establish a non-military presence at selected sites (such as commercial ports). These can be maintained long-term for the purpose of keeping a powerful rival geopolitically honest by making it aware of the incoming actor's presence. At the same time, onshore economic investment and infrastructure building give the balancer influence in the host country by building up a degree of soft power through enhanced economic connections.[4]

Countries that incorporate geopositional balancing put down markers at critical and strategic geographical positions for potential future use to solidify their influence and power projection capabilities. It thus involves lesser strategic risks in exchange for long-term excessive resource expenditures. The point is that such investments need not be economically profitable for a country incorporating geopositional balancing. Rather, the geopolitical factors that come from such means represent what is most important. From this viewpoint, the String of Pearls can be better understood as a strategy that incorporates geopositional balancing at its core. China has been pouring multibillion-dollar investments in strategically located countries in the Indian Ocean such as Myanmar and Pakistan. However, even though these projects are not economically viable for China, the long-term geopolitical benefits are significant. The next sections assess China's investments in Sri Lanka and gauge whether its geopositional balancing is materializing in terms of rising influence.

China's Deepening Economic Clout in Sri Lanka

China has been making steady strides in cementing its economic partnership with Sri Lanka. From the development of ports to special economic zones (SEZ) and other critical mega-infrastructure projects, Beijing is maximizing its economic capacity at a time when the leadership in Colombo has been relatively cordial toward the dominant regional power. Among the recent developments in the country, a controversial law was introduced to accommodate further deepening of Chinese economic activity.

Sri Lanka's parliament passed the Colombo Port City Economic Commission Act (which went into effect on May 27, 2021) to administer a massive Chinese luxury oceanside development project. However, the undertaking was controversial from the outset because it contains elements considered to be unconstitutional by the country's Supreme Court and members of parliament.[5]

The bill to create the powerful commission passed on a 149–58 vote in Sri Lanka's 225-member Parliament.[6] The CHEC Port City Colombo company, a unit of China Communications Construction Company, invested roughly $1.4 billion for the reclamation of land and the construction of critical infrastructure adjacent to Colombo Port City. In return, it obtained the right to use 62 hectares of marketable land on a 99-year lease from the Sri Lankan government, according to the project's website.[7]

Even after the execution of another 99-year lease of Sri Lanka's Hambantota Port to a Chinese firm in 2017, the South Asian country continues to accept billions of dollars in loans from China for mega-projects that include a seaport, an airport, highways, power stations, and the port city. This will inevitably bury Colombo deeper in debt. The bigger question that lingers is: Why does China continue to invest in a debt-strapped Sri Lanka given the likelihood of zero economic returns?

Controversy Surrounding the Colombo Port City Economic Commission

The powers of the commission include clearing individual applications for "authorized persons" to do business in the Port City; tax breaks, customs, VATs, and other export-import concessions for investors; and exemptions from casino and gaming laws.[8] It is important to note that such investment protections and concession privileges have not been made available to domestic and other foreign investors.

In contrast to provisions existing legislation, private auditors alone can oversee the SEZ accounts. For the same reasons, the commission has stretched its jurisdiction beyond the parliament and parliamentary panels. Moreover, the judiciary was told to prioritize the SEZ cases to make the foreign investors feel accommodated and welcome. Sri Lanka Podujana Peramuna member of parliament Wijeyadasa Rajapakshe said that handing over the Port City to China through an act "would be more dangerous than the [aforementioned] Hambantota port proposal."[9]

This will grant President Gotabaya Rajapaksa authority to put foreigners on the board, which may require handing over significant power to Chinese officials. China has been lobbying hard for this mechanism to materialize and has already injected millions of dollars into the project. China has also reclaimed the land and built high-rises, underscoring its steadfast desire to push through regardless of the economic costs. This series of events has thus created fears of turning the Colombo Port City into a "Chinese province."

Future Trajectory

China's steadfast application of geopositional balancing will persist as it continues to increase its economic capacity. The strategy relies heavily on long-term resource expenditures in strategic geographical areas regardless of economic viability. However, it is crucial to note the calculation that "presence equals influence" is not always certain. As a result, specific indicators need to be watched.

In South Asia and the broader Indian Ocean region, China still experiences limits to its influence despite an increasing presence. Smaller countries in the region are aware of the potential implications of crossing India, their larger and more powerful neighbor. Among the most critical indicators for influence of an extraregional power lies in the ability to sustain bilateral military exercises in cooperation with regional countries. So far, only Pakistan conducts regular naval exercises with China in the Indian Ocean.

This entire situation, however, is susceptible to change. Going back to the case study, despite Sri Lanka's "India First" policy, there have been signs of developing closer military entanglements with China, from the docking of a Chinese submarine in 2014 to the relatively recent meeting between China's minister of defense and Sri Lanka's president and prime minister. Both sides pledged to step up pragmatic defense engagements soon.[10] Though it may be too early to speculate about the possible implications of such engagement, it is clear that China's geopositional balancing seems to be barreling down the fast track with Sri Lanka. ✪

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COMMENTARY

To Honor Its Commitment to UN Arms Trade Treaty, China Must Sacrifice

Jelvin Jose
Kannan Reghunathan Nair

In June 2020, Beijing announced its plan to join the United Nations Arms Trade Treaty (ATT), designed to prevent the flow of arms to conflict zones across the globe. The decision came after Washington's earlier announcement of the US withdrawal from the treaty. However, Beijing's decision was at odds with China's record, due to its supplying of arsenals to unauthorized actors in Africa and Southeast Asia.

ATT is a multilateral agreement that legally binds countries from selling conventional weapons to states, on grounds of potential use of these weapons against "genocide, crimes against humanity or war crimes." According to Ben Emmerson, UN Special Rapporteur on human rights and countering terrorism, "The entry into force of this ATT is a very important step to peace and security."[1]

Unlike the United States and European Union, China has a record of backing regimes and nonstate actors accused by the international community of human rights suppression. Prioritizing strategic and economic ambitions, Beijing has transgressed embargoes instituted by international organizations and fora. Being accused of illegal arms trade, China's entry into the international agreement responsible for limiting the flow of arms to conflicted areas poses serious concerns about Beijing's accountability.

If genuine, the new development would represent a paradigm shift from Beijing's past policy. Beijing had initially rejected the ATT, as it interfered with China's policy framework concerning the cross-border trade of conventional weapons.[2] The cornerstone to Beijing's success in the swift expansion of its defense markets has been the relatively cheap pricing and greater flexibility toward working with actors prone to human rights violations.

Beijing emerged as the fourth most significant arms supplier to Africa in 1996–2000, reaching the second spot by 2013–2017, with 17 percent of Africa's entire market by 2017, just below Russia.[3] The transfer of weapons and defense equipment, notwithstanding the human rights allegations, has been a pillar of Chinese diplomatic outreach to countries such South Sudan, Zimbabwe, and Myanmar. Given this, Beijing's new drive to be part of ATT could play off against its previous position.

Ling Li and Ron Matthews[4] explain: "Aside from these supply-driven 'push' forces, there are also numerous demand-side 'pull' factors promoting the growth of China's arms sales. The most important of these is undoubtedly Beijing's 'no-questions asked' approach to arms sales. Its long-standing non-interference diplomacy rests on the view that a customer's political, military, and human rights record lies outside the arms deal's contractual arrangements."

Authoritarian regimes under scrutiny by the international community for human rights violations thus view Chinese weapons as a way to evade restraints imposed by global standards. Countries such as the Islamic Republic of Iran and North Korea, deemed "pariah states" by the West, turn to Beijing for arms. This includes hybrid defense technologies such as cyber and satellite jamming technologies.

Beijing's "no questions asked" policy regarding arms exports also applies to the modern-day warfare technologies such as armed unmanned aerial vehicles (UAVs). Unlike the United States, Beijing's armed UAV supply is not bounded[5] by strict standards. Until Donald Trump relaxed[6] the US armed UAV export policy under the Missile Technology Control Regime (MTCR), Washington had restrained the supply of larger armed drones to Australia, the United Kingdom, and France. However, since China is a nonsignatory to the MTCR, Beijing is actively engaged in the supply of armed UAVs across the world, including to conflict zones.

Beijing's past track record contradicts the essence of ATT, and this article addresses the conflict of interests in Beijing's new venture. This is done using case studies from Asia and Africa.

Beijing's Double Game in Africa

Having repeatedly downplayed human rights concerns at international forums, Beijing implicitly sanctions the unrestrained flow of weapons to conflict zones. Beijing's response to various United Nations Security Council (UNSC) resolutions is a case in point. In August 2006, China refused to vote on UNSC resolution 1706, which called for action against the human rights violators of Sudan and an extension of the arms embargo. In July 2008, Chinese leadership vetoed a resolution imposing sanctions on arms imports on Zimbabwe's Robert Mugabe government. Subsequently, in October 2011, China made use of its veto power to block a resolution condemning human rights violations by the Bashar al-Assad regime in Syria.

Complexity in China's arms trade with African countries reveals its economic interests in the region. Nevertheless, at the same time, Beijing's economic entanglement resulted in settling to coordinate policies among different actors in Afri-

can countries. In the case of Sudan and the newly formed South Sudan, this complexity is evident.

South Sudan got independence from Sudan in 2011 after decades of civil war erupted among different factions inside the territory. After independence, China invested heavily in the oil sector in South Sudan and provided ammunition to the government.[7] However, the disputed border drawn between the countries demarcated Chinese investments into two nations: oil reserves in South Sudan, and its processing facilities in Sudan.[8]

Chinese policies suffered a setback when Sudan started supporting antigovernment militias in the south. In December 2013, tensions triggered inside the ruling party of South Sudan, and a rebel faction under the leadership of Riek Machar started a group named Sudan People's Liberation Movement in Opposition (SPLM-IO).

China was providing arms to both Sudan and South Sudan. The South Sudan government captured ammunition from SPLM-IO, and information from the ammunition showed its origins to China. A report published by Conflict Armament Research in 2015 showed that this ammunition was passed from Sudan to SPLM-IO with a view to deepen Sudanese influence in South Sudan.[9]

Beijing was aware of the volatility of skirmishes between the two Sudans. Sudan used China's arms against South Sudan in the brief war over border issues. The weapons shipped by China to Sudan were rerouted to the rebel group via the northern Unity State.[10] Moreover, this resulted in the killing of two Chinese UN peacekeeping soldiers in the clashes between South Sudan's government and the rebel faction SPLM-IO. The incident was regarded as a backlash to China's policy miscalculations on the African continent.

A United Nations team composed of several arms experts in May 2011 uncovered the presence of high explosives made in China in incendiary cartridges at Tukumare in Darfur, a bloody battlefield in Sudan.[11] Although Beijing dismissed the allegation, it sheds light on China's alleged illicit involvement in the global conflict zones.

China's role in calibrating peace and security in Africa is acute. Beijing, which emerged as Africa's largest provider of foreign aid,[12] is rapidly expanding its sphere of influence on the continent through an integrated approach consisting of trade, investment, and development partnerships. Along with this, Beijing has forged closer ties with several regimes in Africa, though accused of grave human rights violations, to secure economic and strategic objectives. Beijing extended its role from Sudan to Libya. In 2011, the *Globe and Mail*, a Canadian newspaper, reported that Chinese state–controlled arms manufacturers offered stockpiles of arms to the collapsing regime of Muammar Qaddafi in Libya.[13]

The documents obtained from the media expose Chinese companies' conversations with the Qaddafi government regarding vast weapons supplies to Libya via Algeria and South Africa.

Data collected from the news report also clarifies that the Chinese arms manufacturing enterprise was ready to provide $200 million worth of ammunition to Qaddafi's dictatorial regime. But later, China spokesperson Jiang Yu admitted that the government knew about the talks, but no arms were delivered to the regime. She also reiterated China's commitment to upholding UNSC resolution 1970, which condemns Qaddafi's lethal methodology against protestors participating in the Libyan civil war.

Beijing's relationship with another African state, Zimbabwe, raises serious legitimacy concerns regarding its arms trade on the continent.[14] The Chinese, despite howls of international outrage against the prolonged human rights violations committed by security forces under Robert Mugabe, continue to provide financial and hard power assistance to the African regime. Moscow and Beijing have been the only global powers to extend support to Mugabe's autocratic regime. China continues to remain the backbone of the country's defense acquisitions. The flow of weapons from Beijing plays a fundamental role in stabilizing the Mugabe regime and assumes center stage in Harare's defense modernization move.

In July 2008, Beijing and Moscow vetoed a UNSC proposal to impose an arms embargo on the country.[15] The motion intended to impose financial sanctions and travel restrictions on Robert Mugabe and 13 other leaders for unleashing violence and intimidation to reassume office. The Chinese arms shipment to Zimbabwe in April 2018 returned unloaded due to the uproar from South African countries.[16] The incident was a severe blow to Beijing's international reputation as a responsible player. Apart from these military ties, both Zimbabwe and Beijing enjoy the cordial economic partnership. China is currently the largest foreign investor and one of the top trading partners of the African state.

The Case of Asia: Inroads to Myanmar and Sri Lanka

Beijing's conversion of the South Asian island of Sri Lanka, traditionally an Indian stronghold, into its strategic backyard illustrates how Beijing has capitalized on the weapons supply, notwithstanding international norms for geopolitical advancement. The United States and European Union had imposed an arms embargo over human rights infringements by Sri Lankan armed forces during the final phase of the Eelam War. Capitalizing on this, Chinese authorities supplied necessary political, economic, and military support to the Sri Lankan administration to establish a foothold in the country. Beijing also prompted Islamabad to

provide weapons and defense equipment to Colombo.[17] Besides the hard power backup, the Chinese economic investments also have increased since then. China's unreserved support of the Mahinda Rajapaksa regime—involved in a brutal confrontation with the Liberation Tigers of Tamil Eelam (LTTE) militants—played a pivotal role in Beijing's Colombo outreach.

Beijing's leadership delivered antiaircraft guns, Type-56 rifles, Type-85 heavy and Type-80 light machine guns, 81mm mortar shells, 152mm howitzers, RPG-7 rockets, and Jian-7 fighter aircraft to dominate the LTTE's air wing. The Chinese infrastructure ventures encompass the recently inaugurated Lotus Tower at Colombo, Hambantota Port, aid for the Colombo Port expansion, construction of Mattala Rajapaksa International Airport, Hambantota cricket stadium, the Shangri La Hotel at Colombo, a power plant at Norochcholai, and the Katunayake Colombo expressway.

The dramatic surge in Beijing's credit support to Colombo, estimated to be around 10 percent of foreign debt by the end of 2019, reveals the degree of Beijing's financial support to the island during the crisis. The strategic inroads made by Beijing have been used to keep Sri Lanka in its thrall. Consequently, Sri Lanka in the succeeding years became a global example of the Chinese debt trap, even leading to the controversial handover of a strategically located Sri Lankan port, Hambantota,[18] to China for under a lease for 100 years.

Myanmar is another case of Beijing's illicit ties in Southeast Asia, lending support to a military junta widely charged with human rights violations. International agencies such as the United Nations and Amnesty International have been sharply criticizing Myanmar for a humanitarian catastrophe. Myanmar was charged with massive human rights violations amid the crackdown against the Arakan Army, fighting for more regional autonomy.[19] A UN fact-finding commission brought attention to the country's business-military nexus in facilitating ethnic cleansing.

The report calls for prosecution of senior military officials involved in the brutal genocide of 2017. The violence pushed around 73,000 Rohingyas to Bangladesh. The same year in December, a UN General Assembly resolution supporting the appointment of a special envoy to monitor the oppressive campaign against the Rohingya community was opposed by China and nine others. The European Union likewise has maintained arms blockade in various forms since the 1990s in Myanmar.[20] Undeterred by all these charges, Beijing has been at the forefront of supplying arms and defense equipment to the Southeast Asian state. Furthermore, Beijing also has large-scale economic engagement within Myanmar.

Conclusion

Case studies from Africa and Asia reveal that Beijing has made use of its leverage at the UNSC to cover its economic aspirations over global values, and it is alleged to have protected the military juntas and autocratic regimes from worldwide sanctions.

Beijing's decision to abide by the UN ATT should be analyzed in light of its track record, and in response to human rights concerns in the international arena, particularly at the UN Security Council, where it plays a pivotal role.[21]

China's outlook concerning the necessity of external intervention to preserve the human rights in a country diverges from popular perceptions held by the West. The international community believes that external intervention halting the sovereignty of a nation becomes imperative to preserve human rights when state authorities fail to do so. In eyes of the West, foreign intervention is justified if ethnic cleansing, a crime against humanity, genocide, or war crimes occur and the responsible governments are unsuccessful in keeping a check on that. Beijing's viewpoint on external intervention diverges from the rest, as it believes that intervention becomes necessary only when the internal situation causes international security challenges. Nevertheless, given China's past involvement in backing regimes operating under the international radar for human rights violations, such as Myanmar's military, Beijing uses this stance to conceal its pursuit of economic and strategic interests in fragile states.

China's entry into the UN ATT has brought Beijing's policy options to a crossroads and represents its intent to create an image of a responsible global actor by compromising on strategic and economic interests. The post-treaty international engagement by China would coerce it to pay heed to global transparency concerns and transform itself into a more responsible player. As Beijing becomes more restrictive of its weapon supply, imposing more restrictions in correspondence to the international standards, those countries could wane as those regimes increasingly turn to others for their sustenance.

Given this, Beijing's policy makers are left with limited options. Complying with the new regulations risks the massive Chinese investments. As countries operating under the human rights radar constitute a share of Beijing's foreign arms trade, exercising stringent norms in arms and ammunition supply would reduce Beijing's market share. Therefore, to do justice to the essence of the pact, Beijing must depart from any strategy of "legitimizing the illegitimacy."✪

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COMMENTARY

Missile Woes

Why North Korea's New (Monster) ICBM May Signal Significant Shortcomings in North Korea's Nuclear Deterrent

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On 10 October 2020, in a novel nighttime military parade, North Korea unveiled its newest weapon: a massive, road-mobile, liquid-fueled intercontinental ballistic missile (ICBM) larger than any other previously showcased by the secretive nation. The missile, unofficially dubbed the "Hwasong-16" by international observers and simply dubbed as a "monster" by other observers, is indeed monstrous in size. It is estimated to be between 4 and 5 meters (approximately 12–15 feet) longer than the Hwasong-15, and up to half a meter wider.[1] If these estimates are true, then the Hwasong-16 is doubtlessly the largest road-mobile ICBM ever developed.[2]

Speculation as to the desired use of this missile varies, but many speculate that Pyongyang developed the Hwasong-16 as a delivery platform for multiple reentry vehicle (MRV) or multiple independently targetable reentry vehicle (MIRV) nuclear warheads. If this is true, then it would also indicate a major advance for North Korea's missile development, warhead miniaturization, and nuclear deterrent as a whole. This, however, is not the only conclusion that can be drawn by the appearance of this new weapon. This new missile may be a sign of North Korean advancement, but it may also be a sign of its shortcomings. Just as the Hwasong-16 can represent the bleeding edge of North Korean missile and nuclear technology, a few key aspects of the apparent need for the Hwasong-16 may provide insight into a nuclear program that is not advancing rapidly, but is, perhaps, somewhat stalled.

The first suspicion comes from the physical configuration of the missile. The Hwasong-16, if deployed, will be the largest road-mobile ICBM ever fielded—but there is a reason other countries that field road-mobile ICBMs, such as Russia and China, have not fielded anything larger. Road-mobile ICBMs are meant to be mobile and use mobility and camouflage to obtain a degree of stealth and survivability that silo-based ICBMs often do not have. In terms of practicality, having a larger missile, however, can severely compromise these capabilities. A larger missile is both harder to move and harder to conceal in that its great size and weight limits both the roads it can use (of particular concern in a country such as North Korea, which has few well paved roads) and the locations from which it can be launched.

Moreover, there are even more significant issues associated with a very large road-mobile missile: the fuel type. The Hwasong-16 is believed to be liquid-

fueled—which adds additional, compromising difficulties in the operation of the missile. Liquid-fueled missiles, unlike solid-fuel missiles, typically cannot be stored with fuel already loaded and cannot be launched immediately. The liquid propellants must be loaded into the missile just prior to launch. With a missile as large as the Hwasong-16, this process of erecting and fueling could take hours—making the missile a prime target for interdiction. By comparison, Russia, China, India, and Pakistan all almost exclusively field road-mobile missiles with solid-fuel propellants. This allows for faster launch times and avoids the issue of lengthy fueling periods prior to launch. In this context, the enormous weight, size, and liquid-fueled nature of Hwasong-16, even if operationally fielded and assuming that it operates as expected, will make it a heavily flawed nuclear deterrent.

Despite such shortcomings, Pyongyang's pursuit of the Hwasong-16 may allude to its attempt at a MIRV-capable missile, or may reflect a much more troubled weapons development program, particularly regarding the miniaturization of nuclear warheads. Though North Korea is believed to have achieved the technology necessary for miniaturizing a nuclear weapon, they have not yet demonstrated this capability.

Since the Hwasong-15 could already theoretically strike the entirety of the continental US with a sizable payload, the main purpose of a new missile would logically be to deliver greater payload capacity at the same distance—possibly for MIRV warheads. This is a plausible purpose for the Hwasong-16, but it is fraught with practicality issues. If North Korea desires to MIRV its warheads, it is far more practical to simply continue the miniaturization process until the warhead(s) can fit on the missile. This is more than possible as, for example, the US Minuteman III ICBM is at least 3-4 meters shorter and roughly half a meter thinner than the Hwasong-15 but has been tested with up to seven MIRV warheads, though it was only ever operationally deployed with up to three.[3]

The fact that Pyongyang chose to build an entirely new missile rather than miniaturize warheads to MIRV the Hwasong-15 suggest that there may be some difficulties with the miniaturization process. Instead of reflecting a desire to achieve MRV or MIRV, the Hwasong-16 may reflect a major, and possibly insurmountable (for the time being) obstacle in terms of warhead miniaturization—such that, instead of fitting more miniaturized warheads on the Hwasong-15, Pyongyang found it more practical to instead develop the monstrous and impractical Hwasong-16.

In fact, there is evidence to suggest that North Korea has run into problems with its warhead miniaturization. North Korea has conducted at least six nuclear tests to date. The fourth and fifth tests in 2016 were declared to have been of thermonuclear devices, while the sixth test in 2017 was said to be a "miniaturized" nuclear device. This is according to official statements by the KCNA, but the number sug-

gests otherwise. First, the fourth and fifth nuclear tests had estimated yields of 10–15 kilotons and 20–30 kilotons, respectively. While the North claims to have tested "hydrogen bombs," the estimated yields are far, far below the expected yield of true hydrogen bombs. Such hydrogen weapons are expected to have yields in excess of 100 kilotons, and possibly *far* larger. It is very possible that these tests were either not true hydrogen bombs or were only partially successful tests.

The sixth test was their largest test, with an estimated yield of over 100 kilotons. While this yield is more in line with that of past hydrogen bomb tests, there is doubt as to whether the device tested is a weaponized design. A successful thermonuclear test does not necessarily indicate a weaponized design. For example, the first US thermonuclear test device—codenamed "Mike"—was not a weaponized design and served more as a "proof of concept" for a sustained thermonuclear reaction. While the first Soviet device, RDS-6, was far less unwieldy than the Mike device, it was still a crude and flawed weapon that could only be delivered by air and had no hope of ever fitting on most missiles—to include the Hwasong-16. It is very possible that, despite a successful test, North Korea does not yet actually possess a deliverable weaponized design—whether that be a bomb deliverable by air, or a warhead able to fit on their current missiles.

This possibility seems more likely with the arrival of the Hwasong-16. Given the very large, estimated payload capacity of the missile, the inherent issues of its design and size, and the likelihood that its primary development occurred during the development and/or testing phase of the Hwasong-15, the arrival of the Hwasong-16 may indicate a key shortcoming in North Korea's ability to marry a sufficiently miniaturized warhead(s) to a missile—at least for the time being. If a missile the size of the Hwasong-16 is *needed* to mount multiple warheads, it seems likely that North Korea's current warhead design(s) are rather large. This is, again, compared to the US Minuteman III ICBM, which is significantly smaller than the Hwasong-16, but features truly miniaturized, MIRV warheads. A missile the size of the Hwasong-16 is simply not *inherently* necessary to achieve MIRV status.

This issue may go beyond MIRV status and may even also include their ability to fit even a single warhead to one of their larger ICBMs. If North Korean warheads are indeed that large, the implication is that such warheads are *very* unlikely to fit on North Korea's SCUD missile variants. In other words, it is *possible* that Pyongyang has a stockpile of nuclear weapons, but only a limited number of practical delivery platforms—hence the need for the Hwasong-16. There is historical precedent for this as the Titan II—a US silo-based, liquid-fueled ICBM far larger than the Hwasong-16—was designed to carry just one large warhead, despite its incredible size and range.[4] This is not to say that this is the *likely* state of North Korea's nuclear weapons program, but rather that it is *possible*.

In addition to the issue of warhead miniaturization in creating an ICBM-based nuclear deterrent, reentry vehicle (RV) design is of equal importance. After all, it does not matter how sophisticated a warhead is if it cannot survive reentry into the atmosphere. RVs reentering the Earth's atmosphere from space typically travel at high hypersonic speeds and must endure enormous amounts of heat, pressure, and structural strain. No doubt, RV design could further complicate warhead design as the warhead must be able to fit within the RV, the entire system must then fit onto the missile, and then altogether be able to survive reentry and still detonate as intended. For all North Korea's tests and apparent advancements with this technology, they have not definitively demonstrated the ability to reliably succeed at any of these steps and, while it is possible to speculate that they *may* have the capability to fit a miniaturized warhead into an RV, they absolutely have not demonstrated their capability on the final step: reentry and detonation.

When North Korea tested the Hwasong-14 and Hwasong-15 ICBMs, results regarding RV performance were not entirely optimal. Analysis suggests that the Hwasong-14 RVs did not survive reentry, and that the Hwasong-15 RV may or may not have.[5] At this point, Pyongyang's ability to produce operational warheads capable of surviving reentry and detonating as expected is inconclusive at best. It is also worth noting that these ICBM tests may not have featured high-fidelity RV testing (testing of what is an actual, operational RV, sans nuclear and/or high explosive material) and may have been focused primarily on testing the missile, and not the warhead. In other words, the true status of North Korea's RV technology is not clear, and it either has a spotty track record, or has not been fully tested at all. Either way, North Korea simply has not demonstrated this capability.

Conclusion

While the development and larger, more sophisticated missiles such as the Hwasong-16 indicate potentially significant advancements, and while Pyongyang would certainly like for international observers to believe that they have made great advancements, the evidence presented could go either way. It could either indicate great advancements—as Pyongyang claims—or it could indicate significant obstacles and shortcomings somewhat commiserate with a cessation in testing. Given the undeniable impracticality of fielding a missile as large as the Hwasong-16 as opposed to further miniaturizing warhead technology, the chances of there being a "warhead gap"—so to speak—seem somewhat more plausible. This gap, if it exists, could be due to issues with miniaturization or issues with RV design, or a mixture of both.

Due to the nature of the issue, the true state of North Korea's nuclear and missile development remains obscure. What is clear is that North Korea's nuclear and missile development is far from over—and the main question is exactly *how* far from

over it is. Given the presence of both a new ICBM and a new submarine-launched ballistic missile, it is fair to suspect that Pyongyang may want to conduct new tests at some point. If there is also a warhead gap, then Pyongyang may want to conduct new nuclear tests as well. Only time will reveal what North Korean plans are, but it is ultimately worth noting that there is a stark difference between detonating a nuclear device under a mountain and developing a nuclear warhead that can fit on and be delivered by an ICBM as well as survive atmospheric reentry and detonate as intended. Proficiency in the first case does not necessarily translate to proficiency in the final case. At the very least, North Korea must still demonstrate that its warheads can reliably survive reentry—and this is impossible to do without further testing.

North Korea is currently observing a self-imposed moratorium on ICBM and nuclear testing. While this is a good start for negotiations, there is a genuine fear that North Korea has stopped testing simply because it no longer needs to test. Whether or not this is true—and whether there is truly a warhead gap—is something that time will tell. If tests resume in earnest, then it will be clear that North Korea has more work to do. ✪

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Notes

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