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# Imbalance of Power

## India's Military Choices in an Era of Strategic Competition with China

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## Executive Summary

The United States has made a strategic bet: that India will decisively shape the military balance in Asia.<sup>1</sup> In an era of avowed great power competition with China,<sup>2</sup> at a time when the U.S. military's edge over the People's Liberation Army (PLA) continues to erode,<sup>3</sup> this wager will have an outsized impact on the future trajectory of the region. If India can maintain an advantage over China along its Himalayan frontier and sustain its dominance in the Indian Ocean, U.S. efforts to deny Beijing a regional sphere of influence are far more likely to succeed—as is the vision of a free and open Indo-Pacific shared by Washington and Delhi. If India fails to realize its military potential, the United States, caught in between its many global commitments, will struggle to uphold a favorable balance of power.

Today, America's wager has yet to fully pay off. The trend lines in the India-China military equation are broadly negative. Despite very real improvements in Delhi's defense capabilities and a significant advantage conveyed by India's maritime geography, its longstanding superiority over China in the Indian Ocean is at risk of slipping away. Beijing has enhanced the capability and capacity of the naval forces it can project into the Indian Ocean and pursued overseas military facilities to support a more regular People's Liberation Army Navy (PLAN) presence there. Moreover, China's long-range precision strike complex, though constructed primarily with the

United States as the intended adversary, extends into the Indian Ocean—presenting a threat to Delhi's maritime operations. The state of play along India's Himalayan frontier is more mixed. Delhi possesses a clear advantage in localized military strength, but China has made significant infrastructure improvements in Tibet to enhance PLA mobility to surge troops forward, while folding the entire border with India under a single unified theater command—a major organizational restructuring that could yield an operational edge.

India has not stood still amid growing military competition with China. Delhi has sought to provide its forces with greater mobility and operational awareness along the Himalayan frontier, while giving increased focus to maritime domain awareness, logistics, and subsurface monitoring across the vast expanses of the Indian Ocean. To weather a potential PLA attack, India has placed greater emphasis on infrastructure hardening; base resiliency; redundant command, control, and communications systems; and improved air defense. At the same time, India has shifted to a more punitive deterrence posture: Having invested in long-range strike capabilities suitable to both land and maritime warfare, it conducted a recent trial of a new anti-satellite weapon. It has also refined an operational concept for the Himalayan theater that aims to take the battle into China's territory. Lastly, Delhi has begun taking steps to promote greater military jointness through new forms of defense organization.

## POSITIONING INDIA TO PREVAIL IN 2030

Delhi's ongoing efforts, though promising, will not fundamentally change the current trend lines in the India-China military equation. This report advances a set of recommendations that collectively aim to ensure select areas of Indian military advantage and stress PLA vulnerabilities. These recommendations are rooted in an assessment of policy and budgetary choices that might become viable for India in the decade ending in 2030.

Whether India can compete militarily with China will hinge on its operational concepts. The first advanced by this report is a sharper version of India's existing operational concept for the Himalayan theater, while the second is more novel and tailored to an increasingly challenging maritime environment.

- **Himalayan Operational Concept:** In peacetime, India should seek to deter China from crossing their shared land frontier. In the event of a large-scale invasion, Delhi would retain critical strong points while attriting attacking forces and disrupting the flow of PLA reinforcements across the Tibetan Plateau, but would avoid large mechanized ground incursions into China.
- **Maritime Operational Concept:** Delhi should endeavor to deter Beijing from initiating a conflict by demonstrating a continued ability to hold at risk China's sea lines of communication. In wartime, India should rapidly eliminate the PLA in the Western Indian Ocean and disrupt Beijing's seaborne trade while slowing naval reinforcements from mainland China. This would be accomplished by mounting a layered defense that starts in the waterways of Southeast Asia.

### Implementing these operational concepts will require Delhi to:

- **Reform India's defense organization** through establishing a joint Himalayan theater command, standing up joint and geographically reconfigured Eastern and Western maritime commands, and inaugurating a Defense Electronic Warfare Agency.
- **Invest in select capabilities** by strengthening command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR), developing more robust counter-C4ISR, enhancing the lethality and survivability of the Indian Army and Navy, and rationalizing the Indian Air Force around a smaller number of multi-role aircraft.
- **Bolster foreign strategic partnerships** through expanding maritime domain awareness cooperation with France, Australia, and Japan, while fully leveraging security ties with the United States.

## OPTIMIZING U.S.-INDIA DEFENSE ENGAGEMENT

Two decades of deepening U.S.-India security cooperation have generated real results, but both Washington and Delhi need a fresh look at how they can advance security ties in an era of intensified strategic competition with China. Looking out to U.S.-India defense engagement in 2030, this report makes the following recommendations:

- **Enhance defense trade** through strengthening institutional foundations on each side and tailoring U.S. arms exports to backstop India's operational concepts for China.
- **Advance Indian capacity and capability** by launching a new C4ISR/counter-C4ISR bilateral initiative, co-developing and jointly producing an unmanned surface vessel (USV), and initiating U.S.-India consultations on engineering for mountain warfare.
- **Deepen policy and planning coordination** through putting in place the foundations for China-related contingency talks, acting in tandem to blunt Beijing's pursuit of overseas military access, and reciprocating access to strategically located Indian Ocean islands.
- **Improve information sharing** by clarifying bureaucratic procedures and constructing technical channels to support rapid dissemination of intelligence to India, and establishing a U.S.-India-France information sharing consortium on China's activities in the Western Indian Ocean.
- **Optimize bilateral military exercises** through reorienting U.S.-India special operations exercises toward great power competition and evolving the new U.S. tri-service exercise with India to focus on high-end conflicts.

U.S.-India defense relations have recently confronted headwinds, such as Delhi's decision to purchase the Russian S-400 surface-to-air missile system. Yet India remains Washington's best bet in the region in the context of revived great power competition, while the United States is uniquely equipped to support Delhi's future military competitiveness vis-à-vis Beijing. With their combined vision of a free and open Indo-Pacific at stake, the United States and India should take the long view and work toward achieving a far deeper strategic partnership by 2030.

## Introduction

China's meteoric economic and military rise over the course of the past two decades has compelled a succession of U.S. administrations, both Democrat and Republican, to prioritize the deepening and broadening of U.S.-India defense engagement. Ever since the tentative first policies of rapprochement initiated in the wake of India's 1998 nuclear tests, the relationship between the world's oldest and largest democracies has continued to flourish.<sup>4</sup> A landmark moment occurred in 2005 when Washington and Delhi initiated a framework for civil nuclear cooperation and established a New Framework for the U.S.-India Defense Relationship,<sup>5</sup> and ever since, the frequency, breadth, and number of overall exchanges between the two governments have increased dramatically. U.S.-India defense relations have grown apace, to include sizable arms sales and increasingly sophisticated military exercises. In June 2016 and again in 2017, the United States designated India a "Major Defense Partner," a bespoke status intended to further elevate the relationship. Under the aegis of this strategic partner-

Delhi that the differential between India and China is expanding rather than contracting—and this even as Beijing behaves more assertively in its near-abroad. In 2000, India's military outlays were 66 percent of China's; by 2017, despite significant absolute growth in India's defense budget, this figure had declined to 26 percent.<sup>6</sup> Looking across most major warfare domains—particularly air, maritime, space, and cyberspace—India's position relative to China has in fact regressed due to the PLA's accelerating pace of modernization.

Even though most Indian planners and strategists consider China to be the most consequential challenge that India faces in the 21st century, Delhi's present trajectory is unlikely to reverse this trend. Its military acquisitions remain driven by sometimes competing considerations, as Pakistan's nuclear-shadowed revisionism and a series of slow-burning domestic insurgencies continue to tie India down within the subcontinent, acting as a drain on its strategic focus and resources. India's deepening partnerships with the United States and a growing set of powers ranging from Japan to Australia and France hold promise—but only through

renewed operational approaches will Delhi's armed forces be able to truly counter the regional threat posed by an increasingly capable PLA.

It is fundamentally in the United States' interest to strengthen India's ability to compete militarily with China. But the United States should seek not only to provide India with military hardware, but also to offer to work more closely with India on its force structure and operational concepts—with the shared aim of generating graver military dilemmas and imposing greater costs on China.

For the past two decades, the United States has wagered that it can rely on India to buttress a favorable balance in the Indo-Pacific as China continues to accelerate its military modernization. Unless the United States can work with India to fulfill its considerable military potential, Washington will be left with fewer options to frustrate China's ambitions to become the predominant military power in the Indo-Pacific.



*U.S. President Donald Trump and Indian Prime Minister Narendra Modi delivered joint statements in the Rose Garden of the White House on June 26, 2017, in Washington, D.C. (Mark Wilson/Getty Images)*

ship, the two countries have recently signed a number of bilateral agreements that facilitate greater synchronization across their logistics support networks and communications platforms.

Despite the positive evolution of the U.S.-India defense relationship and India's considerable latent military power, there is a growing sense in both Washington and

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The assessments and recommendations in this report are predicated on a clear-eyed understanding that India is unlikely to directly support the United States in a conflict with China, or to pose such a threat to Beijing that it will be required to divert resources from its decades-long effort to offset American military advantage<sup>7</sup> to counter a rising continental threat.<sup>8</sup> This should come as no surprise. Although India may largely share American concerns about China's geopolitical ambitions, it remains wedded to its strategic autonomy, has pursued a deliberate, cautious long-term strategy of internal and external balancing, and is not eager to prematurely provoke a conflict with a more powerful neighbor.

Even so, India can make a significant contribution to the regional military balance over the coming decade if it can sustain an edge over China along their Himalayan frontier and arrest what is now an eroding superiority in the maritime domain. A Delhi positioned to impose a grinding stalemate along Beijing's continental periphery while remaining the dominant power in the Indian Ocean would present a formidable obstacle to China's hegemonic aspirations, which run counter to the shared U.S.-India vision of a free and open Indo-Pacific. A more

capable India also would have a rallying effect on other regional democracies, such as Japan and Australia, that seek to avert a future in which China extends a sphere of influence over its periphery.

The focus of this report, therefore, is how India—preferably in close partnership with the United States but if need be operating alone—can develop a more robust conventional deterrent vis-à-vis China over the coming decade.<sup>9</sup> The first chapter evaluates the evolving India-China military equation. The second chapter assesses India's current military approach toward China; advances operational concepts for defending India's Himalayan frontier and for successfully prosecuting a conflict in the maritime domain; and lays out required changes to defense organization, capability investments, and strategic partnerships. The third chapter evaluates U.S.-India defense engagement through the lens of strategic competition with China and sets forward a series of recommendations for sharpening security cooperation between Washington and Delhi.

Interviews in Washington and Delhi, roundtable discussions, and a day-long strategic competition game all have informed this report. Across these research activities, one of the key takeaways was the need to strike a balance between addressing what might be possible in the near term given Indian domestic constraints and mounting frustration in both capitals with the pace of bilateral security cooperation, and exploring what might become viable over the coming decade ending in 2030. Accordingly, the recommendations in this report run the gamut from policy shifts that could be implemented within the near future to more ambitious initiatives that could necessitate years of sustained effort.

## Chapter One: The India-China Military Equation

This chapter explores the changing India-China military equation. It takes a fine-grained approach, focusing not only on relative spending and aggregate capabilities, but also on factors such as operational concepts, terrain, combat experience, and local force dispositions. The context of the assessment is the two primary domains of India-China military competition: the maritime domain of the Indian Ocean and the continental domain where borders claimed by Delhi and Beijing overlap in the Himalayas. This chapter finds that India's advantage along the Himalayan frontier is gradually eroding as China upgrades infrastructure on its side of the Line of Actual Control (LAC), while Delhi's longtime predominance in the Indian Ocean is slipping away.

### Assessment Methodology

Measuring and comparing military capabilities is no easy task. Attempts to materially quantify military balances and asymmetries—via the comparison of army sizes, defense budgets, and overall modernization levels—can certainly prove useful, but more as a point of departure than as a truly rigorous mode of analysis. Indeed, to rely exclusively on such simple metrics would suggest that India is in no position to challenge China militarily. Beijing's defense budget in 2019 is now more than five times that of Delhi's, and the PLA appears to possess a commanding (and growing) quantitative edge over India's armed forces, whether in terms of fourth- and fifth-generation fighter aircraft, diesel-electric submarines, or lightweight and rocket artillery.<sup>10</sup> Despite implementing a series of vigorous downsizing reforms, the People's Liberation Army Ground Forces (PLAGF) with almost 1.6 million troops in active service, remains the world's largest army, whereas the Indian Army, with approximately 1.2 million soldiers, comes in either second or third place.

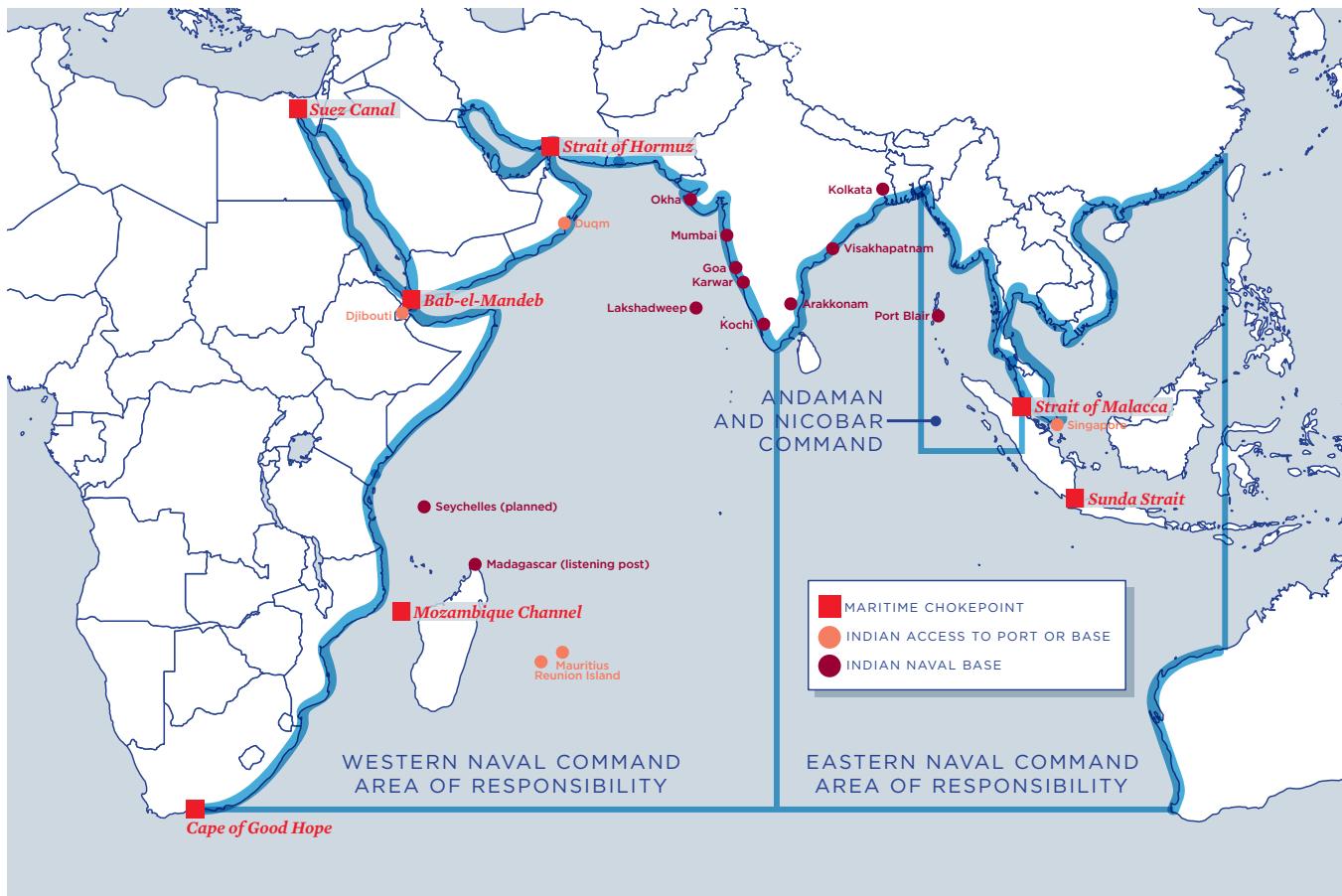
There is only a limited utility, however, to such basic forms of measurement. Indeed, as the late Andrew Marshall once noted, engaging in such “tabulations of forces of various sorts . . . is itself an evasion of the problem of estimating military power, since it says nothing about the actual capabilities of the forces of one country to deal with one another.”<sup>11</sup> As all modern students of security studies and military affairs are well aware, material capabilities matter, but so do organizational factors, doctrinal and operational concepts, and localized correlations of force.<sup>12</sup> So does experiential learning through combat, with “lessons learned” serving

as an impetus for tactical adaptation, innovation, and organizational reform.<sup>13</sup> India is by far the more experienced and battle-hardened party, having fought a series of limited and low-intensity conflicts in its recent past—from the Kargil conflict of 1999 to the cross-border artillery shelling, special operations forces (SOF) raids, and aerial skirmishing that now seem to have become a ubiquitous feature of the Indo-Pakistani rivalry. The PLA, on the other hand, has not experienced the crucible of combat since its conflict with Vietnam in 1979, and the few remaining veterans of that vicious border war are now nearing retirement.<sup>14</sup> Indian troops also regularly engage in increasingly sophisticated joint exercises with the world's most advanced and combat-experienced militaries, thus providing additional opportunities for gains in operational proficiency.<sup>15</sup> Western troops participating in such wargames and exercises regularly have expressed a grudging admiration for their Indian counterparts' tactical creativity and high degree of adaptability.<sup>16</sup> China's joint training endeavors, on the other hand, thus far have remained relatively rudimentary in scope—with the notable exception of its increasingly advanced military exercises with Pakistan and Russia.

Both India and China operate within multi-vectorized threat environments. India remains a second-order (albeit important) consideration for PLA strategic planners, who focus the bulk of their attention and military resources on countering U.S. and allied power projection within the so-called First Island Chain extending from Japan to Taiwan and the Philippines.<sup>17</sup> Meanwhile, India continues to grapple with a series of slow-burning domestic insurgencies, and with the many challenges posed by Pakistan's nuclear-tinged revisionism and proxy warfare. In the event of a conflict, neither Delhi nor Beijing necessarily could bring their full forces to bear—nor could their leaderships afford to completely discount the possibility, however remote, of an opportunistic third-party intervention. For all these reasons, it is necessary to adopt a more discriminating mode of analysis when describing the India-China military balance, and when evaluating Delhi's ability to respond to potential acts of aggression and/or coercion by Beijing, to concentrate not only on each nation's raw military capabilities, but also on how such capabilities might be postured, employed, and countered across different domains.<sup>18</sup>

### The Maritime Domain

Since independence, Delhi has sought to develop a navy structured around carrier groups and geared toward blue-water operations and sea control.<sup>19</sup> Currently the



Indian Navy Defense Organization in the Indian Ocean Region

seventh-largest navy in the world, the Indian Navy (IN) is widely considered to be a capable and balanced maritime force, with a diversified inventory of assets allowing it to conduct a broad spectrum of naval operations.<sup>20</sup> With approximately 137 ships and submarines and 291 aircraft under their command, Indian naval officers appear relatively confident in their ability to shield India's maritime environs from hostile action—at least in the short to medium term.<sup>21</sup>

In addition to the relative size and capability of India's fleet (which enjoys a 5-to-1 quantitative advantage over its most proximate adversary, Pakistan) the peninsular nature of Indian geography has provided the world's largest democracy with certain commanding positional advantages—particularly with regard to the application of missile and airpower—across the northern reaches of the Indian Ocean. Delhi also possesses a large number of island territories (more than 1,382), some of which occupy prime strategic real estate, such as the Lakshadweep Islands, a small archipelago of islets in the Arabian Sea, or the Andaman and Nicobar Islands—two

island groups that lie sprawled over vast tracts of the Eastern Indian Ocean and provide India with a staging point in close proximity to the crowded straits and contested waterways of Southeast Asia.

Notwithstanding these manifold positional advantages, there is a growing sense of foreboding in Delhi. The increased levels of trepidation partially stem from two closely intertwined factors. The first source of anxiety resides in Pakistan's growing naval capabilities, in both the conventional and nuclear domains, and in Islamabad's targeted set of investments in an array of anti-access and sea-denial assets, ranging from advanced Chinese diesel-electric submarines to coastal batteries of advanced antiship cruise missiles. Pakistan's focused, methodical approach to blunting Indian naval power

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projection thus has elevated it from mild irritant to genuine threat along India's western maritime flank.<sup>22</sup> Concerns over Pakistan's attempts to erect an "anti-access dome" over the northern Arabian Sea have been exacerbated by India's realization that these efforts increasingly have been enabled or conducted in close conjunction with a PLAN that desires to rapidly expand its global presence.<sup>23</sup>

Indian security managers have long closely monitored China's naval forays westward of the Malacca Strait, along with Beijing's development of dual-use port infrastructure in places such as Hambantota (Sri Lanka) or Gwadar (Pakistan). Well before President Hu Jintao famously called for the PLA to focus on "new historic missions," or PLAN submarines began to routinely roam the depths of the Indian Ocean while purportedly engaging in anti-piracy missions, Indian strategic commentators had begun to raise concerns over the prospects of a sizable Chinese military presence within Delhi's maritime near-abroad.<sup>24</sup> For many years, however, the strategic challenge seemed manageable. China's oft-stated ambition to develop a "two-ocean navy" with the ability to range at will across both the Indian and Pacific Oceans appeared to be a topic for India's long-term defense planners and to belong in the category of long-term rather than immediate threats, in contrast to the very real day-to-day menace of Beijing's creeping aggression along the LAC.<sup>25</sup>

The past five years, however, have witnessed the birth of a new sense of urgency in Delhi, as Beijing has elevated the levels of its naval deployments and probing actions in the Indian Ocean, cemented its position in the South China Sea via the construction and subsequent militarization of artificial island outposts, and enhanced the force levels of the PLAN component associated with the Southern Theater Command. Indeed, there are now more PLAN diesel-electric attack submarines (16) and guided-missile frigates (21) in China's Southern Theater Command than in the entire Indian fleet (which, at the time of writing, possesses 15 diesel-electric attack submarines and 13 guided-missile frigates).

The PLAN's forces not only are more numerous, they also are increasingly formidable and long-legged, capable of deploying as part of blue-water task forces—accompanied by tankers or submarine tenders—for extended durations across the Indo-Pacific. China's major surface platforms, which only a few years ago might have been acutely vulnerable to Indian airborne prosecution, now are increasingly equipped with advanced combat management systems and extended-range surface-to-air missiles.<sup>26</sup> China's surface fleet also is more operationally versatile, with the U.S. Defense Intelligence Agency noting that while the "overall inventory [of surface ships] has remained relatively constant, the PLAN is retiring older, single-mission warships in favor of larger, multi-mission ships," each equipped with a broader suite of capabilities, ranging from antiship to antisubmarine warfare capabilities.<sup>27</sup> Modernization efforts extend to the PLAN's conventional subsurface fleet. Indeed, whereas for many years the PLAN appeared to be experimenting with a number of different platform variants, it now only produces the Yuan-class diesel-electric attack submarines. The latter is equipped with air-independent propulsion, enabling it to remain submerged for longer periods of time and potentially evade Indian detection when transiting critical entry and exit points into the Indian Ocean.

Meanwhile, China's formal opening of a large-scale military facility in Djibouti, its economic "repossession" of Hambantota Port in Sri Lanka, and its revived managerial responsibilities over the deep-sea port of Gwadar have amplified longstanding Indian fears of maritime encirclement.<sup>28</sup> These concerns have been heightened by China's surging economic and diplomatic influence across maritime Asia under the guise of the Belt and Road and its various subordinate lines of effort—from the China-Pakistan Economic Corridor to the Maritime Silk Road. At the same time, Beijing's public discourse vis-à-vis the legitimacy and desirability of acquiring overseas bases has shifted palpably, with Chinese naval strategists and commentators now openly arguing in favor of developing defensive lines of strategic "strongpoints" across the Indo-Pacific, strongpoints that can then be used as springboards for exerting military control over the choke points most critical to Beijing's overseas trade.<sup>29</sup>

The Indian Navy—while making undoubtable strides in certain key warfighting domains—has struggled to keep pace with these seismic developments, and with its own ambitious force structure development plans. These plans call for a fully network-centric force, structured around three carrier groups and incorporating approximately 200 ships, including 24 conventional submarines,

and 500 aircraft, within the 2027 to 2030 timeframe.<sup>30</sup> As of now, however, the Indian Navy is only in possession of one operational carrier, 136 ships and submarines, and 219 aircraft. Although a spate of fresh acquisitions—most notably an additional, indigenously developed carrier, two to three new Scorpene diesel-electric submarines, and several more maritime patrol and rotary-wing aircraft—promise to somewhat remedy this situation within the next year to two, it is unlikely that the Indian Navy will attain its ambitious force structure goals any time soon.

Indeed, long considered the “Cinderella Service” due to its low level of funding, the Indian Navy’s share of the overall defense budget has continued to plummet over recent years, dropping from an average of 15 to 16 percent in the mid-2010s, to 12 percent in 2018–19.<sup>31</sup> The share of the Indian Navy’s capital budget within the total defense budget also has dwindled, from 12.81 percent in 2012–13 to 7.46 percent in 2017–18. As such, the Indian Navy recently has experienced a minor erosion in the strength of its overall fleet, as older vessels are being decommissioned faster than they can be replaced.<sup>32</sup> Meanwhile, the Indian Navy, much like India’s other armed services, continues to suffer from a deficit of personnel, with a shortfall of approximately 14,300 sailors and 1,400 officers.<sup>33</sup>

### **The Continental Domain**

Stretching over 2,500 miles, the LAC constitutes the longest disputed land border in the world. The absence of a shared consensus over its precise boundaries—let alone over the adjudication of each nation’s territorial claims—has been a major source of tension in the India-China relationship for decades. Both countries may have avoided engaging in a direct, armed conflict since a bloody skirmish in 1967, but the Trans-Himalayan peace always has been a deeply uneasy one, punctuated by instances of friction resulting in sudden troop surges, tense physical confrontations, and generalized fears of escalation. The most famous such incident occurred during the Sumdorong Chu crisis of 1987, when the Indian Army airlifted an entire brigade to forward positions in Arunachal Pradesh in response to a perceived revived Chinese threat to its territorial integrity.<sup>34</sup> Since that tense showdown, the steady normalization of India-China relations has led to the signing of a raft of detailed confidence-building measures, and to a mutual commitment not to sponsor insurgencies within each power’s restive hinterlands.<sup>35</sup> Yet despite these outwardly positive developments, and over 21 rounds of border talks, any durable resolution of the India-China territorial dispute

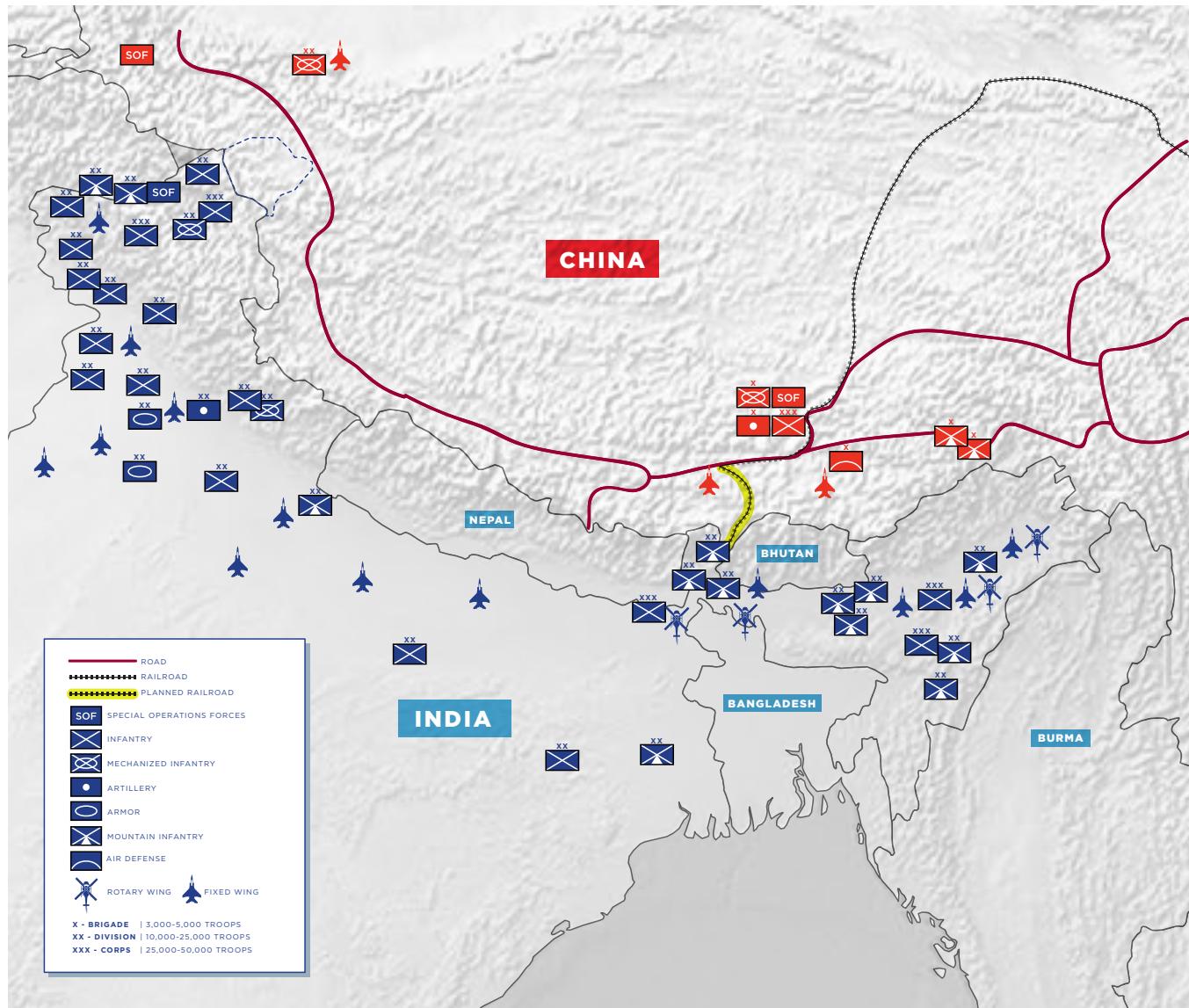
appears elusive at best. Fraught encounters between Chinese and Indian border patrols remain a regular occurrence. One of the most recent, and significant, was the so-called Doklam crisis of 2017, which unfolded at the trijunction area between India, Bhutan, and China. The resulting standoff, which led to sizable troop buildups on both sides, lasted over 73 days before slowly winding down, and served as a clear reminder of the tenuousness of stability along the India-China border.<sup>36</sup>

The challenges Indian armed forces face along the LAC have less to do with addressing any immediate material inferiority vis-à-vis the PLA (although deficiencies in certain key areas of their inventory are a growing concern) and more to do with tailoring their concepts of operations to the challenges posed by an increasingly agile and sophisticated adversary—all while operating within a singularly forbidding geographical environment.

A simple order of battle comparison along the Himalayan frontier that Delhi and Beijing share demonstrates that India possesses a clear advantage in localized military strength.<sup>37</sup> This is the case both with regard to the sheer numbers of Indian ground forces stationed in proximity to the LAC and with regard to forward-deployed air assets. This quantitative asymmetry can be partially attributed to historic variations in both nations’ territorial defense postures. Indeed, whereas India maintains a large number of military and paramilitary troops along the various plateaus, mountain passes, and valleys that provide the most obvious potential points of trans-Himalayan ingress, China—in accordance with its doctrine on frontier defense—stations the bulk of its conventional forces in its interior, to be surged forward in the event of conflict.<sup>38</sup>

### **The steady extension of China’s high-speed rail system is a particular cause for Indian concern.**

Over the past decade, however, a series of developments have threatened to durably erode India’s military edge. The first set of developments has to do with the many ramifications of China’s impressive infrastructure initiatives across the Tibetan Autonomous Region (TAR). Covering both communications and connectivity, this infrastructure expansion has included laying thousands of kilometers of fiber-optic cable, constructing a number of small aperture terminal satellite stations, and building highways and high-speed rail.<sup>39</sup> The steady extension of China’s high-speed rail system is a particular cause



for Indian concern.<sup>40</sup> Indeed, the development of a new high-speed railway from Chengdu to Lhasa, along with the projected expansion of the existing railway network from Shigatse to Yadong (a frontier town overlooking Sikkim and the highly strategic Chumbi Valley), allows the PLA to apply its operational concept of “trans-theater mobility” both in width and in breadth.<sup>41</sup> In the event of conflict, Beijing thus could engage in rapid lateral movements across the Tibetan Plateau—shuttling PLA forces from one side of the TAR to the other—all while reserving the option to rapidly ferry in several divisions of reinforcements from its interior. Indian forces, on the other hand, remain constrained by the rugged nature of the topography on their

side of the border, which acts as a major impediment to fluid intra-theater redeployments.<sup>42</sup> As one senior Indian national security official has observed:

“Whereas the Chinese can benefit from a horizontality of movement across the Tibetan Plateau, operational concepts on the Indian side are tailored to the nature of the terrain in this region of the Himalayas, which largely consists of a series of vertically delineated valleys, almost like the fingers of a hand.”<sup>43</sup>

## THE DAUNTING GEOGRAPHY OF INDIA'S HIMALAYAN FRONTIER

The long India-China border encompasses some of the most forbidding contested terrain in the world—from the barren wastes of Aksai Chin to the west, where temperatures in winter can plummet to -67 Fahrenheit, to the dense water-logged forests of Arunachal Pradesh, an area that regularly receives some of the world's highest volumes of annual rainfall, to the east. Such extreme terrain and climactic conditions affect almost every aspect of military operations. At oxygen-starved high altitudes, such as on the Tibetan Plateau, aircraft are limited in their payload capacity, with jet engines taking longer to ignite and lower air pressure causing significant variations in the trajectories of aerial ordnance. Meanwhile, extreme cold damages helicopter rotors, freezes lubricants, and cracks cannons.

As one study notes, severe meteorological conditions affect artillery use at higher altitudes, with low air pressure, frigid temperatures, and high wind speeds rendering "standard firing tables ineffective."<sup>47</sup> In rain-drenched areas such as India's Northeast, the monsoon season frequently is accompanied by biblical floods, atrocious visibility, and dangerous landslides. In rugged mountainous terrain, topographical folds can conceal troops from radar and aerial reconnaissance, and acoustic reflection and echoes degrade the performance of sound ranging artillery localization systems. Even a soldier at peak fitness will require up to ten days to acclimatize to high altitudes, and acclimatization is simply not possible beyond 18,000 feet. A lack of proper physical preparation often can have fatal consequences. Indeed, it is estimated that during the

1962 war, the Indian Army, which rushed troops up from the lowlands without engaging in the requisite staged or graduated ascent, suffered more casualties due to altitude sickness (and more specifically, high-altitude pulmonary edema) than to enemy fire.<sup>48</sup> Similarly, on the world's highest battlefield, Siachen Glacier, 18,000 feet above sea level in the Eastern Karakorums, more Indian and Pakistani soldiers have succumbed to frostbite and avalanches than to actual combat.

Planning for potential large-scale military conflict in such unforgiving conditions calls not only for rigorous physical preparation such as that dispensed, for example, at India's High Altitude Warfare School in Kashmir, or at its High Altitude Commando School in Arunachal Pradesh, but also for tactical innovation and platform experimentation. The PLAAF has thus been working to improve the performance of its fighter jet engines at high altitudes, while the PLA has established a number of oxygen-rich hyperbaric chambers in the TAR to allow any follow-on surge forces to better weather the physical harshness of an accelerated altitude acclimatization routine.<sup>49</sup> Meanwhile, India is considering deploying hybridized military vehicles to higher altitudes to offset some of the operational fragilities of traditional combustion engines in extremely cold and elevated terrain, and in 2013 succeeded in landing a C-130J Super Hercules aircraft at the world's highest airstrip in Ladakh.<sup>50</sup> More recently, India achieved another important milestone when its indigenously developed light utility helicopter attained a service ceiling of over 20,000 feet.<sup>51</sup>



The logistical difficulties associated with swinging Indian troops from one “finger” to another provide one explanation, among others, for India’s traditional heavy investment in boots on the ground. Physically “plugging” the key geographic nodes across India’s Himalayan frontier with thousands upon thousands of troops allows Indian defense planners to avoid the risks of succumbing once again, to a Chinese territorial fait accompli due to delays in sustainment and reinforcement.<sup>44</sup> The question going forward is whether this manpower-intensive approach to territorial defense remains the most efficient and cost-effective, both in light of the evolving security equation along the LAC, and given India’s many competing security imperatives and pressing need for platform acquisition and modernization.

The geography of the Tibetan Plateau also works to the PLA’s advantage with regard to surveillance, artillery, and missile operations, with China’s military positions—particularly in the western sector—sometimes directly overlooking Indian border outposts. More broadly, Indian defense planners have become increasingly concerned about the vulnerability of their air-basing infrastructure to PLA standoff artillery and missile strikes, along with the Indian Army’s perceived overreliance on a few narrow arteries of transportation—whether in the form of winding mountain roads or rickety bridges—that could, in the event of conflict, suddenly be truncated by volleys of precision guided munitions and/or sabotaged by special operations forces.<sup>45</sup> Beijing’s rapid advances in cyber and electronic warfare—and the high degree of importance attached to their surgical employment in Chinese writings on “non-contact” or “target-centric warfare”—provide another cause for anxiety.<sup>46</sup>

With regard to airpower, the situation appears somewhat more reassuring for India, in large part due to the relative paucity of Chinese air basing infrastructure in the TAR and to the severe operational limitations, both in terms of fuel and payload capacity, induced from operating fighter aircraft at extreme altitudes. That said, India’s longstanding advantage in this domain may also be at risk of dissipation. Should such a reversal occur, it would result from a confluence of factors, ranging from the slow, but steady, hemorrhaging of India’s fighter fleet capacity, to the PLAAF’s recent acceleration of its airbase modernization efforts, along with the growing density and sophistication of China’s integrated air defense network.<sup>52</sup>

Last but not least, certain key differences in both states’ military organization and higher defense management could have a notable effect on the outcome of combat operations. Whereas in India the responsibility for the defense of the LAC is segmented among several

**Certain key differences in both states’ military organization and higher defense management could have a notable effect on the outcome of combat operations.**

regional army, paramilitary, and air force commands, in early 2016 China engaged in a major military rezoning, folding the former Chengdu and Lanzhou military regions into one unified western theater command.<sup>53</sup>

In addition to this drastic overhaul of China’s geographical command structure, Xi Jinping-era defense reforms have further elevated the importance attached to “non-contact” or “system on system” operations—most notably, via the creation of the PLA Strategic Support Force, which brings together space, cyber and electronic warfare capabilities.<sup>54</sup> China’s premier paramilitary force, the People’s Armed Police, has now been placed under the sole authority of the Central Military Commission, and its increasingly formidable and well-equipped troops—a large number of whom are stationed in Western China—can be expected to play a critical role in support of PLA combat operations in the event of an India-China conflict.<sup>55</sup>

Meanwhile, on the Indian side of the border, seething tensions over the control and tasking of certain paramilitary units occasionally have spilled over into the public domain, with Indian Army officers complaining about the “inter-force friction” and risk of “confusion during operational exigencies” generated by the co-location of paramilitary and army troops operating under separate chains of command in critical frontier regions.<sup>56</sup> All of these differences combined, noted one recently retired Indian Army officer, could “result in a much smoother, and more integrated Chinese command system along the contested border . . . thus providing enemy [Chinese] forces with a potentially commanding edge over us [Indian armed forces] in the opening stages of conflict.”<sup>57</sup>

## **Chapter Two: Assessing India's Evolving Military Approach to China**

India's China-focused concepts of operation have undergone some significant shifts over the past decade. As two leading Indian security experts have noted, the perception of a widening capability gap between the two rivals' armed forces has prompted an evolution in Delhi's defense planning, from a strategy predicated on deterrence by denial to one aiming for deterrence by punishment—regardless of the theater of military operations.<sup>58</sup> India has pursued this strategy of deterrence by punishment along several different lines of effort, briefly summarized as follows:

- An effort to better master and/or leverage India's unique geography by increasing the range; mobility; and intelligence, surveillance, and reconnaissance (ISR) capabilities of its military assets
- An effort to better weather the effects of any potential Chinese attack by enhancing system redundancy and base resiliency
- An effort to acquire the "capacity for punishment" by demonstrating an ability to take the battle into Chinese territory and credibly threaten the PLA's lines of reinforcement, supply, and communication
- An effort to slowly transform India's higher defense management along with some of its military's long-standing operational and cultural paradigms, with the hope of eventually generating a force design better tailored to the nature of the Chinese threat.

This chapter will engage in a detailed assessment of India's initiatives through and across these different areas. Progress thus far has been somewhat uneven. Certain noticeable advances in the Indian military's defensive and offensive capability have been offset by the persistence of longstanding civil-military and bureaucratic maladies. Furthermore, while some aspects of India's planned military modernization, if fully realized, will undoubtedly help stabilize the India-China military equation, other aspects may not be as effective in offsetting the threat posed by China as alternative models of force design.

### **Mastering India's Geography**

India's unique geography has generated a set of specific challenges and opportunities, the nature of which differs greatly from the continental to the maritime domain. For Indian security managers surveying the terrestrial threat environment, the overarching sentiment is one

of geopolitical constraints. Indeed, the world's most populous democracy is surrounded either by hostile states or relatively weak and fractious polities, with little in the way of cross-regional economic integration.<sup>59</sup> Meanwhile, there are growing concerns in Delhi that the "two front" or "two and a half front" threat that has formed the basis of the Indian military's planning constructs for decades may be evolving into a more serious, multi-azimuth cross-border challenge as China and Pakistan heighten their military cooperation and enhance their interoperability.<sup>60</sup> Even as India's armed forces work to offset these growing challenges, they must contend with a forbidding Himalayan environment that acts as an impediment to intra-theater mobility and presents its own distinct set of physical, operational, and ISR challenges.

Whereas India's terrestrial threat environment can appear somewhat crowded, its maritime environs are characterized by their sheer vastness. With a long coastline of over 4,670 miles and a string of archipelagic territories, India also possesses one of the world's largest exclusive economic zones.<sup>61</sup> As Indian government documents frequently reiterate, the nation's growing economy is heavily dependent on the unimpeded flow of maritime commerce, which constitutes up to 95 percent of its overall trade by volume and 68 percent by value.<sup>62</sup>

The expansiveness of India's oceanic sphere of interest—which lies athwart some of its principal rivals' main sea lines of communication—presents both opportunities and challenges. Opportunities, in that India can

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radiate power out into one of the most critical thoroughfares for global economic activity, and in that (as of now, at least) neither China nor Pakistan can seriously threaten India's main axes of maritime approach. The challenges, however, lie in the form of the considerable operational burdens placed on India's proficient but mid-sized navy with regard to the monitoring, patrolling, and preservation of such a far-flung maritime environment.<sup>63</sup> Moreover, many areas of the Indian Ocean present singularly challenging operating environments for anti-submarine warfare due to the relative shallowness of the

waters (particularly in the Arabian Sea), the density or salinity gradients, and the temperatures. These regional characteristics add another layer of complexity to the “hider-finder” competition, with potentially hostile foreign submarines being that much harder for the Indian Navy to pinpoint and track.<sup>64</sup>

Along the long and rugged LAC, India has focused on developing the infrastructure and airlift capacities that would allow its troops to move more rapidly and decisively in response to any precipitate act of Chinese aggression. The Indian government thus has undertaken a vast road and rail building program along the LAC, all while expanding airfields and constructing or refurbishing a number of advanced landing grounds (ALGs) at various high-altitude staging points from Ladakh to Arunachal Pradesh. The Indian Air Force (IAF) has framed this multi-year airfield and ALG development program as critical to any future joint campaigns to expel intruding enemy forces, with a spokesperson noting in August 2013 that the Modernization of Airfield Infrastructure Program would put the service in “a better position to meet the requirements of our land forces, which are heavily dependent on the air bridge for sustenance in these high and inhospitable areas.”<sup>65</sup>

Indeed, the past few years testify to an amelioration of inter-service relations between the Indian Army and Air Force, even though some tensions linger, most notably over the long-festering issue of operational control of attack helicopters. It would seem as though the Indian Army ultimately has prevailed in this bitter inter-service struggle, initiating its own ambitious plan to develop a powerful Army Aviation Corps composed of ten helicopter attack squadrons, totaling over 100 platforms.<sup>66</sup> Partly in response to the PLA’s growing emphasis on airborne assault, the professed ambition is to mimic the U.S. Army’s own rotary-wing units by forming army aviation brigades composed of a mixture of heavy-lift, reconnaissance, and attack helicopters.<sup>67</sup>

## **The past few years testify to an amelioration of inter-service relations between the Indian Army and Air Force, even though some tensions linger.**

These force structure efforts are part of a revived emphasis on developing an airborne assault capability specifically tailored for the Himalayan theater of operations. Delhi recently has moved to acquire not

only Apache and Chinook rotary-wing assets, but also military transport aircraft, such as the C-130 and the C-17 Globemaster, both of which India has test-landed successfully at high-altitude airstrips along the India-China border.<sup>68</sup> India’s new Apaches—the second squadron of which has been specifically earmarked for India’s northeastern border with China—will provide critical rapid firepower support to isolated Indian troops facing off against larger-scale PLA encroachment. The Chinooks, which can airlift both India’s new M777 155mm howitzers and its lighter mountain guns, are viewed as critical to flowing artillery assets from one mountainous sub-theater to another.<sup>69</sup> The head of the IAF, Air Chief Marshal Birender Singh Dhanoa, recently noted when commenting on the abilities of the Chinook,

The ability to transfer heavy loads and acclimate[d] troops from high altitude into another valley is a game-changing capability. If the enemy surprises us in any such valley, we can move troops immediately to such spots to get into battle. Our ability to do this is now enhanced for day and night with this helicopter. . . . The high-altitude game is more with China than with Pakistan.<sup>70</sup>

Delhi also has intensified its efforts to acquire a better operational picture of the LAC, both in terms of human intelligence and with regard to ISR. The steady growth in battalions composed of locally raised mountain or hill men—in the form of the Sikkim or Arunachal Scouts, for example—is viewed not only as a way of cementing the loyalty of economically disenfranchised Himalayan peoples, but also as a means of developing forward-deployed, acclimatized contingents of troops with close familial or tribal ties to frontier populations, and with an unparalleled knowledge of their localized theater of operations.<sup>71</sup> At the same time, India has moved to invest more heavily in a suite of ISR technologies—from high-altitude and micro-unmanned aerial vehicles (UAVs) to radar-carrying aerostats and high-resolution earth observation and radar imaging satellites—allowing its armed forces to keep a closer eye on furtive Chinese troop movements, as well as road and bunker development along the LAC.<sup>72</sup>

Even as India has sought to provide its forces with greater mobility and operational awareness along the LAC, it also has increasingly focused on maritime domain awareness (MDA), logistics, and subsurface monitoring across the vast expanses of the Indian Ocean.<sup>73</sup> This is reflected in the development of India’s maritime spatial

surveillance assets and in its procurement of a growing number of sophisticated long-range maritime patrol and anti-submarine aircraft such as the P-8I, along with high-altitude, long-endurance unmanned systems such as the Sea Guardian. It is also evident in India's development of dual-use information gathering facilities—from coastal radar chains to maritime information fusion centers—with smaller island nations ranging from Madagascar to the Seychelles.<sup>74</sup>

In addition to this increasingly networked regional MDA enterprise, India has agreed to share information on commercial shipping movements with a growing number of countries, and in the course of the past few years, has signed two major logistical pacts with France and the United States. Last but not least, Delhi has put maritime surveillance at the heart of its military space diplomacy. Indeed, India partnering with France aims to develop a constellation of eight to ten maritime surveillance satellites providing continuous coverage over the most heavily trafficked areas of the Indian Ocean.<sup>75</sup> The Indian Navy also has upped the tempo of its operational deployments in response to a perceived rise in PLAN activity, announcing plans in October 2017 to stage a continuous presence of warships accompanied by surveillance aircraft along critical choke points in order to execute a “spectrum of operations.”<sup>76</sup> The Indian Navy’s

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P-8Is now regularly fly sorties over the Bay of Bengal and Andaman Sea, while the IAF has begun to rotate some of its frontline Su-30 MKI fighters through the Andaman and Nicobar Command—a formerly isolated and underdeveloped military outpost where airbaseing and port infrastructure also have undergone a sizable overhaul over the past decade.<sup>77</sup>

#### **Weathering a Chinese Attack**

Indian concerns over China's increasingly formidable land-based reconnaissance strike complex—and more specifically, over its ever-growing missile and rocket inventory—also have led to a greater emphasis on infrastructure hardening, base resiliency, and system redundancy. India's defense ministry has thus sanctioned the construction of hardened ammunition storage depots and aircraft shelters along the LAC, as well as the development of a sprawling network of subterranean tunnels and railways deep under the Brahmaputra river

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and certain parallel-facing mountain valleys.<sup>78</sup> When these ambitious infrastructure projects eventually are completed, large numbers of Indian forces will be able to move more freely within certain critical sub-theaters without fear of being crippled or physically blocked in the opening stages of conflict by withering volleys of precision fires. IAF pilots, much like their Taiwanese counterparts, now practice emergency landings on certain designated highways for use in the event of severe runway degradation.<sup>79</sup>

Efforts are also under way to improve the military communications architecture along the India-China border and to offset the vulnerabilities of space-based architectures by fielding airborne command, control, and communications networks.<sup>80</sup> Most recently, the Indian government, citing security concerns, quietly pressured the private telecommunications firms that connect close to 500 isolated villages along the India-China border to migrate their Digital Satellite Phone Terminal services from commercial satellites to India's more secure, indigenously developed military satellites.<sup>81</sup> Lastly, the IAF, after stoically weathering years of sluggish procurement policies, has sought to mitigate the erosion of its military edge along the LAC by investing more heavily in sophisticated air defense systems, exemplified by the procurement of five self-propelled S-400 surface-to-air missile systems from Russia.

The first of these systems is scheduled to arrive in India in the fall of 2020. Despite the potentially damaging effect such a high-profile purchase may have on U.S.-India defense ties (most notably via the potential invocation of sanctions against India under the Countering American Adversaries Through Sanctions Act, or CAATSA), the acquisition of the S-400 is viewed as a “high priority requirement which will substantially change India's posture, both toward the adversary in the Northern Front as well as the one on the Western

Front.”<sup>82</sup> Indeed, the induction of the S-400 is viewed not only as a cost-effective form of air defense, but also as a key enabler, freeing up India’s dwindling inventory of multi-role fighters to focus on air-to-ground missions rather than on defensive counter-air.

### **Acquiring and Demonstrating the Capacity for Punishment**

Over the course of the past decade, India’s ground forces have accentuated their focus on standoff strike, positioning along Delhi’s contested northern periphery two Pinaka multiple rocket launch systems regiments and several BrahMos missile regiments, including one equipped with a new steep-dive capability optimized for precision strikes in mountainous terrain.<sup>83</sup> Indian Army SOF and frontline infantry now field several micro- and mini-UAV detachments, the incorporation of which greatly enhances their ability to conduct beyond-line-of-sight reconnaissance and guidance for coordinated precision fires.<sup>84</sup> The Indian Army has also forward-deployed a growing number of armored and mechanized units in the few areas along the LAC topographically suited to maneuver warfare (Ladakh and Northern Sikkim), and developed operational concepts that call for mechanized thrusts deep into the TAR, and for the targeting of railway and highway infrastructure to prevent China from rapidly bringing more forces to bear.<sup>85</sup> Such aggressive operational concepts would no doubt be supplemented by other, potentially more controversial special warfare campaigns. These sabotage and disruption efforts would be undertaken primarily by India’s increasingly capable and numerous SOF, as well as by the fabled Special Frontier Force, a secretive unit of ethnic Tibetans and hill tribesmen, which answers directly to India’s external intelligence agency, the Research Analysis Wing.<sup>86</sup>

The increased emphasis on standoff and beyond-visible-range strike is shared by the IAF, which has begun to retrofit several squadrons of its Su-30 MKIs with BrahMos missiles, including new variants of the missile that have been redesigned for an air-to-ground role.<sup>87</sup> Meanwhile, the IAF plans to position a squadron of Rafale aircraft equipped with Meteor beyond-visible-range air-to-air missiles in Hasimara air base in West Bengal. The IAF has also developed operational concepts that allow it to more rapidly swing fighter aircraft via a growing number of airborne early warning and control and tanker aircraft from the Indian mainland to distant island territories such as the Andaman and Nicobar islands without pausing to refuel.<sup>88</sup> Conversations with IAF officers clearly indicate that the service views the

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preemptive degradation of China’s basing and communications infrastructure across the LAC as a core mission in the event of high-end conflict.<sup>89</sup> This is also emphasized in Indian Air Force doctrinal writings, with the 2012 doctrine noting that “We [the IAF] can either opt for deterrence and protection or we can choose to neutralize the forces arrayed against us and degrade even their places of origin.”<sup>90</sup>

Meanwhile, even as the Indian Navy remains a carrier-centric force with a cultural predilection for power projection, it has also begun to slowly rebalance its fleet architecture, with a stronger focus on antisubmarine warfare and offensive sea denial. This evolution is particularly noticeable when surveying the new or pending platforms assigned to India’s Eastern Naval Command, which is slated to host not only the Indian Navy’s growing inventory of P-8Is, but also a growing flotilla of antisubmarine warfare corvettes and small, fast missile boats incorporating stealth features and fitted with a maritime variant of the BrahMos missile.<sup>91</sup> Perhaps most significantly, Delhi has announced an ambitious plan to develop six indigenous nuclear attack submarines.<sup>92</sup> It has been suggested that, eventually, the future boats—like the Indian Navy’s current lone nuclear-powered attack submarine on lease from Russia—will be stationed primarily along India’s eastern seaboard, from where they can range into the deeper waters of the Bay of Bengal and play an important role in tracking and/or intercepting PLAN moments through the Malacca, Sunda, and Lombok straits.<sup>93</sup>

Delhi has also endeavored to convey to Beijing that it should not operate under the assumption that it can establish escalation dominance in space and engage in an offensive blinding campaign against India’s smaller, more vulnerable satellite architecture without fear of retribution. This message was relayed in a particularly blunt form when India conducted a kinetic anti-satellite weapon test earlier this year, destroying an Indian satellite in low Earth orbit with an indigenously developed ballistic missile defense interceptor. Although the

Modi government avoided openly stating that its efforts were directed toward China, the intended audience was immediately apparent to all those with a close interest in Indian defense policy.<sup>94</sup> In addition to the development of kinetic anti-satellite weapons, India's Defense Research and Development Organization has declared that it is also working on other non-kinetic, and potentially non-attributable, counterspace capabilities, from cyber to directed energy weapons and satellite-dazzling lasers.<sup>95</sup> And in May 2019, the Indian Ministry of Defense announced the creation of a tri-service Defense Space Agency (DSA), with a professed mission of establishing “credible deterrence in space,” and preventing any adversary from “neutralizing” its space-based ISR capabilities.<sup>96</sup>

### **Reforming India's Military and Higher Defense Management**

The newly formed DSA is but one in a series of freshly minted tri-service commands, including an Armed Forces Special Operations Division and a Defense Cyber Agency.<sup>97</sup> All three commands will draw qualified personnel from the different services, and will report to the Chairman Chiefs of Staff Committee, via the Integrated Defense Staff. The decision to create these joint commands—whose higher leadership will be carefully parceled out among the Indian armed services—is part of a broader move toward greater institutional integration and operational jointness. Most significantly, the Modi government recently announced the creation of the post of Chief of Defense Staff, startling even India's own community of jaded defense analysts, many of whom had grown accustomed to decades of deferred reforms and to halting, sometimes even glacial progress. On a more operational level, India's military in recent years has routinized the conduct of large-scale tri-service exercises—exercises that are increasingly woven now into India's bilateral defense cooperation with its most capable foreign military partners.<sup>98</sup>

### **Acknowledging Constraints on India's Military Approach to China**

While many of the reforms and lines of effort previously enumerated would appear to be moves in the right direction, the speed, scale, and scope of their implementation remain insufficient given China's rapid military advances. The reasons behind this are multiple. India's defense management, procurement, and acquisition process remains byzantine and inefficient. There are no doubt also some broader strategic considerations at play, as India oscillates between prioritizing its internal

defense industry and rapidly fielding a modern force.<sup>99</sup> This is reflected, notes one observer, in the fact that Delhi continues to suffer from “an inability to reconcile the need for self-sufficiency in defense production with the necessity of maintaining technological superiority over its rivals.”<sup>100</sup>

India's platform and infrastructure development efforts may often make strategic sense, but they remain subject to the same debilitating delays that have plagued the efforts of the nation's defense planners for generations since independence.<sup>101</sup> For example, out of 61 strategic border roads earmarked for construction and/or development, only 28 have been completed. Similar delays have impeded India's airbase hardening and development efforts, its subterranean tunnel and ammunition depot construction, and its border railway expansion projects.<sup>102</sup> Although Indian strategists are increasingly aware of the importance attached to cyber and electronic warfare in Chinese writings, there is little evidence to indicate that India's armed forces are anywhere near to closing the gap in these areas with the PLA—despite Indian civil society's impressive reservoir of technological talent. Meanwhile, India's counterspace capabilities—particularly in the non-kinetic domain—remain embryonic, and its SOF remain heavily focused on counterterrorism and counterinsurgency efforts rather than on the higher-intensity campaigns they may be tasked with along and across the LAC.

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At the time of this writing, no lasting solution has been found to the issue of how best to coordinate conventional and paramilitary units in certain critical sub-theaters, and India's higher command system—most notably along its Himalayan frontier—continues to be more fractured than China's.<sup>103</sup> The Modi governments' volley of defense reforms are certainly promising, but the jury is out as to whether they will durably transform India's sprawling military apparatus and generate the requisite effects in

terms of decisional fluidity and cross-service integration. It remains to be seen whether the first Chief of Defense Staff will be truly empowered, or whether the role will possess little or no ability to foster jointness across the three services.<sup>104</sup>

However, the most sizable barrier to the reinforcement of India's defense posture vis-à-vis China remains budgetary. Indeed, in 2018 to 2019, India's defense budget amounted to only 1.49 percent of the nation's GDP, and this at a time when most informed observers have suggested that in order to fulfill some of its more ambitious force modernization goals, Delhi would need to funnel approximately 3 percent of GDP into its armed forces.<sup>105</sup> These budgetary constraints have been compounded by continuous growth in personnel and pension costs, and by the pre-Modi government's decision in 2013 to sizably augment the Indian Army's end-strength via the creation of a new 70,000 to 90,000 strong Mountain Strike Corps.<sup>106</sup> This decision was undertaken only a few years after a previous government already had decided to raise two new mountain divisions in Arunachal Pradesh, along with battalions of locally recruited scouts.

Unlike the force buildups following the 1962 Sino-Indian War and 1999 Kargil War, these massive recruitment drives were not accompanied by any concomitant increases in the defense budget.<sup>107</sup> As a result, the formation of the new Mountain Strike Corps' second division has been placed on hold, and the Indian Army's already bloated share of the defense budget has begun to eat into the capital budgets of the Indian Navy and Air Force, further delaying much-needed platform procurement and recapitalization programs.<sup>108</sup> Despite a recent flurry of high-profile public statements and in-house assessments calling for a downsizing of the Indian Armed Forces and for an organizational restructuring of the Indian Army around brigade-sized integrated battle groups, India's ground forces (both conventional and paramilitary) have continued to swell in size. Meanwhile, surges in military pay and pensions mean that even the seemingly privileged Indian Army now is obliged to expend the vast majority of its budget on personnel-related costs (77 percent in 2019 compared to 56 percent in 2005 to 2006).<sup>109</sup>

### **Positioning India to Prevail in 2030: Operational Concepts**

India has made uneven progress toward sustaining a favorable military balance amid the PLA's rapid advance. Looking to 2030, it is unlikely that Delhi will fully overcome many of the obstacles that have constrained its approach until now. Nonetheless, India can develop

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select areas of advantage over China and stress PLA vulnerabilities through pairing tightly focused operational concepts with targeted changes to its defense organization, select capability investments, and enhanced strategic partnerships.

This section explores operational concepts for defending India's Himalayan frontier and for prosecuting a conflict with China in the maritime domain. Both concepts are rooted in a number of assumptions about India's future military spending and defense reforms. Specifically, Indian defense budgets will grow steadily, but personnel costs will continue to limit the scope for comprehensive force modernization and crowd out research and development. The Indian Army will remain the dominant service and receive the lion's share of future defense budgets, with relative allocations to the Indian Navy and Indian Air Force growing incrementally at best. Lastly, with a time horizon of 2030, limited changes to India's defense organization are possible, though not sweeping reforms akin to America's Goldwater-Nichols Department of Defense Reorganization Act or to China's transition from military regions to joint theater commands.

#### **HIMALAYAN OPERATIONAL CONCEPT**

Along the LAC, India's position remains generally favorable even as its edge gradually erodes. Notably, Delhi has already moved toward adopting an operational concept intended to exploit local geographic conditions and impose costs on the PLA during wartime. Looking to 2030, India should continue to sharpen this operational concept, with a focus on deterring China from crossing the LAC, and in the event of a large-scale invasion, retaining critical strong points while attriting attacking forces and disrupting the flow of PLA reinforcements across the TAR. This operational concept would involve specific actions by India in peacetime, crisis, and conflict.

*Peacetime.* India would quickly identify and confront potential incursions by China across the LAC and seek mutual de-escalation and a return to the prior disposition of forces. At the same time, New Delhi gradually would improve infrastructure on its side of the LAC while rigging roads, bridges, and hillsides with explosives to ensure that transportation corridors intended to reinforce its position would not become avenues for invasion. To limit Beijing's ability to develop a comprehensive understanding of Indian forces along the LAC, Delhi routinely would shift units across valleys and utilize camouflage, concealment, and deception. Lastly, India would update its contingency plans to prepare for the possibility that China would violate the sovereignty of Nepal and Bhutan during a conflict.

*Crisis.* During a period of heightened tensions potentially preceding an armed conflict with China, India would use rotary wing heavy lift to reinforce key geographic strongpoints. It would simultaneously disperse irregular units—the Special Frontier Force, scouts, and other SOF—to minimize China's ability to target them and prepare to counter any insertions by PLA SOF. Delhi would also leverage intelligence sharing arrangements with foreign strategic partners to augment its understanding of PLA troop dispositions in the TAR and track the status of potential follow-on echelons stationed deeper within China. To give Beijing pause and encourage it to consider crisis off-ramps, Delhi would demonstrate its ability to sever China's ground lines of communication in the TAR, for example, by conducting a medium-range missile test against a ground target within India's borders.

*Conflict.* Upon the outbreak of armed hostilities, India, using a combination of jamming, satellite dazzling, and offensive cyber operations, would degrade China's sensor architecture covering the LAC. This would diminish the PLA's ability to quickly find, fix, and finish Indian forces at the outset of the conflict. Delhi would inject misinformation into China's local battle management networks—for example, using deep fakes to convey false orders—to create confusion among PLA forces operating along the LAC or inside Indian territory. Rather than attempt a perimeter defense along the LAC, India would hold vital strong points and allow limited PLA incursions that in turn could be isolated, surrounded, and eliminated, or held at risk for future political concessions. To prevent or at least slow the flow of follow-on PLA echelons, India would target rail lines in the TAR as well as key roads with a combination

of missile strikes, SOF, and, where practical, offensive cyber operations. As India's land-, air-, and space-based sensors suffered attrition at the hands of the PLA, New Delhi would increasingly rely on foreign strategic partners, both to maintain awareness of China's movements within the TAR, and to conduct battle damage assessments of strikes on China's infrastructure. During the conflict (and in a departure from the current operational concept), India would refrain from engaging in large-scale mechanized assaults across the LAC, as the less complex topography of the Tibetan Plateau and the high signatures of such armored columns would render them acutely vulnerable to PLA air, missile, and artillery strikes. However, if the initial costs imposed on the PLA proved insufficient, Delhi would deploy its irregular forces beyond the LAC to foment insurgency in Tibet.

#### MARITIME OPERATIONAL CONCEPT

Delhi's traditional dominance in the Indian Ocean is eroding. Its current operational concept for prosecuting a conflict against China in the maritime domain rests on generalized sea control, but this will become increasingly untenable by 2030. Based on current trends, the PLAN's regular presence in the Indian Ocean will expand significantly, both in terms of surface vessels and submarines.<sup>110</sup> China's maritime domain awareness in the Indian Ocean also will improve as a result of stepped-up PLAN patrols and a continuous build-out of China's space surveillance architecture.<sup>111</sup> In a conflict with Beijing, the Bay of Bengal will become a more contested environment: Beyond the danger posed by PLA submarines and surface vessels in the area, the Indian military will operate within range of PLA conventional intercontinental ballistic missiles based in China's heartland, as well as PLA long-range bombers.<sup>112</sup> And Delhi's initial numerical advantage in the Indian Ocean would erode over time as China surged elements of its Southern Theater Command Navy into the Indian Ocean.

### Delhi's traditional dominance in the Indian Ocean is eroding.

Consequently, the time is right for India to explore a new maritime operational concept that would position it to prevail under the more challenging conditions likely to exist by 2030. This operational concept would endeavor to deter China from initiating a conflict by demonstrating India's continued ability to hold at risk Beijing's sea lines of communication. In wartime, the new operational concept would seek to rapidly eliminate the PLA in the Western Indian Ocean while slowing naval

## The time is right for India to explore a new maritime operational concept that would position it to prevail under the more challenging conditions likely to exist by 2030.

reinforcements from mainland China. This maritime operational concept would involve discrete Indian actions in peacetime, crisis, and conflict.

*Peacetime.* Delhi would continue to enhance its maritime surveillance capabilities across the Indian Ocean Region in order to better track in real time PLAN surface combatants and submarines. The Indian Navy would continue to leverage “mission-based deployments” to sustain a presence around key maritime choke points. At the same time, Indian surface vessels and aircraft would conduct refueling and replenishment operations at a wider range of partner facilities to complicate PLA efforts to predict their operations. For the same reason, Delhi would sporadically rotate land-based antiship missiles to variable locations in the Andaman and Nicobar islands. Given the military importance of these islands—and their vulnerability to long-range strike from China—India would construct additional runways and hardened shelters capable of supporting maritime patrol and combat aircraft and pre-position rapid runway repair kits.

*Crisis.* As tensions with China raise the specter of war, New Delhi would take an offensive posture in the Western Indian Ocean. It would position diesel-electric attack submarines outside Gwadar and Karachi—ports that China could use for refuel and replenishment during a conflict. Delhi would also send the Indian Navy to sea to create a more challenging targeting problem for China while deploying the bulk of its available major surface combatants to the Western Indian Ocean. In the East, India would take a layered defensive posture. It would dispatch one or more nuclear-powered attack submarines into the South China Sea and deploy diesel-electric attack submarines to loiter outside the Malacca and Sunda straits—the PLAN’s most convenient entry points into the Indian Ocean. Delhi would introduce new camouflage, concealment, and deception measures to obfuscate the disposition of its forces, with a focus on the Bay of Bengal, where its naval, land, and air assets are most exposed to long-range air and missile strikes emanating from the Chinese mainland. Lastly, India

would station additional land-based antiship missiles on the Andaman and Nicobar islands while deploying maritime patrol and combat aircraft in limited number to avoid overloading this strategic outpost with relatively scarce and vulnerable platforms.

*Conflict – West.* At the outset of the conflict, India would seek to eliminate the PLAN from the Western Indian Ocean and exert economic pressure on China. It would find and prosecute PLAN surface combatants and submarines and interdict any ship attempting to replenish China’s base in Djibouti or future PLA facilities in East Africa. Subsequently, India would stand up a maritime picket in the North Arabian Sea and intercept and impound a handful of oil tankers destined for China to increase shipping insurance costs for all China-bound vessels. To further stress China’s economy, New Delhi would disrupt Beijing’s overseas energy infrastructure in the Indian Ocean Region through the use of offensive cyber and SOF.

*Conflict – East.* India in the East would seek to slow the advance of PLA reinforcements. New Delhi would use one or more nuclear-powered attack submarines in the South China Sea to surveil and harass the PLAN as it transited toward the Indian Ocean. India’s diesel-electric attack submarines would ambush the PLAN as it exited through the Malacca and Sunda Straits. Once the PLAN entered the Bay of Bengal, India would continue to fight a campaign of attrition by deploying stealth antisubmarine corvettes and small USVs equipped with long-range antiship missiles. Optimized to counter China’s maritime power projection, these USVs would also present a significant targeting challenge for the PLA and could absorb volleys of Chinese precision-guided munitions with no risk to human life. To further attrit the PLAN in the Bay of Bengal, India would employ land-based antiship missiles and maritime combat aircraft operating from the Andaman and Nicobar islands, and from key nodes dispersed along India’s eastern coastline. To degrade the threat from China’s long-range strike complex, Delhi would leverage its electronic warfare and counterspace assets against China’s air- and space-based sensors. If this defense in the Bay of Bengal proved insufficient, India then could redeploy many of its major surface vessels from the Western Indian Ocean. Throughout the conflict, Delhi would rely on foreign strategic partners to augment its maritime surveillance capabilities, particularly as China degraded indigenous Indian sensor networks.

### THE PAKISTAN FACTOR

During a crisis or conflict with China, India would have to contend with the possibility of an intervention by Pakistan. This could take diverse forms, ranging from the mobilization of Pakistan's military to pin down large numbers of Indian troops across the border, to allowing the PLAN to operate from Pakistani ports, to an opportunistic attempt to extend Pakistan's control over all of Kashmir. The two operational concepts outlined here are scoped to account for the threat Pakistan could pose to India as a conflict with China unfolded. The Himalayan operational concept would not require large numbers of troops—a major portion of India's infantry and armor could remain along the border with Pakistan in order to deter an intervention, and if necessary, mount an effective defense. Under the maritime operational concept, India would pre-position diesel-electric attack submarines in the North Arabian Sea to deprive the PLAN of unhindered access to Pakistan's ports. If Islamabad joined Beijing in a full-scale war with New Delhi, the reinforced naval capabilities intended to sweep the Western Indian Ocean of the PLAN could destroy or disable Pakistan's outnumbered navy as well. The main challenge India would confront in this multi-adversary scenario would be a shortage of advanced combat aircraft relative to the number of fronts. Delhi would have to employ its air force as a "swing capability" that would deploy from one front to another as needed.

### Positioning India to Prevail in 2030: Operational Requirements

Today New Delhi has put in place some, but not all, of the building blocks necessary to execute these two operational concepts. Implementing them will require targeted changes to India's defense organization, select capability investments, and enhanced foreign security partnerships. Some of the recommendations are not immediately viable, but by 2030 could become feasible.

#### DEFENSE ORGANIZATION REFORM

India's current command structure in which single-service commands predominate remains a significant impediment to implementing the Himalayan and maritime operational concepts. Although a wholesale transformation of India's current command structure is improbable over the next decade, Delhi by 2030 likely could achieve more limited reforms to backstop its effort to militarily compete with China. Specifically, India could:

- **Establish a joint Himalayan theater command.** A confrontation with China could span the entire LAC rather than remain confined to a single point. Creating

a joint Himalayan theater command would enable India to redistribute its capabilities more quickly along the LAC based on pressing military needs, and to close organizational seams that Beijing would almost certainly exploit during a conflict.

- **Stand up two joint maritime commands.** To enhance its ability to conduct a maritime offensive in the West, India should transform what is currently the Western Navy Command into a joint command that would oversee maritime operations across a geography encompassing the Arabian Sea, the coast of East Africa, and the central and southern portions of the Indian Ocean. In order to manage a layered defense in the East, New Delhi should combine today's Eastern Navy Command and the tri-service Andaman and Nicobar Command into a joint command that would direct operations in the South China Sea, the Bay of Bengal, and the eastern fringe of the Indian Ocean.
- **Inaugurate a Defense Electronic Warfare Agency.** Similar to the new tri-service organizations for special operations, space, and cyberspace,<sup>113</sup> this agency would accelerate India's development of the electronic warfare capabilities essential to degrading China's sensor networks during a conflict.

#### CAPABILITY INVESTMENTS

Even without comprehensive defense modernization, Delhi is positioned by 2030 to make a series of capability investments that would underpin the Himalayan and maritime operational concepts. Listing these investments in priority order, India should:

- **Strengthen command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR).** India's success in prosecuting a land or maritime conflict against China will hinge on battlespace awareness and rapid transmission of decisions to frontline units. New Delhi should develop and field additional C4ISR capabilities that can function at high altitudes and across the maritime domain. It should allocate C4ISR disproportionately to support operations from the Andaman and Nicobar islands—absent robust surveillance and targeting, the strategic value of these islands will not be realized.
- **Develop a robust counter-C4ISR capability.** China's preferred mode of warfare requires information dominance.<sup>114</sup> Indian counter-C4ISR would complicate PLA planning in peacetime and thereby reinforce deterrence. During a conflict, effective use of counter-C4ISR would disrupt coordinated PLA operations in the Indian Ocean while reducing China's ability to leverage its superior standoff strike against Indian forces along

the LAC. New Delhi should invest broadly in counter-C4ISR, including electronic warfare and offensive cyber capabilities that could target PLA sensors on land, at sea, and in space.

■ **Enhance the lethality and survivability of the Indian Army and Navy.**

New Delhi should increase spending on all types of artillery and ground-launched missiles, and work to remedy its continued shortages of critical ammunition types. At the same time, it should accelerate efforts to downsize the Indian Army and redirect funding toward much needed platform modernization, as well as toward camouflage, concealment, and deception. This will ensure that the Indian Army along the LAC and in the Andaman and Nicobar islands is less vulnerable to long-range attacks from the PLA. In the maritime domain, India should continue to upgrade and enlarge its submarine fleet while limiting its navy to two carriers. In order to sustain a surface presence in the Bay of Bengal under potentially withering long-range strike from China, India should continue to develop stealth corvettes and move to develop and field USVs.

■ **Rationalize the Indian Air Force around a smaller number of multi-role aircraft.**

Delhi should reduce total air force squadrons in favor of a greater number of fourth- and 4.5-generation platforms that could conduct missions against both ground and maritime targets. Such multi-role aircraft if centrally stationed within India could serve as a versatile “swing capability” ready to rapidly deploy to a number of fronts.

#### FOREIGN STRATEGIC PARTNERSHIPS

India today has a growing set of strategic partnerships that can serve as a foundation for more tailored forms of defense cooperation that would directly support the Himalayan and maritime operational concepts.

■ **Expand cooperation on maritime domain awareness with France, Australia, and Japan.**

Delhi should partner with Paris, Canberra, and Tokyo to enhance its ability to monitor China’s peacetime activities in the Indian Ocean. India should continue to work with France to construct a new MDA satellite network. Based on its reciprocal access agreement with France, India should seek permission to rotate maritime patrol aircraft through Reunion Island. In addition, Delhi should initiate discussions with France and Australia to explore the possibility of trilateral reciprocal use of Reunion Island, the Andaman and Nicobar islands, and Cocos Keeling for maritime patrol flights.<sup>115</sup> Lastly, India should leverage Japanese technological assistance and know-how in maritime surveillance to aid its own indigenous defense efforts.<sup>116</sup>

■ **Leverage defense ties with the United States.**

India’s relationship with the United States has the potential to serve as a critical enabler for both the Himalayan and maritime operational concept. Key opportunities span defense trade, capability development and capacity building, policy planning and coordination, information sharing, and military exercises. The next chapter will explore each of these areas in more detail.

## **Chapter Three: Optimizing U.S.-India Defense Cooperation for an Era of Strategic Competition**

Two decades of deepening U.S.-India security cooperation have generated real results, but both Washington and Delhi need a fresh look at how they can advance security ties in an era of strategic competition with China. This chapter begins by tracing the trajectory of U.S. defense engagement with India across various domains. It then examines the overall health of U.S.-Indian security ties when looked at through the prism of strategic competition with China—as well as complicating factors such as India’s relationships with Russia and Pakistan. The chapter concludes with a set of high-impact recommendations for how the United States and India can upgrade their strategic partnership—covering defense trade, capacity building and capability development, policy coordination, information sharing, and military exercises.

### **The Evolution of U.S. Defense Engagement with India**

U.S.-India security ties have burgeoned since the early 2000s. Although motivated in part by shared concerns about an assertive and militarily capable China, the growth of the strategic partnership between Washington and Delhi reflects deliberate coordination, consultation, and prioritization by both countries.

### **FOUNDATIONAL AGREEMENTS AND STRUCTURES**

In 2005, the United States and India signed the New Framework for the India-U.S. Defense Relationship, which set the two countries on a path toward broader, more complex levels of security cooperation.<sup>117</sup> The Obama administration renewed the framework in 2015, placing particular emphasis on strengthening U.S.-India joint military exercises and deepening cooperation on maritime security and defense trade.<sup>118</sup> In June 2016 and again under the Trump administration in 2017, the United States designated India a “Major Defense Partner,” a status unique to India and intended to

**In recent years, Washington and Delhi have taken constructive steps toward harmonizing their respective defense trade policies and strengthening their industrial cooperation.**

communicate a shared desire—however aspirational—to elevate the relationship to a level commensurate with the closest U.S. allies and partners.<sup>119</sup> In 2018, the U.S. Defense Department’s renaming of the U.S. Pacific Command to the “Indo-Pacific Command” highlighted the significance of India’s role—by virtue of its commitment to a rules-based international order—in maintaining global stability and security.<sup>120</sup>

Of even more significant practical value, the United States concluded a Logistics Exchange Memorandum of Agreement (LEMOA) with India in 2016 that enables the two countries to “plug in” to each other’s logistics support networks when needed.<sup>121</sup> India recently signed the Communications Compatibility and Security Agreement (COMCASA) with the United States, which allows the United States to transfer communication equipment to India, facilitating secure transmission of data and real-time information between the armed forces of the two countries.<sup>122</sup> Meanwhile, a third foundational defense accord—a Bilateral Exchange and Cooperation Agreement for Geospatial Intelligence—remains forthcoming.<sup>123</sup>

Lastly, the United States and India have an extensive series of dialogues at all levels of government to facilitate the continued growth of bilateral security ties. In September 2018, the two countries held the inaugural U.S.-India “2+2” Ministerial Dialogue, which not only served as a tangible demonstration of their shared vision for the Indo-Pacific, but also as a practical forum for advancing cooperation.<sup>124</sup>

### **DEFENSE TRADE AND TECHNOLOGY COOPERATION**

In recent years, Washington and Delhi have taken constructive steps toward harmonizing their respective defense trade policies and strengthening their industrial cooperation. In 2012, the U.S. Department of Defense and the Indian Ministry of Defense established the Defense Technology and Trade Initiative (DTTI) with an eye toward shifting the two countries’ defense trade relationship away from a traditional seller-client dynamic and toward a more collaborative one. The DTTI framework was built around the goals of sharing defense technologies and creating partnerships across industries for co-production and co-development. To that end, DTTI created seven Joint Working Groups to pursue opportunities across a range of mutual interests including “aircraft carriers; jet engines; intelligence, surveillance, and reconnaissance; chemical and biological protection; naval systems; and air systems.”<sup>125</sup>

Additionally, in 2016, India’s new Defense Procurement Policy (DPP) reduced barriers for foreign firms to enter into joint ventures with Indian companies

by raising caps on foreign direct investment in domestic defense firms from 26 percent to 49 percent ownership stakes.<sup>126</sup> Similarly, the United States' 2016 designation of India as a major defense partner elevated India's status in U.S. export considerations. In 2017, the Department of Commerce's Bureau of Industry and Security (BIS) reduced the licensing requirements for Indian companies to receive both military and dual-use items under its Validated End-User program.<sup>127</sup>

Leaving aside these recent changes, it is possible to coordinate the U.S. and Indian systems for non-sensitive technologies. In recent years, American firms have been able to sell several high-end platforms to India, including P-8 maritime patrol aircraft, C-130 and C-17 transport aircraft, M777 howitzers, and Apache and Chinook helicopters.<sup>128</sup> Defense sales of American goods to India have grown from a mere \$200 million in 2000 to over \$15 billion over the past decade ending in 2018.<sup>129</sup>

#### JOINT MILITARY EXERCISES

In parallel with deepening cross-sectoral engagement in defense trade, the U.S. Defense Department and the Indian Ministry of Defense have also increased the scope, complexity, and frequency of their engagement in combined military exercises. The exercises are at times framed as strengthening the two countries' efforts in maritime security and domain awareness, humanitarian assistance and disaster relief, counterpiracy, counterterrorism, and other transnational issues.<sup>130</sup>

The two countries' armies, air forces, and special operations forces have also continued exercises in both bilateral

and multilateral formats. In particular, the U.S. Air Force has expanded cooperation with the Indian Air Force on C-130J/C-17 transport aircraft capabilities, flight safety, humanitarian assistance and disaster relief, and combat search and rescue. U.S. SOF have, since 2015, partnered with Indian counterparts—including the Indian National Security Guards on two exercises, namely Vajra Prahar and Tarkash.<sup>131</sup> In 2019, the U.S. and Indian militaries will inaugurate their first tri-service exercise.<sup>132</sup>

#### COOPERATION WITH THIRD PARTIES

As the PLA expands its presence in the Indo-Pacific, India also has deepened bilateral engagements, most notably with Japan, Australia, and France, as well as with Association of Southeast Asian Nations member states that have historically been wary of China's power in the region.<sup>133</sup>

Japan ranks among India's closest strategic partners. India and Japan's strategic cooperation is wide-ranging and encompasses MDA, nuclear energy development, and even a recent deal with Sri Lanka to develop the East Container Terminal at Colombo Port.<sup>134</sup> Since 2015, the Japan Maritime Self-Defense Force has been a regular participant of the Malabar Exercise alongside the U.S. and Indian navies, and the two countries' coast guards also regularly conduct bilateral exercises.<sup>135</sup> The 2018 rendition of Malabar marked the first time that the three countries' forces exercised in the Guam operation area.<sup>136</sup> Beyond this, India and Japan have agreed to inaugurate a Foreign and Defense Ministerial 2+2 Dialogue in 2019, which reflects the convergence of the



An Indian Air Force M-2000 Mirage waits to taxi to the runway as a U.S. Air Force F-15C Eagle took off on February 13, 2004, at Gwalior Air Force Station in India. Both jets participated in the first bilateral, dissimilar air combat exercise between the two countries' air forces in more than 40 years. (Keith Brown/U.S. Air Force via Getty Images)

two countries' threat perception vis-à-vis China.<sup>137</sup> The two countries have long held 2+2 Vice-Ministerial level dialogues to build collaboration on issues as diverse as counterterrorism, maritime security, defense trade, and peacekeeping operations.<sup>138</sup>

France has emerged as another of India's major strategic partners. Between its overseas territories of Réunion and Mayotte in the southwest Indian Ocean and its substantial military presence in Djibouti and the United Arab Emirates, France maintains a significant presence in the Indian Ocean region.<sup>139</sup> Under President Emmanuel Macron, France has grown particularly concerned about China's potential incursions into its exclusive economic zones, 90 percent of which are located in the Indian and Pacific Oceans.<sup>140</sup> Security cooperation between India and France now extends well beyond sales of submarines and aircraft to include satellite development.<sup>141</sup> In 2018, Macron proposed a "new strategic alliance among Australia, India, and France to respond to growing Chinese assertiveness." The same year, France and India signed an agreement on "logistical support between the militaries, including providing refueling, repair, and berthing facilities to each other's warships and aircraft."<sup>142</sup>

The Australia-India relationship has been undergirded by shared democratic values, personal ties in the form of a large population of Indian descent in Australia, and common concerns about China's increasingly assertive behavior across Asia.<sup>143</sup> However, the scope, depth, and pace of security ties between Canberra and Delhi has also been circumscribed by lingering uncertainties over each other's commitment to a more robust China policy. For example, though India and Australia have worked to enhance maritime cooperation,<sup>144</sup> including the initiation in 2015 of a formal biannual joint naval exercise,<sup>145</sup> India chose not to invite Australia to participate in the 2018 Malabar Exercise.<sup>146</sup> Nonetheless, the two countries have institutionalized several platforms for strategic dialogue, such as the annual Defense Policy Talks, as well

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as the annual India-Australia 2+2 Foreign Defense and Secretaries' Dialogue.<sup>147</sup>

Historically, India has been skeptical of multilateral defense groupings.<sup>148</sup> Although it has engaged with the United States, Australia, and Japan in four-way "Quad" consultations since the group's resurrection in 2017, India has primarily focused on strengthening bilateral strategic partnerships.

### **Assessing U.S.-India Security Ties in an Era of Strategic Competition**

Over the past couple of decades, India and the United States have expended significant effort to develop and strengthen their diplomatic and security partnership. Agreements like COMCASA and LEMOA show that the two are making progress toward building a framework for their defense relationship. The United States has made clear that continuing on this trajectory is a top priority, especially within the context of great power competition with China.<sup>149</sup> However, the compromises made by both sides to get to this point have exhausted a significant amount of good will in Washington and Delhi. The U.S.-India defense relationship is on a fragile upward trajectory, with gaps between Washington and Delhi clearly visible.

### **DIFFERENT PERSPECTIVES ON THE SECURITY RELATIONSHIP**

On a fundamental level, Washington and Delhi have different understandings of the ideal model for security cooperation. The United States has tried to signal the importance it places on relations with Delhi by giving India the aspirational title of "major defense partner" and initiating high profile bilateral discussions as well as trilateral meetings with Japan on the sidelines of the G20 summit. Washington recognizes that India is not likely to become a formal ally in the foreseeable future, but it has still attempted to model the U.S.-India relationship on America's most robust defense relationships. India, which has never had an alliance-type relationship with another country, is unsure exactly how closely it wants to be tied to the United States. Rather than seeing integrated security cooperation as a force multiplier, some Indian practitioners may see it as intrusive or even sovereignty eroding.<sup>150</sup>

Because of Delhi's history of non-alignment or strategic autonomy, what may seem to India like significant steps toward forging a deep strategic partnership may not be enough to actually produce dividends from an American point of view, even though they push the limits of what

## The U.S.-India defense relationship is on a fragile upward trajectory, with gaps between Washington and Delhi clearly visible.

India has done in the past. In Delhi's perspective, the United States holds a large number of exercises with the Indian military. As seen from Washington, however, U.S.-India military exercises remain comparatively infrequent. For example, in 2017, the U.S. Navy held 28 exercises with Japan's Maritime Self-Defense Force and only one exercise with the Indian Navy. This relative lack of military exercises is one reason for weak U.S.-India interoperability.<sup>151</sup>

### CONVERGENCES AND DIVERGENCES ON CHINA POLICY

Although shared perceptions of a China challenge are a major impetus for a strong U.S.-India security relationship, the two have adopted distinct approaches toward Beijing. Both Washington and Delhi harbor concerns about China's geopolitical ambitions and seek to check its influence within the Indo-Pacific. The two governments clearly agree that strategic competition with China lies at the heart of their security relationship, and have occasionally issued joint statements on the matter. A prime example is freedom of navigation in the South China Sea, about which Prime Minister Modi in July 2018 went so far as to say that a close U.S.-India relationship is essential for stability in the region.<sup>152</sup>

Where Washington and Delhi diverge is how openly to confront Beijing. The United States has been candid about its desire to counter China's influence, prioritizing great power competition in the 2017 National Security Strategy and the 2018 National Defense Strategy.<sup>153</sup> Senior U.S. leaders—as best exemplified by Vice President Mike Pence's speech in October 2018—have spoken bluntly about the danger posed by China and about America's will to prevail in a contest of systems.<sup>154</sup> And the United States has taken economic actions designed to punish China, such as imposing tariffs and placing Huawei on a trade black list.

The harsh rhetoric and tough economic policies against China coming out of Washington contrast with India's preference to compete quietly against Beijing without openly provoking. For Delhi, economic entanglement with Beijing—its largest source of imported goods<sup>155</sup>—and geographic proximity dictate a carefully calibrated approach. So does the longstanding China-Pakistan defense relationship, which grew out of Beijing and Islamabad's shared desire to thwart India's geopolitical ambitions, and continues to grow in scale, scope, and sophistication.<sup>156</sup>

To a degree, India's aversion to adopting an openly confrontational policy toward China has limited its willingness to enhance defense cooperation with the United States. Delhi does not want to be seen as Washington's junior partner or as its counterweight to China, and this has manifested most clearly in how India engages with the United States in multilateral exercises and diplomatic gatherings. Despite Japan joining India and the United States by becoming a permanent member of the Malabar naval exercises in 2015, Delhi has exhibited reluctance to allowing Australia to join.<sup>157</sup> Delhi's concerns about reducing its maneuverability and appearing to join an anti-China grouping (however informal)—have also limited its appetite for defense cooperation under the Quad, with Prime Minister Modi commenting at the 2018 Shangri-La Dialogue that “India does not see the Indo-Pacific region as a strategy or as a club of limited members. Nor as a grouping that seeks to dominate. And by no means do we consider it as directed against any country.”<sup>158</sup>

## India's diplomatic caution should not be perceived as a major impediment to more targeted defense engagement with the United States.

Yet India's diplomatic caution should not be perceived as a major impediment to more targeted defense engagement with the United States. Although Malabar is not couched publicly in terms of great power competition, the interoperability developed through the exercises would enhance coordination in the event of a military contingency involving China. Indeed, after the conclusion of the 2018 U.S.-India-Japan Malabar exercise, the U.S. Navy released a statement that the exercise “strengthened maritime interoperability through its emphasis on high-end warfighting skills, maritime superiority, and power projection.”<sup>159</sup>

### THE RUSSIAN WEDGE IN U.S.-INDIA DEFENSE RELATIONS

India's continued appetite for Russian defense equipment has long generated frustration in Washington. Today, however, Delhi's acquisition of the S-400 anti-aircraft missile system poses a meaningful challenge to deepening U.S.-India defense ties. The United States has become India's second-largest arms supplier but lags behind Russia, which accounted for over 60 percent of arms sales to India over the past five years.<sup>160</sup> Russia's longstanding defense export relationship with India

means that the acquisition process moves much more smoothly for its systems than it does for American platforms, which also tend to be more expensive. Since upgrading India to Strategic Trade Authorization tier 1 status, the Trump administration has extended an open offer to India for multiple weapons systems including Aegis ashore, Terminal High Altitude Area Defense, and PAC-3,<sup>161</sup> but currently, the price, logistical trade difficulties, and relationship with Russia prevent Delhi from accepting the offer.<sup>162</sup>

The eventual delivery of the S-400s only will exacerbate the strain on U.S.-India defense ties, and relations writ large. One major American concern is the continual need for Russian parts and maintenance on the platforms.<sup>163</sup> Additionally, upon their delivery, systems like the S-400 trigger sanctions under the Countering America's Adversaries Through Sanctions Act (CAATSA), which seeks to punish Russia's defense and intelligence sectors.<sup>164</sup> Lawmakers added CAATSA exemptions into the FY2019 National Defense Authorization Act in order to avoid sanctioning India and Vietnam for buying Russian defense equipment, but stopgap measures like these absorb significant good will.<sup>165</sup>

At the same time, Indian thinking on Russia is evolving. In a departure from past practice, Moscow, rather than favoring India, reportedly now shares the same technology with Beijing as it does with Delhi. This reduces the qualitative edge conveyed by Russian platforms and also creates new operational security risks given that China can study the exact platforms that India deploys to identify potential vulnerabilities. Russia's unreliability in providing spare parts in a timely fashion has increasingly constituted a source of aggravation for Indian security managers. As Moscow and Beijing draw ever closer, the prospect of a conflict with China during which Russia slow rolls or simply fails to deliver desperately needed spare parts and ammunition is becoming impossible for Delhi to ignore.<sup>166</sup>

Even so, India will continue to import a large portion of its weapons from Russia for the foreseeable future, and it is important for U.S. policymakers to manage their expectations and remain cognizant of this fact. For example, for some much-needed capabilities or forms of technological cooperation such as nuclear submarine design, Russia will remain India's partner of choice, simply due to a lack of viable alternative partners willing to share such sensitive technology. Moreover, Delhi's reliance on Moscow for spare parts means that it can ill afford to antagonize Russia by shifting too abruptly to systematically privileging the United States or other Western arms suppliers for major new purchases.

### THE PAKISTAN IRRITANT

A historical point of friction between Washington and Delhi has been the aid and military support that the United States supplies to Pakistan. The heavy U.S. involvement with Pakistani forces in counterterrorism operations after the September 11 terrorist attacks inhibited similar cooperation with India.<sup>167</sup> But several events, including the raid on Osama Bin Laden's compound in Abbottabad, growing congressional frustration with Islamabad and U.S. distancing from Pakistan under President Donald Trump, have begun to change the dynamic with India.

Indeed, India was pleased by President Trump's announcement freezing all U.S. security assistance to Pakistan in 2018. Tacit American backing for India's February 2019 airstrikes in retaliation for a suicide bombing against its security forces in Kashmir also generated good will in Delhi.<sup>168</sup> However, President Trump's more recent suggestion of a U.S. mediating role on Kashmir—a point made when welcoming Pakistani President Imran Khan to the White House—raised doubts over the longevity of the current U.S. administration's firmer stance toward Pakistan.<sup>169</sup> Pakistan thus remains a potential irritant in the U.S.-India relationship.

### Recommendations for U.S.-India Defense Cooperation

The United States and India are approaching an inflection point in their strategic partnership. One path is to succumb to mutual frustration, resulting in a highly transactional relationship that is at best loosely oriented toward addressing the China challenge. Starting down this path would be a mistake. Washington and Delhi instead should take the long view: Regardless of today's points of friction, U.S.-India defense cooperation has the potential to decisively shape the regional military balance amid the PLA's rapid advance.

The United States has made a long-term bet on India. Now is the moment to work to realize this relationship's truly transformational potential, scoping future U.S.-India defense engagement to support the Himalayan and maritime operational concepts advanced in Chapter 2. This will entail adjustments to bilateral defense trade, new types of capacity building and capability development, enhanced policy and planning coordination, greater information sharing, and more tailored military exercises. The below recommendations address each of these areas. As in the previous chapter, some recommendations put forward could be implemented in the near term; others are not feasible today but could become viable by 2030, and are helpful to keep in mind as stretch goals for U.S.-India defense cooperation.

## DEFENSE TRADE

Purchases of American weaponry have become a prominent feature of the security relationship between Delhi and Washington. In an era of strategic competition with China, the United States and India should take the following additional steps:

### ■ Strengthen the institutional foundation for U.S.-India defense trade.

Certain U.S. platforms are well-suited to executing the Himalayan and maritime operational concepts outlined in the previous chapter. Today, however, significant misalignments exist between America's system for defense exports and India's military acquisition bureaucracy. To provide a stronger basis for defense trade, the United States should ease remaining defense export restrictions on India, allowing the transfer of military technologies that are no longer an American monopoly. Further, the United States through the existing interagency process should conduct a preemptive licensing review of sensitive technologies that would bolster India's military edge vis-à-vis China if transferred. Although time intensive, this preemptive review would enable U.S. defense firms to meet the short, 90-day window between the issuance of Indian requests for proposal (RFP) and the deadline for submission. For its part, India should enact several changes to its Defense Procurement Procedure (DPP) that would facilitate defense trade with the United States. New Delhi should adopt a "best-value-for-government" approach for selecting RFP bids. The DPP's current bias toward lowest cost criteria excludes strategic considerations and disincentivizes American firms from offering more sophisticated—and expensive—technology that could underpin areas of Indian military advantage over China.<sup>170</sup> Finally, recognizing that a preemptive U.S. licensing review is ultimately a stopgap measure, India should lengthen the time line for submitting RFP bids to ensure that American companies have an opportunity to determine what technology they can offer.

### ■ Encourage India to import U.S. arms that backstop its operational concepts for China.

Recent Indian arms purchases from the United States—for example, the P-8I maritime patrol aircraft and Chinook heavy-lift helicopters—directly bolster Delhi's ability to prosecute a land or maritime conflict against Beijing. In bilateral defense dialogues, the United States should explore what American weapons exports would further strengthen India's position along its Himalayan frontier and in the maritime domain. Specific capabilities for discussion should include additional rotary wing lift and air assault for rapid intra-theater mobility

**Regardless of today's points of friction, U.S.-India defense cooperation has the potential to decisively shape the regional military balance amid the PLA's rapid advance.**

along the LAC; MLRS, counter-battery radars, and sound ranging systems; high-altitude, long-endurance UAVs for maritime domain awareness; and additional maritime patrol aircraft. Discussions with India also should address potential sales of the ground-based long-range missile the United States intends to develop following its withdrawal from the Intermediate-Range Nuclear Forces Treaty.<sup>171</sup> American policymakers should remain mindful that some of these capabilities would also translate into Indian leverage over Pakistan and likely elicit some type of negative response from Islamabad. This is a risk to be managed rather than avoided given the importance of partnering with India.

## CAPACITY BUILDING AND CAPABILITY DEVELOPMENT

The United States should adjust its defense engagement with India to focus more on a handful of high-impact capacities and capabilities. Together, Washington and Delhi should:

### ■ Launch a U.S.-India C4ISR/Counter-C4ISR Initiative.

In a conflict between India and China, the side that can sustain battlefield awareness and rapidly convey decisions to frontline units while disrupting the networks of its adversary will enjoy a commanding advantage. Today, New Delhi is not well positioned to prevail in this particular area of military competition. Consequently, India and the United States should announce a new C4ISR/Counter-C4ISR Initiative. The C4ISR component would start with U.S.-India cooperation on cyber resiliency, then expand over time to encompass collaboration on electronic protection, co-development of high-elevation, cold resistant ground sensors, and ultimately (and most ambitiously) joint development of a Sound Surveillance System network that India could position around the Andaman and Nicobar islands. The counter-C4ISR component would begin with U.S.-India collaboration on camouflage, concealment, and deception techniques, then grow to include offensive cyber operations and electronic warfare. This initiative would complement the domestic capability investments recommended for India in Chapter 2.



Brahmos Missile replicas were displayed during India's 60th Republic Day Parade on January 26, 2009, in New Delhi, India. (Daniel Berehulak/Getty Images)

- **Co-develop and jointly produce a stealth USV.**

As the U.S. Navy and Marine Corps explore options for operating in highly contested maritime environments, stealth USVs increasingly are viewed as highly cost-effective platforms combining speed, endurance, survivability, and—if equipped with long-range anti-ship missiles—lethality.<sup>172</sup> For India as well, stealth USVs could prove highly effective in the Bay of Bengal, where larger surface vessels would quickly come under fire from China's long-range ballistic missiles and bombers. Under the DTTI naval systems working group, the United States and India should validate that advanced USVs would meet shared operational requirements. If the answer is yes, the two should move forward with co-development and joint production, leveraging Indian industry as much as possible to reduce costs. Working collaboratively alongside the United States in such an endeavor would allow India to enhance its own nascent expertise in robotics and unmanned systems. It would also allow the Indian Navy to generate numerical mass without augmenting personnel costs. In addition to fielding the stealth USV, the United States and India could export it to other nations in the Indo-Pacific, such as Japan and Vietnam, that would leverage this platform to compete with China.<sup>173</sup>

- **Initiate U.S.-India consultations on mountain warfare.**

**A key element of the Himalayan operational concept advanced in Chapter 2 is leveraging the vertiginous geography on India's side of the LAC for maximum military advantage. To this end, at the next Defense Policy Group (DPG), Washington should propose establishing a regular consultation between the U.S. Army Corp of Engineers and the Indian Army Corp of Engineers. The consultation would explore how to most effectively employ mountainous terrain against an attacking adversary. Over time, multiple meetings could pave the way for a visit to the LAC by members of the U.S. Army Corp of Engineers, who could exchange views with their Indian counterparts on where to construct infrastructure and where rigging roads, hillsides, and bridges with explosives would create the most bottlenecks for a PLA incursion. The U.S. Army Corp of Engineers would also learn from the Indian Army's great reservoir of expertise in high altitude operations and infrastructure development.**

#### POLICY AND PLANNING COORDINATION

Although the United States and India have put in place a large number of defense dialogues, ample opportunity exists to enhance policy and planning coordination. The following steps would reinforce a regional military balance favorable to each:

**■ Move toward joint contingency planning.** Whether and how the United States might assist India during a conflict with China remains a key point of uncertainty that continues to hold back bilateral defense cooperation. The U.S. Department of Defense should undertake a comprehensive review of military options for supporting India, both in a confrontation with Beijing that remains confined to the Himalayan theater, and in a large-scale war between India and China that extends into the maritime domain. The White House should review this list of options and determine which can be endorsed. The minimum should be providing intelligence on the PLA's force disposition and offering spare parts and ammunition for American equipment in India's arsenal, as the combination of Indian defeat and U.S. inaction could tilt the regional military balance irreversibly in China's favor. With a set of options for American military support clearly delineated, the U.S. Department of Defense should quietly explore contingency planning talks with India.

**■ Act in tandem to blunt China's pursuit of overseas military access.** A growing network of PLA facilities in the Indian Ocean would erode the natural geographic advantage that Delhi currently enjoys and also pose new complications for U.S. military operations in a crisis or conflict with China. As such, Washington and Delhi should come together to prevent, wherever realistically possible, Beijing from gaining additional military footholds in the Indian Ocean. Beyond sharing perspectives on where China is likely to pursue future military access, the United States and India should coordinate campaigns to influence governments considering whether or not to welcome the PLA. Ambassadors from the United States and India could issue joint demarches, which would carry significantly more weight than if delivered bilaterally to the host government. Working in parallel, Washington and Delhi could also coordinate potential economic inducements that would complement tough diplomacy. Working to limit China from obtaining additional military facilities outside Djibouti would help to ensure successful execution of the maritime operational concept put forward in Chapter 2: A rapid offense in the Western Indian Ocean would become more difficult if conducted against a larger number of PLA platforms operating from multiple points in the region.

**■ Reciprocate access to strategically located islands.** The United States for years has pursued access to India's Andaman and Nicobar islands to no avail. Similarly, the Indian Navy would benefit strategically from access to the U.S. base located at Diego Garcia.

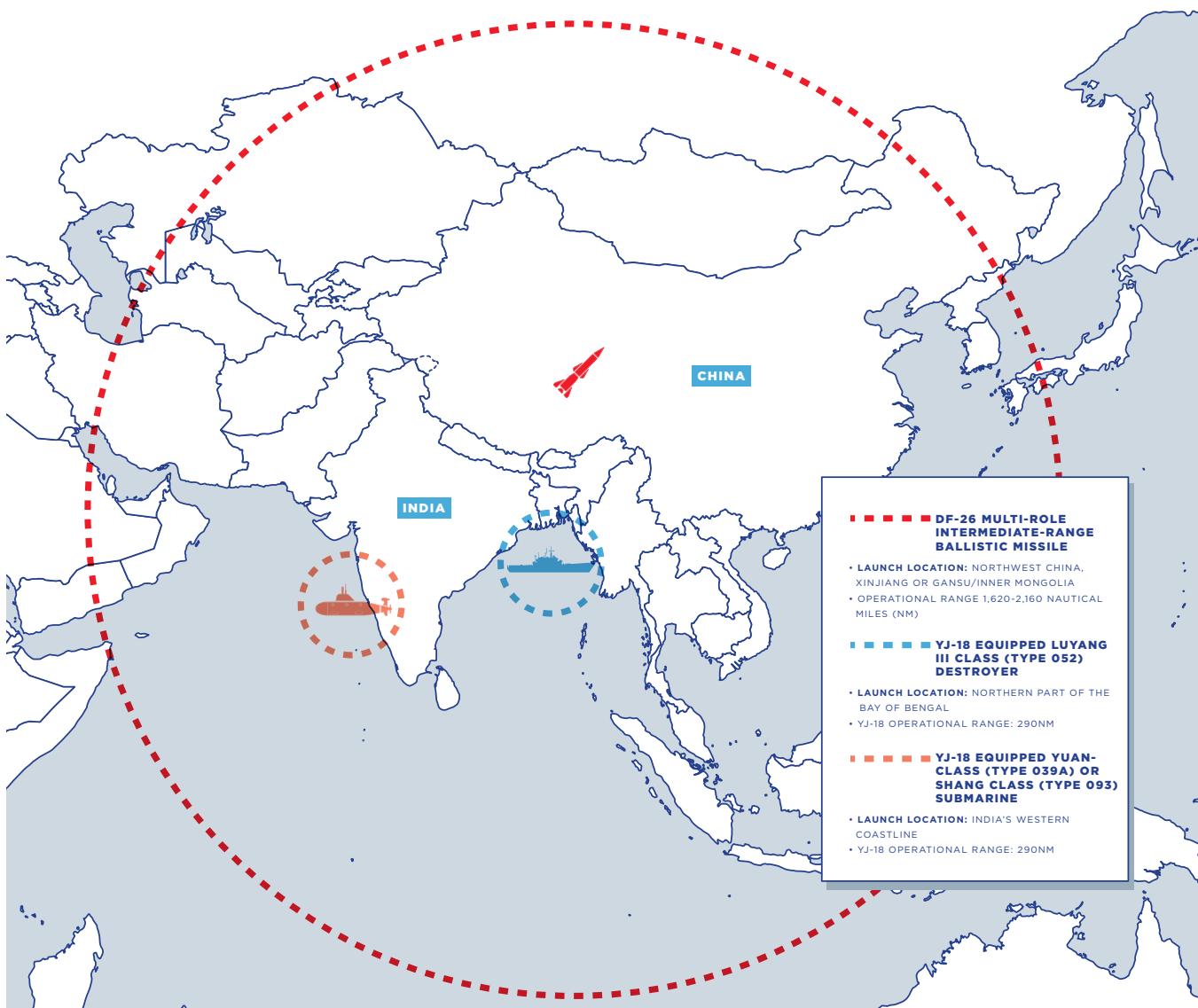
Washington and Delhi should agree to offer mutual access to these sensitive islands. As an initial step, the United States and India could conduct parallel P-8 flights that would respectively launch from Diego Garcia and the Andaman and Nicobar Islands and land at the other nearly simultaneously.<sup>174</sup> For India, this would be a highly symbolic gesture, and it would help convince Delhi to support a continued American presence on Diego Garcia amid pressure from Mauritius for the island's reversion.<sup>175</sup> Equally important, the new prospect of Indian use of Diego Garcia and U.S. military operations from the Andaman and Nicobar islands would complicate PLA contingency planning.

#### INFORMATION SHARING

Improved sharing of information between India and its partners—including but not limited to the United States—would enable Delhi to more effectively compete with China in peacetime, crisis, and conflict. Here are two steps that would backstop future information sharing:

**■ Construct a channel for rapidly disseminating intelligence to India.** In recent years, the United States and India have put in place a foundational agreement to facilitate information sharing: the Communications Compatibility and Security Agreement. Although a major milestone in the context of the U.S.-India defense relationship, COMCASA is but one step toward developing a bilateral information sharing architecture. While Washington and Delhi work to finalize a Bilateral Exchange and Cooperation Agreement for Geospatial Intelligence, the Secretary of Defense should task U.S. Indo-Pacific Command to determine what types of classified information it could rapidly release to India if called upon. Answering this task would uncover procedural and technical roadblocks to intelligence sharing with India, insofar as they exist. The United States should address any roadblocks now, so that during a crisis or conflict, when time is pressing, it could rapidly disseminate intelligence to support Indian military operations against China.

**■ Establish a U.S.-India-France information sharing consortium.** Executing the maritime concept of operation described in Chapter 2 would require a level of domain awareness that Delhi today lacks. During the next U.S.-India Maritime Security Dialogue, Washington should propose standing up a trilateral information sharing consortium that would bring together the United States, India, and France. In its first phase, the U.S.-India-France consortium would



focus on sharing information regarding the movement of PLAN surface vessels in the Western Indian Ocean. If this startup phase proved a success, the consortium could expand its geographic lens and also consider whether or not to bring in Australia.

#### MILITARY EXERCISES

Exercises between the U.S. and Indian militaries already serve to promote greater interoperability. However, there is room to sharpen the focus of these exercises, and Washington and Delhi should:

- **Reorient U.S.-India SOF exercises toward great power competition.** SOF would play a pivotal role in India's execution of the Himalayan operational concept and a supporting but important role in the

maritime operational concept as well. Currently, military exercises that bring together American and Indian SOF emphasize counterterrorism over direct action against great power competitors. This should change. The United States and India should shift two existing SOF exercises—Vajra Prahar and Tarkash—to focus more on the tactics, techniques, and procedures (TTPs) directly relevant to a confrontation with China, even if the adversary remains unnamed. These TTPs would include destruction of critical transportation infrastructure, counter-SOF in austere terrain, and sabotage of port-based energy infrastructure.

- **Evolve the new tri-service exercise with India to focus on high-end conflicts.** This year will witness the first-ever U.S.-India tri-service exercise. Understandably, both governments have taken a conservative approach to the inaugural exercise: The scenario will be humanitarian assistance and disaster relief.<sup>177</sup> Following the conclusion of the first tri-service exercise, planners from the U.S. and Indian militaries should begin to explore more challenging scenarios, such as defending an island and the surrounding waters against a highly capable adversary. Whatever the scenario, planners should incorporate cyber, space, and electronic warfare as much as possible given the centrality of C4ISR to any Indian conflict with China.

## Conclusion

America's bet on India always has been predicated on a long-term geopolitical payoff. The logic that has motivated every Democrat and Republican administration to prioritize relations with India for nearly two decades remains valid today: Delhi retains the potential to contribute decisively to a balance of power—military and otherwise—conducive to a free and open vision of the Indo-Pacific.

For India, the military challenge posed by the PLA looms large, but the current negative trend lines are not set in stone. By sharpening its operational concepts and backstopping them with targeted changes to defense organization, select force investments, and enhanced foreign security partnerships, India can compete militarily with China even given existing resource disparities and capability gaps. The United States in turn can play a pivotal role in supporting India's military edge through adjustments to bilateral defense trade, new types of capacity building and capability development, enhanced policy and planning coordination, greater information sharing, and more tailored combined exercises.

U.S.-India defense cooperation—as well as the broader relationship—is approaching a turning point, with “engagement fatigue” becoming more evident in both capitals. As the free and open vision of the Indo-Pacific that both Washington and Delhi espouse comes under increasing pressure from China, now would be exactly the wrong time for the United States and India to succumb to their mutual frustration. Washington and Delhi can move forward together—or see a new imbalance of power emerge in which the region devolves into a Chinese sphere of influence.

## **Appendix: India-China Strategic Competition in 2030—The Road to Conflict**

The CNAS research team hosted an India-China strategic competition game on May 8, 2019. The game, designed by CNAS Defense Program Senior Fellow Chris Dougherty and Dr. Iskander Rehman, involved two scenarios. The first was an India-China conflict set in 2030, in which New Delhi's military capabilities, defense organization, operational concepts, and strategic alignments are extensions of its current approach. The second was an India-China conflict set in 2030 in which India has significant ability to rebalance its capabilities, defense organization, operational concepts, and strategic alignments prior to the scenario's opening. The game focused on actions at the strategic/operational level of war. Game participants included U.S. experts on India, several Indian think tank experts, U.S. defense generalists, and U.S. specialists on China.

### **Opening Scenario**

#### **GROWING INDIA-CHINA TENSIONS COME TO A BOILING POINT**

During the 2020s, India-China relations grew progressively more rivalrous. China continued to advance its diplomatic and economic influence in the Indian Ocean Region under the banner of the Belt and Road, while enhancing its military presence through an expanded base in Djibouti and new naval support facilities in Gwadar, Pakistan, and Mombasa, Kenya. Beijing also continued to probe along its Himalayan frontier with New Delhi and reinforced its military and paramilitary capabilities in the TAR. India, increasingly concerned over China's heightened presence within its backyard, continued to upgrade and modernize its military apparatus with a broad focus on countering Pakistani military capabilities while offsetting the larger threat posed by the PLA in the land and maritime domains. New Delhi also has continued to pursue closer ties with countries skeptical of Beijing's geopolitical ambitions, including the United States, Japan, Australia, and Vietnam.

Following the death of the 14th Dalai Lama in 2022, China installed a new, "government-validated" Dalai Lama in Lhasa. This Dalai Lama, however, is not considered legitimate by the vast majority of the six million ethnic Tibetans living in China, or by the large Tibetan exile and refugee community residing on Indian soil.

By the late 2020s, tensions between India and China come to a head after Tibetan religious authorities based

in India announce that they have finally completed the process of identification of the Dalai Lama's "true successor," a 15-year-old Monpa monk from the region of Arunachal Pradesh, which China claims as Southern Tibet. Irate Chinese government officials claimed that this constituted an "unacceptable provocation by India," and urged New Delhi to officially disavow the "false Dalai Lama," something which the Indian government refused to do. The fact that India previously supported Tibetan insurgent movements has not faded from Beijing's memory. And China has not forgiven India for deciding to host the Dalai Lama and the Tibetan government-in-exile under Nehru.<sup>178</sup>

Chinese hardliners by 2030 also have become more vocal in expressing their frustration with India's regional policies more broadly, and what they term its "dangerous flirtation" with the United States. These hardliners are increasingly influential within China's national security apparatus and quietly have been urging an aged President Xi to "teach India a lesson" and "demonstrate the limits of the so-called Indo-U.S. partnership"—pointing to the fact that unlike Japan or the Philippines, India is not a treaty ally of the United States and therefore cannot be guaranteed direct military assistance.

In early 2030, a large demonstration of support for the Indian-based Dalai Lama in Lhasa triggers a bloody crackdown by People's Armed Police (PAP) forces, and this brutality leads to further unrest across the TAR. Despite China's heightened surveillance along the LAC, a small flow of refugees manages to evade PAP patrols and trickles into Northern Sikkim. During one such escape attempt, involving several high-ranking Tibetan monks and human rights activists, PAP SOF engaging in hot pursuit cross over into Indian territory. When intercepted by a smaller detachment of Sikkim scouts they refuse to stand down. Following a fraught verbal exchange, the PAP SOF open fire, killing a dozen Indian troops, before withdrawing back to the Chinese side of the LAC.

#### **THE CONFLICT BEGINS ON INDIA'S HIMALAYAN FRONTIER**

This border incident is covered extensively in both the Indian and international media, triggering widespread outrage. Following a heated general election in 2029, a new and untried Indian government now finds itself grappling with its first major national security crisis. Refusing to countenance any criticism of what it terms "a legitimate counterterror operation," China's Ministry of Foreign Affairs issues a withering statement accusing India of "aggressively hostile policies, and of providing safe harbor to splittists, terrorists, and other wolves in sheep's clothing."

Perceiving the border skirmish as a test of its resolve, along with its will to compete with China for regional power and influence, New Delhi is under growing domestic pressure to respond and begins mobilizing its forces along the India-China border. Meanwhile, intelligence reports indicate that China has moved additional fighter squadrons to hardened shelters in Gonggar airfield in Lhasa, and has begun preparations to surge an additional three PLA divisions by high-speed rail into the TAR. New Delhi issues a formal statement declaring that “any further Chinese incursions along the Sino-Indian border will be met with an appropriate level of force,” and that “Chinese military planners should not believe that they can replicate the experience of 1962.”

Two days after the initial border skirmish, an Indian air defense battery downs a WZ-10 helicopter that has intruded deep into Indian airspace and ignored several directives to turn back. In immediate response, Chinese howitzers destroy two Indian bunkers along the Jhamperi Ridge, a strategic location overlooking the so-called trijunction area at the heart of the 2017 Doklam standoff, and one of the main ingress points in any putative large-scale cross-border assault into Indian territory. Perhaps most alarmingly, nomadic herdsmen have begun to report sightings of what appears to be a small mixed detachment of PLA SOF and engineers moving into Arunachal Pradesh, only a few kilometers south of the strategic Bumla Pass—which remains under the control of the Indian Army.

At the same time, Indian intelligence reports that Pakistani forces are reinforcing their positions along the line of operational control, including in Pakistani-occupied Kashmir. High-resolution satellite imagery discreetly provided by one of India’s Western partners reveals that two Chinese submarines docked in the deep-water port of Gwadar appear to be preparing to get under way.

#### **INDIA-CHINA CONFLICT SPREADS INTO THE MARITIME DOMAIN**

The conflict spills over into the maritime domain when China suddenly seizes and “quarantines” an Indian corvette returning from a joint antisubmarine warfare exercise with the Vietnamese Navy. Although the corvette was clearly sailing through international waters, Beijing accuses the Indian Navy of conducting “illegal and hostile espionage activities within China’s sovereign waters.” In the course of the boarding action, Chinese marines kill two Indian naval personnel, further inflaming the situation. The Indian government begins to mobilize both its Eastern and Western Fleets, and deploys Sukhoi-30 MKI aircraft and Brahmos missile batteries to various coastal

launchpads, including on the Lakshadweep and Andaman and Nicobar islands. An Indian Akula-class nuclear-powered attack submarine is quietly forward-deployed east of the Malacca Strait, while India’s Directorate of Naval Intelligence reports heightened Chinese subsurface activity in the Bay of Bengal.

Beijing is given a two-day deadline to release the Indian ship before New Delhi vows to take “retributive action” against Chinese naval assets operating in the Indian Ocean. However, it is clear to both sides that neither will back down without a fight, and each prepares for a potentially large-scale war that will profoundly shape the long-term balance of power in the Indo-Pacific.

#### **India Team Objectives**

##### **STRATEGIC**

- Preserve the political viability of the current government by avoiding as much as possible any humiliating climb-down and/or negotiated statement.
- Deter future Chinese aggression by prevailing in a series of localized disputes while preserving a favorable military balance versus China and Pakistan.
- Shield India from hostile Chinese actions while preserving some forces to the west to contend with any opportunistic Pakistani acts of aggression.
- Hold key terrain such as Bum La Pass, Jhamperi Ridge, Lakshadweep Islands, Andaman and Nicobar islands.
- Compel China to release any prisoners or impounded assets, such as the corvette.
- Expel all Chinese forces from Indian territory.
- Demonstrate India’s ability to hold Chinese territory at risk and, if need be, foment unrest in Tibet.
- Leverage India’s geographic position to strangle Chinese trade, hold Chinese interests at risk, and otherwise impose costs on China to force favorable war termination.
- Sustain U.S. and international support—even if tacit—by placing the burden of aggression and escalation on China.

##### **STRATEGIC APPROACH**

- Leverage internal lines to thwart China on multiple fronts while holding Pakistan at bay.
- Leverage position astride China’s sea lines of communication and ground lines of communication to throttle Chinese trade and movement.
- Use measured escalation to maintain international and, critically, U.S. support.

## **China Team Objectives**

### **STRATEGIC**

- Secure Tibet, gain Indian recognition of “official” Dalai Lama, and limit/prevent further Indian interference in Tibetan affairs.
- Avoid economic disruption by protecting key ground lines of communication, sea lines of communication, and critical infrastructure (e.g., overseas Belt and Road projects).
- Secure key terrain to consolidate China’s position in the region (e.g., Bum La pass, key islands in India Ocean).
- Demonstrate the weakness of India’s relationship with the United States and the rest of the “Quad.”
- Severely degrade India’s military ability to threaten China/Chinese interests in region.
- Avoid drawing the United States or other actors into the conflict.
- Avoid unfavorable horizontal or vertical escalation.
- Gain combat experience while demonstrating an ability to project power and defeat regional opponents.

### **STRATEGIC APPROACH**

- Attack rapidly along multiple vectors and present multiple threats, while degrading Indian C4ISR to complicate India’s strategic planning and prevent it from responding effectively.
- Leverage Pakistan as a “force-in-being” to tie down Indian forces.
- Establish *faits accomplis* on key terrain and force India to escalate the conflict or negotiate from a position of weakness.

### **NEGOTIATION TERMS**

- India signs a humiliating joint statement by which Delhi apologizes for its provocations and formally recognizes the Chinese-designated Dalai Lama.
- Offer to agree to release the corvette and its crew in exchange for India recognizing Chinese sovereignty over the South China Sea and promising to ask for permission prior to “sailing through China’s blue national soil.”
- Indian cession or demilitarization of key terrain such as Bum La Pass, Jhamperi Ridge, Lakshadweep Island, and the Andaman and Nicobar islands.

## Endnotes

1. For an excellent recent overview of the abiding significance of this geopolitical wager, see Robert D. Blackwill and Ashley J. Tellis, "The India Dividend: New Delhi Remains Washington's Best Hope in Asia," *Foreign Affairs*, 98 no. 5 (September/October 2019), 173–183.
2. "National Security Strategy of the United States," White House, December 2017, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>; Secretary James N. Mattis, "Remarks by Secretary Mattis at Plenary Session of the 2018 Shangri-La Dialogue," Department of Defense, June 2, 2018, <https://www.defense.gov/News/Transcripts/Transcript-View/Article/1538599/remarks-by-secretary-mattis-at-plenary-session-of-the-2018-shangri-la-dialogue/>; "Summary of the 2018 National Defense Strategy of the United States of America," Department of Defense, January 19, 2018, <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>; "Remarks by President Trump at APEC CEO Summit," November 10, 2017, <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-apec-ceo-summit-da-nang-vietnam/>; and "Remarks by Secretary Pompeo at Indo-Pacific Business Forum," July 30, 2018, <https://www.state.gov/secretary/remarks/2018/07/284722.htm>.
3. Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2017*, RefID: C-B066B88 (May 15, 2017), [https://www.defense.gov/Portals/1/Documents/pubs/2017\\_China\\_Military\\_Power\\_Report.PDF?ver=2017-06-06-141328-770](https://www.defense.gov/Portals/1/Documents/pubs/2017_China_Military_Power_Report.PDF?ver=2017-06-06-141328-770).
4. For an excellent firsthand account of U.S.-India rapprochement under the Clinton administration's second term, see Strobe Talbott, *Engaging India: Diplomacy, Democracy and the Bomb* (Washington: Brookings Institution Press, 2004).
5. "U.S.-India Defense Relationship Fact Sheet," U.S. Department of Defense, 2015, <https://dod.defense.gov/Portals/1/Documents/pubs/US-IND-Fact-Sheet.pdf>.
6. Data retrieved from: *SIPRI Military Expenditure Database*, Data for all countries from 1988–2017 in constant (2016) USD (Stockholm International Peace Research Institute, 2018), <https://www.sipri.org/databases/milex>.
7. Robert O. Work and Greg Grant, "Beating the Americans at Their Own Game," CNAS, June 6, 2019.
8. Evan Montgomery has advanced the argument that to confront China with a new continental security challenge the United States should encourage India to build up its land capabilities. See Evan Braden Montgomery, "Competitive Strategies against Continental Powers: The Geopolitics of Sino-Indian-American Relations," *Journal of Strategic Studies*, 36 no. 1, 76–100. Two other scholars, Oriana Mastro and Arzan Tarapore, have argued that China will continue to view such Indian military investments as a second- or third-order concern, though they differ over why. See Oriana Skylar Mastro, "It Takes Two to Tango: Autocratic under-balancing, regime legitimacy and China's responses to India's rise," *Journal of Strategic Studies*, 42 no. 1, 114–152, and Arzan Tarapore, "How India's Rise Can Complement U.S. Strategy," *Lawfare*, October 07, 2018, <https://www.lawfareblog.com/how-indias-rise-can-complement-us-strategy>.
9. While the authors of this report are fully aware that the nuclear aspect of the India-China competition no doubt would play an important role in the event of a conflict, this research project's mandate was to focus more exclusively on the conventional dimensions of both nations' military strategies.
10. Due to Beijing's lack of transparency, a considerable amount of debate surrounds the precise levels of its defense spending. The rigorous analysts at IHS Jane's peg the Chinese and Indian defense budgets at 217.078 billion versus 56.718 billion (in constant USD). See Craig Caffrey, "China Defense Budget," *Jane's Defense Budgets*, March 05, 2019, and Craig Caffrey, "India Defense Budget," *Jane's Defense Budgets*, February 26, 2019. The People's Liberation Army Air Force (PLAAF) now possesses almost as many fourth-generation fighters (over 600) as the entire fighter inventory of the Indian Air Force (IAF), has 50 diesel-electric submarines in comparison to India's 14, and—in one of the starker force structure asymmetries—approximately 1,550 multiple rocket launch systems (MLRS) in comparison to India's 214. As of now, the IAF has no fifth-generation aircraft in its inventory. Figures derived from *The Military Balance 2019* (London: Institute for International Strategic Studies, 2019), 222–319

11. See Andy W. Marshall, *Problems of Estimating Military Power* (Santa Monica: RAND, 1966), <https://www.rand.org/pubs/papers/P3417.html>.
12. There is a vast literature on militaries’ “conversion capabilities,” i.e. their capacity to convert budgetary resources into the development of well-trained and technologically proficient forces. For “military conversion capabilities,” see Ashley J. Tellis et al., *Measuring National Power in the Postindustrial Age* (Santa Monica: RAND, 2000), 143. For a sampling of the voluminous literature on military effectiveness more broadly, see Allan Millet et al., “The Effectiveness of Military Organizations,” *International Security*, 11 no.1, 1986, 37–71, Risa A. Brooks and Elizabeth Stanley (eds.), *Creating Military Power: The Sources of Military Effectiveness* (Palo Alto, CA: Stanford University Press, 2007), and Stephen Biddle, *Military Power: Explaining Victory and Defeat in Modern Battle* (Princeton, NJ: Princeton University Press, 2004).
13. As Theo Farrell notes, innovation “involves developing new military technologies, tactics, strategies and structures”, while adaptation “involves adjusting existing military means and methods.” Theo Farrell, “Introduction: Military Adaptation in War”, in Theo Farrell, Frans Osinga, and James Russell (eds.), *Military Adaptation in Afghanistan* (Palo Alto, CA: Stanford University Press, 2013), 6–7. As we shall see, even as India’s military machinery has struggled to engage in wide-ranging reforms or truly innovate, its forces historically have shown a remarkable ability to adapt rapidly to evolving tactical situations on the ground.
14. As Timothy Heath notes, “there is no clear consensus—either within Chinese military circles or among foreign analysts,” as to how this would affect Chinese combat performance. Nevertheless, this experiential deficit is clearly a source of concern for China’s leadership, especially as the only remaining officers with firsthand combat experience begin to leave the PLA. See Timothy Heath, “China’s Untested Military Could be a Force—or a Flop,” *Foreign Policy*, November 27, 2018, <https://foreignpolicy.com/2018/11/27/chinas-untested-military-could-be-a-force-or-a-flop/>.
15. For an Indian perspective on the perceived merits of such exercises for purposes of internal balancing, see Kishore Kumar Khera, “International Military Exercises: An Indian Perspective,” *Journal of Defense Studies*, 11 no. 3 (2017), 17–40.
16. See, for example, Sébastien Roblin, “U.S. Jet Fighters Are Back in India for Wargames: The Last Two Times the Indian Air Force Won,” *The National Interest*, December 07, 2018, <https://nationalinterest.org/blog/buzz/us-jet-fighters-are-back-india-wargames-last-two-times-indian-air-force-won-38232>.
17. For a good discussion of China’s zero-sum view of the U.S. alliance system in Asia, and its perceived threat to the exertion of Chinese power, see Adam Liff, “China and the U.S. Alliance System,” *The China Quarterly*, 233 (March 2018), 137–165.
18. As three renowned military historians have noted, all military organizations face their own set of natural and political constraints. “Natural constraints include such things as geography, natural resources, the economic system, population, time and weather. Political constraints refer to national political and diplomatic objectives, popular attitudes towards the military, the conditions of engagement and civilian morale. Obviously, no precise calculation of the aggregate military effects of such disparate elements is possible. But it is essential to reach a judgment about the possibilities open to a particular military organization in a given situation. Only then can one compare national armed forces, possessing very different characteristics, problems and enemies, in a fashion that can explain their relative effectiveness.” See Allan R. Millet et al., “The Effectiveness of Military Organizations,” *International Security*, 11 no.1 (1986), 37–71.
19. The Indian Navy’s Maritime Security Strategy thus clearly states that “sea control is a central concept around which the Indian Navy will be employed,” and that the carrier group remains the most essential component of the Indian Navy’s force design. See *Ensuring Secure Seas: Indian Maritime Security Strategy* (New Delhi: Integrated Headquarters, Ministry of Defense, 2016), 70–71.
20. C. Raja Mohan, *Samudra Manthan: Sino-Indian Competition in the Indo-Pacific* (Washington: Carnegie Endowment for International Peace, 2012).
21. David Brewster (ed.), *India and China at Sea: Competition for Naval Dominance in the Indian Ocean* (New York: Oxford University Press, 2018).

22. See Iskander Rehman, “Tomorrow or Yesterday’s Fleet: The Indian Navy’s Emerging Operational Challenges,” in Anit Mukherjee and Raja Mohan (eds.), *India’s Naval Strategy and Asian Security* (New York: Routledge, 2015).
23. For an Indian perspective on Pakistan’s ongoing naval efforts, see Abhijit Singh, “Pakistan’s Naval Transformation: Soaring Ambitions, Dangerous Delusions,” War on the Rocks, December 07, 2016, <https://warontherocks.com/2016/12/pakistans-naval-transformation-dangerous-delusions-soaring-ambitions/>.
24. In 2011 China entered a deal with the International Seabed Authority to explore over 10,000 square kilometers of the Indian Ocean seabed for polymetallic sulphides. India’s Directorate of Naval Intelligence has viewed this development with concern, and as providing an opportunity for the PLAN to map underwater topography with future military subsurface operations in mind. See KJM Varma, “China to Mine Polymetallic Sulphide in the Indian Ocean,” *Outlook*, November 18, 2011, <https://www.outlookindia.com/newswire/story/china-to-mine-polymetallic-sulphide-in-indian-ocean/741849>.
25. For an excellent discussion of the different approaches and challenges inherent to defense planning, see Stephan Fruhling, *Defense Planning and Uncertainty: Preparing for the Next Asia-Pacific War* (New York: Routledge, 2014).
26. On India’s concerns with regard to the modernization of China’s surface fleet, see Sureesh Mehta, “China’s Evolving Surface Fleet: Its Possible Role and Missions in the Indian Ocean and Its Impact on Regional Stability,” in Peter A. Dutton and Ryan D. Martinson (eds.), *China’s Evolving Surface Fleet* (Newport, RI: China Maritime Studies Center, 2017), 67–81.
27. *China: Modernizing a Force to Fight and Win* (Washington: U.S. Defense Intelligence Agency, 2019), 63, [https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/China\\_Military\\_Power\\_FINAL\\_5MB\\_20190103.pdf](https://www.dia.mil/Portals/27/Documents/News/Military%20Power%20Publications/China_Military_Power_FINAL_5MB_20190103.pdf).
28. For two excellent studies of Sino-Indian competition in the Indian Ocean, see C. Raja Mohan, *Samudra Manthan: Sino-Indian Competition in the Indo-Pacific* (Washington: Carnegie Endowment for International Peace, 2012) and David Brewster (ed.), *India and China at Sea: Competition for Naval Dominance in the Indian Ocean* (New York: Oxford University Press, 2018).
29. See Conor Kennedy, “Strategic Strong Points and Chinese Naval Strategy,” *China Brief*, 19 no. 6 (March 22, 2019), <https://jamestown.org/program/strategic-strong-points-and-chinese-naval-strategy/>.
30. See “Indian Navy Aiming at 200-Ship Fleet by 2027,” *The Economic Times*, July 14, 2018, <https://economictimes.indiatimes.com/news/defence/indian-navy-aiming-at-200-ship-fleet-by-2027/article-show/48072917.cms>.
31. “India’s Defense Budget,” *Jane’s Defense Budgets*, February 26, 2019.
32. *Action Taken by the Government on the Recommendations/Observations Contained in the Forty-First Report of Standing Committee on Defense on Demands for Grants of the Ministry of Defense for the Year 2018–19 on Army, Navy and Air Force* (New Delhi: Lok Sabha Secretariat, January 2019), [http://164.100.47.193/lsscommittee/Defence/16\\_Defence\\_47.pdf](http://164.100.47.193/lsscommittee/Defence/16_Defence_47.pdf).
33. *Action Taken by the Government on the Recommendations/Observations Contained in the Forty-First Report of Standing Committee on Defense on Demands for Grants of the Ministry of Defense for the Year 2018–19 on Army, Navy and Air Force* (New Delhi: Lok Sabha Secretariat, January 2019), [http://164.100.47.193/lsscommittee/Defence/16\\_Defence\\_47.pdf](http://164.100.47.193/lsscommittee/Defence/16_Defence_47.pdf).
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38. See M. Taylor Fravel, “Securing Borders: China’s Doctrine and Force Structure for Frontier Defense,” *The Journal of Strategic Studies*, 30 no. 5 (2007), 705–737.
39. See Praggya Surana, *China Shaping Tibet for Strategic Leverage* (New Delhi: Center for Land Warfare Studies, November 2018), [https://www.claws.in/images/publication\\_pdf/1417788492\\_270916174\\_PraggyaMP.compressed\\_CLAWS.pdf](https://www.claws.in/images/publication_pdf/1417788492_270916174_PraggyaMP.compressed_CLAWS.pdf).
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41. For two excellent overviews of the role high-speed rail infrastructure has played in China’s regional military strategy, see Christina Lin, “The PLA’s Orient Express: Militarization of the Iron Silk Road,” *China Brief*, 11 no. 5 (March 25, 2011), <https://jamestown.org/program/the-plas-orient-express-militarization-of-the-iron-silk-road/>; and Wu Zhengyu, “Toward Land or Toward Sea? The High-Speed Railway and China’s Grand Strategy,” *Naval War College Review*, 66 no. 3 (Summer 2013), 53 Naval War College Review, 66 no. 3 (Summer 2013), 66. On the progressive reorientation, since the mid-2000s, of the Chinese Army from theater defense to transtheater or transregional mobility, see Dennis J. Blasko, “The PLA Army,” in Lowell Ditmer and Maochun Yu, *The Routledge Handbook of Chinese Security* (New York: Routledge, 2015), 257–260.
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43. Author interview of senior Indian national security official, New Delhi, April 3, 2019.
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47. Joseph A. Jackson, *Howitzers on High Ground: Considerations for Artillery Employment in Southwest Asia* (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2009), [https://pdfs.semanticscholar.org/2cfb/d9c49ba63a0b0364760b8b40a7b749b50be8.pdf?\\_ga=2.201654420.424862104.1564956229.1257019605.1564956229](https://pdfs.semanticscholar.org/2cfb/d9c49ba63a0b0364760b8b40a7b749b50be8.pdf?_ga=2.201654420.424862104.1564956229.1257019605.1564956229).
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66. Whereas India's first 22 Apaches were acquired by the Air Force, the MOD has stipulated that henceforth all future attack helicopter squadrons will fall under the operational control of the IA. In July 2018 India's Defense Acquisition Council approved the purchase of another six Apaches equipped with Hellfire and Stinger missiles for the Indian Army's AAC. See "India—Army," *Jane's Sentinel Security Assessment—South Asia*, January 6, 2019.
67. "India—Army." Indian planners have been particularly concerned by the growth of the PLA's Airborne Corps (formerly known as the 15th Airborne Corps before it was reorganized in 2017) and the expansion of the Airborne Corp's SOF regiment into a brigade-level force. On the SOF component of China's Airborne Corps, see "China—Special Operations Forces," *IHS Jane's*, March 6, 2019. Kevin McAuley has noted that in the event of a Sino-Indian border war, "Insertions of airmobile and special operations forces into the enemy rear area would support frontal ground force combat, seize or destroy key targets, support the joint fire strike, and interdict enemy forces." See Kevin McAuley, "Himalayan Impasse: How China Would Fight an Indian Border Conflict," *China Brief*, 17 no. 12 (September 2017), <https://jamestown.org/program/himalayan-impasse-how-china-would-fight-an-indian-border-conflict/>.

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69. See Shnesh Alex Philip, “India Inducts Chinook Helicopters: Adds Muscle Along the China Border,” *The Print*, March 25, 2019, <https://theprint.in/defence/india-inducts-chinook-helicopters-adds-muscle-to-military-along-china-border/210907/>.
70. Quoted in “Once Rafales Come, Pakistan Won’t Come Near LOC or Border: IAF Chief Dhanoa,” *The Economic Times*, March 25, 2019, <https://economictimes.indiatimes.com/news/defence/once-rafales-come-pakistan-wont-come-near-loc-or-border-iaf-chief-dhanoa/articleshow/68559911.cms?from=mdr>.
71. The IA sometimes refers to this as the “Sons of the Soil concept” with regard to territorial defense. In addition to the Arunachal and Sikkim Scouts, the Indian Army also fields the Ladakh scouts, the Dogra Scouts, the Kumaon Scouts, and the Garhwal Scouts.
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73. For two excellent overviews of India’s multi-pronged efforts in this regard, see Darshana Baruah, “India’s Evolving Maritime Domain Awareness Strategy in the Indian Ocean,” in David Brewster (ed.), *India and China at Sea: Competition for Naval Dominance in the Indian Ocean* (New York: Oxford University Press, 2018), Chapter 9; and Abhijit Singh, “India’s Undersea Wall in the Eastern Indian Ocean,” CSIS Asia Maritime Transparency Initiative, June 15, 2016, <https://amti.csis.org/indiass-undersea-wall-eastern-indian-ocean/>.
74. See, for example, “PM Modi, Prez Solih Inaugurate Coastal Surveillance Radar System Built by India,” The Hindu Business Line, June 9, 2019, <https://www.thehindubusinessline.com/news/pm-modi-prez-solih-inaugurate-coastal-surveillance-radar-system-built-by-india/article27702761.ece>; and Oscar Nkala, “India Developing Network of Coastal Radars,” *Defense News*, March 20, 2015, <https://www.defensenews.com/naval/2015/03/20/india-developing-network-of-coastal-radars/>.
75. Shubhajit Roy, “PM Modi Visit to France: Launch of Satellites for Maritime Surveillance in Indo-Pacific Key Agenda,” *The Indian Express*, August 20, 2019, <https://indianexpress.com/article/india/pm-modi-visit-to-france-launch-of-satellites-for-maritime-surveillance-in-indo-pacific-key-agenda-5918684/>.
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78. Rahul Bedi, “Indian Army Signs MOU for Ammunition Storage Tunnels Along Border with Pakistan, China,” *Jane’s Defense Weekly*, April 29, 2019.
79. The IAF has designated 21 highways as “backup runways.” See “India—Air Force,” *Jane’s World Air Forces*, February 12, 2019.
80. Rajat Pandit, “India to Buy 2 More AWACs Worth 5.7k Core from Israel,” *The Times of India*, January 30, 2019, <https://timesofindia.indiatimes.com/india/india-to-buy-2-more-awacs-worth-rs-5-7k-crore-from-israel/articleshow/67765253.cms>.

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82. *Action Taken by the Government on the Recommendations/Observations Contained in the Forty-First Report of Standing Committee on Defense on Demands for Grants of the Ministry of Defense for the Year 2018–19 on Army, Navy and Air Force* (New Delhi: Lok Sabha Secretariat, January 2019), [http://164.100.47.193/lsscommittee/Defence/16\\_Defence\\_47.pdf](http://164.100.47.193/lsscommittee/Defence/16_Defence_47.pdf).
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