FEATURE

Strategic Competition and Self-Reliance

Analyzing Munitions Industrial Bases in India and Pakistan amid Great-Power Rivalry

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Abstract

The intensifying great-power competition between the United States and China, exacerbated by the Russian invasion of Ukraine and the unification tensions surrounding Taiwan, has compelled nations to align themselves and bolster their defenses. This study explores the munitions industrial bases of the Republic of India and the Islamic Republic of Pakistan, focusing on their pursuit of self-reliance to wield national power and strategically navigate the competition below armed conflict. The study aims to understand how a vital munitions industrial base allows developing countries to refrain from contributing support to Western nations in a conflict between the United States and its most consequential strategic competitor, China. The article delves into the diplomatic, arms sales, and technology transfer strategies employed by both nations to strengthen their munitions industrial bases and gain advantages in interregional conflicts. By shedding light on the capabilities and challenges faced by India and Pakistan, this research contributes to the existing body of knowledge relevant to the Indo-Pacific region. The insights into the development of defense industrial bases, including the importance of national self-reliance and strategies for countering perceived threats, hold particular relevance for the Department of Defense, US Army, US Air Force, and other services operating in the Indo-Pacific.

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A vital element in keeping the peace is our military establishment. Our arms must be mighty, ready for instant action, so that no potential aggressor may be tempted to risk his own destruction. Our military organization today bears little relation to that known by any of my predecessors in peace time, or indeed by the fighting men of World War II or Korea. Until the latest of our world conflicts, the United States had no armaments industry. American makers of plowshares could, with time and as required, make swords as well. But now we can no longer risk emergency improvisation of national defense; we have been compelled to create a permanent armaments industry of vast proportions. Added to this, three and a half million men and women are directly engaged in the defense establishment. We annually spend on military security more than the net income of all United State corporations. This conjunction of an immense military establishment and a large arms industry is new in the American experience. The total influence—economic, political, even spiritual—is felt in every city, every state house, every office of the Federal government. We recognize the imperative need for this development. Yet we must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society. In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex.

—President Dwight D. Eisenhower

Farewell Address (1961)

In his farewell address, President Dwight Eisenhower, the former commanding general of the victorious forces in Europe during World War II, issued a cautionary warning about the military-industrial complex. Recognizing the imperative of maintaining a robust military capability to safeguard a nation's way of life, Eisenhower acknowledged the inherent complexities associated with this symbiotic relationship. The military-industrial complex encompasses the intricate interplay between a country's armed forces and the defense industry responsible for supplying armaments and munitions. This dynamic manifests in diverse ways, extending beyond the United States and finding resonance in the pursuit of national interests by other nations worldwide. From aspirations of territorial expansion to self-imposed isolationism, including regional conflicts with neighboring states, countries navigate this intricate landscape as they strive to achieve their strategic objectives.

This article examines the munitions industrial bases of the Republic of India and the Islamic Republic of Pakistan following the partition of India. With a focus on fostering self-reliance as a means of bolstering national power, each nation endeavors to develop its own organic industrial base.

The theoretical framework of this article provides an in-depth understanding of the dynamics and complexities of the relationship between the armed forces and the defense industry in India and Pakistan. The objective is to validate that a robust munitions industrial base allows developing countries to retain the option of not relying on support from Western nations and their allies during armed conflicts. However, a significant challenge arises as former British colonies are less likely to support Western nations that are no longer required and have already turned to other nations, such as Russia and China.

The research question revolves around identifying the factors that contribute to self-reliance in a munitions industrial base. The subquestions are as follows: How does each nation's organic industrial base compare to that of the world powers? What policies support the defense sector in achieving self-reliance?

The literature review will include an examination of the military-industrial complex, focusing on its two primary forms observed in the United States and China. As major world powers, these nations represent opposite ends of the spectrum in shaping the military-industrial complex. A comprehensive analysis will be conducted to compare India's and Pakistan's munitions industrial bases with that of the United States, considering the diplomatic strategies, arms sales, and technology transfer employed by each nation to strengthen their industrial bases.

In this context, the term *organic industrial base* (OIB) is employed to denote a comprehensive network of government-owned industrial facilities. Within the scope of this article, OIB encompasses entities such as public sector undertakings

(PSU) and defense public sector undertakings (DPSU), Defence Production Establishments (DPE), which are government-owned corporations. Moreover, the term *munitions industrial base* refers to a specific subset of the OIB, en-compassing depots and ammunition production facilities. Throughout the analysis, national terminology is juxtaposed with that of the United States to ensure readability and comprehension.

Partition of India

Every story requires a starting point, and in the context of this article, it begins with the partition delineated in the Indian Independence Act of 1947. The Indian subcontinent encompasses a diverse array of nations, including Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. Geographically, this landmass spans from the Himalayas to the northern reaches of the Indian Ocean. However, the research primarily focuses on India and Pakistan, two adversaries deeply rooted in the history in the Indian subcontinent.

The Indian Independence Act marked a significant milestone in 1947 as it established two independent dominions: India and Pakistan. The dominion of Pakistan was further divided into West Pakistan and East Pakistan, the latter of which is present-day Bangladesh. The partition of India involved the bifurcation of the Bengal and Punjab provinces along religious lines, resulting in separate territories for Muslims (in Pakistan) and Hindus and Sikhs (in India), resulting in one of the largest forced migrations in history.[1] The repercussions of this forced migration were nothing short of disastrous, characterized by untold atrocities and immense suffering in the newly formed nations. Muslim populations migrated from India to Pakistan in the west, while Hindu and Sikh communities moved to the east. The scale of the exodus was staggering, with an estimated 20 million people displaced, leaving a trail of devastation in their wake. While precise documentation is limited, the death toll reached hundreds of thousands, and as many as two million lives may have been lost. Although most present-day Indians, Pakistanis, and Bangladeshis were born well after the partition, the echoes of this historic event remain ingrained in the national consciousness. Similar to how the hardships of the past have shaped nations like the United States, even though most Americans were born long after World War II, the experiences of India and Pakistan continue to influence those nations' trajectories. Notably, the two coun-tries have engaged

[1] UK Parliament, "1947 Indian Independence Act," 18 July 1947, https://www.parliament.uk/.

in three wars and numerous conflicts, often revolving around Jammu & Kashmir, India's only Muslim-majority territory.[2]

Throughout history, the inevitability of war has often loomed over nations, particularly those situated along contentious borders. In ancient times, preparations for battle entailed amassing swords, spears, and bows. However, the discovery of gunpowder ushered in a new era, necessitating the storage of shells and other materials, as well as the development and adaptation of tactics that transformed the nature of warfare. One constant factor, regardless of the era, is the imperative to ensure the preparedness of state and tribal forces.

Indo-Pakistani Wars

Following the partition, the Indo-Pakistani War erupted in 1947 over the princely state of Jammu & Kashmir. The Indian Independence Act of 1947 ranted legal and technical independence to the princely states; however, in practice, they were compelled to choose between India and Pakistan. Jammu & Kashmir had a Muslim-majority population of around 77 percent, with an additional 20 percent Hindu population, as per the 1941 census. The region was ruled by Maharaja Hari Singh, a Hindu ruler. The war commenced when Muslim tribesmen, supported by regular forces from Pakistan, launched an open revolt and occupied Kashmir in an attempt to overthrow the Maharaja. The Singh fled and eventually acceded to India in October 1947. India provided military assistance to the region, leading to the Indo-Pakistani War of 1947–1948. As a result, India gained control over approximately two-thirds of Jammu & Kashmir, while Pakistan occupied the remainder.[3] This conflict set the stage for future hostilities and highlighted the importance of national armies and airlifted troops, as well as the involvement of artillery.

The second major conflict between the two countries regarding the status of the Jammu & Kashmir occurred in 1965. While the war did not resolve the territorial claims, it drew the involvement of the superpowers, the United States and the

[2] Vivek Shankar, "India's Partition: A History in Photos," *New York Times*, 14 August 2022, https://www.nytimes.com/. Kashmir's current status in the Indian federal system is that of a Union Territory, meaning that it is directly administered by the central government and has less autonomy than a state. This status was imposed on 5 August 2019, when the Indian government revoked Article 370 of the Indian constitution, which gave the former state of Jammu & Kashmir special rights, including its own constitution. The region was also divided into two union territories: Jammu–Kashmir and Ladakh. The move was controversial and sparked protests and unrest in Kashmir, which were met with a security lockdown and a communications blackout by the Indian authorities.

[3] Raju G.C. Thomas, ed., *Perspectives on Kashmir: The Roots of Conflict in South Asia* (1992; repr., New York: Routledge, 2019), 25, https://books.google.com/.

Soviet Union, in the region. The conflict reignited when the Pakistani Army attempted to forcefully seize Kashmir. Although unsuccessful, the war reached a stalemate due to the international politics of the Cold War. Following the Pakistani invasion, India requested the intervention of the United Nations, leading to the passage of Resolution 211 by the Security Council, which called for a ceasefire and negotiations to resolve the Kashmir conflict. The United States and the United Kingdom supported the acceptance of the ceasefire by India and Pakistan, which was partly due to the cessation of arms supplies. While both nations were affected, Pakistan, with its weaker military compared to India, felt the impact more profoundly. The resolution, which generally favored India, demonstrated the vulnerability of nations in defending their borders and the potential consequences of sanctions and arms embargoes.

The Indo-Pakistani War of 1971 resulted in the independence of Bangladesh, which emerged from the two geographically separated territories of West Pakistan (Islamic Republic of Pakistan) and East Pakistan (now the People's Republic of Bangladesh). Civil war erupted in Pakistan as the West Pakistan army clashed with East Pakistanis demanding autonomy. India intervened in East Pakistan to support its people after millions of civilians sought refuge in India. Following the surrender of the Pakistani Army, East Pakistan became the independent nation of Bangladesh at the end of the war. The 1971 conflict was not directly related to the struggle for Jammu & Kashmir, but rather focused on the independence of Bangladesh. It underscored the transformative impact of internal conflicts and the need for a nation's preparedness and support. The United States supported Pakistan during this war, prompting China to increase arms sales, while the Soviet Union backed the Indian Army. However, it was not until a subsequent major engagement that US relations with India would change.

The Indo-Pakistani War of 1999, known as the Kargil War, represented a broader conflict between India and Pakistan over Kashmir. In a notable departure, the United States publicly aligned with India for the first time, as it determined that Pakistan had intentionally violated the Line of Control near Kargil. The US administration was resolute in its commitment to rebuilding bilateral relations with India, recognizing its status as a major democratic power with considerable future significance. However, the global order was disrupted by the nuclear tests conducted by both India and Pakistan in May 1998.[4] The international community actively advocated for the cessation of hostilities in the Kargil War, which led to Pakistan losing a significant amount of its global goodwill due to its involvement.

[4] Bruce Riedel, "How the 1999 Kargil Conflict Redefined US-India Ties," *Order from Chaos* (blog), 24 July, 2019, https://www.brookings.edu/.

Since the partition of British India into India and Pakistan, the two regional powers have maintained a militaristic relationship.

India–Pakistan Relations

The relations between India and Pakistan, two nuclear powers, have been marked by contention, especially concerning conflicts over the shared border and the territory of Jammu & Kashmir since the partition. To address these issues and promote peace, peace treaties were signed between India and Pakistan, including the Simla Agreement and the Lahore Declaration. These agreements reflect the nations' commitment to resolving their differences through peaceful means.

Following the Indo-Pakistani War of 1971, the Simla Agreement was signed, aiming to put an end to the conflict and establish a framework for normalization. The agreement emphasized the peaceful resolution of disputes through bilateral negotiations or other mutually agreed means: "That the two countries are resolved to settle their differences by peaceful means through bilateral negotiations or by any other peaceful means mutually agreed upon between them."[5] The Simla Agreement provided a pathway toward resolving severe issues between India and Pakistan.

Similarly, the Lahore Declaration was a significant bilateral agreement that outlined the shared vision of peace and stability between the two nations. It also included measures to reduce the risk of accidental or unauthorized use of nuclear weapons.[6] The declaration underscored the commitment to maintaining peace and resolving conflicts peacefully.

Thus, throughout their history, India and Pakistan have had a contentious relationship, and both nations have acquired nuclear weapons capabilities, establishing themselves as nuclear weapon states. As part of their deterrence strategies, they continue to expand their nuclear arsenals. The possession of nuclear weapons by both countries adds an additional layer of complexity to their bilateral dynamics and reinforces the need for stable relations and dialogue.

India's Missile Arsenal

New Delhi's nuclear policy accounts for the regional threats facing India, particularly from Pakistan and China. Based on available information, experts estimate that India has produced 160 nuclear warheads and continues to develop

[5] Agreement on Bilateral Relations between the Government of India and the Government of Pakistan (Simla Agreement), Simla, 2 July 1972.

[6] The Lahore Declaration, Signed at Lahore on the 21st day of February 1999.

additional warheads for its new missiles.[7] India possesses a complete nuclear triad capability, similar to the United States, allowing it to deliver nuclear strikes through air-, sea-, and land-based platforms.

Researchers estimate that India has assigned three or four squadrons of Mirage 2000H and Jaguar IS/IB aircraft stationed at three bases for nuclear strike missions against Pakistan and China. In terms of land-based delivery systems, India has a diverse range of ballistic missiles with varying ranges, including Prithvi-II and Agni-I (short-range), Agni-II (medium-range), and Agni-III (intermediate-range). India is also nearing completion of two longer-range Agni missiles: Agni-IV and Agni-V. Additionally, India operates the Dhanush, a ship-launched missile, and is developing the K-4, a submarine-launched ballistic missile, for deployment on a small fleet of nuclear-powered ballistic missile submarines.[8]

Developing and manufacturing missile systems requires a complex blend of expertise and infrastructure. India has successfully established an OIB for missile defense through institutions like the Defence Research and Development Organisation (DRDO). The DRDO, formed in 1958 through the merger of various defense-related organizations, conducts research and development for defense technologies under the Ministry of Defence. It operates over 50 laboratories and establishments focused on aeronautics, armaments, missiles, advanced computing and simulation, special materials, and naval systems.[9] Alongside the DRDO, India's defense industry includes PSUs, government-owned corporations that play a significant role in defense manufacturing.

One such PSU is Bharat Dynamics Limited (BDL), which manufactures guided missile systems for the Indian Armed Forces. Established in 1970, BDL collab-orates with the DRDO and foreign original equipment manufacturers (OEM) to supply various missiles and allied equipment. BDL operates four state-of-the-art manufacturing facilities, located in Telangana State (Hyderabad, Bhanur, and Ibrahimpatnam) and Andhra Pradesh (Visakhapatnam), enabling the production of guided missiles, underwater weapons, airborne products, and other defense equipment.[10] India's military platforms and weapons serve as a crucial deterrent and form the cornerstone of its national security strategy against adversaries like Pakistan, which also possesses a formidable arsenal.

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[7] Hans M. Kristensen and Matt Korda, "Nuclear Notebook: How Many Nuclear Weapons Does India Have in 2022?," *Bulletin of the Atomic Scientists*, 11 July, 2022, https://thebulletin.org/.

[8] Hans M. Kristensen and Matt Korda "Indian Nuclear Forces, 2020," *Bulletin of the Atomic Scientists* 76, no. 4 (2020), 217–25, https://www.tandfonline.com/.

[9] Ministry of Defence, Government of India, "About DRDO," 5 May, 2020, https://www.drdo.gov.in/.

[10] Bharat Dynamics Limited (BDL), "Company Profile," 12 May 2023, https://bdl-india.in/.

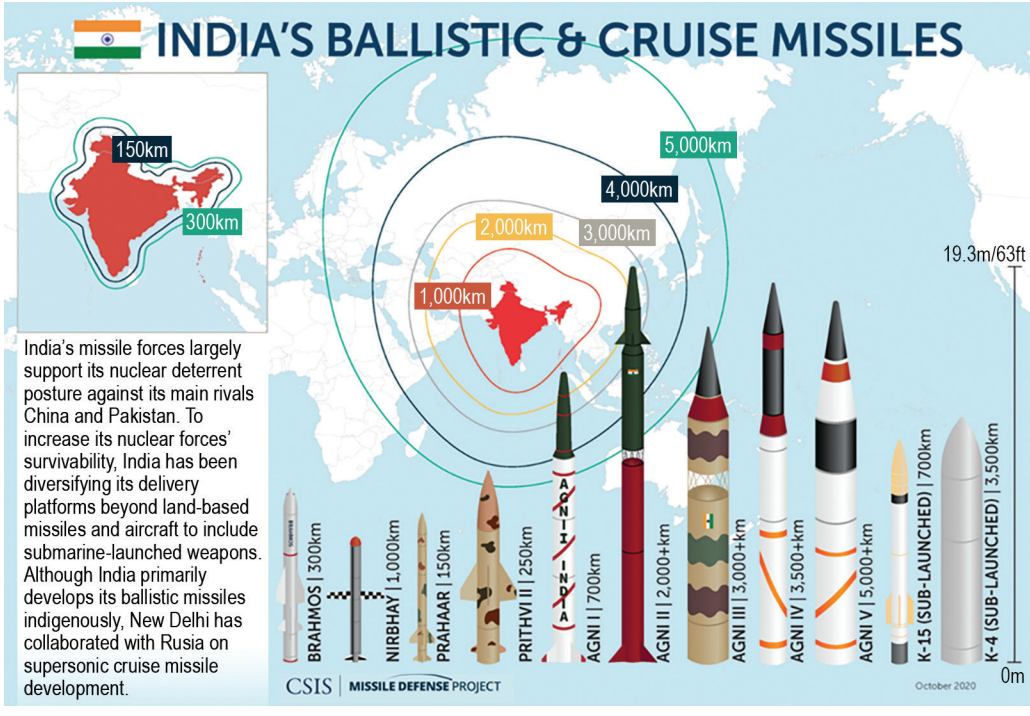

Figure 1. India's ballistic and cruise missiles. (CSIS Missile Defense Project. https://missilethreat.csis.org/.)

Pakistan's Missile Arsenal

Pakistan's nuclear program, much like India's, is driven by the regional threats it faces, primarily from India. As of 2023, Pakistan possesses an arsenal of approximately 170 nuclear warheads, which continues to grow.[11] The country is actively expanding its nuclear arsenal and developing new delivery systems, including sea-based platforms and the ongoing development of an intercontinental ballistic missile (ICBM). Its current inventory of delivery systems comprises a range of short-range ballistic missiles (such as Hatf, Abdali, Ghaznavi, Shaheen, and Nasr), medium-range ballistic missiles (including Shaheen, Ghauri, and Ababeel), and the development of the Taimur missile as an ICBM. Cruise missile variants such as Babur and Ra'ad are also part of Pakistan's capabilities. Addi-tionally, Pakistan

[11] Hans Kristensen et al., "Status of World Nuclear Forces," Federation of American Scientists, 31 March 2023, https://fas.org/.

can deliver nuclear weapons through strategic bombers like the US-origin F-16A/B and French-origin Mirage 2000 fighter jets.[12]

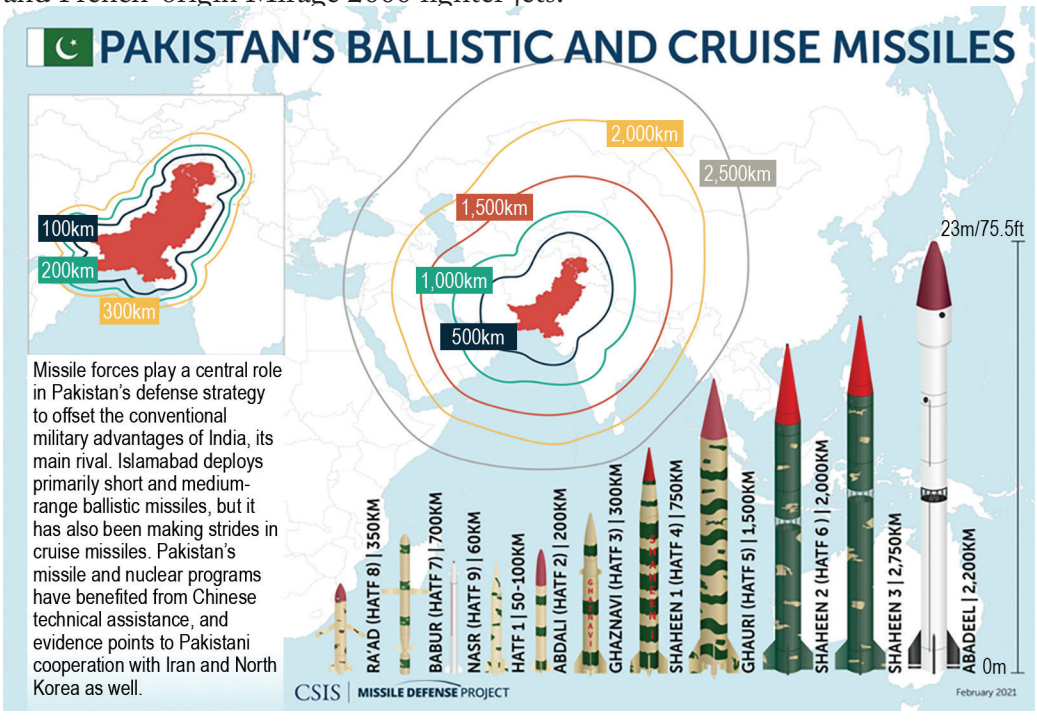

Figure 2. Pakistan's ballistic and cruise missiles. (CSIS Missile Defense Project. https://missilethreat.csis.org/.)

While India maintains a combination of government and government-owned corporations as its OIB and missile manufacturer/research organization, Pakistan operates through a commission under its National Command Authority, which assumes responsibility for most national missile defense functions. The Pakistani National Engineering and Scientific Commission (NESCOM) established in 2000, actively administers several defense development programs, including the National Defense Complex and the Air Weapons Complex. With approximately 16,000 employees, NESCOM conducts research and development in various disciplines of science and technology, encompassing microelectronics to adva-nced materials and plays a crucial role in developing indigenous technologies.[13] Developing indigenous technology is an essential aspect of establishing a robust munitions industrial base. However, before a nation can internally create complex defense

[12] Arms Control Association, "Arms Control and Proliferation Profile: Pakistan," March 2022, https://www.armscontrol.org/.

[13] NESCOM, "CESAT – About Us," 28 December 2008, https://web.archive.org/.

systems, it may need to acquire technology and support from more tech-nologically advanced nations. In addition to government agencies and government-owned enterprises, nations can explore avenues such as foreign military sales, direct commercial sales, or even joint ventures (JV) to enhance their capabilities.

International Arms Transfers

The global arms trade and the defense industry play a significant role in munitions supply worldwide and often serve as instruments of international diplomacy. According to the Stockholm International Peace Research Institute (SIPRI), 167 states were identified as importers of major arms during the period of 2018 to 2022, with the top five arms importers being India, Saudi Arabia, Qatar, Australia, and China, collectively accounting for 36 percent of total global arms imports. India holds the top position on the list, with an 11-percent share of total global arms imports, while Pakistan ranks eighth. India has maintained its position as the world's biggest arms importer since 1993. However, it has experienced an overall decrease of 11 percent due to efforts to diversify its arms suppliers, replace imports with domestically designed and produced major arms, and improve its arms procurement process.[14] The choice of suppliers can have significant international repercussions. For instance, India's purchase of S-400 missile defense systems from Russia may lead to potential US sanctions under Countering America's Adversaries Through Sanctions Act.[15] Imposing perceived wrongful sanctions would only push India toward further agreements with its current leading supplier, Russia, such as the Indo-Russian multinational BrahMos Aerospace joint venture.[16] This joint venture, established through an inter-governmental agreement, benefits both countries through shared ownership, returns, risks, governance, and resources.

In the case of Pakistan, arms imports have increased by 14 percent during the reporting period, accounting for 3.7 percent of the global total. China remains the primary supplier, supplying more than three-quarters of Pakistan's arms imports.[17] While Pakistan received significant transfers of US arms during the Afghan jihad in the 1980s and the subsequent Global War on Terror, the volume has not reached the level of Chinese arms transfers, which have increased since 2009. Pakistan's support is reciprocated with technology transfer and access to power projection. Pakistan facilitated China's missile program by transferring unexploded Tomahawk

[14] Pieter D. Wezeman, Justine Gadon, and Siemon T. Wezeman, "Trends in International Arms Transfers, 2022" SIPRI, March 2023, https://www.sipri.org/.

[15] "U.S. Arms Sales to India," *Forum on the Arms Trade*, n.d., https://www.forumarmstrade.org/.

[16] BrahMos Aerospace, "Joint Venture," 2022, https://www.brahmos.com/.

[17] Wezeman, Gadon, and Wezeman, "Trends in International Arms Transfers, 2022."

missiles that landed in Afghanistan and provided samples of the crashed Black Hawk helicopter during the 2011 Abbottabad mission to eliminate Osama bin Laden, thereby sharing US stealth technology with China. China's military relationship with Pakistan and its operation of the Gwadar port, located in Balochistan Province and a key city of the Belt and Road Initiative (BRI), are assessed to give China leverage in the region, particularly near the strategically important Strait of Hormuz.[18] Diplomacy plays a crucial role in maintaining relationships between nations, and international arms transfers are one of the avenues used to influence other nations. The establishment of a munitions industrial base is a strategic objective for many industrialized nations, enabling them to support their military services in contingencies, escalating conflicts, or full-scale conventional wars.

		Share of global arms imports (%)		Percent change from 2013–17 to 2018–22	Main suppliers and their share of importer's total imports (%), 2018–22		
Rank	Importer	2018–22	2013–17		1st	2nd	3rd
1	India	11	12	–11	Russia 45	France 29	USA 11
8	Pakistan	3.7	3.0	14	China 77	Sweden 5.1	Russia 3.6

Figure 3. India and Pakistan ranking in the 40 largest importers of major arms and their main suppliers. (SIPRI Arms Transfer Database. https://www.sipri.org.)

The Indian Ordnance Factories

At the heart of a munitions industrial base lies the production of munitions internally, encompassing design and manufacturing. The Indian Ordnance Factories are instrumental in providing self-reliance and defending India's borders. The history and development of the Indian Ordnance Factories can be traced back to the British reign in India. In 1775, the establishment of the Board of Ordnance in Fort William, Kolkata, marked the official beginning of the Army Ordnance in India. Subsequently, a gunpowder factory was established at Ishapore in 1787, commencing production in 1791. In 1801, the Gun Carriage Agency was set up

[18] Sameer P. Lalwani, "A Threshold Alliance: The China-Pakistan Military Relationship," United States Institute of Peace, 22 March 2023, https://www.usip.org/.

at Cossipore, Kolkata, with production commencing in 1802, and operations have continued to this day.[19]

In 2021, the Government of India made the decision to dissolve the Ordnance Factory Board and transfer the management, control, operations, and main-tenance of 41 production units to seven government companies known as DPSUs.[20] These DPSUs include Munitions India Limited (MILHQ), Armoured Vehicles Nigam Limited (AVNLHQ), Advanced Weapons and Equipment India Limited (AWEILHQ), Troop Comforts Limited (TCLHQ), Yantra India Limited (YILHQ), India Optel Limited (IOLHQ), and Gliders India Limited (GILHQ). The SIPRI Arms Industry Database, which provides information on arms-producing companies, has consistently included Indian Ordnance Factories among the top 100 arms-producing and military services companies since 2002, excluding 2021.[21] India's long-standing history dating back to British India has contributed to its emergence as a global munitions manufacturer, earning it a well-defined ranking that can be closely monitored. This advantage has not been fully utilized by Pakistan.

There are various economic, political, and strategic factors that drive India's choices and have led to a reduction in arms imports, with one significant factor being the Make in India initiative launched by Prime Minister Narendra Modi in 2014. This initiative was part of the nation-building efforts aimed at trans-forming India into a global design and manufacturing hub. By promoting self-reliance, India aims to generate employment and expertise in critical areas of manufacturing across multiple sectors, thereby fostering economic growth and democracy. The defense sector has been specifically identified as a focal point for the Aatmanirbhar Bharat (or Self-Reliant India) initiative, emphasizing the establishment of indigenous manufacturing infrastructure supported by robust research and development.[22]

To attract foreign investment, the Indian government has implemented an attractive foreign direct investment (FDI) policy, allowing up to 74-percent FDI through an automatic route (previously 49 percent) for enterprises seeking new industrial licenses. The FDI limit can go up to 100 percent with prior approval from the government.[23] However, if the generous FDI policy does not provide

[19] Directorate of Ordnance (Coordination & Services), "History," 18 April 2023, https://ddpdoo.gov.in/.

[20] Directorate of Ordnance (Coordination & Services), "Our Units," 18 April 2023, https://ddpdoo.gov.in/.

[21] SIPRI, "SIPRI Arms Industry Database" December 2022, https://www.sipri.org/.

[22] Department for Promotion of Industry and Internal Trade, "Defence Manufacturing," *Make in India*, n.d., https://www.makeinindia.com/.

[23] National Investment Promotion & Facility Agency, "Defence Manufacturing," 2023, https://www.investindia.gov.in/.

sufficient incentives, the Indian government has taken stringent measures in the defense sector to ensure indigenous production. The Department of Military Affairs and Ministry of Defence have compiled four indigenization lists containing a total of 411 items that should be manufactured domestically rather than sourced through imports. These items include short-range surface-to-air missiles (land variant), shipborne cruise missiles, multipurpose grenades, and assault rifles.[24] The Strategic Partnership Policy serves as a driving force for the Indian military-industrial complex to either manufacture defense systems domestically or establish strategic partnerships. This policy aims to foster long-term collaborations between the Indian private sector and global OEMs seeking technology transfers, thereby enabling the development of domestic manufacturing infrastructure and supply chains. This approach is one of the factors contributing to reduced imports and an increase in defense exports. In the fiscal year 2022–23, Indian defense exports have grown more than tenfold since 2016–17, reaching more than 85 countries.[25] This achievement not only aligns with the Make in India initiative but also advances the Self-Reliant India objective in the defense sector.

By leveraging the defense sector across multiple nations, New Delhi ensures that India is not solely reliant on the authority of any single country, in line with its new "multi-alignment" approach. The strategic partnership between the United States and India is founded on shared values such as democracy, as well as mutual interests in global security, economic trade, and investment as evident through FDI. However, it should not be assumed that India would automatically assist the United States in military operations against China. The support of the central government in New Delhi would only be guaranteed if India itself becomes the target of Chinese aggression during a land invasion scenario. India's traditionally nonaligned foreign and security policy suggests that in any other China cont-ingency, India would exercise caution and potentially provide covert assistance, if any at all, to the US military.[26] It is crucial to note that providing support during times of war and conflict differs significantly from peacetime relations.

It is noteworthy that Russia, India's largest importer of munitions, is considered the most acute threat to the United States, while China represents its most significant strategic competitor. Furthermore, China serves as the largest munitions trading

[24] National Investment Promotion & Facility Agency, "Defence Manufacturing."

[25] "Aatmanirbharta on the rise: Defence exports reach an all-time high of approx. Rs 16,000 crore in Financial Year 2022-23" (press release, Government of India, New Delhi, India, 1 April 2023), https://pib.gov.in/.

[26] Michael J. Mazarr et al., *U.S. Major Combat Operations in the Indo-Pacific: Partner and Ally Views* (Santa Monica, CA: RAND Corporation, 2023), https://www.rand.org/.

partner with Pakistan, creating a challenging situation in the region for the United States and its allies.

The Pakistan Ordnance Factories

Pakistan Ordnance Factories (POF) actively operates as one of Pakistan's extensive organic industrial bases, engaging in the production of arms, ammunition, and explosives. Following the partition, the 16 ordnance factories of British India came under the possession of India, as none were located in Pakistan. In 1951, the POF was established to facilitate the indigenous development of munitions, catering to the requirements of the defense forces and law enforcement agencies. The experiences of the wars in 1965 and 1971 further reinforced Pakistan's determination to achieve self-reliance in defense production capabilities and diversify sources of military procurements.

Currently, the POF encompasses14 factories and 12 subsidiaries, engaged in the production of rifles, machine guns, rocket launchers, mortars and ammunition, and tank/artillery munitions.[27] The precision and reliability of the POF's arms and ammunition have generated a growing demand in the international market, with clients in 40 countries.[28] Following the Indo-Pakistani War of 1971, Pakistan established the Defence Production Division with the aim of formulating policies, coordinating production and procurement, and promoting development activities to achieve self-reliance through indigenization.[29] In 2004, the division was designated as the Ministry of Defence Production, and in 2016, it incorporated Public-Private Partnerships as a key element of its private and foreign investment strategy.[30] Presently, Pakistan is focused on developing indigenous technology and resources through collaboration between public and private enterprises to meet the requirements of the Pakistan Defence Forces.

To promote defense exports, the government has placed significant emphasis on the Defence Export Promotion Organization. This agency plays a vital role in facilitating customer inquiries and coordinating the export of high-quality defense products. Ensuring the quality of these products is a demanding aspect that is crucial for establishing reliability in foreign markets.[31] Ensuring quality is a

[27] Ministry of Defence Production, "Year Book 2018-21," n.d., https://modp.gov.pk/.

[28] Defence Export Promotion Organization, "Pakistan Ordnance Factories (POF) Catalogue," n.d., https://depo.gov.pk/.

[29] Ministry of Defence Production, "History."

[30] National Assembly of Pakistan, 'The Public-Private Partnership Act, 2016, Pakistan," 5 September 2016, https://na.gov.pk/.

[31] Defence Export Promotion Organization (DEPO), "About DEPO."

demanding aspect crucial for establishing reliability in foreign markets. Amid the conflict between Ukraine and Russia, where Ukraine is receiving support from numerous nations, Pakistan has emerged as a prominent supplier of ammunition to Ukraine.[32] To gain insight into the level of support that would be extended to Western nations in a conflict involving Pakistan's close partner, we can examine a recent conversation between the Speaker of the National Assembly, Asad Qaiser, and the Ambassador of the People's Republic of China, Mr. Yao Jing. During this discussion, Speaker Asad Qaiser stated, "Relations between Pakistan and China are based on shared geopolitical, economic, historical and strategic interests and both the countries had always stood with each other at difficult times."[33] This statement not only highlights Pakistan's growing capabilities in its munitions industrial base but also underscores its commitment to providing support in the event of a significant armed conflict at the national level.

Military-Industrial Complex

The American Heritage Dictionary defines the *military-industrial complex* as the "aggregate of a nation's armed forces and the industries that supply their equipment, materials, and armaments." In the United States, the Department of Defense primarily procures supplies through a bidding process on open contracts from the military services. Enterprises that meet the specified requirements can win the bid, typically based on the lowest cost, as long as the goods and services align with the agency's current needs.

Since the 1990s, the defense sector in the United States has undergone significant consolidation, resulting in the transition from 51 to 5 major aerospace and defense prime contractors: Lockheed Martin, Boeing, Raytheon, Northrop Grumman, and General Dynamic.[34] This consolidation has reduced the number of contractors responsible for providing military-specific armaments. As many items may not be financially viable for private businesses, nations invest in an OIB that encompasses government-owned, government-operated as well as government-owned, contractor-operated facilities.

For instance, the Department of Defense (DOD) oversees a network of facilities known as the OIB, including 21 Army depots and arsenals, Navy shipyards and fleet readiness centers, Air Force air logistics complexes, and

[32] Abhinandan Mishra, "Pak emerges as major supplier of ammunition to Ukraine in war with Russia," *Sunday Guardian*, 15 April 2023, https://sundayguardianlive.com/.

[33] National Assembly of Pakistan, "National Assembly Observer," January–June 2020, https://na.gov.pk/.

[34] Aerospace Commission, "Final Report of the Commission on the Future of the United States Aerospace Industry," November 2002, 134, https://history.nasa.gov/.

Marine Corps production plants. These facilities are "covered depots," subject to reporting and minimum capital investment requirements. These facilities engage in the production, storage, and disposal of various conventional munitions, as well as the maintenance, overhaul, and repair of weapon systems and defense equipment.[35] These capabilities are crucial for maintaining military readiness and are located in depots, production plants, shipyards, readiness centers, and logistics complexes operated by each military department.

The prime contractors in the military-industrial complex play a vital role by providing a wide range of military requirements through contracting. This system has proven effective for the United States, a nation that values fairness and a democratic process. However, it may not be suitable for all nations.

On the contrary, the People's Republic of China boasts a robust system of state-owned enterprises that are considered valuable state-owned assets with specific missions to fulfill. The state-owned Assets Supervision and Admin-istration Commission of the State Council (SASAC), which operates directly under the State Council, states that "The mission of state-owned central enterprises, with a high sense of political responsibility and historical mission, will go all out to develop strategic emerging industries, effectively improve the core competitiveness of enterprises, enhance core functions, actively serve the country's major strategies, and build a modern industrial system."[36]

Among these enterprises, the Norinco Group stands as a prominent Chinese state-owned defense corporation engaged in the production of commercial and military munitions. As the Chinese state-owned enterprise responsible for ordnance production (listed as Ordnance Industry Group), Norinco prioritizes national interests and provides equipment support, weapons, technical support services, and equipment to various branches of the Chinese military, including the Army, Navy, Air Force, Rocket Force, Strategic Support Force, and Armed Police. With control over 60 subgroups and direct management of units in 29 provinces, municipalities, and autonomous regions, the Chinese state-owned enterprise exerts significant influence.[37]

These examples represent the far ends of the spectrum when it comes to military-industrial complexes, with the respective subcomponent of munitions industrial

[35] US Government Accountability Office, "Military Depots: DOD Strategy for Addressing Deteriorating Facilities and Equipment Is Incomplete," 9 May 2022, https://www.gao.gov/.

[36] State-owned Assets Supervision and Administration Commission of the State Council, "The State-owned Assets Supervision and Administration Commission held a deployment meeting for central enterprises to accelerate the development of strategic emerging industries," 25 May 2023, http://www.sasac.gov.cn/.

[37] China Ordnance Industry Group Co., Ltd., "Group Profile," n.d., http://en.norincogroup.com.cn/.

bases. Situated between these extremes lie India and Pakistan, each with its own unique factors shaping their military-industrial complexes and munitions industrial bases, as depicted in table 1. Both nations have been striving for indigenous manufacturing in the defense sector and reducing their reliance on imports to fulfill their military requirements. Although their approaches have similarities, India, as a residue of the British Empire, has historically followed the United States' example with the Royal Ordnance Factories and now employs DPSUs. In contrast, Pakistan actively utilizes commercial subsidiaries/semi-government enterprises for exports and relies on DPE/executive departments to oversee government-owned commercial enterprises.

Simultaneously, both countries engage in JVs with foreign investors. This enables India and Pakistan to establish a munitions industrial base that can be compared to those of the United States and China. Consequently, the two nations are reducing their dependence on the United States and the West. India, in particular, openly advocates for a multi-alignment approach, and both countries' membership in the Shanghai Cooperation Organisation indicates their reluctance to align themselves entirely with the West, especially during times of conflict.

Table 1. National organic industrial base comparison of the United States, China, India, and Pakistan

	United States	China	India	Pakistan
Law/Role	Title 10, Section 2464 of the U.S. Code (U.S.C.) states that "it is essential for the national defense that the Department of Defense maintain a core logistics capability that is Government-owned and Government-operated," specifying further that this "shall include those capabilities that are necessary to maintain and repair" weapon systems and other military equipment.	The mission of state-owned central enterprises, with a high sense of political responsibility and historical mission, will go all out to develop strategic emerging industries, effectively improve the core competitiveness of enterprises, enhance core functions, actively serve the country's major strategies, and build a modern industrial system.	Objective of developing a comprehensive production infrastructure to produce the weapons, systems, platforms, equipment required for defence.	Pakistan defence production sector has a significant role in strengthening of conventional defence and national economy. Ministry of Defence Production is striving hard for a self-reliant/ self-sustained defence production industry with a view to increase job opportunities, generate revenue, decrease dependence on imports and increasing the exports to earn valuable foreign exchange.
Government Agency	Department of Defense	State-owned Assets Supervision and Administration Commission of the State Council	Department of Defence Production	Ministry of Defence Production
Established	1947	2003	1962	1972
Defense Budget	USD 772 billion	USD 225 billion	USD 72 billion	USD11 Billion

	United States	China	India	Pakistan
Enterprises/ Facilities/ Administrative Control	Defense contractors	State-owned enterprises	Defence public sector undertakings	Commercial subsidiaries/ semi-government enterprises
	21 Army depots and arsenals, Navy shipyards and fleet readiness centers (FRCs), Air Force air logistics complexes (ALCs), and the Marine Corps' production plants. Facilities as "covered depots," subject to reporting and minimum capital investment requirements.	96 central state-owned enterprises	20 production divisions, 23 manufacturing units, 10 r&d centres, 4 shipbuilding yards, 41 factories, and one facility management division	34 factories and 13 subsidiaries
	Government-owned, government-operated (GOGO) and government-owned, contractor-operated (GOCO)	State-owned assets	16 central public sector undertakings	6x defence production establishments, 4x executive departments
Munitions	Joint Munitions Command	China North Industries Group	Indian Ordnance Factories	Pakistan Ordnance Factories
Production	9 production facility locations	60 subgroups and directly managed units	20 Factories	14 factories and 12 subsidiaries

Conclusion

The Russian invasion of Ukraine has sparked heightened strategic competition between the United States and China, intensifying global dynamics. In response, the United States is leveraging its strength to engage with China, actively seeking allies and partners who share common interests and values. India and Pakistan have made significant financial commitments to Russia and China, respectively, through major weapons purchases. Both countries are driven by the aspiration to establish self-reliant munitions industrial bases, ensuring their autonomy from foreign powers.

While there have been warnings about the potential risks associated with the military-industrial complex, the imperative need for development and security remains undeniable. As tensions persist and escalate, there is a looming possibility that major powers could be drawn into an all-out conflict. In such a scenario, India

and Pakistan may find themselves confronted with the challenging task of choosing sides, a decision that could have far-reaching consequences.

The evolving landscape of international relations, driven by military capabilities and alliances, underscores the critical importance of maintaining a balanced and strategic approach. It is essential for nations to carefully navigate this complex geopolitical terrain, while also fostering dialogue, cooperation, and diplomacy to mitigate the risks of an escalating confrontation and promote peace and stability in the world. ✪

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