

Original Article

Military Geography and Defense Cooperation: Impact of the Russia-Ukraine War on India's Defense Procurement, Technology Transfers, and Strategic Dependencies

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Abstract

The Russia-Ukraine War, commencing in February 2022, has significantly altered global military geography, influencing defense cooperation dynamics for nations like India. This paper examines the war's impact on India's defense procurement, technology transfers, and strategic dependencies, framed through the lens of military geography—encompassing terrain, supply chains, and geopolitical positioning in Eurasia and the Indo-Pacific. Historically reliant on Russia for over 60% of its military hardware, India faces disruptions from sanctions and conflict logistics, prompting diversification toward Western partners while preserving autonomy. Key findings reveal accelerated indigenization efforts, enhanced technology collaborations, and reduced dependencies, though challenges like spare parts shortages and geopolitical tensions persist. By analyzing procurement shifts, transfer mechanisms, and dependency risks, the study argues that the war has catalyzed India's evolution toward a resilient, multi-aligned defense strategy, balancing Eurasian vulnerabilities with Indo-Pacific imperatives. This contributes to understanding how military geography shapes defense policies in multipolar conflicts. (Word count: 172)

Keywords: Military Geography, Defense Procurement, Technology Transfers, Strategic Dependencies, Russia-Ukraine War, Indo-Russian Cooperation, Western Sanctions, Strategic Autonomy, Indigenization, Multipolar Defense

Introduction

Military geography, the study of how physical and human landscapes influence warfare and defense strategies, plays a pivotal role in shaping national security policies. For India, situated at the crossroads of Eurasian and Indo-Pacific theaters, this discipline intersects with defense cooperation, particularly amid the Russia-Ukraine War. The conflict has disrupted traditional supply lines across Eurasia's vast steppes and Black Sea routes, affecting global arms trade and technology flows (Sarwar & Rye, 2025). India, historically dependent on Russia for military procurement, faces compounded challenges due to Western sanctions, which have isolated Moscow and complicated logistics. This geopolitical shift has prompted a re-evaluation of India's long-standing military-technical cooperation with Russia, compelling it to diversify its defense acquisition strategies and enhance indigenous production capabilities (Kashin, 2023). This paper investigates the war's multifaceted impact on India's defense ecosystem, focusing on procurement processes, technology transfers, and strategic dependencies. Drawing from military geography, it highlights how geographical factors—such as Eurasia's contested borders and India's Himalayan frontiers with China—influence these areas. The analysis argues that the war has accelerated India's shift toward diversification and self-reliance, enhancing strategic autonomy while navigating multipolar risks. Methodologically, it integrates trade data, policy analyses, and geopolitical assessments from diverse sources. The study contributes to broader discussions on how contemporary conflicts reshape defense cooperation in geographically strategic nations, with implications for global security architectures.



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Background: Military Geography in India-Russia Defense Ties

Military geography underscores the strategic importance of location, terrain, and connectivity in defense planning. India's geography, spanning the Himalayas to the Indian Ocean, necessitates robust capabilities against diverse threats, including Chinese assertiveness in the Indo-Pacific and potential Eurasian spillovers. Russia, with its vast Eurasian expanse, has been India's primary defense partner since the 1960s, providing equipment suited to India's mountainous and maritime terrains, such as T-90 tanks and Sukhoi jets. This enduring partnership is rooted in a shared geopolitical outlook and Russia's consistent willingness to transfer advanced military technology, which has contributed significantly to India's strategic autonomy (Kashin, 2023). However, this historical reliance has also created strategic vulnerabilities for India, particularly in light of Moscow's recent geopolitical isolation and the associated disruptions to the global arms trade (Thi, 2025). Consequently, India's continued neutrality regarding Russian aggression is largely underpinned by its historical dependence on Russian military acquisitions—which include essential platforms like the T-90M tanks and Su-30MKI fighters—despite a growing imperative to diversify its defense sourcing (Kashin, 2023; Leandro & Oberoi, 2023). In response, this necessity has led India to reconsider long-standing defense deals and explore new partnerships to mitigate supply chain disruptions exacerbated by the conflict (Kaushiki et al., 2024). This re-evaluation extends to its geopolitical alignment, as the unreliability of traditional security guarantors like Russia has compelled Armenia to seek alternative partnerships for military modernization and regional stability (Lobell et al., 2009). Pre-war cooperation thrived on geographical synergies: Russia's Siberian resources supported India's energy needs, while joint exercises enhanced interoperability in Eurasian-like environments. The Ukraine conflict altered this landscape, as battles in Eastern Europe's plains disrupted manufacturing hubs in Ukraine, a key supplier of engines and components for Russian arms. Sanctions further complicated trans-Eurasian supply chains, forcing India to reassess dependencies amid its own border tensions with China. This geographical disruption has prompted a revaluation of defense strategies, blending Eurasian realities with Indo-Pacific priorities. Understanding this background is crucial for analyzing specific impacts on procurement, transfers, and dependencies. India's reliance on Russian arms, historically accounting for a significant portion of its defense imports, necessitates continued cooperation with Moscow for maintenance and upgrades, thus constraining its foreign policy options regarding Russia (Thi, 2025). This dynamic highlights the intricate balance India must maintain, navigating its strategic autonomy amidst evolving geopolitical pressures and the practicalities of military readiness (Kapoor, 2023).

Impact on Defense Procurement

The war has profoundly affected India's defense procurement, traditionally dominated by Russian imports. Military geography plays a key role, as Eurasia's conflict zones have led to delays in deliveries, such as S-400 missile systems, critical for India's air defense against Himalayan threats. Sanctions have restricted Russia's export capabilities, with logistical bottlenecks in the Black Sea and Baltic regions exacerbating shortages of spare parts. Consequently, India's procurement costs have risen, prompting a pivot to alternative sources (Bhagwat & Rogachev, 2025). Geographically, this shift leverages India's position to engage Western suppliers, whose technologies suit Indo-Pacific maritime operations. For instance, deals with the US for Predator drones and with France for Rafale jets have accelerated, reducing Russian reliance from 68% in 2017 to around 45% by 2023. The "Make in India" initiative, emphasizing local production, mitigates geographical vulnerabilities by establishing domestic hubs in strategic locations like Tamil Nadu and Uttar Pradesh. Joint ventures, such as BrahMos missiles with Russia, continue but incorporate indigenization to buffer against Eurasian disruptions (Kashin, 2023). However, procurement challenges persist: geographical isolation of Russian factories from global markets increases lead times, affecting India's readiness along the Line of Actual Control (LAC). The war's impact has thus catalyzed a geographically informed procurement strategy, balancing cost, technology, and supply chain resilience. This evolution enhances India's defense posture in a multipolar world, where Eurasian conflicts influence global arms flows.

Impact on Technology Transfers

Technology transfers, vital for building indigenous capabilities, have been reshaped by the war's geographical and geopolitical fallout. Russia's role in transferring know-how for systems like the Akula submarine has been hampered by sanctions, which limit access to Western components and disrupt Eurasian R&D collaborations ("Consequences of the Russia-Ukraine War and the Changing Face of Conflict," 2025). Military geography amplifies this, as conflict in Ukraine—a historical tech hub—has scattered expertise and facilities, delaying transfers for projects like the FGFA fighter jet. This disruption has prompted India to seek alternative partners for technology sharing, prioritizing countries that can offer advanced defense manufacturing processes and materials without geopolitical encumbrances (Béraud-Sudreau, 2024). In response, India has diversified transfers, engaging the West through frameworks like iCET, which facilitates semiconductor and AI technologies suited to India's diverse terrains (Kara, 2025; Prakash, 2024). Geographically, this aligns with Indo-Pacific needs, enhancing surveillance in the Indian Ocean against Chinese

submarines. The war has inadvertently boosted India's self-reliance, with programs like DRDO's development of indigenous engines reducing dependency on Eurasian supplies. Joint Indo-Russian projects persist, such as nuclear propulsion tech, but with safeguards against sanction risks. This strategic recalibration necessitates a focus on localized production and enhanced domestic research and development to mitigate external vulnerabilities ([Kashin, 2023](#)). Challenges include intellectual property issues and geographical mismatches: Russian tech, optimized for cold Eurasian climates, requires adaptation for India's tropical and high-altitude environments. Overall, the war has accelerated technology indigenization, fostering a hybrid model that integrates Eurasian legacies with Western innovations, strengthening India's strategic depth.

Impact on Strategic Dependencies

Strategic dependencies encompass reliance on foreign partners for critical defense needs, vulnerable to geographical disruptions. The war has exposed India's overdependence on Russia, with Eurasian supply chains fractured by sanctions and combat losses. Geographically, this affects India's Himalayan defenses, where Russian artillery is key against China, but shortages risk operational gaps ([Kashin, 2023](#)). To mitigate, India pursues multi-alignment, reducing Russian share through Western and Israeli partnerships, such as Spike missiles for border security. The war's Eurasian pivot has strengthened Indo-Russian bonds paradoxically, with Russia viewing India as a counterweight to China, offering discounted deals to offset dependencies. However, this creates new risks, including secondary sanctions that could isolate India geographically from global markets ([Sanghi et al., 2017](#)). Military geography informs these dependencies: India's extended borders demand versatile systems, prompting investments in agile logistics bypassing Eurasian chokepoints. Initiatives like INSTC provide alternative routes, linking India to Russia via Iran, enhancing resilience. The net impact is a strategic rebalancing, diminishing vulnerabilities while preserving cooperation in a multipolar order.

Challenges and Adaptive Strategies

Challenges include logistical hurdles from Eurasia's war-torn geography, inflating costs and timelines. Geopolitical tensions, such as Sino-Russian alignment, heighten India's dependencies amid LAC frictions. Adaptive strategies involve indigenization, with budgets allocating 75% for domestic procurement by 2024. Multilateral forums like SCO facilitate continued cooperation, navigating geographical barriers. Future trajectories may emphasize AI and cyber defenses, transcending physical geography. Furthermore, India prioritizes strategic autonomy by developing a robust domestic defense industrial base to achieve self-reliance in critical military technologies ([Kashin, 2023](#); [Rajagopalan, 2023](#)). This imperative stems from the risks posed by complete reliance on external suppliers affected by geopolitical instability, which threatens national security and operational readiness ([Jain, 2020](#)). India's neutral stance in the Russia-Ukraine conflict enables it to maintain partnerships with both Russia and the West, maximizing national interests ([Kara, 2025](#); [Verma, 2023](#)). This multi-alignment policy, while maximizing immediate gains, also necessitates delicate diplomatic maneuvering to avoid alienating either bloc ([Kara, 2025](#)). Moreover, India's pursuit of defense self-sufficiency and diversification of arms imports underscores a pragmatic approach to foreign policy, distinguishing its engagements from conventional alliance commitments ([Kaushiki et al., 2024](#); [Unnikrishnan & Kapoor, 2023](#)). This strategic approach helps India navigate the complexities of an uneven multipolarity, where its ability to balance various global powers is crucial for advancing its national interests and maintaining regional stability.

Conclusion

The Russia-Ukraine War has transformed India's defense landscape through military geography, impacting procurement, transfers, and dependencies. By diversifying and indigenizing, India enhances autonomy amid Eurasian disruptions. This evolution strengthens its position in multipolar conflicts, with lessons for global defense strategies. Policymakers should prioritize resilient supply chains to sustain this trajectory.

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