

LAC: The Line ‘Not’ in Actual Control - A Geospatial Reconstruction of the India-China Border in Ladakh

Tsering Dorjay

Research Scholar, Department of Geography, Panjab University, Chandigarh, India

Abstract: *This study undertakes a comprehensive geospatial reconstruction of the Line of Actual Control (LAC) in Ladakh, analysing its historical evolution and present alignment through archival material, governmental records, and high-resolution satellite imagery. By digitising the 1960 Chinese claim line, India's pre-1962 administrative extent, and key military positions from 1959 and September 1962-derived from official government sources-the study integrates these datasets with contemporary satellite assessments to document spatial shifts along the frontier. The findings indicate that China's present deployments and infrastructure expansion largely consolidate its 1960 claim line and have advanced to positions held during the 1962 war, effectively eliminating much of the post-war buffer zone. Only three sub-sectors-Anee La-Marsimik La, DBO, and Koyul-Demchok-remain outside permanent PLA occupation, while the remaining areas have been consolidated. The study clarifies the operational meaning of the LAC and identifies the core factors underlying the differing interpretations of the LAC by India and China in the Ladakh sector. It also documents the socio-economic challenges faced by nomadic communities along the LAC.*

Keywords: LAC, Ladakh, India-China Border, Western Sector and Eastern Ladakh

1. Introduction

The India–China boundary in Ladakh represents one of the most complex and contested frontier zones in the contemporary geopolitics of the Himalaya (Lamb 1964; Garver 2001). Unlike conventional international borders defined through mutually agreed treaties, the Line of Actual Control (LAC) is a fluid, ambiguously interpreted, and asymmetrically enforced military frontier (Maxwell 1970; Fravel 2008). Its present configuration is the outcome of layered historical processes, divergent cartographic traditions, and shifting on-ground realities shaped by strategic posturing and infrastructure development (Clarke 2011; Smith 2021). The western sector, encompassing Aksai Chin, Pangong Tso, Galwan, Demchok, and Daulat Beg Oldi (DBO), remains the most strategically sensitive component of this frontier, marked by recurrent standoffs, evolving military deployments, and competing territorial narratives (Tellis 2020; Joshi 2021). The origins of the modern dispute lie in the overlapping legacies of Ladakhi–Tibetan relations, Qing administrative practices, British colonial boundary-making, and the post-1947 geopolitical transformations in Tibet and Jammu & Kashmir (Peteck 1977; van Spengen 2000; Woodman 1969). While India inherited a historically expansive administrative and cartographic understanding of its northern frontiers, China's consolidation of Tibet and the construction of the G219 highway redefined its strategic imperatives in Aksai Chin (Gopal 1964; Dillon 2020). These competing frameworks crystallised during the 1959–1962 period, culminating in the articulation of the 1960 Chinese claim line and the subsequent Sino-Indian War of 1962 (Maxwell 1970; Garver 2001). The ceasefire that followed left the border undefined, yet militarily enforced, laying the foundation for what Beijing later termed the Line of Actual Control (Fravel 2008). Despite a series of agreements in 1993, 1996, 2005, and 2013 aimed at maintaining peace and clarifying rules of engagement, the LAC remains undemarcated on maps and unagreed between the two

countries (MEA 1993; MEA 1996; MEA 2005; MEA 2013). As a result, differing perceptions of its alignment, coupled with the rapid militarisation of the high-altitude frontier, have contributed to recurring “friction points,” including the Galwan Valley clash of 2020 and the prolonged standoffs in Pangong Tso, Gogra–Hot Springs, and Depsang (Pant & Upadhyay 2020; Joshi 2021). The ambiguity surrounding the LAC has also facilitated the steady expansion of Chinese infrastructure within the contested zone, enabling the gradual consolidation of areas historically referenced in the 1960 claim line (Clarke 2019; O'Donnell 2022).

This paper undertakes a comprehensive spatio-historical and geospatial analysis of the LAC in Ladakh, reconstructing the evolution of boundary alignments through archival sources, governmental records, and high-resolution satellite imagery (IISS 2021; Wang 2023). It compares India's historical administrative reach with China's progressive militarised consolidation, and investigates the status of key sub-sectors located within China's 1960 claim line but outside permanent PLA occupation (Desai 2022). By integrating historical cartography with contemporary GIS-based spatial analysis, the study provides an empirically grounded reconstruction of how the LAC has transformed from a vaguely articulated ceasefire reference into a deeply entrenched, though still contested, geopolitical reality (Smith 2021). In doing so, the paper contributes to the broader understanding of how territorial disputes in high-altitude Himalayan frontiers evolve through the interplay of history, strategy, infrastructure, and lived local experiences (Harper 2020). It argues that the current alignment of the LAC is neither a stable boundary nor a mutually recognised line, but a dynamic product of militarised cartography and shifting patterns of control—one that continues to define the trajectory of India–China relations in the twenty-first century (Tellis 2020; Garver 2021).

2. Methodology

This study employed a multi-source geospatial approach to reconstruct boundary alignments in the western sector of the India–China border. The *1960 Chinese claim line* was digitised in Geographic Information System (GIS) software using primary government reports from both India and China, which provide detailed descriptions of geographic features used as boundary markers. The *present notional LAC* was inferred from latest 2025 Sentinel-2 imagery (10m Resolution) and high-resolution Google Earth data by

identifying and geolocating roads, military installations, and other contemporary infrastructural indicators. The interposition line was delineated using the watershed principle, consistent with Himalayan boundary demarcation conventions. Historical military positions–China’s 1959 position from (GOI, 1963a) and pre-war positions of 7 September 1962 from (GOI, 1963b) –were also digitised in GIS software to enable temporal comparison and spatial analysis.

3. Study Area Map

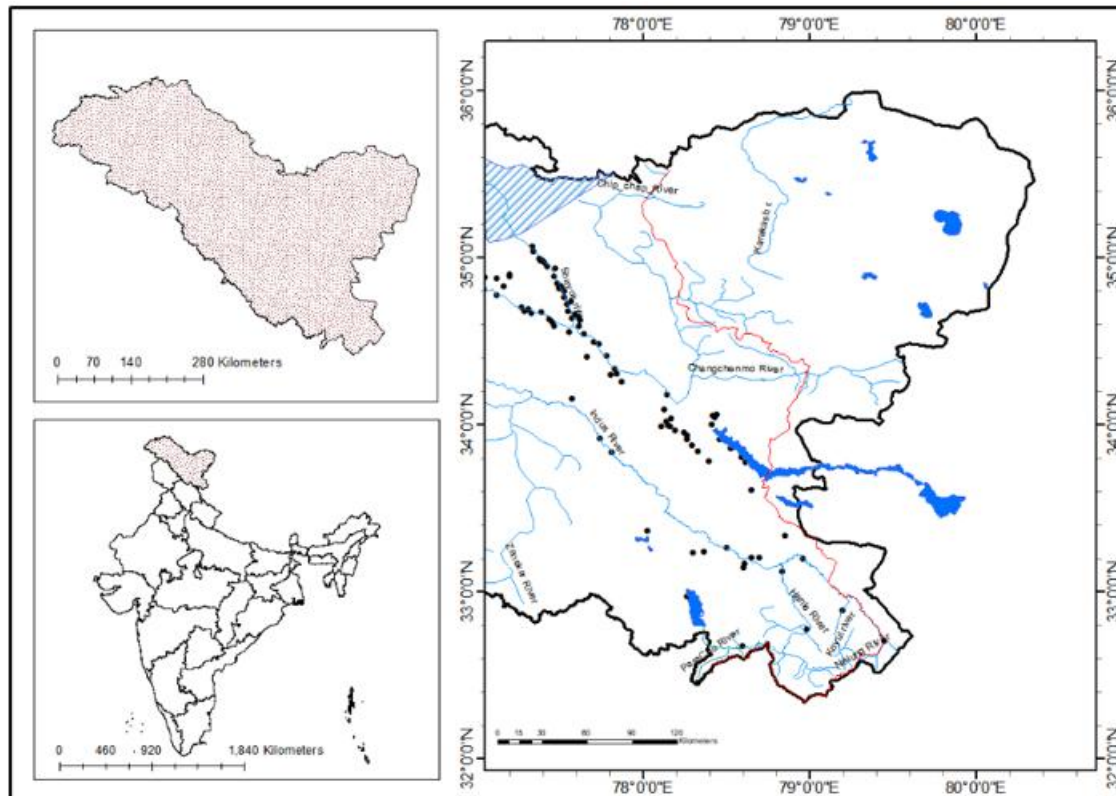


Figure 1: Study area map

Historical Paradigm of the Tibet–Ladakh Border

The history of the Ladakh–Tibet border dispute in the western sector of the India–China boundary is a complex and layered story shaped by centuries of fluid frontiers, cultural ties, imperial interests, and colonial interventions. Historically, the border evolved as a porous and flexible zone defined more by pastoral and trade networks than fixed political lines. Early political divisions, such as the division of *Ngari Korsum* by *King Skyid-lde-Nyima-gon* in the 10th century, created some of the earliest recognized boundaries (Francke, 1926; Ahmad, 1986). These were recorded in Ladakhi chronicles and Tibetan historiography but remained open to differing interpretations. The earliest formal boundary agreement was the *Treaty of Tingmosgang* signed in 1684 between Ladakh and Tibet, mediated by the Qing dynasty, following Tibetan occupation of Ladakh during the Tibet–Ladakh–Mughal War. However, the treaty provided very vague boundary definitions, emphasizing trade and peace rather than precise demarcation (Peteck, 1977; Lamb, 1964). Later treaties like the *Treaty of Chushul* (1842) reaffirmed these arrangements but also lacked geographic specificity (Ahmad, 1970). Colonial British efforts from 1846 aimed to delineate a more defined boundary using surveys and maps until Indian

independence. Early British surveys identified natural frontier points like the Karakoram Pass and river valleys but the eastern border, including Aksai Chin, remained poorly mapped (Verma, 2020; Lamb, 1964). Over time, different British boundary proposals emerged, notably the Johnson–Ardagh Line, which asserted maximal territorial claim including Aksai Chin, and the Macartney–MacDonald Line, a strategic concession favouring Chinese territorial claims in Aksai Chin as a buffer (Garver, 2001; Woodman, 1969). Neither line was accepted by China formally, keeping the dispute unresolved (Maxwell, 1970; Hoffmann, 1990). After independence, India inherited these ambiguities. China’s consolidation of Tibet (1950–51), construction of the Aksai Chin highway G219 (1950s), and India’s administrative accession of Jammu and Kashmir (including Ladakh) intensified the territorial dispute (Neville, 1970; Maxwell, 1970). The 1954 Panchsheel Agreement promoted peaceful coexistence but avoided boundary clarity (Ministry of External Affairs, 1954). Failed boundary talks in 1960 exposed contradictory historical claims: India favouring Johnson–Ardagh, China the Macartney–MacDonald Line and Qing maps (Gopal, 1984). The 1962 Sino–Indian War crystallized the division, with China gaining control of Aksai

Chin and India maintaining western and southern areas. China declared a unilateral ceasefire and introduced the concept of the Line of Actual Control (LAC), a de facto boundary still contested (Schooling, 2023; Maxwell, 1962; Xinhua, 1962). Post-1962, diplomatic efforts led to agreements on peace and confidence-building along the LAC (1993, 1996) and talks for political settlement, but gaps remain. The western sector remains highly militarized with frequent standoffs, reflecting enduring ambiguity and strategic rivalry rooted in layered historical, cartographic, and politico-military developments (Verma, 2006)

Evolution and Conceptualization of the LAC

The modern concept of the Line of Actual Control evolved from a vague reference in China's ceasefire declaration to an institutionalized framework for managing territorial control. The LAC is distinct from the territorial boundaries claimed by India and China. It reflects the areas presently held by their armed forces and functions as a de facto boundary that shifts with changes in troop deployment. The concept was first articulated by Chinese Premier Zhou Enlai in a 1959 letter to Prime Minister Jawaharlal Nehru, in which he defined it as the line up to which each side exercises actual control. Nehru rejected the idea, viewing it as vague and inconsistent (Hoffmann, 1990). Initially applied only to the western sector, the term "LAC" expanded during the 1990s to encompass the entire India-China frontier. It received legal status through the 1993 Agreement on the Maintenance of Peace and Tranquillity, which stated that LAC references did not affect the respective boundary claims, and the 1996 Confidence-Building Measures Agreement, which prohibited activities that crossed the LAC (Hoffmann, 1990). Crucially, the LAC was never formally delineated through maps or coordinates exchanged between India and China. Instead, it represents the understanding of where forces are actually deployed and what areas each side effectively controls. This ambiguity has led to recurring confrontations at "friction points" where perceptions diverge significantly (Times, 2024). For administrative and strategic purposes, the LAC is generally divided into three sectors:

- **Western Sector:** UT Ladakh
- **Middle Sector:** Uttarakhand and Himachal Pradesh
- **Eastern Sector:** Sikkim and Arunachal Pradesh

The Line of Actual Control: Historical Formation and Strategic Consolidation

By 1959, the forward positions of the Indian and Chinese armies differed significantly across the western sector, particularly in *Aksai Chin* and the *Pangong Lake* region. Indian patrols frequently operated well eastward—far from *Daulat Beg Oldi (DBO)*—while the Indian Army's presence near Pangong Lake extended up to Finger 8, an area corresponding to the *Sirijap* sector (Kaul, 1960; Maxwell, 1970). During the Sino-Indian boundary discussions of 1960, both sides formally articulated their respective claim lines. China presented a clear boundary alignment that broadly corresponded to its forward military positions during the subsequent 1962 conflict (PRC Foreign Ministry, 1960). When hostilities commenced, the People's Liberation Army (PLA) advanced up to the positions it had asserted during the 1960 meeting, thereby consolidating control over the areas included in its claim line (Garver, 2001). Following the November 1962 ceasefire, Chinese forces withdrew to the

line they occupied as of 7 September 1962, establishing what Beijing later characterised as the "ceasefire line"—a line it continues to equate with the present Line of Actual Control (LAC) (PRC State Council, 1963). In contrast, India's interpretation of the LAC reflects the Chinese post-war pullback, not the maximal positions reached during the conflict (MEA India, 1993). Notably, India did not withdraw from most of its pre-war positions. The buffer zone created by China's withdrawal after the ceasefire became an area in which both sides intermittently patrolled for decades. India therefore maintained patrol routes up to Finger 8 in the Pangong Lake sector, while China also asserted its presence within this intermediate zone (Joshi, 2021). Over time, however, the PLA gradually expanded infrastructure inside this buffer, including tracks, observation posts, and roads—effectively reinforcing its presence within the limits of the historical 1960 claim line (Clarke, 2020).

At present, China has consolidated control up to the approximate extent of its 1960 claim line through the establishment of all-weather roads, permanent military installations, model villages, and fixed surveillance infrastructure (Satellite Imagery Analysis Group, 2023). Importantly, available satellite assessments indicate that these developments do not extend beyond the territorial limits asserted in 1960; Beijing has fortified but not expanded its historic claim. Consequently, the contemporary alignment of the LAC substantially overlaps with the Chinese 1960 claim line and mirrors, in broad terms, the territorial configuration achieved by the PLA during the 1962 war. The buffer region created after China's post-war pullback has been progressively absorbed into zones of effective Chinese control. Only three areas within China's original claim line remain outside permanent PLA occupation, representing the final sections of the claim not yet consolidated (*See Figure 2 Yellow market region*).

1) *Anee La–Marsimik La Region*

This area comprises the valley east of Marsimik La and north of Pangong Tso, where Indian forward positions continue to lie ahead of the 1960 Chinese claim line. The terrain and existing Indian deployments prevent Chinese forces from advancing to their historically claimed alignment in this sub-sector. As a result, this region remains one of the few locations where India retains a tactical presence beyond the 1960 claim boundary.

2) *DBO Sector (Northernmost LAC)*

In the northern sector around Daulat Beg Oldi (DBO), China's 1960 claim line runs directly across the DBO camp and adjoining river valley systems. However, the present PLA deployment remains significantly eastward, limited primarily to the Chip Chap River valley and extending only up to the designated Border Personnel Meeting (BPM) Point. This discrepancy between the historical claim line and the existing Chinese military posture has left a substantial portion of the area west of the Chip Chap valley under Indian control.

3) *Koyul–Demchok Region (Southernmost LAC)*

China's 1960 claim line crosses the Indus River near the 33°N latitude and then follows the Koyul watershed northward to the Hanle watershed. In practice, however, the PLA's current deployments are confined to the Indus valley up to the

Demchok–Charding Nullah junction. The extensive area between Demchok and Koyul–claimed by China but not militarily consolidated–remains a contested zone. PLA restrictions on Indian infrastructural activity in this region have created persistent hardships for local nomadic communities. These include encroachments on traditional grazing lands, reduction in accessible pasture areas, periodic confrontations with PLA patrols, and heightened risks to personal safety arising from settlement near an active border. These pressures have collectively contributed to socio-economic vulnerability among the border-dwelling population.

Chinese Advances of 1962 and Post Encroachments

During the 1962 conflict, China occupied approximately 33,500 square kilometres of the Aksai Chin region (Zhang & Li, 2013). In southeastern Ladakh, Chinese forces also advanced across the Kailash Range on the right bank of the Indus River near Koyul and the Demchok village area (*see figure 2*), before subsequently withdrawing to positions around Demchok. During this phase, the PLA secured control over the eastern bank of the Lahri River (old Demchok) ((Sandhu et al., 2015). Local accounts indicate that on 9 June 2018, the PLA expanded its presence beyond the Nelung Valley in Demchok, occupying approximately 24 square kilometres of the Demchok Valley–an area that includes Patrolling Point 51 (PP51) and constitutes critical winter grazing terrain for the nomadic communities of the region. Further assessments by (Nitya, 2023) underscore the broader pattern of restricted mobility on the Indian side, noting that “out of 65 Patrolling Points (PPs), our presence is lost in 26 PPs due to restrictive or no patrolling by the ISFs,” with the Nelung Nallah explicitly identified as one of the affected locations.

Recent satellite-based studies reveal substantial new infrastructure developments by China across multiple sectors of eastern Ladakh. In the Pangong Lake region, a 400-metre bridge was constructed near Sirijap in 2021, followed in 2022 by the installation of a large underground bunker in the same vicinity. By October 2024, satellite imagery documented the emergence of an extensive new settlement approximately 15 kilometres east of the bridge. Additional strategic infrastructure became visible in 2025, including an air-defence complex, missile-launch positions, and other permanent military facilities near Pangong Lake, with comparable installations reported in Gar County. In the Galwan Valley, China established a fortified base near Patrol Point 14 (PP14) following the violent confrontation of June

2020. Meanwhile, construction along the Xinjiang–Tibet railway corridor, which runs parallel to the G219 highway, continues to progress.

Present Alignment of the LAC in Eastern Ladakh

The current alignment of the India–China Line of Actual Control (LAC) in Eastern Ladakh (*See figure 2*) begins in the Daulat Beg Oldie (DBO) sector, in the valley where the border personnel of both countries meet. The LAC originates near the source of the Chip Chap River, located at approximately 78.14°E longitude and 35.49°N latitude. From this point, it proceeds southward, passing close to the Track Junction and Qizil Langar, before ascending to the watershed of the Karakoram Range. Following this watershed, the LAC continues south, broadly aligned with the course of the Shyok River, and reaches the Burtsa area at 78.07°E, 35.11°N. It then descends towards the Galwan Valley, touching 78.21°E, 34.76°N, before rising once again onto the Karakoram watershed. Near 78.24°E, 34.62°N, the LAC turns southeast and proceeds along the watershed associated with the Kugrang River until it reaches Kongka Pass at 79.00°E, 34.34°N. South of Kongka Pass, the alignment bends towards the south, crosses the Chang Chenmo River, and ascends the ridge leading to Anee La. From there, it descends near Finger 4 on the northern bank of Pangong Tso at 78.76°E, 33.72°N. After cutting across Pangong Tso, it climbs onto the Chushul Ridge and follows a series of prominent features, including Hamlet Top, Point 5167, Gurung Hill, and Table Top, before descending near Moldo and passing through the Chushul Border Personnel Meeting Point at 78.73°E, 33.55°N. Beyond Chushul, the LAC ascends the Tsaga watershed and continues over several strategically significant heights, including Magar Hill, Mukhpari, Senpao Hill, Rechin La, Rezang La, Rezang Top, and Mount Sajum. It then descends near Dumchele, located at 79.15°E, 33.12°N. From Dumchele, the alignment runs roughly parallel to the Indus River up to Demchok, where it turns south near 79.46°E, 32.70°N and follows the Lhari River valley. At Demchok, the LAC continues along the Lhari valley to the Charding Nullah–Nallah Junction (CNNJ), from where it turns west and follows the watershed of the Nelung River. Local accounts indicate that this area experienced PLA occupation in 2018. Accordingly, the alignment then extends to Nelung Pass at 79.27°E, 32.54°N and proceeds along the Hanle watershed, traversing Imis La and Kyungzing La before descending near Chumur along the Parechu River at 78.61°E, 32.59°N. Finally, the LAC rises again along the watershed to reach Gya Pass, situated at 78.40°E, 32.52°N.

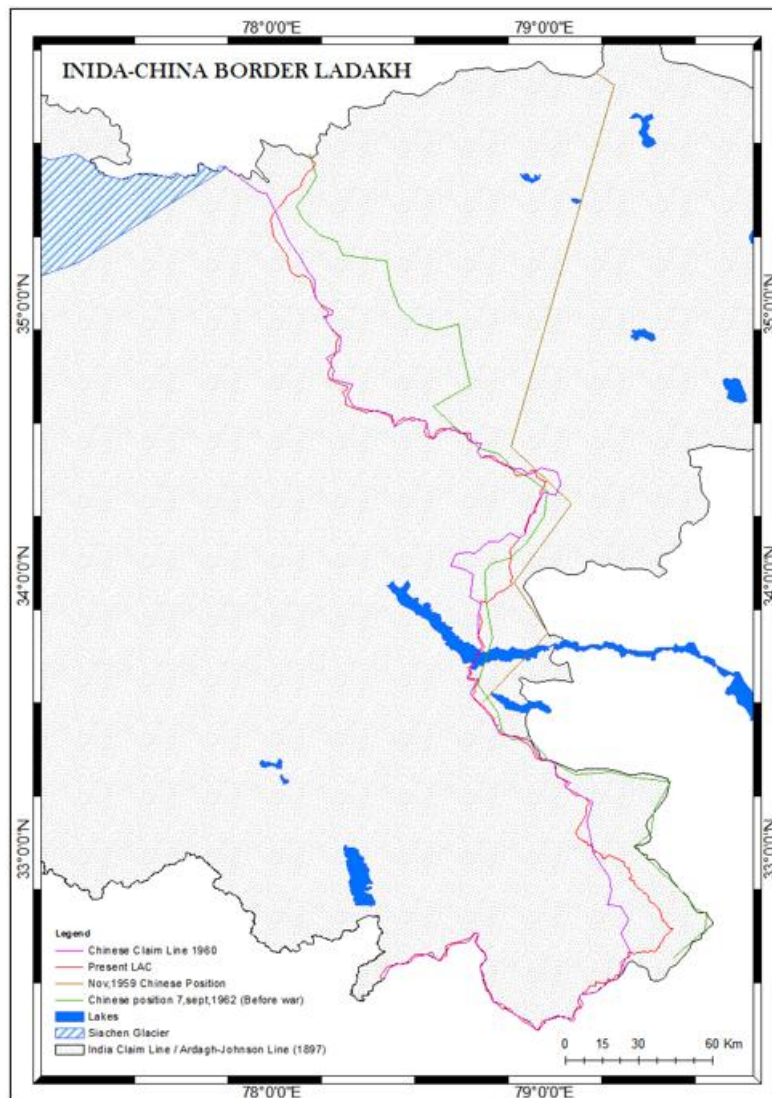


Figure 2: A notional map of the India-China border in eastern Ladakh

4. Conclusion

The evolution of the Line of Actual Control (LAC) in Ladakh demonstrates a persistent divergence between India's historical administrative reach and China's militarised consolidation of its 1960 claim line. Archival records from the 1950s and 1960 boundary negotiations reveal that India's forward presence extended significantly eastward in Aksai Chin and up to Finger 8 in the Pangong Lake sector, while China's stated claim line of 1960 corresponded closely to the PLA's operational posture during the 1962 conflict. Following the ceasefire, China's limited withdrawal created an intermediate buffer zone, but this space gradually eroded as the PLA expanded its infrastructure footprint toward the limits of its historical claim. Contemporary satellite imagery confirms that present Chinese deployments, including permanent military installations, all-weather roads, model settlements, and surveillance systems, have effectively absorbed much of this buffer space. Yet, this consolidation has remained largely within the territorial envelope asserted in 1960 rather than constituting a new expansion beyond it. From India's standpoint, the present alignment of the LAC therefore represents not an internationally accepted boundary but a militarily enforced status quo shaped by China's infrastructural penetration and strategic entrenchment.

Importantly, three sub-sectors—Anee La–Marsimik La, the DBO sector, and the Koyul–Demchok region—remain outside permanent PLA occupation despite being located within China's historic claim line. These areas persist as contested spaces where India retains varying degrees of tactical presence and administrative resilience. The situation in Koyul–Demchok additionally highlights the human dimension: restrictions imposed by Chinese forces on mobility, grazing access, and infrastructure development have exacerbated socio-economic vulnerabilities for border-dwelling nomadic communities, underscoring the wider humanitarian cost of the unresolved boundary. The present-day LAC, reconstructed through geospatial analysis and corroborated by high-resolution satellite data, aligns closely with China's post-1962 understanding of the ceasefire line. India's interpretation, however, is grounded in pre-war administrative realities and the principle that the LAC cannot be unilaterally altered by force or subsequent occupation. This structural disagreement continues to fuel periodic friction, infrastructure competition, and military standoffs across eastern Ladakh.

Overall, the contemporary alignment of the LAC reflects a boundary marked by historical complexity, enduring strategic contention, and uneven consolidation by the two states. China

has systematically reinforced its claimed line through extensive infrastructure development and assertive presence in territories India regards as its own. Conversely, India has not only been unable to re-establish control over key claimed regions—most notably Aksai Chin—but also struggles to fully exercise administrative and developmental authority within areas currently under its possession, such as the Koyul–Demchok stretch (e.g. building of Chinese road along Indus). This divergence reveals a growing imbalance in on-ground capabilities, wherein China continues to entrench its position while India's efforts to consolidate even its existing holdings remain significantly constrained.

References

- [1] Ahmad Z. China and Tibet, 1708–1959: A resumé of facts. London: Oxford University Press; 1970.
- [2] Ahmad Z. New light on the Tibet-Ladakh-Mughal War of 1679–84. ISMEQ; 1968. Available from: <https://www.jstor.org/stable/29755343>
- [3] Clarke M. China's Himalayan frontier: The geopolitics of Tibet and the Sino-Indian border. London: Routledge; 2011.
- [4] Clarke M. The China–India borderlands: Territoriality, development, and security. Oxford: Oxford University Press; 2019.
- [5] Clarke M. The Sino-Indian border crisis and China's strategic posture. Sydney: Lowy Institute; 2020.
- [6] Desai N. China's post-2020 consolidation in Eastern Ladakh: A spatial assessment. Himalayan Studies Review. 2022;14(2):45-68.
- [7] Dillon M. China's Muslim Hui community and Xinjiang politics. Cambridge: Polity Press; 2020.
- [8] Francke AH. Antiquities of Indian Tibet. Pt. 2. Vol. 2; 1926. Available from: <http://archive.org/details/in.gov.ignca.24327>
- [9] Fravel MT. Strong borders, secure nation: Cooperation and conflict in China's territorial disputes. Princeton: Princeton University Press; 2008.
- [10] Garver JW. Protracted contest: Sino-Indian rivalry in the twentieth century. Seattle: University of Washington Press; 2001.
- [11] Garver JW. The unresolved Sino-Indian border dispute: An interpretation. China Report. 2001;37(2):99-125.
- [12] Garver JW. China–India rivalry in the Asian century. Lanham: Rowman & Littlefield; 2021.
- [13] Gopal S. Jawaharlal Nehru and the Indian frontier policy. Oxford: Oxford University Press; 1964.
- [14] Gopal S. Jawaharlal Nehru: A biography. Vol. 3, 1956–1964. Cambridge: Harvard University Press; 1984.
- [15] Government of India. Chinese aggression in maps (Maps 5). New Delhi: Ministry of Defence; 1963a.
- [16] Government of India. Chinese aggression in maps (Maps 6). New Delhi: Ministry of Defence; 1963b.
- [17] Government of India. Agreement on trade and intercourse between Tibet region of China and India. Treaty Series 1954, No. 14. New Delhi: Ministry of External Affairs; 1954.
- [18] Government of India. Treaty of Amritsar. In: Treaties, Engagements and Sanads, Vol. IV; 1846.
- [19] Harper T. High-altitude frontiers: Local experiences of militarisation in the Himalaya. Asian Borderlands Journal. 2020;8(1):1-23.
- [20] Hoffmann SA. India and the China crisis. Berkeley: University of California Press; 1990.
- [21] International Institute for Strategic Studies (IISS). China–India border infrastructure developments. In: The Military Balance 2021. London: IISS; 2021.
- [22] Joshi S. India's evolving border management in the western sector. Strategic Analysis. 2021;45(3):201-18.
- [23] Joshi S. Understanding the Galwan clash: Strategic shifts in the India–China boundary. Strategic Analysis. 2021;45(3):271–89.
- [24] Kaul TN. India–China correspondence on boundary dispute. New Delhi: Ministry of External Affairs; 1960.
- [25] Lamb A. The China–India border: The origins of the disputed boundaries. Oxford: Oxford University Press; 1964.
- [26] Maxwell N. India's China war. London: Jonathan Cape; 1970.
- [27] Ministry of External Affairs. Agreement on the maintenance of peace and tranquillity along the Line of Actual Control in the India–China border areas. New Delhi: Government of India; 1993.
- [28] Ministry of External Affairs. Agreement on confidence building measures in the military field along the LAC in the India–China border areas. New Delhi: Government of India; 1996.
- [29] Ministry of External Affairs. Political parameters and guiding principles for the settlement of the India–China boundary question. New Delhi: Government of India; 2005.
- [30] Ministry of External Affairs. Border Defence Cooperation Agreement. New Delhi: Government of India; 2013.
- [31] National Institute of Open Schooling. Sino-Indian war 1962. History Module. 2023. Available from: <https://nios.ac.in>
- [32] Neville Maxwell Collection. Operations in Ladakh during the 1962 war. Stanford University Digital Archive; 1962.
- [33] Nitya P. Security issues pertaining to unfenced land border. 2023.
- [34] O'Donnell C. China's infrastructure expansion in Aksai Chin: Implications for regional stability. J Asian Security. 2022;16(4):312–30.
- [35] Pant HV, Upadhyay S. The Ladakh crisis and India's strategic choices. ORF Issue Brief. 2020;(371).
- [36] Petech L. The kingdom of Ladakh, c. 950–1842 A.D. Rome: Istituto Italiano per il Medio ed Estremo Oriente; 1977.
- [37] PRC Foreign Ministry. Minutes of the Sino-Indian officials' meetings on the boundary question. Beijing: Ministry of Foreign Affairs; 1960.
- [38] PRC State Council. Report on the Sino-Indian boundary question. Beijing: Foreign Languages Press; 1963.
- [39] Sandhu PJS, Dwivedi GG, Shankar V, Kumar B, Kalha RS. 1962: A view from the other side of the hill. New Delhi: Vij Books India; 2015.
- [40] Satellite Imagery Analysis Group. Infrastructure development along the western sector of the Sino-Indian frontier: A satellite-based study. New Delhi: Centre for Geospatial Security Studies; 2023.
- [41] Smith J. Mapping contested Himalayas: Borders, cartography, and geopolitics. Cambridge: Cambridge University Press; 2021.

- [42] Tellis A. Sino-Indian rivalry in the twenty-first century: Strategic implications. Washington DC: Carnegie Endowment for International Peace; 2020.
- [43] Times of India. India, China complete round 1 of patrolling along LAC after border deal. Times of India. 2024 Nov 11. Available from: <https://timesofindia.indiatimes.com>
- [44] Van Spengen W. Tibetan borderworlds: A geo-historical analysis of trade and trader routes. London: Routledge; 2000.
- [45] Verma PS. British boundary commissions in the Himalayas. *J Imperial Commonwealth Hist.* 2020;48(4):689–715.
- [46] Verma VS. Sino-Indian border dispute at Aksai Chin: A middle path for resolution. 2006. Available from: <https://docslib.org/doc/623970/sino-indian-border-dispute-at-aksai-chin-a-middle-path-for-resolution>
- [47] Wang Y. Remote-sensing approaches to mapping the LAC: A geospatial review. *Geopolitics and GIS Review.* 2023;12(1):77–99.
- [48] Woodman D. Himalayan frontiers: A political survey of the British positions. New York: Praeger; 1969.
- [49] Woodman D. Himalayan frontiers: A political review of British, Chinese, Indian and Russian rivalries. London: Barrie and Rockliff; 1969.
- [50] Xinhua News Agency. Chinese government statement on ceasefire and withdrawal. Beijing; 1962 Nov 21.
- [51] Zhang H, Li M. Sino-Indian border disputes. *Analysis.* 2013 Dec.