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ISSUE BRIEF

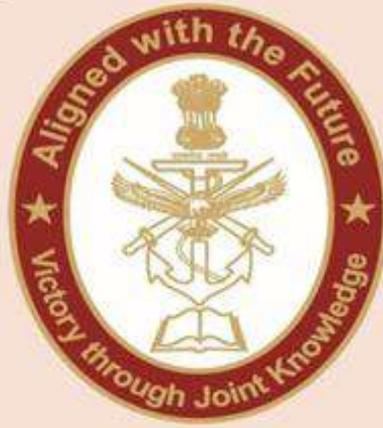
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STRATEGIC INFRASTRUCTURE AT THE BORDERS: WHY INDIA NEEDS A 'ONE BORDER, ONE AGENCY' DOCTRINE

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ONE BORDER, ONE AGENCY - INDIA

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Strategic Infrastructure at the Borders: Why India Needs a 'One Border, One Agency' Doctrine



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Abstract

The violent confrontation in the Galwan Valley in June 2020 became a defining moment in India's approach to border security. It exposed significant gaps in infrastructure and underscored that roads, bridges, tunnels, and logistics networks are not peripheral enablers but foundational elements of defence, deterrence, and sustained presence. In the years that followed, India accelerated construction across its frontiers, supported by firm political commitment and enhanced financial allocations. However, the pace of progress has remained uneven. Fragmented execution, overlapping mandates, and varying standards across multiple agencies have continued to impede consistent outcomes.

This Issue Brief contends that the next phase of reform must extend beyond mere acceleration in speed and scale, and instead address governance architecture. The proposed 'One Border, One Agency' doctrine provides a structured solution: the Central Public Works Department would assume responsibility for the Western border with Pakistan; the Border Roads Organisation would lead along the Northern

frontier with China; and the National Highways and Infrastructure Development Corporation Limited would oversee the Eastern borders and most of the North Eastern states, subject to defined exceptions. Aligning agencies with terrain conditions, operational demands, and the primary security forces in each sector would reposition them from construction executors to integrated partners in border management. By institutionalising sector-specific responsibility, the doctrine enhances accountability, promotes standardisation, and deepens civil–military coordination, thereby elevating infrastructure into a durable instrument of mobilisation, deterrence, and national power.

Keywords: Strategic Infrastructure; Border Management; Post-Galwan Reforms; Infrastructure Governance; One Border, One Agency; Border Roads Organisation (BRO)

Conceptual Contribution Statement

This Issue Brief advances the ‘One Border, One Agency’ doctrine as a structural reform aimed at strengthening the governance of India’s border infrastructure. By allocating each frontier to a designated agency aligned with its principal security force and specific operational environment, the model seeks to minimise fragmentation and eliminate institutional overlap. It institutionalises accountability, promotes standardisation, and deepens civil–military integration within infrastructure planning and execution. In doing so, roads, bridges, and tunnels are positioned not merely as construction outputs, but as dependable enablers of deterrence and defence—forming a sustained and coherent pillar of national power.

Introduction: Galwan as a Strategic Wake-Up Call

The confrontation between Indian and Chinese troops in the Galwan Valley in June 2020 was far more than a localised breach of protocols along the Line of Actual Control (LAC). It represented a strategic shock that compelled India to reassess the practical realities of its border security framework. For the first time in decades, infrastructure asymmetry was experienced tangibly on the ground, limiting mobilisation, sustainment, and deterrent posture in ways that had previously been discussed largely in theoretical terms.¹

India's earlier approach to frontier management was influenced by caution, resource constraints, and the assumption that limited development could function as a defensive buffer. This Cold War-era mind-set contrasted sharply with China's sustained and assertive expansion of roads, bridges, tunnels, and logistics corridors across its border regions.²

These projects shortened mobilisation timelines, enabled rapid troop concentration, and gave Beijing flexibility in posturing—advantages that became painfully clear during the 2020 crisis.

Galwan altered the strategic calculus. Infrastructure could no longer be regarded as a peripheral or purely developmental concern; it assumed the character of a frontline instrument of national power. The capacity to deploy forces rapidly, sustain them in extreme terrain, rotate formations efficiently, and project resolve during prolonged standoffs became intrinsically linked to the scale, depth, and reliability of border infrastructure.³ Roads and bridges began to carry deterrent weight comparable to conventional military capabilities.

In the aftermath, India demonstrated firm political resolve to fast-track frontier infrastructure projects. However, institutional fragmentation—manifested in multiple agencies operating under differing standards, procedures, and timelines—continues to weaken overall outcomes. Galwan should therefore be understood not merely as a catalyst for acceleration, but as a cautionary signal: without structural reform in governance, increased pace alone cannot secure enduring strategic advantage.

Strategic Infrastructure as an Instrument of National Power

Within India's evolving strategic framework, border infrastructure has transitioned from being viewed as a developmental supplement to being recognised as a core component of national power. Roads, bridges, tunnels, logistics hubs, and habitat facilities along the frontiers now have a direct bearing on military preparedness, deterrence posture, and even political decision-making in times of crisis.⁴

Infrastructure directly shapes the speed at which forces can be deployed, sustained, and rotated in high-altitude and contested environments. Assessments conducted

after Galwan have reinforced that deficiencies in connectivity and logistics create tangible operational disadvantages—constraining one side’s strategic options while enlarging the other’s freedom of manoeuvre.⁵ In such operational environments, infrastructure ceases to be merely a supporting function and instead becomes a critical component of combat capability. Indian strategic scholarship also underscores its signalling dimension. Visible construction activity in forward areas projects political resolve and sustained intent. During extended standoffs, consistent infrastructure development not only reassures domestic constituencies but also shapes adversary perceptions. In this sense, roads, tunnels, and bridges fulfil both operational and strategic communication roles.⁶

Equally significant is the dual-use dimension of frontier infrastructure. Facilities created to meet military requirements also strengthen civilian governance, facilitate disaster relief operations, and advance economic integration, thereby consolidating state legitimacy in remote and border regions.⁷ This aligns with India’s broader strategic approach of balancing security imperatives with developmental objectives.

However, infrastructure by itself does not ensure strategic advantage. Its impact is contingent upon coherent governance, disciplined execution, and consistent standards. Fragmented institutional arrangements weaken outcomes, highlighting the imperative to align strategic intent with a governance framework capable of delivering speed, scale, and accountability in equal measure.⁸

Post Galwan Acceleration in Border Infrastructure

The Galwan confrontation in June 2020 signalled a decisive shift from India’s earlier cautious posture toward border infrastructure. An issue long recognised within military and strategic circles as a vulnerability abruptly moved to the forefront of national security priorities, attracting sustained political focus. Observers note that the episode compressed decision-making timelines and generated an uncommon convergence between political resolve, military imperatives, and administrative execution.⁹

Among the most visible consequences has been the accelerated expansion of surface connectivity across the Northern frontiers. Enhanced budgetary allocations,

delegation of financial authority, and streamlined approval mechanisms have facilitated quicker construction of roads and bridges. Official data as well as independent evaluations indicate a clear shift toward all-weather, load-bearing infrastructure designed to sustain heavy military movement and uninterrupted year-round logistics, replacing the earlier reliance on limited seasonal access.¹⁰

Technology has been a key enabler of this accelerated push. The adoption of advanced tunnelling methods, modular bridge systems, prefabricated construction, and improved black-topping techniques has helped mitigate the constraints imposed by difficult terrain and extreme climatic conditions. Strategic analysts contend that such technological interventions are essential to reducing mobilisation asymmetries in high-altitude theatres, where speed, reliability, and endurance are decisive factors.¹¹

Institutional reforms have complemented these efforts. Faster procurement, early contractor payments, greater autonomy for agencies, and improved labour conditions have boosted productivity. Defence thinks tanks stress that these reforms were as important as increased funding.¹² Equally significant is the dual-use logic of new infrastructure. Military roads and bridges now also strengthen civilian governance, disaster response, and economic integration, enhancing state legitimacy without excessive militarisation.¹³ Yet persistent delays and fragmented execution remain reminders that speed alone cannot resolve deeper structural challenges.

The Persistent Bottleneck: Fragmented Execution Architecture

Notwithstanding the visible acceleration in border infrastructure development following the Galwan clash, implementation on the ground continues to display uneven results. A growing body of analysis suggests that the principal constraint today is no longer political commitment or financial allocation, but the fragmented institutional framework governing execution. Multiple agencies—frequently accountable to different ministries—operate concurrently within the same frontier sectors, generating structural bottlenecks that delay delivery and dilute efficiency.¹⁴

Currently, border infrastructure projects are administered by multiple organisations, each operating under its own mandate, institutional culture, and procedural

framework. Technical specifications, contracting practices, and cost benchmarks vary accordingly. While such differences may be justifiable within individual domains, they become counterproductive when agencies operate in overlapping geographic sectors without unified oversight or coordination. The consequence is duplication of effort, mismatched timelines, and uneven quality across adjoining stretches.

A visible indicator of this institutional fragmentation is the significant variation in per-kilometre project costs, even in comparable terrain conditions. Divergent design approaches, procurement frameworks, and contractor engagement models generate disparities that are not always defensible on technical grounds. Audit findings and policy reviews in India have consistently highlighted such inconsistencies as drivers of inefficiency and delay—an especially serious concern in sensitive frontier areas where timeliness is strategically critical.¹⁵

The armed forces also bear the burden of this disjointed system. Infrastructure planning that fails to align with operational needs disrupts deployment cycles and logistics. Defence scholars note that the absence of a single executing authority complicates accountability, shifting coordination responsibilities onto commanders and weakening preparedness.¹⁶

Additional delays arise from variations in institutional work cultures and differing assumptions regarding seasonal accessibility. Agencies more experienced in plains or urban construction frequently lack the specialised capabilities required for extreme terrain, resulting in underutilisation of comparative strengths. Policy scholarship emphasises that border infrastructure cannot be treated as routine public works; it is a distinct strategic function that demands customised institutional arrangements and sector-specific expertise.¹⁷

The lesson is clear: acceleration without integration delivers diminishing returns. Addressing structural fragmentation is essential if speed is to translate into lasting strategic advantage.

Why Borders Are Not Homogeneous: Terrain, Threat, and Institutional Specialisation

India's borders present a wide spectrum of operational, geographic, and administrative challenges, making a uniform approach to infrastructure execution both inefficient and impractical. Strategic literature increasingly emphasises that each frontier differs not only in terrain and climate but also in threat perception, deployment patterns, and command structures. Governance, therefore, must be tailored to the operational ecosystem of each border rather than treated as generic public works.¹⁸

- **Western Border (Pakistan).** The terrain along the Western frontier is comparatively predictable, characterised by denser populations and established internal security integration. In this sector, the Border Security Force (BSF), operating under the Ministry of Home Affairs (MHA), requires infrastructure that supports fencing, patrol tracks, and rapid mobility to counter infiltration. Policy discussions suggest that execution by agencies aligned with MHA systems enables smoother coordination, expedited clearances, and closer alignment with operational requirements.
- **Northern Frontier (China).** The Northern border presents a markedly different operational environment. High-altitude conditions, extreme weather, limited working windows, and ongoing military standoffs necessitate agencies with strong familiarity with Army operational demands. The Border Roads Organisation (BRO), functioning under the Ministry of Defence (MoD), is particularly well suited to this context. Its hybrid framework—Army officers working in conjunction with GREF (General Reserve Engineer Force) personnel—facilitates close integration with military formations. Analytical assessments indicate that this civil–military structure enables BRO to tailor engineering solutions to tactical needs and function effectively within contested terrain.
- **Eastern Borders (Myanmar and Bangladesh).** The Eastern sector combines challenging geography with internal security and developmental priorities. Infrastructure here supports both the BSF and Assam Rifles under the MHA, while also promoting regional connectivity. The National Highways

and Infrastructure Development Corporation Limited (NHIDCL), under the Ministry of Road Transport and Highways (MoRTH), possesses substantial experience in highway construction across the North East. This positions it to effectively balance strategic mobility requirements with civilian and economic integration objectives.¹⁹

These distinctions highlight a central insight: India's borders are heterogeneous, and governance must reflect this diversity. Aligning agencies with dominant security forces and parent ministries offers a coherent model, forming the foundation of the proposed 'One Border, One Agency' doctrine.

The 'One Border, One Agency' Doctrine: Concept, Structure, and Advantages

Despite heightened political resolve and expanded financial allocations in the period following Galwan, outcomes in border infrastructure development remain uneven. The constraint is no longer resource availability but the fragmented execution architecture. Multiple agencies—frequently operating under separate ministries—retain concurrent responsibilities within the same frontier sectors, resulting in duplication of effort, procedural delays, and weakened accountability.²⁰

To address this structural weakness, Indian strategic discourse has begun to explore the idea of a 'One Border, One Agency' doctrine. Inspired by the operational logic of the established 'One Border, One Force' principle, this approach seeks to align responsibility, accountability, and expertise by assigning specific border sectors to designated agencies. The doctrine rests on three guiding principles:

- Borders are operationally diverse and require differentiated institutional solutions.
- Infrastructure in contested or sensitive areas is a strategic function, not routine public works.
- Efficiency improves when executing agencies are institutionally aligned with the dominant security force and parent ministry in that sector.

Policy literature repeatedly notes that misalignment imposes coordination costs, delays outcomes, and weakens accountability.²¹ At its core, the doctrine recognises

that border infrastructure is not merely developmental—it is a strategic enabler that must be managed by agencies attuned to the unique realities of each frontier.

- **Western Border (Pakistan).** Along the Western frontier, where terrain is comparatively accessible and internal security forces maintain substantial deployment, the Central Public Works Department (CPWD) should assume primary responsibility. Functioning under the Ministry of Home Affairs, CPWD is institutionally aligned to deliver infrastructure in support of the Border Security Force. Requirements such as border fencing, patrol tracks, access corridors, and habitat facilities align well with CPWD's strengths in standardised specifications, adherence to timelines, and coordination within MHA frameworks. Vesting exclusive responsibility in CPWD would promote uniformity, cost predictability, and seamless operational integration with BSF formations.
- **Northern Frontier (China).** The Northern sector presents a distinctly more complex operational environment. Spanning high-altitude, climatically hostile, and militarily contested terrain, it necessitates specialised engineering capability and close military integration. The BRO, under the MoD, is best positioned to fulfil this role. Its hybrid civil–military composition—Army officers working alongside GREF personnel—ensures deep institutional linkage with Army formations. This proximity enables engineering solutions to be tailored to tactical imperatives and allows effective functioning even during live standoff situations. Assigning exclusive responsibility to BRO would consolidate accountability and optimise its expertise in extreme terrain infrastructure.
- **Eastern Borders and North Eastern States.** The Eastern frontier, encompassing Bangladesh and Myanmar, along with most of the North Eastern states (with Arunachal Pradesh and Sikkim as defined exceptions), combines strategic mobility requirements with internal security and developmental priorities. In this sector, the NHIDCL, operating under the Ministry of Road Transport and Highways, should serve as the principal executing agency. NHIDCL's expanding footprint in the North East and its experience in highway construction across challenging terrain position it to

effectively support BSF and Assam Rifles operations while simultaneously advancing regional connectivity and economic integration.²²

Such clarity in sectoral responsibility also creates scope for the rational reallocation of specialised projects. BRO's Project Sewak and Project Pushpak, for instance, could be specifically tasked with the India–Myanmar border fencing, key road corridors in the North East, and infrastructure associated with the Kaladan Multimodal Transit Transport Project. Concentrated tasking of this nature would minimise coordination friction and maintain continuity in projects critical to strategic external connectivity.

In a similar vein, the revival of Project Setuk—currently in suspended status—and its redeployment to the Andaman and Nicobar Islands would enable BRO to undertake essential strategic infrastructure works, including roads, jetties, and landing facilities, in support of the Andaman and Nicobar Command and the Coast Guard. Such a move would directly reinforce India's expanding strategic priorities in the eastern Indian Ocean region.

The advantages of the 'One Border, One Agency' doctrine are substantial. It establishes clear ownership, aligns executing agencies with the operational forces they support, and enables institutional specialisation without dispersion of effort. More importantly, it elevates infrastructure development from a fragmented administrative function to a coherent strategic instrument—one capable of strengthening deterrence, facilitating rapid mobilisation, and sustaining presence across India's varied and contested frontiers.

Implementation Framework: From Doctrine to Delivery

For the 'One Border, One Agency' doctrine to move from concept to capability, it must be grounded in a clear, time-bound implementation plan. Indian policy experience shows that structural reforms succeed only when backed by explicit political direction, strong inter-ministerial coordination, and well-defined accountability mechanisms.

- The first step is a formal Cabinet-level notification by the Government of India, clearly delineating border sectors and assigning lead responsibility to designated agencies. Such notification would secure cross-ministerial buy-in and prevent jurisdictional ambiguity. Western, Northern, and Eastern sectors must be geographically defined, with the designated agency given full authority over planning, execution, and monitoring. Other agencies should serve only in supporting or consultative roles, eliminating overlap and dilution of responsibility.
- Transitioning on-going projects is a critical challenge. Abrupt reassignment risks disruption and cost escalation. Current projects should therefore continue under existing agencies until key milestones are reached, after which responsibility can be transferred in phases. New projects, however, must be placed exclusively under the designated agency from inception. This dual-track approach balances continuity with reform.
- Standardisation forms the second pillar of implementation. Each sector should adopt unified technical standards, cost benchmarks, and contracting models tailored to its terrain and operational needs. Sector-specific SOPs, developed in consultation with armed forces and border guarding units, would ensure infrastructure outcomes remain operationally relevant. Audit reports consistently highlight that lack of standardisation drives delays and cost overruns, especially in sensitive projects.
- Oversight mechanisms are equally vital. An inter-ministerial steering committee—comprising representatives from Defence, Home Affairs, Road Transport, and security forces—should provide strategic guidance and resolve disputes. At the operational level, metrics such as completion rates, cost adherence, and usability must be reviewed regularly.
- Finally, competitive tendering and transparency safeguards must remain intact. Sectoral ownership should not lead to monopolisation or complacency. Strong audit oversight and independent evaluation are essential to sustain reform momentum.

Implemented systematically, the doctrine offers a realistic pathway to convert political intent into durable strategic outcomes, bridging the gap between planning and performance.

Risks, Limitations, and Safeguards

The 'One Border, One Agency' doctrine offers a coherent solution to India's fragmented border infrastructure system, but its implementation is not without risks. Indian policy experience shows that consolidation, if poorly designed or weakly monitored, can generate new inefficiencies even as it resolves old ones. A careful assessment of limitations is therefore essential to ensure the doctrine strengthens strategic outcomes rather than constrains them.

- One potential concern is the risk of excessive centralisation. Granting exclusive responsibility for a sector may constrain flexibility and slow responsiveness if decision-making becomes overly hierarchical. In rapidly evolving security environments, such rigidity could erode the very speed and adaptability the doctrine intends to strengthen. Governance scholarship therefore emphasises that consolidation must be accompanied by meaningful delegation of authority at field levels to preserve operational agility.²³
- Another potential risk lies in the possibility of institutional complacency. Sector-specific monopolies may dilute incentives for innovation, cost efficiency, and continuous performance enhancement. In the absence of competitive pressures, agencies could become insular, leading to diminished efficiency and uneven quality outcomes. Audit experience underscores the importance of sustained evaluation mechanisms and independent oversight to mitigate such risks and maintain institutional discipline.²⁴
- Capacity constraints represent another important consideration. Even specialised agencies may encounter overstretch during periods of accelerated construction or crisis-driven surges. Excessively rigid sectoral demarcations could restrict the ability to leverage surplus capacity available elsewhere. Accordingly, the framework must incorporate safeguards such as surge mechanisms and provisions for temporary cross-tasking to maintain flexibility.
- To address these risks, the reform architecture should embed third-party audits, clearly defined outcome-based performance metrics, and periodic

review mechanisms, including sunset clauses where appropriate. Competitive tendering, transparency standards, and parliamentary oversight must continue to anchor the system. Ultimately, institutional alignment should strengthen accountability and ensure that strategic objectives take precedence over bureaucratic boundaries.

Conclusion: Institutionalising Infrastructure – One Border, One Agency as Strategic Doctrine

The Galwan crisis marked a decisive shift in how India perceives border security. It exposed that infrastructure is not a secondary support system but a central pillar of deterrence, rapid mobilisation, and sustained presence. In the years since, India has accelerated construction across its frontiers, narrowing long-standing gaps and boosting operational readiness. Yet, as this brief has argued, speed and scale alone cannot substitute for institutional clarity and coherence.

India's borders are far from uniform. Each frontier is shaped by distinct terrain, threat perceptions, and deployment patterns. Treating them as administratively identical has produced fragmented execution, overlapping mandates, and diluted accountability. The next step in India's post-Galwan journey must therefore focus not simply on more projects or larger budgets, but on structural reform in governance.

The proposed 'One Border, One Agency' doctrine offers a pragmatic way forward. Assigning the CPWD to the Western border, the BRO to the Northern frontier, and NHIDCL to the Eastern and North Eastern sectors ensures that infrastructure development is aligned with the dominant security forces and ministries in each region. This alignment transforms agencies from passive builders into active partners in border management, capable of internalising operational priorities and delivering strategically relevant outcomes.

Equally important is the rational reallocation of specialised capabilities. Focused tasking of BRO projects for sensitive fencing, external connectivity, and strategic infrastructure in the Andaman and Nicobar Islands ensures expertise is concentrated where it matters most. Such clarity reduces friction, strengthens accountability, and embeds purpose into India's border infrastructure ecosystem.

In an era of persistent competition and contested frontiers, coherence is indispensable. When governed with focus and foresight, infrastructure becomes more than concrete and steel—it becomes India’s quiet, credible, and enduring form of deterrence.

DISCLAIMER

The paper is the author’s individual scholastic articulation and does not necessarily reflect the views of CENJOWS, the Defence forces, or the Government of India. The author certifies that the article is original in content, unpublished, and it has not been submitted for publication/ web upload elsewhere and that the facts and figures quoted are duly referenced, as needed and are believed to be correct.

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