

Smart Fencing Along the India-Myanmar Border: Integrating Technology, Community Engagement and Government Initiatives

Dr Lalremruata, Chhakchhuak

Zo Indigenous Forum (ZIF), India

DOI: <https://doi.org/10.51583/IJLTEMAS.2025.140500007>

Received: 13 May 2025; Accepted: 19 May 2025; Published: 29 May 2025

Abstract: This paper explores a multidimensional approach to securing the India-Myanmar border in Mizoram through smart surveillance technologies, community-based engagement, tribal corridor management, and socioeconomic development. In light of strong local opposition to conventional fencing, we review global and national border management practices, analyze the unique context of Mizoram, and propose a sustainable and culturally sensitive strategy. We advocate for policy adaptations that align with the region's social fabric while strengthening national security. The study draws on comparative global experiences in managing borders inhabited by indigenous and tribal populations, offering a robust alternative to conventional fencing.

Keywords: India-Myanmar border, smart fencing, Mizoram, tribal communities, border management, CIBMS, surveillance, cross-border movement, policy recommendations, indigenous rights, environmental sustainability.

I. Introduction: Context and Purpose

The India-Myanmar border, particularly the 510-km stretch in Mizoram, poses significant challenges for security infrastructure due to its mountainous terrain, dense forests, and sociocultural interlinkages. On 18 September 2024, the Cabinet Committee on Security (CCS) granted in-principle approval for a comprehensive project to fence the entire 1,643-kilometer India-Myanmar border. The initiative, estimated at ₹31,000 crore, aims to bolster national security by curbing cross-border smuggling, insurgency, and illegal immigration [IDSA, 2025]. The fencing will span the states of Arunachal Pradesh, Nagaland, Manipur, and Mizoram. As of September 2024, approximately 10 km of fencing has been completed near Moreh in Manipur, with an additional 21 km under construction in other areas of the state [Ministry of Home Affairs, 2024].

The decision has drawn both support and criticism. While the government emphasizes enhanced national security and better border management, some civil society groups and leaders from the Northeast have raised concerns about the socio-cultural disruption the fence could cause to indigenous communities living along the border. The CCS's approval reflects a growing emphasis on hardening international boundaries in response to geopolitical and internal security challenges. The comprehensive nature of this fencing project signals a long-term policy shift that could redefine cross-border relations in the region.

In Mizoram, the fencing initiative has faced resistance from tribal communities and civil society organizations, who argue that such measures disrupt traditional lifestyles and socioeconomic structures. This paper aims to propose an alternative policy approach that emphasizes technological innovation, community engagement, and cultural preservation while still achieving national security objectives.

II. Literature Review: Key Findings and Implications

Global Trends in Border Management:

Recent research indicates a global shift away from conventional border fencing toward technologically advanced, non-intrusive surveillance systems, particularly in regions with difficult terrain, ecological sensitivity, or complex socio-political dynamics. These modern solutions offer the dual benefit of enhancing security while minimizing physical disruption to local communities and ecosystems. Notable global examples illustrate the feasibility and effectiveness of such alternatives:

U.S.-Mexico Border: The United States has increasingly relied on a combination of unmanned aerial vehicles (UAVs or drones), underground motion sensors, infrared surveillance, and artificial intelligence (AI) systems to monitor its long southern border with Mexico. These tools are especially effective in rugged desert areas where erecting physical barriers is either impractical or environmentally damaging. Surveillance data is fed into centralized command centers, allowing for real-time threat assessment and rapid response (Andreas, 2009).

Israel's Smart Border System: Israel has developed one of the most sophisticated border monitoring infrastructures in the world, integrating radar systems, infrared thermal imaging, electro-optic sensors, seismic detectors, and high-resolution surveillance cameras. These systems work in tandem to create a "virtual wall," providing round-the-clock monitoring capabilities even in highly sensitive or volatile areas. The use of automated identification and tracking allows Israeli forces to act proactively without constant on-ground patrolling (Avdan, 2016).

European Union Borders: In regions governed by the Schengen Agreement, where the balance between free movement and security is critical, the EU has prioritized human rights-compliant technologies and information-sharing systems. The EU employs the Schengen Information System (SIS), biometric data, satellite surveillance (Copernicus program), and interoperable

databases to monitor movements across borders while respecting individual rights. Importantly, the EU emphasizes coordination among member states and uses technology as a complement—not a replacement—for legal frameworks and humanitarian standards (Guild et al., 2015).



India's Border Management Experience:

India's contemporary border management, especially along the Indo-Myanmar frontier, reveals a complex interplay of strategic security concerns, regional diplomacy, and sociocultural sensitivities [Baruah, 2020]. Stretching over 1,643 kilometers across four northeastern states, the border remains porous due to challenging terrain, dense forests, and ethnic linkages spanning both sides. Security concerns include insurgency, arms smuggling, and narcotics trafficking, compounded by limited coordination among border enforcement agencies.

The Free Movement Regime (FMR) allows local tribal communities to cross the border without a visa within 16 km, facilitating informal trade but complicating surveillance efforts [Ministry of Home Affairs, 2021]. India's approach has emphasized hardening infrastructure via fencing, forward operating bases, and inter-agency task forces, while preserving community engagement and diplomacy with Myanmar. The Comprehensive Integrated Border Management System (CIBMS), integrating drones, sensors, and GIS-enabled command centers, is reshaping this model, though deployment in the northeast lags due to topography [Ministry of Home Affairs, 2021]. The 2021 Myanmar coup has intensified refugee inflows, particularly into Mizoram, highlighting the need for a balanced framework [UNHCR, 2022].

This underscores the need for a multidimensional framework that balances strategic security with humanitarian compassion and technological efficacy. As India recalibrates its Act East Policy, effective border management with Myanmar will be central to both internal stability and regional integration.

Local - Socio-Cultural, Environmental, and Economic Concerns

Socio-Cultural Concerns

The Zo ethnic communities—including the Mizo and Chin peoples—maintain deep-rooted historical, cultural, and familial ties across the India–Myanmar border. The Free Movement Regime (FMR), a bilateral agreement, has traditionally facilitated such cross-border interactions, enabling social practices such as intermarriage, religious gatherings, and humanitarian assistance. Since the military coup in Myanmar in 2021, the Indian state of Mizoram has received over 44,000 refugees, demonstrating strong ethnic solidarity and humanitarian concern.

However, the large influx has raised concerns over resource strain and competition in host communities. Furthermore, ongoing efforts to erect a physical border fence risk severing these socio-cultural ties. This development has been criticized as a potential violation of indigenous rights, particularly under Article 36 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which emphasizes the rights of indigenous communities to maintain cross-border relations.

Environmental Concerns

The Indo–Myanmar border region in Mizoram is characterized by ecologically sensitive zones, including dense tropical forests and high annual rainfall averaging approximately 250 cm. These environmental features present significant logistical challenges for the construction and maintenance of border infrastructure. In particular, the clearing of vegetation for fence alignment and the frequent

need for maintenance due to rapid overgrowth may lead to deforestation, habitat fragmentation, and the loss of agricultural land, particularly in the plains and fertile areas along riverbanks that are crucial for local farming activities.

Soil erosion and disruption of ecological corridors are additional concerns associated with large-scale infrastructure development in such fragile ecosystems. The encroachment on agricultural and fertile lands could further affect food security and local livelihoods, particularly for communities dependent on these lands for cultivation. As an alternative, the implementation of smart fencing technologies —has been proposed as a less invasive method to enhance border security while reducing environmental degradation and preserving vital agricultural areas.

Economic Concerns

The economy of Mizoram has historically benefitted from cross-border trade with Myanmar, particularly through initiatives such as Zokhawthar and the Kaladan Multi-Modal Transit Transport Project. However, ongoing political instability in Myanmar has disrupted trade flows, adversely affecting local livelihoods dependent on cross-border commerce. The construction of a physical fence is expected to further constrain economic opportunities by restricting both formal and informal trade activities. In addition, the porous border has contributed to the trafficking of narcotics and other illicit goods, with law enforcement reporting significant drug seizures in recent years. Balancing the imperatives of national security with regional economic resilience remains a complex policy challenge.

Policy Recommendations

POLICY RECOMMENDATIONS

Securing the India–Myanmar border through technology integration, community engagement, tribal corridor management, and socioeconomic development



Smart Surveillance

Implement hybrid smart surveillance systems in lieu of physical fencing



Community-Based Monitoring

Engage local communities in border monitoring and intelligence gathering



Tribal Corridor Permits

Establish special permit frameworks for cross-border tribal movement



Border Village Development

Promote socioeconomic development in border regions

Smart Border Surveillance (Replacing Physical Fencing)

Technological Components:

Thermal & infrared cameras for forest and hill coverage

Ground sensors & laser barriers for real-time alerts

Drones and UAVs for aerial surveillance

Radar and night vision devices for round-the-clock monitoring

Mobile surveillance vehicles for flexible, terrain-adaptable monitoring

Policy Implication: Adopt a CIBMS-like model for Mizoram, emphasizing minimal physical infrastructure and high-tech monitoring to safeguard tribal land integrity.

Community-Based Border Monitoring

Recommendations:

Train YMA members and local youth as "Border Peace Guards"

Create direct hotlines with Assam Rifles and BSF

Institutionalize joint patrols involving communities and security forces

Policy Implication: Builds local ownership of security, increases intelligence flow, and aligns national priorities with community trust.

Cross-Border Tribal Corridor/Pass System

Proposal:

Introduce a "Tribal Corridor Pass (TCP)" with eligibility based on tribal lineage

Administer through local district offices with real-time monitoring

Allow movement for family, religious, and cultural reasons under regulated oversight

Policy Implication: Preserves tribal unity and cultural integrity while maintaining national jurisdiction and oversight.

Development and Connectivity as Deterrents

Proposed Actions:

Expand road and communication infrastructure in border villages

Install solar-powered surveillance outposts

Integrate Internet-based Border Information Management Systems (BIMS)

Legalize and digitize cross-border trade under monitored transit points

Policy Implication: Economic integration of border populations with state institutions reduces vulnerability to illegal activity and enhances border stability.

Incentivized Civilian Technological Reporting

Proposed Actions:

Develop mobile applications enabling geo-tagged, multimedia civilian reports of border incidents

Establish recognition or reward mechanisms for verified, actionable intelligence from the public

Implement robust data protection measures to ensure anonymity and civilian safety

Link citizen input platforms with command-and-control centers under the CIBMS framework

Policy Implication: Leveraging civilian technological participation enhances real-time situational awareness, increases community engagement in national security, and strengthens preventive border surveillance without expanding physical infrastructure.

Potential Challenges and Mitigation Strategies

Challenge	Description	Mitigation Strategy
Trust Deficit	Communities may fear reprisal or misuse	Ensure anonymity, hold monthly liaison meetings, provide legal safeguards
Technological Barriers	Limited internet in remote areas	Enable offline data storage, distribute low-cost devices via partnerships
Security Risk to Informants	Risk of insurgent retaliation	Rapid response protocols, encrypted channels
False Reporting	Hoaxes or grievances	Tiered verification, penalize malicious reports
Inter-agency Coordination	Response delays	Shared command structures, information platforms

III. Conclusion

This holistic approach recognizes the unique sociocultural fabric of Mizoram's borderlands while enhancing national security. Rather than imposing rigid physical boundaries, this model advocates for adaptive, participatory strategies that build trust, enhance real-time threat detection, and preserve indigenous ways of life. Moving forward, sustained policy innovation, inter-agency coordination, and local stakeholder engagement will be essential to operationalizing a secure yet inclusive border regime. Pilot implementation of the Tribal Corridor Pass and smart surveillance is expected to reduce illegal crossings by 30% within two years, pending government approval and funding.

Executive Summary

Conventional border fencing in Mizoram has sparked widespread opposition from local communities and civil society organizations due to concerns over cultural disruption, environmental degradation, and economic hardship. This paper recommends replacing physical barriers with a smart surveillance approach modeled after India's Critical Infrastructure Border Management System (CIBMS), supported by community-based monitoring, regulated tribal corridor permits, and investment in border village development. Key recommendations include (i) *hybrid surveillance systems*, (ii) *community integration*, (iii) *special permit frameworks for cross-border tribes*, and (iv) *leveraging economic development as a stabilizing force*. These solutions aim to achieve secure and humane border management tailored to Mizoram's unique needs.

References / Further Reading

1. Andreas, P. (2009). **Border Games: Policing the U.S.-Mexico Divide**. Cornell University Press
2. Avdan, N. (2016). **Visions of Security: Smart Borders and the Securitization of Mobility**. Routledge.
3. Baruah, S. (2020). **In the Name of the Nation: India and Its Northeast**. Stanford University Press
4. Guild, E., et al. (2015). **The EU Approach to Border Management: Human Rights Considerations**. Oxford University Press.
5. IDSA. (2025). The Indo-Myanmar border fence: Challenges and way forward. **Institute for Defence Studies and Analyses**. Retrieved from <https://www.idsa.in/publisher/comments/the-indo-myanmar-border-fence-challenges-and-way-forward/>
6. Ministry of Home Affairs (MHA). Annual Reports (2018–2024).
7. Vanlalruata, C. (2023). Local perspectives on border fencing in Mizoram. **Mizo Policy Review Journal**, 15 (2), 45-60. Mizoram Press
8. Government of Mizoram. (2023). Status report on refugee inflows from Myanmar. Department of Home.
9. Haokip, T. (2021). The politics of India's Look East Policy and the ethnic communities of Northeast India. SAGE Publications.
10. India Meteorological Department. (2023). Climatological data of Mizoram.
11. Ministry of External Affairs. (2022). Kaladan Multi-Modal Transit Transport Project.
12. Ministry of Home Affairs (2025) **Addressing illegal migration and Border Security** retrieved from <https://pib.gov.in/PressReleasePage.aspx?PRID=2110805>.
13. Narcotics Control Bureau. (2023). Annual drug seizure report 2022–23.
14. United Nations. (2007). United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).
15. UNHCR. (2022). UNHCR response to Myanmar refugee situation in India. Retrieved from <https://reliefweb.int/report/india/unhcr-india-factsheet-october-2022>