



BRO: A Strategic and Humanitarian Pillar of Border Empowerment

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DOI : <https://doi.org/10.5281/zenodo.17316180>

ARTICLE DETAILS

Research Paper

Accepted: 22-09-2025

Published: 10-10-2025

Keywords:

Politics, Ethnic, Marginal, Identity, Wancho Naga and Assam.

ABSTRACT

India's unique Geography plays an important role in shaping its Security, Sovereignty, and overall development. A nation's safety, whether internal or external, relies not just on its Armed forces but also on its administration, political leadership, economy, and supporting institutions. One such important organisation is the Border Roads Organisation (BRO). BRO connects remote border areas with the rest of the country, making it easier to reach even the most difficult terrains. Its work is not only essential for defence movements but also helps improve the lives of people living in these far-flung regions by boosting development and connectivity. This paper explores how BRO serves as a backbone for national security and disaster response in India. BRO has always been known for its dedication, untiring efforts and efficiency, even in adverse conditions. What makes BRO truly significant is that its influence extends not just to India's borders but far beyond. From building crucial roads in Bhutan and Myanmar to contributing to infrastructure development in Sri Lanka, BRO has proven that its



technical expertise and commitment are valued nationally and internationally. These international projects prove how BRO is not only building roads, but also transforming infrastructure into a tool of friendship and development by strengthening regional infrastructure, fostering political relations and promoting mutual trust among countries. While its primary role is to develop infrastructure in India's border areas, BRO also plays a vital role in handling emergencies. Be it natural calamities like floods, glacier bursts, avalanches, landslides or road blockages, BRO provides immediate and long-term relief and ensures the timely restoration of connectivity in the affected areas.

Introduction

The Border Roads Organisation, established on 7th May 1960, began with Projects Tusker (Vartak) and Beacon, and has now expanded to 18 projects across 11 states, three Union Territories, and Bhutan. Known for its blend of military discipline and technical expertise, BRO is a self-reliant and adaptable organisation, playing a vital role in India's border infrastructure and national interests¹

When we think of National Security, we often picture soldiers standing guard at our borders. But behind their courage stands an equally strong and silent support system, the roads, bridges, and lifelines that connect them to the farthest frontiers. In these remote and often hostile terrains, one organisation has quietly and tirelessly ensured that our borders remain strong, connected, and supported the BRO. The BRO doesn't just build roads, it builds resilience. From carving paths through snow-covered mountains to rushing aid during disasters, and from connecting forgotten villages to giving people reasons to stay instead of migrating, BRO has a significant impact that goes far beyond engineering. It touches lives, it strengthens defence, and it uplifts communities.

This paper looks at the Border Road Organisation as much more than just a road builder; it is the silent force behind our secure borders. Through its work in remote areas, the Border Road Organisation not only connects places but also people, families and the security of villages. It is a silent bridge between the country's defence and remote communities. Its importance cannot be considered less than that of the armed forces.

Historical background of Border Road Organisation



The BRO was established on 7 May 1960 under the leadership of the first Prime Minister, Jawaharlal Nehru. At the time of establishment, the main objective of the organisation was to deliver resources to the remote areas of India. This was very difficult at that time, so an infrastructure was developed by this organisation, so that our armed forces could easily reach the border and protect it. The BRO is working to connect and maintain countries and their relations not only on the borders of India but also at the international level. BRO has resolved to prove its efficiency; or rather, it has given a sentence which symbolises its efficiency. "Shramena Sarvam Sadhyam" means that any Goal can be achieved with hard work and dedication. And not once, but again and again, BRO presents such examples which keep its motto alive.

The Border Road Organisation has played a significant role in both the maintenance of Security and the development of border areas. Most of the development in the North-Eastern part of India can be attributed to the constant work done by the Border Road Organisation. Apart from its work in India, the BRO has undertaken work in numerous countries, thus contributing immensely toward maintaining friendly and diplomatic relations. At the time of its establishment, the objective of BRO was to strengthen connectivity in the border areas and ensure road access under all circumstances. However, over the decades, BRO has expanded its role by supporting military operations along with road development projects. In addition to roads, it is also engaged in the construction of tunnels, airfields, and other infrastructure, thereby contributing not only to national security but also to socio-economic development. It acts as a protective shield for our nation.

Concept of Nation Building and Role of BRO

The BRO, guided by its motto "Shramena Sarvam Sadhyam", has emerged as the backbone of India's border infrastructure. From building strategic projects like the Sela Tunnel, Mudh Nyoma Airfield, and Arunachal Frontier Highway to fostering socio-economic growth in remote villages, BRO combines engineering excellence with national service. With government support and the adoption of modern technology, it continues to strengthen border security and contribute to nation-building.ⁱⁱ

Nation-building is a continuous process that goes far beyond military preparedness or economic prosperity. For India, a geographically vast and culturally diverse country, nation-building means ensuring that even the most remote and border areas are connected to the core of the nation, and infrastructure plays a crucial role in this process. Roads, tunnels, and bridges are not just physical structures; they are the mediums through which every part of the country is linked together. Especially in border areas, such projects symbolise the presence of the state and instil a sense of security and belonging

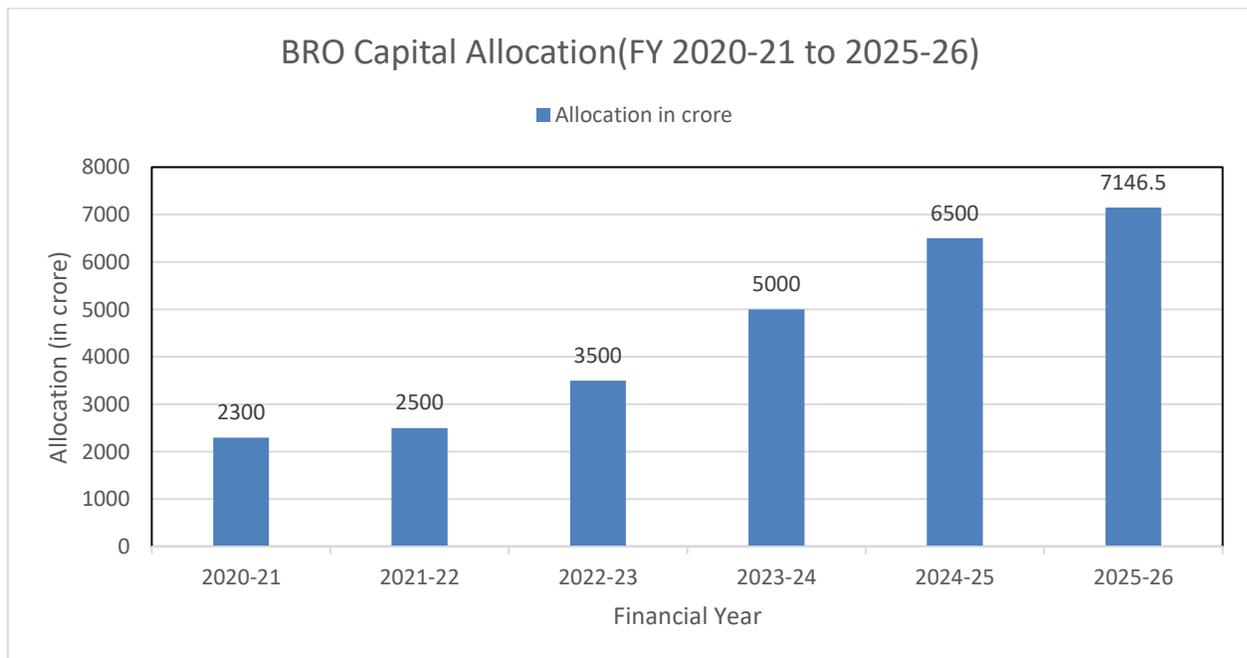


among local communities. The BRO stands as an important, yet often invisible, pillar of nation-building. Although it was established primarily for strategic road construction, over time its role has expanded considerably. BRO strengthens defence preparedness by ensuring reliable military mobility, while simultaneously connecting isolated populations to education, healthcare, and markets. It also provides local employment opportunities, helping to reduce distress migration from border villages, and plays a key role in fostering both cultural and geographical integration with the national mainstream.

There are several examples that highlight this contribution. The Atal Tunnel, for instance, ensures all-weather connectivity to Leh-Ladakh, while the Umling La Road demonstrates both strategic resolve and national pride. Similarly, the Char Dham Project integrates religious, cultural, and economic dimensions of development, reflecting how infrastructure directly contributes to broader nation-building objectives. Thus, BRO's projects are not merely roads and bridges but lifelines of the country that sustain unity, enhance security, and integrate remote areas with the rest of the nation. Its role exemplifies how infrastructure development can serve as a foundation for national integration and long-term stability, making BRO an indispensable element of India's nation-building process.

Organisational Structure

The Director General Border Roads (DGBR) is the apex authority of the BRO and provides overall leadership to its strategic, administrative, and operational functions. Directly reporting to the DGBR are the Integrated Financial Advisor (IFA), who oversees financial matters, and the Principal Controller of Defence Accounts (PCDA), who manages defence accounts. To ensure regional coordination, the DGBR is supported by Additional Director Generals (ADGs), such as ADG (North West) and ADG (East), who supervise operations in their respective zones. The ADG (HQ) manages headquarters administration through specialised directorates, including the Technical Administration Directorate (TA Dte), East and West Directorates, and a Contract section. In addition, several functional directorates work directly under the DGBR, such as the Technical Planning Directorate (TP Dte) for infrastructure planning, the Personnel Directorate (Pers Dte) for human resources, and the Development and Vigilance Directorate (D &V Dte) for project development and transparency. The Medical Directorate (Med Dte) ensures healthcare support, while the Budget and Training Directorate (B&T Dte) manages financial planning and training needs. A dedicated Legal Cell provides legal guidance whenever required. Together, this framework ensures that BRO operates as a well-coordinated and efficient organisation capable of meeting the infrastructural and strategic requirements of India's border regions.ⁱⁱⁱ

BRO Capital Allocation (FY 2020–21 to 2025–26)

Source: Author analysis of PIB (2025), India Today (2022, 2025), Swarajya (2023), PRS Legislative Research (2025)^{iv}

To expedite the progress of creation of border infrastructure, including important tunnels and bridges on major river gaps, BRO needs funds for managing the expenditure and completing the project on time. BRO capital allocation has been increasing year by year. In the financial year 2021-22, the bro fund was 2500 crores, and it got increased by 40% to 3500 crores for the next financial year, 2022-23. And increased by 43% to 5000 crores in the financial year 2023-24. Rs 7,146.50 crores has been allotted to BRO in 2025-26, 9.74% hiked from the last 6500 crores in 2024-25.

Mile- stone project of BRO

The BRO was established in the 1960s with the aim of providing road connectivity and infrastructure in the border areas. Over time, the BRO has grown beyond this role as a strategic force, providing assistance in military operations and contributing to the development of remote areas. With the tireless efforts and commitment of its personnel, the organisation has completed some of India's most difficult geographical challenges, never deemed impossible projects. These historic achievements have not only improved contacts within the country but also strengthened India's relations with neighbouring countries.

Projects-



1. **Project Beacon (1960)**, it was a project built by BRO in Jammu and Kashmir at the time of its establishment. It facilitated the development and connectivity of the Srinagar- Leh highway, which was also considered the lifeline of Ladakh and played an important role in military movement during the wars of 1962, 1965 and 1971. This was a very difficult task at that time; BRO accomplished it at the very beginning of its establishment (Ministry of Defence, 2023).^v
2. **Project Vartak (Tusker) (1960)**, the BRO was established with its first project under Brig. O.M. Mani. Project NEFA (later Tusker, now Vartak) was tasked with constructing the Bhalukpong–Tenga axis and maintaining the Missamari–Foothills–Chaku–Tenga road. By the 1962 Sino-Indian War, a jeepable road up to Tawang was ready. Project Vartak not only developed road networks but also laid telephone lines in the 4 Corps’ area in 1963, significantly strengthening connectivity in the Northeast.^{vi}
3. **Atal Tunnel (2020)**, inaugurated by Prime Minister Narendra Modi on 03 October 2020, is a 9.02 km-long highway tunnel under the Rohtang Pass, officially certified by the World Book of Records in 2022 as the world’s longest highway tunnel above 10,000 feet. Constructed by BRO under extreme conditions of -25°C to 45°C temperature variations, fragile geology, and heavy snowfall, it provides all-weather connectivity on the Manali–Leh axis. The tunnel reduces the Manali-Sarchu distance by 46 km and travel time by 4–5 hours, offering a strategic advantage to the Armed Forces while boosting socio-economic growth and tourism in Lahaul–Spiti.^{vii}
4. **Dhola–Sadiya Bridge (2017)**, (Also known as **Bhupen Hazarika Bridge**). The 9.15 km Dhola-Sadiya Bridge over the Lohit River connects Assam with Arunachal Pradesh, providing the first permanent road and link between northern Assam and eastern Arunachal. It is India’s second-longest bridge over water.^{viii}
5. **Sela Tunnel (ongoing)**, inaugurated by PM Modi on 9 March 2024, ensures all-weather connectivity between Assam and Tawang in Arunachal Pradesh. Built by BRO at 13,000 feet, it is the world’s longest bi-lane tunnel at such an altitude. The project includes two tunnels and a link road, reducing the Dirang-Tawang distance by 10 km. It not only strengthens troop movement and logistics on the Sino-India border but also provides year-round access for local people in this remote Himalayan region.^{ix}
6. **Zoji La Tunnel (under construction)**, on the Srinagar-Leh Highway, will be Asia’s longest road tunnel at 14.2 km. Built at 12,000 feet, it will provide year-round connectivity between Kashmir and



Ladakh, cutting travel time from over an hour to just 15 minutes. The tunnel will boost tourism, improve local livelihoods, and give the Indian Armed Forces a major strategic advantage in this sensitive border region.^x

7. **Um Ling La Road (2021)**, situated in the Changthang region of Ladakh near Demchok village, is the world's highest motorable pass at 19,024 feet. It connects the ridgelines of the Koyul Lungpa valley and the Indus River. The pass is also the source of the Umling stream that drains into the Indus and is a tributary flowing into the Koyul Lungpa. Building a road at such an altitude stands as a remarkable achievement of the BRO, providing both strategic connectivity and engineering excellence.^{xi}
8. **DSDBO Road (2019)**, The 255-km Darbuk-Shyok Daulat Beg Oldie (DSDBO) road, connecting Leh to India's northernmost military post, became a key flashpoint in the recent Indo-China standoff. Despite Chinese objections, India pursued its completion after nearly two decades. Daulat Beg Oldie, with the world's highest airstrip revived in 2008–09, enhances India's strategic reach and military logistics in Sub-Sector North.^{xii}
9. **BRO works in Bhutan.** The BRO has enhanced connectivity in Bhutan by completing two double-lane steel modular bridges, Tshaphel and Kana, on the Chuzom-Haa road, inaugurated in October 2023 by Bhutan's Infrastructure Minister, Lyonpo Dorji Tshering. Remarkably, both bridges were built in just three months. In addition, a 24-meter RCC double-lane bridge was inaugurated on the Daranga-Trashigong road, further boosting regional infrastructure.^{xiii}

Empowering Women in BRO

The BRO was established for the development of the country's strategic infrastructure and border areas. In other words, a structure was created to support the country's security, like a backbone. Due to difficult geographical conditions, challenging terrains such as mountains, and extreme climates, this organisation remained a male-dominated one. But at present, historical changes have been witnessed in this organisation, as women have been given opportunities to showcase their talent in projects across various complex geographical areas. This is proof that, along with strengthening the country's security structure, an organisation like the BRO has also provided opportunities for women to empower themselves and mark their presence. Earlier, women were limited only to administrative roles, but after the agenda of women empowerment in 2021, they have been given the chance to work in complex terrains and adverse conditions, which proves that women can also serve as a security shield for the country in all



circumstances. This initiative further promotes gender equality and women empowerment, which is a matter of great pride for us.^{xiv}

Women Officers in Border Road Organisation ^{xv}

NAME	POSITION /ROLE	PROJECT/ LOCATION	YEAR	NOTABLE ACHIEVEMENT
Vaishali S.Hiwase	Officer Commanding (OC), Road Construction Company (RCC)	Munshiyari-Milam Glacier Corridor, Uttarakhand	28 April 2021	First Women officer command an RCC in the BRO
Ms.Obing Takiis	Officer Commanding (OC)RCC	Siang Valley, Arunachal Pradesh	26 July 2021	First Woman OC from Arunachal; worked in inhospitable terrain
Major Aaina Rana	Officer Commanding (OC), All-Women RCC	Pipalkoti (Chamoli), Uttarakhand → Road to Mana Pass 30 August 2021	30 Aug 2021	Led India's first all-women RCC, constructed road up to Mana Pass (18,478 ft)
Col. Navneet Duggal	Commanding Officer, Field Workshop	Kashmir Valley	2022	First woman EME officer to command a BRO field workshop
Lt. Col. Snigdha Sharma	Head, Legal Cell, BRO	New Delhi	2022	First woman to head BRO's Legal Cell, managing 700+ court cases
Col. Archana Sood	Task Force Commander	Dibang Valley, Arunachal Pradesh	Feb 2023	First woman to command a BRO Task Force
Col. Ponung Doming	Task Force Commander	Hanle sector, Ladakh (Chumar area)	2023	Led task force constructing the world's highest motorable road (~19,400 ft)

BRO's Role in India's Act East Policy



The BRO plays a vital role in supporting India's Act East policy by developing strategic infrastructure in the eastern and northeastern border areas. Its projects, such as the Imphal-Moreh road in Manipur, enhance connectivity with Southeast Asian countries, facilitate trade and strengthen regional cooperation. The BRO's work not only improves cross-border logistics but also enhances mutual trust and contributes to India's soft power by providing timely humanitarian assistance and disaster relief. In the future, these infrastructure developments will continue to enhance regional stability, strategic readiness and India's diplomatic influence in the region.

Importance of BRO

The BRO is extremely important for India in many ways. Strategically, it ensures quick movement of troops, weapons and logistics in the border areas, making it a stronghold for national security. Economically, the BRO connects remote areas to the rest of the country and promotes trade, tourism and development in the border states. It also plays a humanitarian role by repairing roads and providing relief during disasters such as floods, landslides and earthquakes. In the field of infrastructure, the BRO has built vital roads, bridges, tunnels and airstrips in some of the most inaccessible terrains, with projects such as the Atal Tunnel and the DSDBO Road marking its achievements. The organisation also generates employment for the local people, thereby contributing to nation-building and supporting the economy of the border communities. Most importantly, the BRO helps in nation-building by connecting remote villages to the rest of India and acts as an "invisible pillar" that strengthens the movement and capability of the armed forces. This shows that the importance of BRO is wide-ranging, covering security, development and national integration.

Humanitarian Role of BROs-

The BRO is mostly deployed in regions where the Geographical conditions are extremely difficult and the climate is highly unpredictable. Naturally, such areas are more prone to natural disasters. The BRO has, from time to time, made extraordinary contributions during natural calamities in India's border regions and has demonstrated its humanitarian role. Disasters such as cloudbursts, floods, earthquakes, and landslides frequently occur in these areas, disrupting road connectivity. In such situations, the BRO is the first to take an active part in relief operations. It ensures the movement of relief materials, medical teams, and rescue forces, while also extending direct assistance to the affected local population. One of its most crucial tasks is the prompt restoration of roads and bridges, so that essential supplies to the soldiers deployed at the border are not interrupted and disaster-affected people face minimal



inconvenience. In this way, from minor to major calamities, the BRO acts like “first aid,” delivering immediate relief and support.

YEAR	DISASTER	ROLE of BRO
2010	Leh Cloudburst (Ladakh) ^{xvi}	Restored road connectivity under extreme conditions
2013	Kedarnath Flash Floods (Uttarakhand) ^{xvii}	Rebuilt damaged bridges, reopened blocked roads for rescue operations
2021	Chamoli Glacier Burst & Flash Flood (Uttarakhand) ^{xviii}	Constructed temporary bridges, cleared routes for rescue and relief teams
2021	Himachal Pradesh Landslides ^{xix}	BRO is carrying out rescue & relief operations in HP
2023	Sikkim Flash Floods ^{xx}	Restored connectivity and enabled the supply of relief material
2024	Jammu & Kashmir Heavy Snowfall (J&K) ^{xxi}	BRO rescues 20 vehicles stuck in snow in Jammu & Kashmir
5 Aug 2025	Dharali Cloudburst & Flash Flood (Uttarkashi, Uttarakhand) ^{xxii}	The Gangotri Highway was restored, temporary bridges were constructed, and debris was cleared to facilitate smooth relief and rescue operations.

Challenges-

Geographical & Environmental- The BRO's work is defined by a continuous contest against nature. The environment in which BRO operates is unpredictable accordingly; the extreme cold and monsoon give a limited constructed window. The Himalayas being young fold mountain range that forms most of the Indian border. These ranges are unstable and can not support heavy infrastructure, making them prone to natural disasters.

Human resources: Manpower is the crucial element of BRO's operations, particularly when working in high altitude and low temperature conditions. Currently, BRO is working in a significant manpower deficit. Extremely difficult geography and working conditions, life-threatening jobs and prolonged



separation from family make these jobs unattractive. Modern, large infrastructure projects, especially in difficult geography, need skilled manpower. The lack of adequate manpower leads to delays in project compilation.

Administrative and Bureaucratic: administrative and bureaucratic hurdles, from governance, regulation, and inter-agency collaboration, can be challenging, often proving as formidable as the mountains themselves. Procedural delays and systemic inefficiencies significantly hinder project completion and result in the loss of valuable time.

Climate-Resilient Infrastructure: The growing impact of climate change in the hilly region is visible to everyone. The roads, bridges and tunnels, which are vital for border connectivity, are being affected. The modern technologies, skilled labourers and proper data of the geography are needed for the mitigation of climate change impact on the infrastructure projects.

Conclusion

The BRO serves as an invisible but strong pillar of India's border security and national strategic framework. In the past, it has provided lifelines to remote border areas despite challenging terrain, natural disasters, and wartime hardships. Today, the BRO is contributing not only to infrastructure but also to national defence, socio-economic inclusion, local employment generation, disaster management, and active participation of women, thereby giving a new direction to nation-building.

In future, with changing geopolitical scenarios, emerging security challenges, and climate-induced disasters, the role of the BRO will become even more important. Through modern technological solutions, eco-friendly construction, community participation, and adequate budgetary support, the BRO will strengthen India's borders while also projecting India's soft power globally. Its strategic infrastructure projects in neighbouring countries, such as Bhutan, Myanmar, and Afghanistan, will continue to enhance regional connectivity, humanitarian assistance, and mutual trust, directly supporting India's Neighbourhood First policy.

Thus, the BRO is not just a road builder; it is the backbone of Indian border security, a path to strategic self-reliance, a vehicle for socio-economic progress and women's empowerment, and a crucial instrument in strengthening India's international relations and soft power. Its strong and modern role in the future will ensure that India's borders remain secure and contribute to the establishment of a strong, globally recognised "New India".

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