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Brazilian Border Defense Strategies: Focus on the Triple Frontier – Bolivia–Peru and the Fight Against Transnational Crime

Strategies for the Defense of Brazilian Borders: Focus on the Tri-border Area Brazil–Bolivia–Peru and the Fight Against Transnational Crimes

Author: George Eduardo de Sousa Lopes

Graduated in Applied Sciences, Military Sciences - Agulhas Negras Military Academy.

Resende – RJ

Summary

Defending Brazil's borders represents a strategic challenge in tri-regions.
The border region, such as the one involving Brazil, Bolivia, and Peru, is marked by territorial vulnerability and the presence of transnational criminal organizations. This study aims to investigate the strategies adopted by the Brazilian State to improve border control, focusing on integrated operations, the use of monitoring technologies, and international cooperation. The research addresses academic studies and official data, reporting advances and gaps in public policies for containing illicit activities such as drug trafficking, arms trafficking, and environmental crimes. Real-life cases of military operations, data from the Defense Observatory, and information from international organizations are presented, contextualizing the impact of these actions on national security. Finally, the following are addressed...

The need for policies that link defense, regional development, and strategic intelligence.

Keywords

Border defense; Tri-border area; Transnational crimes; National security;
International cooperation

Abstract

The defense of Brazilian borders represents a strategic challenge, especially in tri-border areas such as the Brazil–Bolivia–Peru region, marked by territorial vulnerability and the presence of transnational criminal organizations. This article examines strategies employed by the Brazilian state to strengthen border control, enhancing joint operations, the use of monitoring technologies and international cooperation. The research dialogues with academic studies and official data, highlighting advances and gaps in public policies addressing crimes such as drug and arms trafficking and environmental crimes. Concrete cases of military operations, data

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from the Defense Observatory and information from international organizations are presented, contextualizing the impact of these actions on national security. Finally, the need for integrated policies articulating defense, regional development and strategic intelligence is discussed.

Keywords

Border defense; Tri-border area; Transnational crimes; National security; International cooperation

1. Introduction

Brazil's territorial extension, which totals approximately 16,886 km²
Land borders represent a historical challenge for the formulation of public defense and security policies (Brito, 2019, Brasília). The tri-border area of Brazil–Bolivia–Peru is unique due to its geographical complexity and the activities of criminal organizations involved in drug trafficking, arms smuggling, and environmental crimes (Carvalho & Santos, 2020, Rio de Janeiro).

According to the UNODC Transnational Crime Report (2019, Vienna), 60% of the cocaine circulating in Brazilian territory originates in the Andean region, confirming the strategic importance of this area. The topic is generating increasing academic interest and...
According to Lima (2020, São Paulo), border defense policies need to articulate military capacity, international cooperation, and integrated intelligence to be effective. However, gaps persist regarding data integration, interagency coordination, and investments in surveillance technology (Almeida et al., 2018, Brasília).

Analysis of data from the Ministry of Defense (2019) reveals that, even with periodic military operations, the volume of seizures and arrests still does not match the magnitude of the illicit flow.

This scientific study seeks to understand how integrated strategies contribute to the protection of the tri-border area. Furthermore, it examines the effective results obtained in recent years. To this end, official reports, academic publications, and data from multilateral organizations were used. In addition, it is necessary to discuss border defense as a military issue and as part of a broader public policy that involves social development, inclusion, and international cooperation (Mendes & Rocha, 2017, Belo Horizonte).

It is important to consider that border defense is linked to the concept of national security, which is enshrined in the 1988 Federal Constitution and regulated by policies such as the National Defense Strategy (END, 2016). According to Castañeda (2019, Bogotá), experiences from other Latin American countries indicate that exclusively repressive policies have limited effectiveness and confirm the importance of preventive and social measures.

The tri-border area of Brazil, Bolivia, and Peru is a living laboratory for evaluating these policies. Analysis of operations such as Ágata and Controle, coordinated between the Army, Navy, and Air Force. Air Force, Federal Police, and Federal Revenue Service clarify the current scenario. This article aims to offer technical support for reflection on advances, limitations, and future perspectives. Finally, the topic is of great scientific relevance, since Brazil shares borders with ten countries and concentrates a significant portion of the world's biodiversity.

Strengthening surveillance and response capabilities at land borders is...

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fundamental to curbing environmental crimes, human trafficking and financing transnational criminal organizations (Fernandes, 2021, Porto Alegre).

2. Geopolitical overview of the tri-border area between Brazil, Bolivia, and Peru

The Amazon region, encompassing Brazil, Bolivia, and Peru, occupies a strategic position in international drug trafficking due to its proximity to coca-producing areas and the presence of river routes that are difficult to monitor (Silva & Gomes, 2019, Manaus). According to UNODC data (2019), approximately 30% of the cocaine produced in Peru transits through this region before being distributed to other markets, including Europe and North America.

Studies by Santos and Carvalho (2018, Brasília) indicate that the geography of the region – Characterized by dense forests and low population density – a constant state presence is difficult. This absence favors the actions of national and international criminal factions, such as the PCC and Comando Vermelho (Moraes, 2020, São Paulo). This dynamic highlights the
The importance of coordinated policies among the three countries.

From an economic standpoint, the tri-border area is a region of intense merchandise traffic, often serving as a cover for arms and drug smuggling (Oliveira et al., 2019, Brasília). Data from the Federal Revenue Service (2019) estimates that approximately R$ 6 billion per year circulate illegally in this region alone. The lack of infrastructure, such as roads and modern customs facilities, worsens the situation.

With regard to defense, Brazil focuses its efforts through military units such as the 4th Jungle Infantry Battalion and specific operations (Operation Ágata, for example) (Ministry of Defense, 2019).

Although there has been progress, Almeida and Pinto (2020, Rio de Janeiro) highlight the difficulty of continuous monitoring, exacerbated by budgetary constraints and technological limitations.

From an international perspective, bilateral and multilateral agreements have sought to improve cooperation. The **Brazil–Bolivia–Peru Memorandum of Understanding (2018)** aims to expand the exchange of information and joint operations. However, studies such as that of Rodrigues (2019, Brasília) reveal that the results are still limited by the fragmentation of databases and legislative differences between the countries.

Thus, the geopolitical landscape of the tri-border area reveals a highly vulnerable region, a place where transnational crime takes advantage of the absence of the State and of...
institutional weaknesses. This scenario reinforces the urgency of military strategies that articulate military defense, international cooperation, and public development policies (Lima & Costa, 2019, São Paulo).

3. The strategic role of the Brazilian Army in controlling the tri-border area.

The Brazilian Army's role in defending the tri-border area between Brazil, Bolivia, and Peru is a central axis of the Brazilian State's security and defense policies, adhering to guidelines established by the National Defense Strategy (END, 2016) and the National Defense Policy (PND, 2016).

According to Almeida e Silva (2018, Brasília), the Army has constitutional competence to

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guaranteeing national sovereignty and territorial integrity, which includes the permanent surveillance of border regions. Therefore, specialized units, such as the 4th
The Jungle Infantry Battalion (4th BIS), based in Rio Branco (AC), and the integrated operation of jungle troops trained to operate in low population density and hostile geography.

Studies such as that of Martins and Pereira (2019, Rio de Janeiro) highlight that Army operations are more than just visible patrolling. They encompass military intelligence activities, logistical support to other state agencies, and direct cooperation with the Armed Forces of neighboring countries. Operations such as Ágata, Curaretinga, and Atlas confirm the capacity for rapid mobilization and the interagency nature of military actions, which combine efforts with the Federal Police, Federal Revenue Service, and IBAMA (Brazilian Institute of Environment and Renewable Natural Resources) to combat trafficking, smuggling, and environmental crimes.
Data from the Ministry of Defense (2019) indicates that in Operation Ágata and Curaretinga alone, more than 50 tons of drugs were seized and dozens of clandestine airstrips were destroyed in the Amazon region.

Brazilian military doctrine recognizes the tri-border area as a critical zone due to the confluence of transnational crimes, the absence of the State in remote areas, and the fragility of its surveillance infrastructure (Brazilian Army, 2020). This perception highlights...
Investments in fixed bases and special border patrol units (PEF), in addition to the acquisition of surveillance technologies such as optical sensors, radars, and encrypted communication systems. Studies by Almeida and Pinto (2020, Brasília) highlight that the digitization of internal processes and the use of geospatial intelligence have increased the efficiency of monitoring.

The Army's participation in joint operations also promotes strategic gains in military diplomacy and regional cooperation. The Brazil–Bolivia–Peru Memorandum of Understanding (2018) expanded the possibility of coordinated operations in border areas, allowing for the exchange of intelligence information and joint training. According to research by Ribeiro (2019, Porto Alegre), these mechanisms contribute to deterring transnational criminal organizations, which substantially hinders illicit activities.

The region's economic importance also underscores the Army's role in preserving national sovereignty. Data from the Institute for Applied Economic Research (IPEA, 2018) indicate that the Amazon region represents approximately 8% of Brazil's GDP, in activities such as mining, energy, and the export of agricultural products. The permanent military presence acts as a stabilizing factor to attract investments and protect strategic production chains.

Finally, the investment in strengthening the Army's presence in the tri-border region is directly related to the concept of "Preventive National Defense," which aims to...
Anticipating threats before they materialize (Brazilian Army, 2020). This approach
It combines intelligence, territorial presence, and civic-social actions that bring populations closer together.
The location of state institutions strengthens national cohesion and makes it more difficult for criminal groups to recruit communities.

4. Border military operations: cases and results

The military operations conducted by the Brazilian Army in the tri-border region have as their main objective the dismantling of criminal networks and the reduction of the circulation of illicit goods.

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Among the most relevant, **Operation Ágata** stands out , initiated in 2011 as part of the Strategic Border Plan, which has already involved more than 20,000 military personnel throughout the national territory (Ministry of Defense, 2019). In the tri-border area of Brazil–Bolivia–Peru, Ágata focused its efforts on blocking river routes, inspecting clandestine airstrips, and destroying illegal camps.

Data compiled by the Defense Observatory (2020) reveals that, in just one edition of Operation Ágata, approximately 8.5 tons of drugs, more than 50 firearms, and 10,000 rounds of ammunition were seized, in addition to the destruction of 40 clandestine airstrips used by drug traffickers. These results confirm the effectiveness of integrated actions involving the Army, Navy, Air Force, Federal Police, and environmental agencies. Researchers such as Costa and Lima (2018, Brasília) confirm that interagency cooperation is essential to overcome the...

limitations in human and material resources, maximizing the reach of operations.

In addition to Operation Ágata, the Army has been involved in **Operation Curaretinga,** an initiative launched in 2020 to combat illegal deforestation and other environmental crimes in the Legal Amazon.
Unlike one-off operations, Operation Curaretinga is continuous and preventative, employing troops in river patrols, monitoring illegal mining operations, and suppressing environmental crimes along the border. The operation also integrates remote sensing data and intelligence information produced by agencies such as CENSIPAM and IBAMA, which optimizes resource allocation and troop mobilization in critical areas. This permanent response capacity is seen as essential to curb environmental degradation and reinforce the State's presence in remote regions of the Amazon (MINISTRY OF DEFENSE, 2023).

Another important aspect is the increasing use of military monitoring technologies, such as ground-based radar, satellite imaging systems, and unmanned aerial vehicles (drones).
According to a report by the Ministry of Defense (2020), these resources have expanded territorial coverage, reducing the exclusive dependence on land patrols. Research by Pinto and Moraes (2020, Brasília) reports that the combination of human intelligence and advanced technologies increases the capacity to respond to critical events.

However, experts such as Rodrigues (2019, São Paulo) warn of the challenges that
Problems persist, such as the lack of permanent personnel in border units and the need to renew equipment. Budgetary constraints are also cited as a limiting factor for the continuity of large-scale operations, as shown in data from the National Treasury (2019), which reported a reduction of approximately 18% in defense investments between 2015 and 2019.

The positive impact of the operations on the perception of safety among local populations is substantial. Qualitative studies conducted by Fernandes and Almeida (2020, Porto Velho)
Studies confirm that the presence of the Armed Forces contributes to reducing land conflicts, improving environmental oversight, and strengthening state authority in historically neglected areas. These indirect effects reinforce the multifaceted nature of the Army's operations in the tri-border region.

5. Technologies applied by the Brazilian Army in border surveillance

The use of advanced technologies is a central element in the Brazilian Army's strategy to face the challenges posed by the geography of the Brazil-Bolivia-Peru tri-border area.
According to a technical report from the Army's Center for Communication and Electronic Warfare (2019, Brasília), the country invested in the implementation of integrated sensing systems, such as

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Long-range radars, optical sensors, and high-resolution cameras, capable of operating even in adverse weather conditions, complement the actions of jungle troops, increasing the scope of monitoring and allowing for faster responses to illegal incursions.

In this context, the **Integrated Border Monitoring System (SISFRON),** a strategic project coordinated by the Brazilian Army since 2012, which covers critical sections of the land borders, is crucial. Studies by Almeida and Pinto (2020, Brasília) indicate that SISFRON has already allowed for an increase of more than 35% in the detection of movements. suspects in areas previously lacking permanent surveillance. The system operates through Fixed and mobile stations, combining data from ground sensors, satellite imagery, and information provided by rotary-wing aircraft and drones.

The use of remotely piloted aircraft (UAVs) represents another important technological advancement. According to research by Costa and Lima (2019, Manaus), drones have the capacity to cover large areas of dense forest, identify clandestine airstrips and illegal camps without exposing military personnel to immediate risks. This practice reduces operational costs and increases the frequency of reconnaissance missions. Data from the Amazon Military Command (2020) reveals that, in 2019 alone, more than 300 aerial reconnaissance missions were carried out with drones in the tri-border region.

In addition to aerial surveillance, encrypted communication technologies and artificial intelligence have been incorporated into operational planning. According to a study by Moraes and Silva (2020, Rio de Janeiro), these tools enable the automatic cross-referencing of data on the movement of vessels, vehicles, and people, generating real-time alerts. This modernization reduces human error and makes the mobilization of troops for targeted interceptions more agile.

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Even with the advances, researchers like Rodrigues (2019, São Paulo) report persistent challenges, such as the need for constant equipment maintenance and ongoing training of personnel to operate complex technologies. Furthermore, budgetary factors limit the expansion of SISFRON to the entire length of the Brazilian border, which totals approximately 16,800 kilometers, according to the Brazilian Institute of Geography and Statistics (IBGE, 2019).

Finally, technological modernization is not only an operational solution but also an instrument of strategic deterrence. The mere existence of integrated surveillance systems increases the perceived risk for criminal organizations, reducing attempts to transport illicit cargo (Almeida & Pinto, 2020, Brasília). Thus, the incorporation of new technologies strengthens the State's defensive capacity and increases the effectiveness of preventive actions in the tri-border area.

6. International and interagency cooperation as a multiplier force.

Combating transnational crime in the tri-border area requires joint action between different state agencies and neighboring countries. According to a study by Brito and Santos (2018, Brasília), international cooperation is recognized as an essential requirement for effective control.
Border-related issues, as criminal organizations operate in networks that extend beyond national borders.
In this respect, the Brazilian Army has strengthened institutional partnerships both domestically and internationally.

Domestically, operations like **Ágata** and **Curaretinga** bring together personnel from the Army, Navy, Air Force, Federal Police, Federal Revenue Service, IBAMA (Brazilian Institute of Environment and Renewable Natural Resources), and other enforcement agencies. According to data from the Ministry of Defense (2019), these integrated actions increased the number of seizures of drugs and illegal goods by more than 40%. The cooperation period runs from 2011 to 2023. It allows for the exchange of intelligence information, optimizes logistics, and expands the State's presence in vulnerable areas.

Externally, references include agreements such as the **Brazil-Bolivia Memorandum of Understanding. Peru (2018),** which establishes mechanisms for coordinated operation in border areas.
Research by Lima and Costa (2019, São Paulo) shows that this partnership enabled operations.
Simultaneous operations on both sides of the border reduce criminal activity into neighboring territories.
Furthermore, the exchange of information strengthens investigations into the routes and leaders of criminal organizations.

From a doctrinal standpoint, the Brazilian Army also participates in multinational exercises, such as **combined exercises,** conducted in cooperation with the armed forces of South American countries.
According to a report from the Army General Staff (2020, Brasília), these activities improve the standard of interoperability, harmonizing communication protocols and operational procedures. This reduces incident response time and expands the capacity for integrated action.

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Despite these advances, Brito and Santos (2018, Brasília) identify limitations, such as legislative differences between countries and budgetary constraints that hinder the continuity of joint operations. Furthermore, the division of databases and information systems makes it difficult to efficiently cross-reference data on individuals and criminal organizations.

Scholars such as Moraes and Pinto (2020, Rio de Janeiro) confirm that international cooperation does not replace the permanent territorial presence of the Army, but complements it, functioning as a force multiplier. By integrating defense, public security, and diplomacy efforts, Brazil amplifies its border protection capacity and strengthens its position as a regional leader in the fight against transnational crime.

7. Contemporary challenges and future perspectives for border defense

Strengthening the defense of the Brazil-Bolivia-Peru tri-border area faces contemporary challenges that demand continuous adaptations of the doctrine and operational capabilities of the Brazilian Army. According to the report "Panorama of Border Security" by the Institute for Applied Economic Research (IPEA, 2019, Brasília), the growth of cybercrimes and the use of encrypted communication technologies by criminal organizations have made the task of surveillance and repression of illicit activities more complex. This reality demands investments in digital intelligence and cooperation with specialized civilian agencies.

Another significant challenge is the need to maintain a permanent presence at the borders, considering the territorial extension of approximately 16,800 kilometers (IBGE, 2019).
Data from the Ministry of Defense (2019, Brasília) indicates that only about 30% of this total has fixed patrols or military bases. Researchers such as Almeida and Pinto (2020, Brasília) point out that the combination of trained personnel, monitoring technologies, and civic-social actions is the most viable solution to expand coverage.

Modernizing military and communication equipment is also a strategic priority. According to a study by Moraes e Silva (2020, Rio de Janeiro), much of the material used in land patrols still requires periodic renewal, which does not always occur at the necessary pace due to budgetary constraints. This situation compromises the ability to respond quickly, especially in cases requiring air or river transport.

From an institutional standpoint, the Brazilian Army needs to reconcile maintaining its historical doctrine of defending national sovereignty with adopting new practices focused on public security and international cooperation. According to Fernandes (2021, Porto Alegre), this transition requires continuous training of military personnel and updating of operational manuals, specifically to deal with transnational crimes involving...
sophisticated routes and decentralized organizations.

From an international perspective, political instability in neighboring countries can directly impact security in the tri-border area. Research by Lima and Costa (2019, São Paulo) indicates that migration crises intensify the flow of people and goods, increasing the risk of infiltration by members of criminal organizations. This scenario reinforces the importance of...

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Military diplomacy and multilateral agreements that expand the exchange of information and the execution of joint operations.

Experts such as Brito and Santos (2018, Brasília) confirm the need for increased
Integration between defense and regional development policies. Investments in infrastructure, health, education, and job creation are considered complementary to the military presence, as they reduce the social vulnerability that often fuels criminal networks. This holistic vision is increasingly recognized in modern security strategies, positioning the Brazilian Army as a key player not only in territorial defense but also in promoting sustainable development.

Conclusion

This analysis of the Brazilian Army's scientific study on the defense of the triple border between Brazil and the United States is presented.
Bolivia–Peru reports significant progress in recent decades, resulting from a combination of factors.
Military operations, investments in monitoring technologies, and increased international cooperation. Studies such as those by Almeida and Pinto (2020, Brasília) show that operations like Ágata and Curaretinga have a concrete impact on reducing transnational crime by disrupting trafficking routes and seizing large quantities of drugs, weapons, and illicit goods.

The leading role of the Brazilian Army is underpinned by its doctrine of protecting national sovereignty, enshrined in the 1988 Federal Constitution and updated in strategic documents such as the National Defense Policy (PND, 2016) and the National Defense Strategy (END, 2016). Its territorial presence, especially through specialized units such as the Jungle Infantry Battalions, demonstrates the land force's commitment to guaranteeing Brazil's territorial integrity in historically vulnerable regions.

However, challenges persist, such as the need for constant renewal of personnel and equipment, budget constraints, and difficulties in integrating information systems. Researchers such as Moraes and Silva (2020, Rio de Janeiro) argue that technological modernization must be accompanied by policies of continuous training for military personnel and greater interagency integration, enhancing the effectiveness of operations without compromising financial sustainability.

The tri-border area of Brazil, Bolivia, and Peru is a complex space, marked by geographical, social, and economic factors that encourage the activities of transnational criminal organizations. Therefore, international cooperation becomes essential, as it allows for actions...
coordinates that hinder the escape of criminals to neighboring territories and strengthen the
Brazilian military diplomacy. National experience reinforces that the isolated use of military force is not enough: it is necessary to involve public policies for regional development and social inclusion.

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It is observed that the Brazilian Army's actions contribute decisively to more than just immediate security, acting as a state agent that promotes institutional stability.
It protects strategic natural resources and projects Brazil's image as a regional leader in
Combating transnational crime. This position broadens the understanding of border defense as a matter of interest not only militarily, but also socially, economically, and diplomatically.

Thus, the defense of the tri-border area requires continued investment in advanced technologies, maintenance of trained personnel, strengthening of territorial presence, and deepening of international partnerships. The consolidation of these strategies is essential to guarantee national security and affirm Brazil's role as a benchmark in integrated border management in South America, as argued by Almeida and Pinto (2020, Brasília) and Fernandes (2021, Porto Alegre).

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