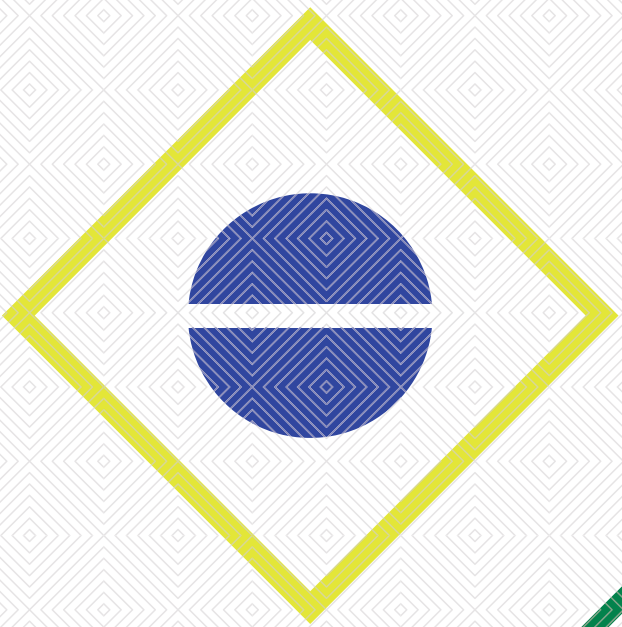
BRAZIL **2024**

NATIONAL DEFENSE

WHITE PAPER



NATIONAL DEFENSE

WHITE PAPER

Minister of Defense
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Photo: Ministry of Defense

MESSAGE FROM THE PRESIDENT OF THE REPUBLIC

Brazil's international agenda is based on cooperation for peace and security, with the conviction that human progress is founded on the harmonious relationship between peoples.

We uphold and employ diplomatic and political means for the resolution of conflicts between States. We consider coercive measures to be last-resort and undesirable options.

Despite the constant pursuit of consolidated peace, Brazil must remain vigilant against potential threats to our national interests, our robust sovereignty, and the development and well-being of the Brazilian people.

The Brazilian State must possess the total conditions to deter any type of external aggression. Such a scenario requires permanent capacity and determination for adequate and proportional prompt response, consistent with the country's political-strategic stature in the international system.

Due to the fundamental role of National Defense, and supported by the Constitution, the Federal Government has sought to enhance the Armed Forces' effectiveness in accomplishing their constitutional mission.

Our government works to boost the operational capabilities of the Navy, Army, and Air Force, so they remain permanently ready, prepared for deployment.

Concurrently, we spare no effort to ensure that the Armed Forces contribute toward national development and the well-being of our population, through various initiatives, programs, and projects.

With the Defense White Paper, the Brazilian Government releases information on measures adopted to implement the National Defense Strategy (END). Therefore, it constitutes an efficient channel for communication and transparency, which are essential values for a democratic State that is accountable to society for its actions.

The White Paper is also an effective instrument for diplomacy, as it presents our military power to friendly nations, especially those in Brazil's strategic environment. Therefore, it contributes toward strong cooperation and mutual trust, based on the maintenance and consolidation of international peace.

I am proud to present this 2024 Defense White Paper. It will provide the Brazilian people and the world with information on the country's current endeavors to defend its national sovereignty, interests, and heritage.

With full awareness that the main mission of any government is to ensure the security of its people and the Nation.

Thank you very much,

Luiz Inácio Lula da Silva
President of Brazil



MESSAGE FROM THE MINISTER OF DEFENSE

Dear Brazilian citizens,

It is with great honor and satisfaction that I present the 2024 National Defense White Paper (LBDN, from the Portuguese *Livro Branco de Defesa Nacional*). This document is an essential milestone for the transparency and communication of our country's defense policies, reflecting our commitment to national and international security.

The Defense White Paper is much more than a technical report; it is a strategic communication instrument that presents our initiatives and decisions in the field of defense. Every four years, as determined by Complementary Law No. 97/99, we review and update this document to inform that our defense policies are aligned with changes in the global geopolitical, technological, and economic landscape. This continuous update enables us to keep society informed about the operation of the Defense.

This document details Brazil's defense policies, strategies, and capabilities, providing a clear overview of the threats and challenges we face and the responses planned for overcoming them. By presenting priorities and needs, the LBDN promotes transparency in the implementation of our plan and in the efficient allocation of resources, justifying defense budgets, supporting decision-making on investment in technology, training, and infrastructure.

The 2024 LBDN is a powerful tool for communication with Brazilian society. It presents the initiatives and projects developed and conducted by the Defense Sector in order to implement the National Defense Strategy (END) and to boost the National Defense capabilities of the Brazilian State. This document shows the level of military preparedness and capabilities of our Armed Forces, underscoring our commitment to effectively accomplish our constitutional purpose.

Defense White Papers are produced after extensive consultations within and outside the Government. They reflect a broad consensus on the role our defense forces should play in the country, considering national priorities and available resources.

In addition to promoting transparency and accountability, the LBDN builds domestic and foreign trust. In the domestic context, it reinforces public support for our defense initiatives. In the foreign context, it facilitates international cooperation by enabling other countries to learn about our strategic projects and capabilities, thereby contributing to international peace and security.

The LBDN also plays a crucial role in promoting debates within society, especially in academia. It disseminates knowledge about Defense and consolidates our national sovereignty, while increasing Brazil's participation in the contemporary international system.

In presenting the 2024 Defense White Paper, I hope that it will serve as an effective tool for debate and knowledge, promoting strategic communication with Brazilian society. This document demonstrates our commitment to defending Brazil and building a safe and prosperous future for all Brazilians.

Thank you very much,

José Mucio Monteiro Filho
Minister of Defense



NATIONAL DEFENSE
WHITE PAPER

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EXECUTIVE SUMMARY

The Defense White Paper (LBDN) is the most comprehensive document about defense activities in Brazil. It is aimed at informing Brazilian society and the international community on the policies and initiatives that support the protection of our sovereignty, national heritage, and, especially, the Brazilian population, in the context of National Defense.

In addition to providing transparency as to the actions of the Ministry of Defense and the Armed Forces, reporting on the adequacy of the Defense structure available in the Country, it constitutes an instrument to foster debate on this issue within the scope of the National Congress, Academia, and society in general.

In the external context, it aims to share the motivations and purposes of the military instrument with the international community, thereby establishing a mechanism of mutual trust between Brazil and friendly nations, especially those in the regional environment.

Chapter 1 contextualizes the international environment, presenting international organizations constituted by countries that converge on common goals, consolidating multilateralism. These organizations play a fundamental role in international relations, as they seek cooperation among their members, mainly to resolve conflicts of interest. They operate in various areas, such as: the economy, politics, culture, and military. The most representative organizations are those that assemble the largest number of countries or, moreover, that possess major economic and even military power. The consolidation of multipolarity favors the operation of these institutions. Examples of international organizations include the United Nations (UN), the Organisation for Economic Co-operation and Development (OECD), and the World Trade Organization (WTO). Special consideration should be given to the UN, as it constitutes the main institution for global governance. The UN — which is founded on sustainable development, human rights, and peace and security — has as its main purposes: to maintain international peace and security, to develop friendly relations among nations, to foster international cooperation to resolve conflicts, and to be a hub for harmonizing the nations' initiatives toward common goals.

Chapter 1 also addresses Brazil's strategic environment, the South Atlantic, International Regimes and Treaties with Implications for Defense, the Sea, Poles and Outer Space, the Environment and Climate Change, Cybersecurity and Cyberdefense, and Brazil in the world.

Chapter 2 presents the Brazilian National Power, noting the main aspects related to National Defense and the country's effective defense capabilities, consequently enhancing its resilience as a result of national development.

Brazil's Foreign Policy — based on the country's international integration, development, environment, and human rights — is mainly aimed at consolidating Brazil's position in the International System, prioritizing the strategic environment, consistently with the national values and interests and aligned with the Federal Constitution. The Country's diplomatic agenda is guided by an integrated view of the three pillars of sustainable development — the economic, social, and environmental aspects —, with special consideration of the protection of biodiversity, the defense of indigenous rights, the preservation of the Amazon and other biomes, and the creation of employment and income for millions of Brazilians.

Brazil's economy is driven by an important industrial base, a vigorous service sector, rich natural resources, and a renewable energy matrix, which provides the country with the necessary energy security and situates it as the largest economy in Latin America and one of the largest economies in the world. The domestic production, distribution, and consumption of goods and services encompass measures to make resources available to meet all kinds of needs of Brazilian society. In the international sphere, it works towards integrating the national economy into the International System and consolidating Brazil's role as an exporting power.

In the social field, an important aspect is the manifestation, of a predominantly psychological and social nature, of the set of the population and of the means available to the Nation, capable of favoring the full realization of the citizen and their ability to contribute to the improvement of society, aiming to achieve and maintain the National Objectives. It encompasses people, ideals, institutions, norms, structures, groups, communities, resources, and organizations, integrated into a vast complex, oriented towards achieving fundamental social goals that can meet the needs, interests, and aspirations of society.

In the field of Science, Technology, and Innovation (ST&I), the formation of the country's main institutions is associated with international collaboration. The framework that guides Science, Technology, and Innovation activities in the country is the National Strategy for Science, Technology, and Innovation (ENCTI). Based on the ENCTI guidelines, the aim is to complement national capabilities through international cooperation activities and projects.

Chapter 3 addresses the Defense Sector, which consists of the Ministry of Defense (MD) and the Armed Forces — the Navy of Brazil, the Brazilian Army, and the Brazilian Air Force —, which are permanent and regular national institutions, with their own structures, whose organization is based on hierarchy and discipline, under the supreme authority of the President of the Republic. The MD is responsible for fostering cooperation with other government sectors related to National Defense.

The Armed Forces must conceive their organizational and operational frameworks based on military capabilities, consistently with the framework of the country's Defense assets and considering the characteristics of each military branch. The military defense capabilities result from the State's National Defense capabilities .

Military defense capabilities are developed jointly within the defense sector, and must be consolidated, integrated, and prioritized to enable strategic planning, structuring, and the definition of processes and responsibilities for the readiness and deployment of the Armed Forces. These capabilities are supplemented by the military capabilities of the individual services, to meet their subsidiary duties and the specificities of each one of them.

Chapter 4 addresses the transformation of Defense. Transformation relates to building new military capabilities, not just improving existing ones, which would be solely within the scope of modernization. A transformation process must develop with great amplitude and involve the Armed Forces as a whole. The effectiveness of a transformation process is also associated with the capacity for acquiring and applying cutting-edge technology in the phases of research and development of new weapon systems and platforms, optimization of the production capacity of the Defense Industrial Base (BID), and pursuit of autonomy in the ST&I area.

From another perspective, it is important to underscore that the transformation of Defense, beyond improving the capability of the Armed Forces, benefits Brazilian society, as it creates conditions for the development of dual-use technologies, enhances the training of professionals in various areas, creates jobs, and promotes interaction between Defense and other national and international strategic sectors.

Chapter 5 addresses the issue of Defense and Society. The Defense Sector has the social responsibility and the need to contribute to national development, materialized, for example, in the collaboration in the construction and maintenance of national infrastructure and in the development of social programs that support public policies for citizenship promotion aimed at improving the well-being of the needy population and reducing Brazil's social deficit. In addition, the Ministry of Defense and the individual services operate in environmental protection, cooperating with other government agencies or in some specific assignments.

The Armed Forces work, in integration with other state agencies, in the border strip region, including inland waters and the coastline within this scope, with preventive and repressive operations against cross-border crimes. These measures include airspace monitoring, surveillance, and policing and patrol and inspection operations in the Exclusive Economic Zone and on major rivers and roads providing access to the country.

Chapter 6 addresses the Building of Knowledge on National Defense. The Brazilian population, which for many years has lived free from armed conflicts, has a low threat perception, whether potential or manifest, that could oppose national sovereignty, the achievement of the nation's fundamental objectives, or the attainment of national interests. History shows that, even in the periods of the two world wars, the population and leaders at the time did not clearly perceive threats to our Country, possibly due to the apparent absence of any risk to our territorial integrity, as national borders had long been consolidated as a result of effective work by Brazilian diplomacy.

However, since the approval, in 1996, of the then-called National Defense Policy (PND) and, in 2008, of the National Defense Strategy (END), Brazilian society has become increasingly aware of its responsibility for National Defense.

Aiming to contribute to the process of building knowledge on National Defense and to collaborate so the issue is featured prominently in Brazilian society, the Defense Sector develops programs, projects, and activities oriented toward raising the awareness of important strategic sectors, particularly in academia, on the relevance of National Defense for the Country.

The PND and the END emphasize the importance of introducing National Defense-related issues into the core of Brazilian society. To this end, these strategic documents established the National Defense Objective VI (OND VI), described as "Increasing the engagement of Brazilian society in National Defense matters," which should be understood as the need to increase the participation of important sectors of Brazilian society in discussions related to the issue, providing conditions for building a solid Defense culture.

Chapter 7, titled "Defense Budget," is aimed at addressing the peculiarities of the Brazilian Defense Budget and the budgetary statements that illustrate the evolution of expenses inherent to National Defense and comparing Brazil's defense investments in relation to the international system, prioritizing the strategic environment. The presented values are expressed in real terms, that is, adjusted for inflation in the period, as measured by the Broad National Consumer Price Index (IPCA), calculated by the Brazilian Institute of Geography and Statistics (IBGE).

Regarding the investments to be made in National Defense, there must be consideration of the objectives to be achieved in this important strategic sector of the Brazilian State. In this context, the Defense Sector (Ministry of Defense and Armed Forces) is noted, considering that its effectiveness requires adequate budgetary allocation and efficient management that enable building and strengthening military capabilities in order to provide effective accomplishment of the Armed Forces' institutional mission.

The military instrument must have the necessary capabilities for surveillance, monitoring, control, and defense of Brazil's Jurisdictional Waters, land borders, and airspace under national jurisdiction, and must be capable of defending national interests, contributing to the consolidation of National Sovereignty and deterrence. This requires adequate allocation and efficient management of budgetary resources in the Defense Sector, with a view to financing the Sector's expenses and investing in projects and programs geared toward modernizing and transforming the Armed Forces, which also contributes to the development and enhancement of the Defense Industrial Base (BID)

Photo: Brazilian Navy

Sail Training Ship Cisne Branco (U20).

CHAPTER 1

THE CONTEMPORARY INTERNATIONAL ENVIRONMENT

GENERAL CONSIDERATIONS

The contemporary international system has been marked by uncertainties, changes, and the accelerated process of restructuring of power relations among states. International policy is moving toward a multipolar order, although the growing strategic rivalry between powers threatens to subordinate it to a new form of bipolarity. This environment poses challenges to the pursuit of peaceful dispute resolution and increases the risk of international conflicts.

In this context, a possible weakening of the international collective security system, established in 1945. Through this system, the United Nations (UN)[1], Member States, represented by the United Nations Security Council (UNSC)[2], seek to prevent or resolve conflicts.

In order to preserve the collective security system founded on the United Nations Charter, it is crucial to value peaceful dispute resolution tools and transform global governance frameworks.

INTERNATIONAL ORGANIZATIONS

The international system's structure comprises international organizations constituted by countries that converge on common goals. These organizations play a fundamental role in international relations, as they seek cooperation among their members, mainly to resolve conflicts of interest. They operate in diverse areas, such as: the economy, politics, human rights, culture, environment, and military. The most representative and important organizations are those that assemble a large number of countries or, moreover, that possess major economic and military power. It is important to note that consolidating multipolarity favors the operation of these institutions. Examples of international organizations include the United Nations (UN), the Organisation for Economic Co-operation and Development (OECD)[3], and the World Trade Organization (WTO)[4].

Special emphasis should be placed on the UN, as it constitutes the main institution for "global governance"[5]. The UN — which is founded on sustainable development, human rights, and peace and security — has as its main purposes: to maintain international peace and security, to develop friendly relations among nations, to foster international cooperation to resolve conflicts, and to be a hub for harmonizing the nations' initiatives toward common goals.

1 The United Nations (UN) is an international organization founded in 1945, originally composed of 51 Member States, including Brazil; currently, 193 countries are members of the Organization. The United Nations has had a permanent representation in Brazil since 1947. The UN's presence in each country varies according to the demands that the respective governments present to the Organization. In Brazil, the United Nations System is represented by specialized agencies, funds, and programs that operate according to their specific mandates (www.un.org).

2 The United Nations Security Council (UNSC) has the primary responsibility for the maintenance of international peace and security. In addition to the power to impose mandatory sanctions, the Council is still today the only international institution that can authorize the legitimate use of force in cases of threats to peace, breaches of peace, and acts of aggression, as established in Chapter VII of the UN Charter (Fundação Alexandre de Gusmão — FUNAG).

3 The OECD is a forum composed of 35 countries, dedicated to promoting convergent standards on various issues, such as economic, financial, commercial, social, and environmental matters. Its assemblies and debates provide experience exchange and policy coordination in various areas of governmental operation.

4 The WTO is the multilateral forum responsible for regulating international trade. Its various agencies meet regularly to monitor the implementation of current agreements and the execution of the trade policy of member countries, negotiate the accession of new participants, and follow up on activities related to the dispute settlement process.

5 Global governance refers to a range of instruments (regimes and organizations, for example) that, based on shared objectives, provide the establishment of relationship standards and, therefore, encompass processes through which it is expected to be possible to manage divergent interests and promote cooperation among the actors (KEOHANE and NYE, 2001). Such possibilities include an institutional form capable of coordinating relations between multiple states, constituting the notion of multilateralism. According to the definition of Ruggie (1992: 571), multilateralism corresponds to "an institutional form that coordinates relations between three or more states on the basis of generalized principles of conduct, that is, principles that specify appropriate behavior for a range of actions."

THE ARCHITECTURE OF THE INTERNATIONAL SYSTEM

The current architecture of the international system, centered on the UN, reflects the post-World War II balance of power and is not compatible with the current geopolitical context. For several of its members, this architecture does not effectively represent the contemporary international logic, considering that, despite the economic blocs and some states possessing significant political, economic, and military significance, these major roles are not always reflected in the decision-making frameworks and processes of international institutions, leading many countries to demand structural changes in the international system in order to make it more representative.

The reforms requested mainly by the so-called "Global South countries," "emerging countries"[6] or "middle powers" are aimed at consolidating international cooperation, ensuring more effective conflict resolution, enhancing respect for state sovereignty, and providing higher equality and representation in international organizations. The intended changes notably include the demanded reform of the United Nations Security Council (UNSC), considering the Council's inability to timely and effectively address current global challenges. Most UN member states recognize that the UNSC expansion, in both membership categories, permanent and non-permanent, is essential to make the institution more representative, legitimate, effective, and efficient. It is important to note that the consolidation of multipolarity tends to provide better conditions so reforms can be effected.

6 Emerging countries are nations that present median development and quality of life indicators, with accelerated economic growth. Emerging economies are fundamental for global economic dynamism. These countries are characterized by late industrial and urban development and a large consumer market, being major producers and suppliers of raw materials and production and consumption goods.

WORLD GEOPOLITICS

Global geopolitics has seen significant changes for some years, notably with the rise of higher multipolarity and a change in the geoeconomic balance of the international system, caused by the shift of the geopolitical center from the West to the East. Other world regions have grown in strategic importance, which tends to cause disputes between major powers in their pursuit of increased influence over certain relevant areas. This situation concurs with the intensification of geostrategic competition, which is reminiscent of the deleterious dynamics observed during the Cold War, including in terms of the pursuit of influence and the erosion of cooperation dynamics in the international system.

The conflicts of interest and geopolitical clashes between major powers raise the level of global tension and increase the probability of international crises erupting, which may eventually constitute threats to international peace and security, with possible regional effects. This context has led to increased investments in Defense and a new arms race, which increases the risk of miscalculations and the probability of States using force or, in some cases, creating military asymmetry[7], mainly with the use of disruptive technologies.

7 In the competition for leadership in the ST&I sector, countries that combine relevant technological capabilities will obtain significant strategic advantages, particularly in terms of military power. Systems and Materials for Military Employment (SMEM) that incorporate cutting-edge technologies will increasingly be employed in warfare, demanding constant updates to military doctrines and strategic concepts for employment of the Armed Forces. The increasing use of armaments and other military equipment that incorporate high technology will be an increasingly present power imbalance factor. Leveraging the possibilities of Artificial Intelligence, cybernetics, nuclear energy, quantum computing, among others, will be significantly relevant for building credible military defense capabilities. In this scenario, it is very likely that, due to the increased technological gap between countries, nations with limited military power resources will be more incisively urged to position themselves regarding possible political, economic, and military alignments, which will limit their autonomy in the international arena.

Regarding the globalization process, which has developed over the years, it is noted that it has changed the dynamics of the international system by promoting the integration of global production chains and the intensification of economic and commercial relations, thus increasing economic interdependence between States. The growing antagonism between powers, however, has led to new protectionism in trade relations and favored the implementation of barriers, with the aim of protecting domestic economic activities and hindering foreign competition, undermining the gains in economic interdependence that characterized recent decades and fomenting a trade war. It is important to note that, despite globalization promoting greater interaction between countries, it also facilitates the spread of various threats, such as pandemics and transnational crimes[8], which can have repercussions for national sovereignty, international peace and security, and, consequently, National Defense[9].

Globalization intensifies vulnerabilities in the economic sphere as, within the scope of a growing asymmetric interdependence, States become dependent on international economic flows for the supply of goods, services, technologies, and financing that are fundamental to the functioning of their economies and societies. The lack of factors that are essential and strategic for the Nation can cause issues related to political and social stability and National Security, demonstrating the importance of productive, technological, and financial sovereignty. In this context, various economic instruments have increasingly been used for strategic purposes, both defensively and offensively, connecting geoeconomics to geopolitics.

Another major impactful change in today's world concerns the informational dimension, characterized by precipitation, superficiality, and confusion. This occurs due to the development of information and communication technologies and the ability of individuals, groups, and organizations to establish lobbies and pressure groups in the most varied areas and subjects, being able to influence society, the design and revision of public policies, and decision-making in various governmental spheres.

The dynamics that have been established in the international system have led the global agenda to emphasize new issues — or new ways of approaching traditional issues. Regarding National Defense, issues that can, in some way, constitute threats or risks to countries should be underscored, due to the damage they can cause to society, national interests, and national sovereignty. It is important to note the growing transversality of these issues, which go beyond the traditional view of potential or manifest threats, focused solely on possible tensions or crises between States. Thus, consideration has been given to the following issues: international trafficking of drugs, mineral goods, wildlife, chemical substances, weapons, and people; smuggling and customs fraud; environmental

8 Transnational organized crime encompasses various illicit activities, such as drug trafficking, human trafficking, arms smuggling, human organ trade, counterfeiting, fraud, and money laundering (https://www.funag.gov.br/ipri/btd/index.php/10-dissertacoes/3926-a-globalizacao-da-criminalidade-organizada).

9 National Defense consists of the set of attitudes, measures, and actions of the State, with emphasis on the military expression, for defense of the National Territory, sovereignty, and interests against predominantly foreign threats, whether potential or manifest. It supports National Security, understood as the condition that enables the preservation of sovereignty and territorial integrity, the achievement of national interests — despite pressures and threats of any nature —, and the guarantee of the citizens' constitutional rights and duties (PND 2024).

crimes; organized crime, transnational crimes, international terrorism and piracy; climate change and its possible consequences for the environment and the population; the protection of biodiversity and the environment; the possibility of cyber offensive actions; food security; the probability of tensions arising from pandemics and the growing scarcity of natural resources; among others.

In the face of these challenges, it is observed that the international system is undergoing significant changes, characterized by threats that modern States are often not sufficiently prepared to address. Thus, National Defense policies and strategies, in view of this new conjuncture, must review concepts in order to present tools that can provide effectiveness to State action in the face of such threats and challenges that impact global geopolitics.

CLIMATE CHANGE

An issue that deserves special attention on the global agenda is climate change[10], as it constitutes one of the main challenges humanity faces and tends to increase in the coming decades, with significant impacts, mainly in countries with lower development indices. The impacts of climate change can affect livelihoods, compromise economic activities, cause human displacement, increase conflicts over resources, and impact global security and peace.

Photo: Brazilian Navy



The Multipurpose Aerodrome Ship Atlântico providing support in flood response operations in Rio Grande do Sul.

To address the issue and monitor its evolution and consequences, the UN created the Intergovernmental Panel on Climate Change (IPCC). It is noted that the work of major international organizations to minimize the impacts of climate change in different regions of the world requires that countries operate in a more integrated and collaborative manner for the common good, which requires placing international cooperation on a level above the national interests of each State. Climate change-related risk management requires initiatives in the entire impact chain, in order to reduce consequences on ecosystems, provide adaptation for socioeconomic systems, and support governance institutions and conflict management.

Photo: Brazilian Air Force



The Brazilian Air Force (FAB) coordinates the distribution of humanitarian aid in areas affected by floods in Rio Grande do Sul.

10 Climate change can influence socio-political and geopolitical risks in the medium term and long term. Natural disasters tend to become more frequent and extreme, while sea-level rise and temperature increase have the potential to affect various dimensions of societies, such as water supply, agricultural production, food security, economic livelihoods, and biodiversity. Relations between countries will also be affected, as physical borders do not restrict the cause-and-effect actions that interfere with climate change dynamics. These changes, with relevant impact on people's lives and countries' sovereignty and economy, will certainly have impacts on how the Armed Forces operate and are employed (Manual de Fundamentos Conceito Operacional do Exército Brasileiro — Operações de Convergência 2040 - EB20-MF-07.101, 1ª Edição, 2023).

Therefore, it can be inferred that the possible consequences caused by climate change will intensify tensions between States, with potential impacts on various dimensions, particularly geopolitics and the environment, and may cause repercussions on the States' sovereignty, environmental management, public security, and development.

Photo: Brazilian Army



Installation of a logistic bridge over the Forqueta River by Brazilian Army engineering units in support of civilian assistance operations.

MIGRATIONS

Another issue affecting the contemporary international environment is migration[11], with millions of people moving annually as a result of: natural disasters, pandemics, and scarcity of natural resources; becoming refugees of armed conflicts; being in search of better living conditions; ethnic and religious persecution; socioeconomic crises; and extreme climate situations. The UN, through the International Organization for Migration (IOM)[12], offers support to migrants, returnees, internally displaced persons, and host communities, working in cooperation with governments and other sectors of society.

From another point of view, States are responsible, within the scope of National Defense, for exercising greater control over national borders, with the objective of tackling transnational crimes related to illegal migration, which normally violate the fundamental rights of migrants. In this context, national defense policies and strategies must establish parameters and instruments for effective cooperation between bordering countries, which, in the case of Brazil, involves countries in its regional environment.

EMERGING CHALLENGES

Conclusively, it is observed that the contemporary international system exhibits an architecture characterized by tendencies towards multipolarity and asymmetry between States, due to distortions and deficiencies in global governance. Although the current context — with multiple conflicts and the UN Security Council's inability to provide solutions to crises — favors the rise of growing support for global governance reform, the current architecture is estimated to maintain its configuration in the short term, given the high resistance of some powers to changes that could diminish their influence on international relations.

11 The Global Compact for Safe, Orderly and Regular Migration (GCM) is part of the 2030 Agenda for Sustainable Development. Each UN Member State commits to support cooperation to facilitate safe, orderly, and regular migration. The objectives of the Compact were detailed in the New York Declaration for Refugees and Migrants, the so-called document on the issue, approved in 2016. These objectives include: addressing all aspects of international migration, including humanitarian, development, and human rights issues, among others; contributing to global governance and supporting cooperation on international migration; creating a legal framework for comprehensive international cooperation that benefits migrants with human mobility (https://news.un.org/pt/focus/migrantes-e-refugiados).

12 The International Organization for Migration (IOM) is part of the United Nations System as the leading intergovernmental organization promoting humane and orderly migration for the benefit of all. The IOM has been present in Brazil since 2016 (https://brazil.iom.int/pt-br).

The rise or exacerbation of complex threats or global risks requires Brazil to give due importance to National Defense, prioritizing the constitutional principles that govern the Brazilian State, especially Article 1 of the Constitution, which lists sovereignty as its first foundation.

Photo: Brazilian Army



Brazilian Army element prepared for Peacekeeping Operations.

Thus, it is essential for the Country to remain capable of fully exercising its sovereignty and deterrence capacity[13], in addition to having conditions for an adequate and proportional response to any type of threat. This condition requires aligned and integrated initiatives from all government sectors, imposing the need to build or improve the State's National Defense capabilities[14], increase its resilience[15] and enhance the readiness of the Armed Forces, so they are in conditions to accomplish their constitutional purpose.

BRAZIL IN THE WORLD

The peculiarities of the international system give Diplomacy and Defense the role of important vectors for the preservation and consolidation of State sovereignty and the defense of national interests, which requires close coordination between defense policies and foreign policy, as they provide mutual support for State participation in the international system. A scenario characterized by uncertainties has a direct influence on both Brazil's foreign policy and defense policies.

Photo: Brazilian Army



Brazilian military personnel conducting patrols as part of a UN mission in Haiti.

13 The strategic conception of national defense, in times of peace or crisis, is based on the capacity to deter potential or manifest threats, pursuant to provisions in the Federal Constitution, precepts of international law, and country commitments. In this sense, deterrence does not imply that, in case of crisis or conflict, the country must strictly be limited to military measures. In the context of a broader defense plan, and in order to repel any possible aggression, the necessary national power will be employed, with a view to conflict resolution in the shortest possible timeframe and with minimal damage to national integrity and interests (END 2024).

14 State National Defense Capabilities: Cybernetics, Power Projection, Protection, Prompt Response, Coordination and Control, Information Management, Logistics, Mobilization, Technological Development, Strategic Communication, and Resilience (END 2024).

15 Increased resilience is associated with reduced vulnerabilities, achieved by enhancing the State's response capabilities and/or by reducing the intensity of the impact of hostile actions, mainly in the energy security sector and in the natural resource supply. This scenario requires a multifaceted strategy, geared toward achieving risk reduction and improving handling and adaptation mechanisms, concurrently (END 2024).

In international matters, Brazil adopts a stance of independence, balance, and capacity for dialogue, seeking consensus-building, especially in situations of major polarization and divergence. The Country advocates for diplomatic and political means for the resolution of conflicts between States and considers that coercive measures as last-resort options, in compliance with the precepts inherent to international peace and security as set forth in the Charter of the United Nations. Such stance is aligned with the provisions of Article 4 of the Constitution, whose principles governing Brazil's international relations include the defense of peace, the peaceful resolution of conflicts, and cooperation among peoples for the progress of humanity.

The country is working to make multilateral concertation forums, especially those integrated into the UN, more representative of the 21st-century global reality. The effectiveness and legitimacy of the decisions and policies adopted by international organizations will be greater the greater their ability to express the diversity of interests of member States.

At the UN, Brazil's positions are guided by international law and the pursuit of peaceful settlement to international issues, as provided for in Chapter VI of the UN Charter. The country is aware of its importance and capacity for political articulation, due to its geographical and population dimensions, the value of its riches and economy, and environmental power, at a time when the issue of climate change constitutes the main item on the global agenda.

Regarding the UNSC, the Country advocates for comprehensive reform of the institution, with expansion of the two categories of members, permanent and non-permanent, and seeks a permanent seat in a reformed UNSC. This is an inclusive project, which has motivated Brazilian foreign policy for decades, and aims to make the UNSC more representative of UN Member States as a whole, in order to reflect contemporary reality and give greater legitimacy and effectiveness to its decisions.

Photo: Brazilian Army



Brazilian Army contingent deployed in the United Nations Stabilization Mission in Haiti (MINUSTAH).

An evident expression of Brazil's growing importance in the area has been its participation in peacekeeping operations, humanitarian aid operations, and other types of international operations. As a founding member of the United Nations, historically committed to peaceful dispute settlement, participating in peacekeeping operations, especially those considered as peace maintenance operations, is a natural consequence of its responsibilities[16].

Brazil's participation in peacekeeping missions is strategically aimed at achieving greater international integration, seeking to demonstrate goodwill to

16 Brazil, due to its tradition of upholding dialogue and harmonious coexistence among peoples, may be invited to contribute toward world peace. Consequently, Brazil must be prepared to meet possible demands for participation in Peace Operations, under the aegis of the United Nations (UN) or multilateral organizations. These participations and others, such as international exercises and operations, must follow the principles and priorities of Brazil's Foreign and Defense Policies (END 2024).

undertake responsibility for international peace and security, recognition as an important actor on the global landscape, and, primarily, the elevation of its geopolitical profile.

Brazil has participated in more than 50 peacekeeping operations and similar missions, contributing more than 55,000 military personnel, police officers, and civilians.

INTERNATIONAL COOPERATION

Brazil conducts international cooperation in compliance with Constitutional provisions and guidelines established in Brazilian foreign policy, pursuant to national development priorities, as defined in governmental multi-year plans and sectoral programs.

In cooperation initiatives, it develops and implements projects in various areas, such as humanitarian work, family farming, urban issues, science and technology, culture, defense, social development, education and school food, industry and commerce, environment, energy, livestock, fishing, planning, health care, public safety, among others. Examples include emergency response to major disasters and accidents, both natural and man-made, and donations of food, medicine, among other basic necessity items to populations in vulnerable situations.

In this context of cooperation, Brazil has strategic partnerships with nations from all continents, in different areas of Defense operations. Activities range from exchanges at operational units and military schools to discussions on international security, humanitarian demining, multinational military exercises, and interactions in the field of ST&I, covering a wide gamut of issues of interest.

THE STRATEGIC ENVIRONMENT

In the scope of Brazil's strategic environment[17] there is a clear opportunity for enhancing cooperation, including in the field of Defense, through instruments that promote the development of an adequate level of security, based on cooperation between countries[18].

South American integration and cooperation remain strategic objectives of foreign policy and have been included in the National Defense Policy (PND)[19], as the Country recognizes that consolidating political, social, and economic relations among South American countries is a fundamental element for socioeconomic development and for the preservation of peace in the region, which has exhibited a low incidence of tensions or crises between States and — thanks to the political view of its members and the Treaty for Prohibition of Nuclear Weapons in Latin America and the Caribbean — is free of weapons of mass destruction.

In this regard, it should also be noted the regional potential for cooperation among Security, Defense, and Intelligence forces in combating transnational and environmental crimes and mitigating the impacts of climate change. Notably, Brazil's conciliatory stance, with peaceful coexistence with its neighbors for over a century, has historically contributed to regional stabilization.

17 The Brazilian strategic environment includes South America, the South Atlantic, countries in the West African coast, and Antarctica (PND 2024).

18 Regional integration contributes to Brazil's defense, fosters trust and transparency among the Armed Forces of South America, and can support the development of the Defense Industrial Bases of the countries collaboratively, thereby providing mutual development of technological capabilities (END 2024).

19 On a regional level, the convergence of interests contributes to increased cooperation among South American countries, which can promote the consolidation of mutual trust and the execution of defense projects, aiming, among other things, at technological and industrial development, in addition to strategies for solving common problems (PND 2024).

In the scope of the American continent, Defense plays a prominent role in the structure of the Organization of American States (OAS), due to its effective participation in the Inter-American Defense Board (IADB)[20], in addition to actively taking part in humanitarian activities, such as demining preparation and operation in former conflict zones on the continent.

It is also important to note the participation in other forums on the American continent, such as: the Conference of Defense Ministers of the Americas (CDMA), meetings of Commanders of Armed Forces and Chiefs of Staff; the Hemispheric Security Commission; the Conference of American Armies; the Inter-American Naval Conference; the Latin American Association of Peacekeeping Training Centers (ALCOPAZ), and the System of Cooperation Among the American Air Forces (SICOFAA).

In the South American context, Brazil's return to the Union of South American Nations (USAN)[21] in April 2023 is noted. The resumption of cooperation within the scope of the South American Defense Council (SADC), an organization within the framework of the USAN, can contribute to equipping the region with greater capacity for military training and education, exchange of experiences and knowledge in military industry matters, defense doctrine and policies, among other activities.

20 The Inter-American Defense Board (IADB) was created in Rio de Janeiro, Brazil, during the Third Consultation Meeting of Ministers of Foreign Affairs of the 21 American Republics, which then constituted the Pan American Union. Constantly evolving, the IADB has the capacity to support the four pillars of the OAS: Democracy, Human Rights, Security, and Development, with a primary focus on the Security pillar (http://www.jid.org).

21 The Union of South American Nations (USAN) was originally founded through a Constitutive Treaty signed in May 2008 by the governments of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela. The objective is to foster integration among South American countries, in a model that seeks to integrate the continent's two customs unions, MERCOSUR (Southern Common Market) and CAN (Andean Community), but going beyond the economic sphere to reach other areas of interest, such as the social, cultural, scientific-technological, and political spheres.

These mechanisms are important to preclude the presence of external powers in the political, military, and commercial spheres of strategic goods, which could threaten regional stability and security, especially in times of international crises and tensions. Considering the strategic resources present on the continent, in the La Plata and Amazon basins, and in the South American maritime area, these issues gain even more relevance. Brazil's technological-industrial competitiveness in South America also offers the possibility of forming a regional market as a destination for exports and for cooperation around the Defense Industrial Base (BID).

In this context, we note the establishment of the National Border Policy (PNFron)[22], which establishes directives for integrated operation of the Brazilian State in land, air, and maritime border areas. Under the coordination of the National Border Committee, PNFron seeks to coordinate public agencies, civil society, and the private sector in the implementation of structured initiatives in the areas of Security, Sustainable Development, Regional Integration and Human Rights, Citizenship and Social Protection, which are considered vital for National Defense.

SOUTH ATLANTIC

The South Atlantic[23] is a vital space for Brazil due to being part of the strategic neighborhood and through which the country is projected internationally. It should be noted that 90% (ninety percent) of the volume of Brazilian international trade is carried out by sea.

22 Decree No. 12,038, of May 29, 2024.

23 The South Atlantic is the region strategically delimited to the North by the 16th parallel N; to the South by the Antarctic Continent; to the East by the African coast, and to the West by South America (PND 2024).

Photo: Brazilian Navy



Naval units of the Brazilian Navy.

Beyond purely commercial matters, the South Atlantic also appears as an important reserve and source of living, mineral, and energy resources, which constitute an economy on which millions of Brazilians depend. This importance tends to increase as technological development provides new discoveries and the sustainable use of these resources, especially energy resources, existing in Brazilian Jurisdictional Waters (BJW) and on the Continental Shelf.



Member States of the Zone of Peace and Cooperation of the South Atlantic.

The relevance of the South Atlantic in the socioeconomic, environmental, climatic, and scientific context would already be sufficient to justify its strategic importance. However, this marine space also gained political relevance for the country's projection in the international arena. Thus, Brazil seeks, with leadership and intensity, to increase its presence in this vital space in various spheres, by building a cooperative environment, under the aegis of the ZOPACAS[24], considering that the emerging challenges must be faced and shared with all countries in the region. The strengthening of the ZOPACAS will contribute to Brazil's consolidation as a relevant regional actor, increasing its influence in the strategic environment and minimizing the possibility of military interference from extra-regional powers in the South Atlantic.

From another perspective, Brazil's vast marine environment constitutes a wide gateway for all kinds of threats that exist in the globalized world (threats stemming from state-owned companies, criminals, unconventional sources, natural phenomena, pandemics, disputes over natural resources, climate change, biopiracy, cyberterrorism, and bioterrorism).

Therefore, BJW must be protected and preserved, as heritage for future generations and for sustainable socioeconomic exploitation. Brazil's Maritime Power must be compatible with the country's political-strategic stature and be capable of exercising its dual role, considering the productive/economic and deterrent/military aspects, and must provide broad-spectrum defense for national maritime interests. In addition to classic naval defense against state actors, it must also ensure the security of these interests against illicit activities and dynamic, multifaceted threats. Similarly, in another sense of security, it must safeguard human life at sea and the safe traffic of vessels, and additionally, contribute to the protection of the marine environment and biodiversity.

24 The Zone of Peace and Cooperation of the South Atlantic (ZOPACAS) was established in 1986, proposed by Brazil with the objective of promoting regional cooperation and maintaining peace and security in the vicinity of countries in South America and the west coast of Africa that joined the project. This forum was aimed at being the main mechanism for articulation in the South Atlantic, seeking to promote greater regional cooperation for economic and social development, environmental protection, conservation of living and non-living resources, and security for the entire region, from the perspective of multilateral integration, based on initiatives related to the non-proliferation of nuclear weapons and weapons of mass destruction.

INTERNATIONAL REGIMES AND TREATIES WITH IMPLICATIONS FOR DEFENSE

DISARMAMENT AND NON-PROLIFERATION OF WEAPONS OF MASS DESTRUCTION AND CONTROL OF CONVENTIONAL ARMS

Brazil, considering the constitutional principles that govern its international relations[25], seeks proactive participation in negotiations involving disarmament and non-proliferation of weapons of mass destruction and control of conventional arms. Based on the unquestionable security needs dictated by the political-strategic defense scenario, it is understood that prohibition norms and realistic and credible measures for reduction or elimination of armaments and the transparent verification of these processes can be multilaterally adopted, fostering an environment of mutual trust among sovereign States. Brazil is one of the original signatories of the Chemical Weapons Convention (CWC)[26], of the Biological Weapons Convention (BWC)[27], and is party to the Convention

25 The Federative Republic of Brazil has its international relations governed by the following principles: I - national independence; II - prevalence of human rights; III - self-determination of peoples; IV - non-intervention; V - equality among States; VI - defense of peace; VII - peaceful settlement of conflicts; VIII - repudiation of terrorism and racism; IX - cooperation among peoples for the progress of humanity; X - granting of political asylum (CF 1988).

26 The Chemical Weapons Convention (CWC) is a multilateral instrument for disarmament and non-proliferation of chemical weapons of mass destruction. Its main objectives are: a) chemical disarmament; b) prohibition and non-proliferation of chemical weapons; c) regime for controlling transfers of sensitive chemical substances; d) promotion of international cooperation in the chemical area; e) international aid for chemical disasters (https://www.gov.br/mcti).

27 The Biological Weapons Convention (BWC), established on April 10, 1972, was the first multilateral disarmament treaty to ban an entire category of weapons. The Member States undertake to, under no circumstances, develop, produce, stockpile, acquire, or retain biological or toxin agents in types and in quantities that have no prophylactic justifications or other peaceful purposes, nor weapons or equipment intended for employment of such agents for hostile purposes (www.gov.br/defesa/pt-br/assuntos/relacoes-internacionais/foruns-internacionais-1/tratados-e-regimes).

on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, known as the Ottawa Convention[28].

Since the early 1990s, Brazil has participated, by sending personnel, in the humanitarian demining campaigns of the Program for Comprehensive Action against Antipersonnel Mines (AICMA), with significant results in terms of the number of mines deactivated and areas cleared.

Regarding conventional weapons, Brazil is party to the Convention on Prohibition or Restriction on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects (CCW)[29].

Since 2018, Brazil has also been a party to the Arms Trade Treaty (ATT), which regulates international transfers of conventional arms and their ammunition, such as armored vehicles, combat aircraft, ships, missiles, and rifles. The ATT aims to establish international standards for the regulation of the international arms trade, as well as to prevent and eradicate illicit arms trade, or to prevent their diversion to illicit purposes. Its implementation by Brazil is in line with the National Policy for Export and Import of Defense Products[30].

Furthermore, Brazil has been active in fostering discussions related to the prevention of an arms race in space, advocating for the adoption of an international instrument that is legally relevant on this matter, as well as the adoption of international commitments to mitigate growing tensions in the space environment and to ensure the sustainable use of space for peaceful purposes.

NUCLEAR DISARMAMENT AND NON-PROLIFERATION

The promotion of nuclear disarmament holds a priority position on the international community's agenda. This field is marked by strong stratification, as illustrated by the differentiation in the Non-Proliferation Treaty (NPT)[31] between States that possess nuclear weapons and States that do not possess nuclear weapons. More than fifty years after the NPT entered into force, there remains the chronic imbalance in the fulfillment of obligations related to the Treaty's three pillars, namely non-proliferation, disarmament, and the right to peaceful use of nuclear energy, with disproportionate emphasis on the first.

Brazil understands that security, peace, and development are dimensions inseparable from the issues of disarmament and non-proliferation of weapons of mass destruction. The possession of weapons of mass destruction, especially nuclear ones, and their delivery systems, long-range missiles, as well as participation in alliances based on the possibility of using such weapons, even as a last resort, continue to be a crucial factor in international relations, with direct implications for National Defense and international security.

Photo: Brazilian Navy



Nuclear Power Generation Laboratory — Aramar Nuclear-Electric Industrial Center.

Brazil has a firm commitment to the disarmament and non-proliferation of nuclear weapons, in addition to possessing consolidated credentials in this area. Brazil's foreign policy seeks to reinforce national independence and ensure that international norms against the proliferation of weapons of mass destruction do not harm autonomous technological capacity, including in strategic sectors, such as the nuclear sector. The Constitution[32] determines that "any nuclear activity in national territory shall only be admitted for peaceful purposes and with approval of the National Congress".

Brazil played a central role in the negotiation of the Treaty on the Prohibition of Nuclear Weapons (TPNW), adopted on July 7, 2017, within the framework of the United Nations General Assembly, with a favorable vote of 122 countries. The TPNW is the first multilateral agreement that comprehensively prohibits nuclear weapons, thus complementing existing international agreements on the issue, in particular the NPT, the Comprehensive Nuclear-Test-Ban Treaty (CTBT), and agreements establishing nuclear-weapon-free zones. Brazil was the first State to sign the TPNW, on September 20, 2017, and the treaty is currently under analysis by the National Congress, with a view to its ratification. In the context of non-proliferation, it is important to note that Latin America and the Caribbean are pioneering regions in setting limits on the nuclear arms race. The Treaty of Tlatelolco, in 1967, led to the establishment of the first Nuclear-Weapon-Free Zone in a densely populated region. All Latin American and Caribbean States are parties to the Treaty of Tlatelolco and members of the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL).

It is important to note that the Brazilian Nuclear Program is subject to the treaty signed with the International Atomic Energy Agency (IAEA) and with the Argentine-Brazilian Agency for Accounting and Control of Nuclear Materials (ABACC), within the framework of the agreement between Brazil, Argentina, ABACC, and IAEA for application of comprehensive safeguards, known as the "Quadripartite Agreement."

This innovative and unique arrangement of nuclear safeguards, which combines inspections by two international agencies, independently and complementarily, ensures that the Brazilian Nuclear

28 The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, also known as the Ottawa Convention, prohibits the use, production, stockpiling, and transfer of anti-personnel mines. As part of the international response to the widespread suffering caused by anti-personnel mines, the Convention is based on customary rules of International Humanitarian Law (IHL) applicable to all States, prohibiting the use of weapons that, by their nature, do not distinguish between civilians and combatants, or cause unnecessary suffering or superfluous injury (www.gov.br/defesa/pt-br/assuntos/relacoes-internacionais/foruns-internacionais-1/tratados-e-regimes).

29 The Convention on Certain Conventional Weapons (CCW) was concluded at the UN, in Geneva, on October 10, 1980, and entered into force on December 2, 1983. The CCW aims to limit the use of weapons that cause excessive or superfluous suffering to combatants, or that, by their nature, cause indiscriminate damage to the civilian population or their property (www.gov.br/defesa/pt-br/assuntos/relacoes-internacionais/foruns-internacionais-1/tratados-e-regimes).

30 Decree No. 9,607 of December 12, 2018.

31 Brazil joined the Non-Proliferation Treaty (NPT) in 1998, binding its participation to the understanding that effective measures will be taken towards the cessation of the nuclear arms race, with the complete elimination of all atomic weapons. The NPT is considered an international milestone for the prevention of the proliferation of nuclear weapons and technologies, for the promotion of cooperation in the peaceful use of atomic energy, and for the pursuit of nuclear disarmament in the general context of world disarmament. In 1995, the States Parties decided to extend it indefinitely. With 191 member states, including the five original nuclear-armed countries (USA, Russia, United Kingdom, France, and China), the NPT is the most ratified agreement in the field of disarmament. Review conferences are held every five years, with the purpose of assessing the progress of the Treaty's implementation (www.gov.br/defesa/pt-br/assuntos/relacoes-internacionais/foruns-internacionais-1/tratados-e-regimes).

32 art. 21 of the 1988 Constitution of the Federative Republic of Brazil.

Program is subject to one of the highest standards of transparency.

ABACC holds special relevance for Brazil's nuclear policy. On July 18, 1991, Brazil and Argentina signed the Agreement for Exclusively Peaceful Use of Nuclear Energy, through which they jointly renounced the development, possession, and use of nuclear weapons and affirmed their unequivocal commitment to exclusively peaceful use of nuclear energy. ABACC was established to verify compliance with these commitments, and the experience accumulated by the Agency over more than thirty years of operation has contributed to building trust and fostering a closer relationship between Brazil and Argentina, leading to increasing cooperation between the two countries in the area of peaceful use of nuclear energy. The most significant example of this cooperation is the joint development of research reactors (RA-10 and the Brazilian multipurpose reactor) that will have important applications in various areas, including nuclear medicine.

The Brazilian Navy's Conventionally Armed Nuclear-Powered Submarine (SCPN) Program, which aims to build the country's first submarine of this category, is fully legitimate and legal from the standpoint of Brazil's international commitments in the area of nuclear non-proliferation. In addition to its high strategic importance, the Program contributes to the scientific and technological development of the Brazilian nuclear sector and to the strengthening of Brazil's Defense Industrial Base.

Finally, it should be noted the close relation between Brazil's foreign policy, defense policy and nuclear policies regarding nuclear non-proliferation, as well as other international commitments on the issue, in perfect harmony with the Constitution.

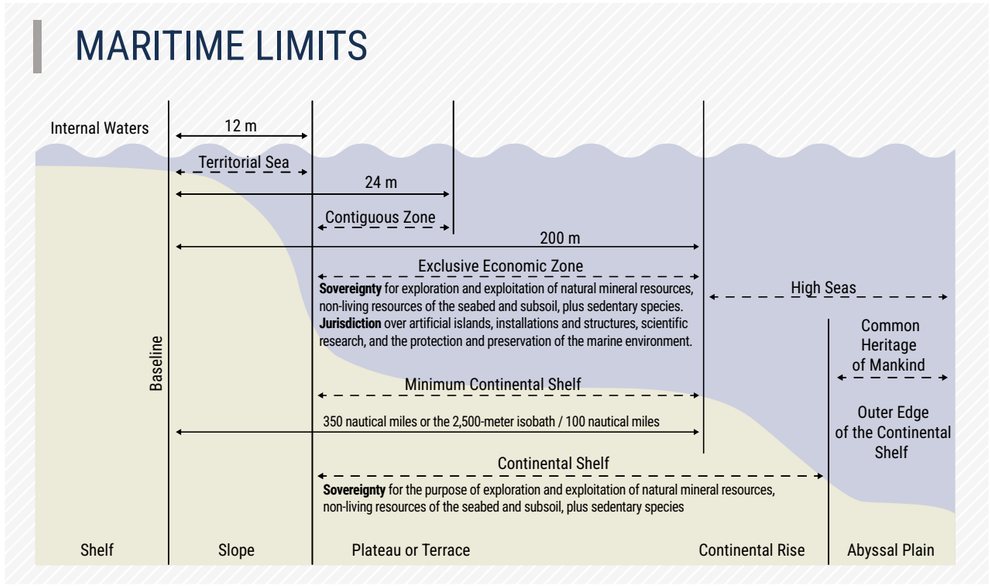
EXPORT CONTROL REGIMES FOR SENSITIVE ITEMS

In addition to all treaties related to disarmament and non-proliferation of weapons of mass destruction, Brazil is a member of informal export control regimes in the nuclear area, such as the Nuclear Suppliers Group (NSG), and in the missile area, such as the Missile Technology Control Regime (MTCR). These regimes design guidelines and negotiate lists of goods and technologies whose exports must be controlled by Member States, with the aim of preventing their use in programs for development and manufacture of weapons of mass destruction, including delivery systems (missiles).

Brazil's participation in the NSG and the MTCR is oriented toward the objectives of, on the one hand, preventing the proliferation of weapons of mass destruction and, on the other hand, avoiding the imposition of excessive restrictions on the exchange of associated technologies for legitimate purposes, including for defense. This participation has contributed to facilitating the Country's access to sensitive technologies in such fields, in addition to enabling Brazil to actively participate in the process of designing rules for these regimes.

OCEANS, POLES, AND OUTER SPACE

UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS)



The United Nations Convention on the Law of the Sea (UNCLOS)[33], ratified by Brazil, established important concepts for the regulation of maritime limits, namely: Territorial Sea (TS), where the State exercises full sovereignty; Contiguous Zone (CZ), within which the coastal State may take measures for customs, fiscal, immigration, and sanitary supervision and repress infringements of laws and regulations committed in the territory or in the Territorial Sea; and Exclusive Economic Zone (EEZ), in which the coastal State has sovereign rights for the purpose of exploration and exploitation, conservation and management of natural resources.

In light of UNCLOS, the Brazilian jurisdictional waters encompass inland waters and marine spaces over which Brazil exercises jurisdiction, to some degree, over activities, persons, facilities, vessels, and living and non-living natural resources. These marine areas comprise the 200 nautical mile belt measured from the Baselines, in addition to the seabed and

33 The United Nations Convention on the Law of the Sea (UNCLOS), negotiated for over nine years and signed in Montego Bay, Jamaica, in 1982, constitutes the main political and legal framework for regulating the use of the oceans. Known as the "Constitution of the Sea," it regulates all aspects of the maritime universe, including the delimitation of borders, environmental regulations, scientific research, trade, and resolution of international conflicts involving marine issues. Moreover, the Convention is an important factor for the sustainability of ocean spaces (http://funag.gov.br/loja/download/1091-Convencao_do_Direito_do_Mar.pdf).

subsoil of the underwater areas that constitute the extension of the Continental Shelf, approximately 90% (ninety percent) beyond the 200 nautical miles, where it occurs.

The Brazilian EEZ comprises an oceanic area of approximately 3.6 million km², which, added to the 2.1 million km² of the Continental Shelf located beyond 200 nautical miles and requested to the UN Commission on the Limits of the Continental Shelf (CLCS) [34], totals approximately 5.7 million km². This extensive oceanic area delimits the so-called Blue Amazon (from the Portuguese: Amazônia Azul®).



Brazilian jurisdictional waters: Blue Amazon.

34 In 2004, Brazil made a Submission for Extended Continental Shelf to the Secretary-General of the United Nations, covering a total area of approximately 1,000,000 km². The submission was reviewed between 2004 and 2007 by the UN Commission on the Limits of the Continental Shelf (CLCS), which basically did not legitimize about 20% of the submitted area. Consequently, the Brazilian State prepared a Revised Proposal for Extended Brazilian Continental Shelf beyond 200 nautical miles, dividing the request into 3 distinct areas: South Region, Equatorial Margin, and Eastern/Southern Margin, whose submissions were presented to the Secretary-General of the United Nations in April 2015; September 2017; and December 2018, respectively. The CLCS concluded the review on the South Region in March 2019, which legitimized the country to incorporate approximately 170,000 km² of maritime area. Currently, the Equatorial Margin is under review by the CLCS. The Eastern/Southern Margin will be reviewed after completion of the review for the Equatorial Margin.

ANTARCTIC TREATY SYSTEM

The Antarctic Treaty, signed in 1959 at the height of the Cold War, establishes the importance of preserving that continent for all of humanity, with free scientific research, cooperation, and peacefulness prevailing over any economic, territorial, or political interests. Thus, it banned nuclear tests and military operations in the region, transforming Antarctica into the planet's first demilitarized area. Stemming from scientific and political-strategic motivations, Brazil joined the Treaty in 1975[35]. Subsequently, other international agreements followed the Treaty in the pursuit of establishing regulatory frameworks for various human activities in the region, composing the legal framework that today is called the Antarctic Treaty System (ATS).

The System comprises international norms and agreements, as well as specific provisions and rules of procedure, which regulate relations between States concerning the region south of the 60th parallel south. It was successful in building the Antarctic legal regime, ensuring the environmental protection and scientific freedom of that area, in addition to suspending, while in force, historical territorial disputes over that continent.

Photo: Brazilian Navy



Polar ship Almirante Maximiano (H41).

35 Promulgated by Decree No. 75,963 of July 11, 1975.

In 1982, there were the initial measures that gave rise to the Brazilian Antarctic Program (PROANTAR)[36], with the Interministerial Commission for Sea Resources (CIRM) being tasked with developing the project for the program's implementation, in addition to the creation of the National Commission for Antarctic Affairs (CONANTAR). The Program aims to maintain Brazil as a consultative member of the Antarctic Treaty and its provisions, defend national interests in that region and its surrounding waters, and ensure Brazil's full participation in decision-making on the future of the Sixth Continent, guaranteeing permanent presence and relevant scientific research in Antarctica and its surrounding waters.

After the 1st Antarctic Operation (OPERANTAR I), in the summer of 1982/1983, Brazil ascended to the status of Consultative Member of the Treaty, ensuring active participation in the decision-making processes related to the future of that region.

The Brazilian Navy has naval and naval air assets capable of providing long-distance logistical support, conducting hydrographic surveys, and supporting research in various fields of knowledge in Antarctica, in addition to permanently operating the Comandante Ferraz Antarctic Station (EACF), thereby enabling uninterrupted Brazilian presence in the region and its surrounding seas. The Brazilian Air Force regularly conducts support flights for PROANTAR, transporting personnel and equipment.

36 The first Antarctic Operation was carried out in the summer of 1982/1983, allowing, in 1983, Brazil's inclusion in the group of Consultative Parties to the Antarctic Treaty, which today has 29 countries, ensuring Brazilian participation in decision-making processes related to the future of that continent.

Photo: Brazilian Navy



Comandante Ferraz Antarctic Station.

Brazil's participation in PROANTAR results in a contribution to a better understanding of issues related to Antarctica, ensuring the country`s sovereign right to participate in discussions concerning the fate of that region, as a Consultative Member of the Treaty, which guarantees Brazil's presence in Antarctica. The Ministry of Defense and other Ministries involved must increase the necessary support for Brazilian participation in decision-making on the fate of Antarctica, advocating for the exploration of that continent for scientific research purposes, with preservation of the environment and its maintenance as a heritage of humanity.

SPITSBERGEN TREATY (SVALBARD TREATY) — ARCTIC

The Arctic represents one of the most important and unique environments on the planet. It is biologically rich, diverse and abundant in natural resources. The context of recent climate changes in that region may cause issues related to the governance of shared spaces, maritime passage through straits, the expansion of continental shelves,

and the extraction of mineral and energy resources, with impacts on both Arctic and non-Arctic actors.

Within the framework of CIRM, the Technical Group on Arctic Activities was created in 2021 with the objective of assessing the convenience and opportuneness of the Brazilian State participating more actively in the international community's activities regarding that region.

After an uninterrupted presence of over forty years in Antarctica, the CIRM, through Resolution No. 4/2022, recommended that Brazil should join the Svalbard Treaty[37], signed in 1920, which would enable Brazil to conduct scientific studies institutionally and establish partnerships with other countries that have research stations in that region and would facilitate its action on Arctic issues, creating economic-commercial opportunities.

The Ministry of Foreign Affairs and the Ministry of Defense shown to be[38] in favor of Brazil joining this Treaty. In addition to the political signaling of Brazil's interest in the Arctic, for exclusively peaceful purposes, such engagement enables the country to expand its expertise in polar issues, with the institutional integration of Brazilian science into international research networks and with the transfer and application of knowledge and experience gained within the scope of PROANTAR.

UN COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE (COPUOS)

Brazil's foreign policy in the space area is guided by respect for international principles related to the use of outer space, in particular: the use of space for the benefit and in the interest of all humanity; the right to freedom of exploration of outer space, on equal terms for all countries; the maintenance of international peace and security; and respect for International Law and the United Nations Charter. In summary, Brazil's position regarding outer space is that it should be used sustainably, for peaceful purposes, and for the benefit of all humanity.

The international outer space regime is of great importance to the Country. Brazil supports the United Nations Treaties and Principles on Outer Space and is a party to the four main United Nations treaties on Space Law. Furthermore, Brazil has an active presence in the main multilateral forums, such as the Secretariat of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)[39].

The space sector, in association with the cyber and nuclear sectors, is considered a fundamental strategic sector for National Defense, as established in the National Defense Strategy (END). The main objective of the Brazilian Space Program (PEB) is the development and subsequent use of space technologies for the solution of national problems, with tangible benefits for Brazilian society. The program is implemented through development projects for satellites, launch vehicles, and launch infrastructures, which materialize in the launch centers referenced in the National Space Activities Program (PNAE)[40] and the Strategic Space Systems Program (PESE)[41], which mobilize national industry and enable technological mastery and autonomy in the space area.

The PNAE and PESE have a strategic character, given that Brazil's geoeconomic characteristics make the potential for applying space technology to meet a large number of national needs. These characteristics include the vast territorial extent, the demographic concentration along the coastal zone, the vast regions of tropical forests, the extensive areas with difficult access and low occupation, the extensive land border and the extensive maritime coast, and the significant volume of natural resources still unsatisfactorily surveyed.

Several of Brazil's space activities are carried out in cooperation with other countries. In these partnerships, Brazil expects that the challenges will be faced synergistically by the involved countries, through joint development of technologies.

Following this line of reasoning, Brazil has an active space program, administered by the Brazilian Space Agency (AEB)[42] and with the participation of other agencies that deal with the subject, currently having more than thirty space objects registered with the United Nations Office for Outer Space Affairs (UNOOSA). The country also has a launch facility that is prominent on the international landscape, the Alcântara Space Center (CEA), located in Maranhão and administered by the Aeronautics Command. The CEA attracts interest from private international actors and constitutes a promising infrastructure due to its advantageous location for launching space artifacts and for future commercial orbital flights.



Photo: Brazilian Air Force

Alcântara Space Center.

In terms of future space development, Brazil expresses interest in expanding its space capabilities, particularly in the areas of space exploration and space tourism. Thus, the AEB directs Brazil's national space strategy, with the main objectives of: increasing the presence of the PEB in the set of priorities of the Brazilian state, fostering entrepreneurship and competitiveness in the national productive sector related to the space area, developing the science

37 The Treaty among Norway, the United States of America, Denmark, France, Italy, Japan, the Netherlands, Great Britain, Ireland, British Territories and Sweden concerning Spitsbergen was negotiated on the occasion of the Peace Conference in Versailles, France. It was signed in Paris on February 9, 1920, and entered into force on August 14, 1925. A century after its signing, the original text remains in force. It established the international legal framework for the exercise of Norwegian authority over the archipelago, including economic-commercial, maritime, military, and research activities. Through the instrument, citizens and companies of the signatory parties may have residence in or access to the archipelago, as well as the right, on a non-discriminatory basis, to exploit it commercially or industrially, including fishing, hunting, or any type of maritime, industrial, commercial, or mining activity. In practice, the treaty established the commercial and economic internationalization of Svalbard.

38 Through Interministerial Explanatory Memorandum No. 166/2023.

39 COPUOS, with its two subcommittees — Technical and Scientific, and Legal subcommittees —, is the guardian of the five main multilateral treaties on outer space: the Outer Space Treaty; the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched Into Outer Space; the Convention on International Liability for Damage Caused by Space Objects; the Convention on Registration of Objects Launched into Outer Space; and the Moon Treaty. Brazil is a founding member of the Committee, committing to the observance of the fundamental principles governing space activities — exclusively peaceful use of outer space, sustainability of space activities, and equitable access to the benefits of space for all countries. Currently, Brazil advocates for the revitalization of the COPUOS legal subcommittee as the legitimate legislative and codifying agency for Space Law.

40 The National Space Activities Program (PNAE) is the result of a joint effort, which began in 2019, through Brazilian Space Agency (AEB) Ordinance No. 107, of May 13, 2019. This process had proactive and constructive participation of various public and private entities of the National System for the Development of Space Activities.

41 The Strategic Space Systems Program (PESE) considers all space capabilities to be achieved. It is composed of launch centers, launch vehicles, satellite control and operation centers, and satellite fleets with diverse applications (Communications, Earth Observation, Information Survey, Meteorology, Space Monitoring, Positioning, Navigation, and Time).

42 The AEB is an autonomous agency associated with the Ministry of Science, Technology and Innovation. This is the institution responsible for formulating, coordinating, and executing the Brazilian Space Policy. Since its creation in February 1994, the Agency has worked to undertake the Brazilian government's efforts in promoting the autonomy of the space sector.

and technology area by guiding the country's needs regarding space goods and services, and continuously seeking Brazil's sovereignty and increased autonomy in relation to space activities.

It should be noted that advances have been achieved in the governance of the PEB with the creation of the National Space Council, a collegiate body to advise the President of the Republic, with the purpose of establishing general parameters related to the formulation, monitoring, and review of Brazil's space policy.

Overall, Brazil is actively pursuing space development and is prepared to continue this undertaking in the coming decades.

Photo: Brazilian Air Force

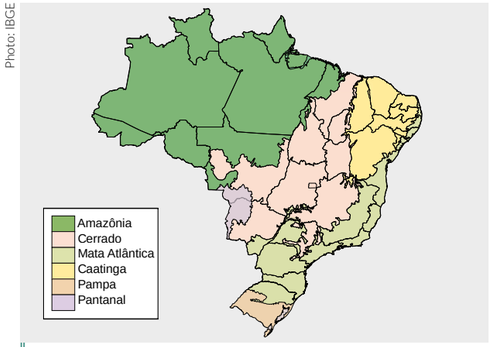


Space Operations Center (COPE), Brasília (DF).

THE ENVIRONMENT

Environmental preservation is a concern of the Brazilian State and is intrinsically related to the Sustainable Development Goals (SDGs)[43], provided for in the 2030 Agenda for Sustainable Development.

Photo: IBGE



Brazilian Biomes.

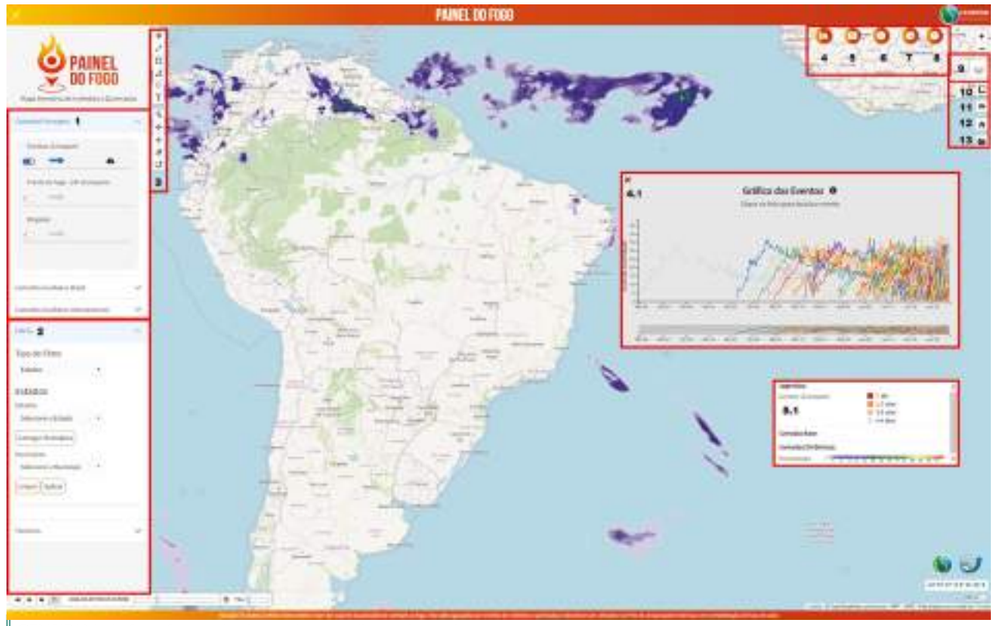
The environmental issue has been addressed in various international forums and requires analysis from different perspectives, especially within the scope of climate change, which currently constitutes one of the main issues of the global agenda, with potential consequences and impacts for National Defense.

Brazil, as an environmental power, naturally places itself at the center of discussions on global climate[44] and environmental governance: the country has the largest expanse of tropical forest in the world, holding the greatest global biodiversity, as it contains two biodiversity hotspots within its territory — the Atlantic Forest and the Cerrado — six different biomes, and three major marine ecosystems.

The Amazon biome is an important national strategic asset because, in addition to occupying 58.9% of Brazilian territory, it harbors 10% of all the world's fauna and flora species, 20% of existing freshwater, and 60% of tropical forests, playing a critical role in the planet's carbon capture cycle and the region's rainfall regime. It is important to note that most of this biodiversity is located on Brazilian soil.

Brazil's environmental policy is guided by the sovereign right of each nation to exploit its natural resources, following its own environmental and developmental policies. The counterpart to the right to sovereign exploitation is each State's commitment to mitigating climate change and controlling environmental damage resulting from activities under its jurisdiction or control. The country also advocates for the necessary reconciliation between environmental conservation and the eradication of poverty and economic development, pillars of sustainability.

Thus, Brazil is a signatory to several bilateral and regional agreements that establish cooperation for the management of natural resources, such as the agreements governing the cooperation and utilization of water resources in the La Plata Basin and the agreement establishing the Amazon Cooperation Treaty Organization (ACTO)[45].



CENSIPAM platform for monitoring and responding to forest fires.

43 The UN's Sustainable Development Goals (SDGs) are a global call to action to end poverty, protect the environment and climate, and ensure that all people, everywhere, can enjoy peace and prosperity. These are the objectives to which the United Nations is contributing to achieve the 2030 Agenda in Brazil (brasil.un.org).

44 Environmental governance refers to the process of decision-making and policy implementation that involves the management of the environment and natural resources. It covers a variety of issues, including biodiversity protection, waste management, air and water pollution prevention and control, forest conservation, and sustainability. Environmental governance involves a wide range of actors, including national and local governments, international organizations, private companies, NGOs, and civil society.

45 The origins of the Amazon Cooperation Treaty Organization (ACTO) date back to 1978, when, as proposed by Brazil, the eight Amazonian countries signed the Amazon Cooperation Treaty (ACT) in Brasília, with the goals of promoting comprehensive regional development and social well-being and reinforcing the countries' sovereignty over their Amazonian territories. Strengthening regional cooperation is the main way to achieve these goals. Twenty years later, in Caracas, the countries signed a Protocol of Amendment to the Amazon Cooperation Treaty, creating the ACTO, an international organization with a permanent secretariat and its own budget. In December 2002, the Headquarters Agreement was signed between the Brazilian Government and ACTO, which established the headquarters of the Organization's Permanent Secretariat in Brasília (https://www.gov.br/mre/pt-br/assuntos/mecanismos-internacionais/mecanismos-de-integracao-regional/organizacao-do-tratado-de-cooperacao-amazonica-otca).

Since 1975, Brazil has been part of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[46]. Still in this context of initiatives to prevent biodiversity loss in the Country, there is also a National Strategy for Invasive Alien Species (IAS), which establishes priority measures for the prevention, management, handling, and control of these species.

Within the scope of climate change, it is important to note the United Nations Framework Convention on Climate Change (UNFCCC), signed in Rio de Janeiro in 1992, and in force since 1994. One of its foundational principles is Common But Differentiated Responsibilities (CBDR), according to which developed countries, due to their historical and current responsibilities for global warming and greater financial and technological capacity, should take the lead in implementing ambitious greenhouse gas emission reduction targets and provide financial and technological support to developing countries. In turn, these countries should contribute to tackling climate change in a way that is compatible with the imperative of economic and social growth, as recognized by the Framework Convention. In 2015, the Paris Agreement[47] established new conduct obligations for all parties, contributing to the increase in overall ambition in an effective and lasting manner, in the context of sustainable development and poverty eradication efforts.

The Nationally Determined Contribution (NDC) is the main instrument for communication of the individual commitments undertaken by the Parties to the Paris Agreement under the UNFCCC. In addition to greenhouse gas emission reduction initiatives, NDCs contain elements for adaptation to the adverse effects of climate change and their means of implementation (financing, technology transfer, and capacity building). Brazil's NDC[48] takes into consideration the imperative of sustainable development and includes, in addition to mitigation commitments, adaptation measures, international cooperation opportunities, and references to means of implementation.

In recent years, Brazil has expanded its efforts to preserve forest and marine areas and improve measures for regulation, environmental recovery of degraded areas, monitoring and enforcement, technical assistance, workforce training, credit facilitation, and incentives for sustainable production. The defense of this natural heritage will continue to be a permanent commitment for Brazil.

46 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed by Brazil in 1975, effectively regulates the trade of fauna and flora species, protecting them from the danger of extinction when the threat is international trade. To this end, it assigns to producing and consuming countries their share of common responsibility and establishes necessary mechanisms to ensure the non-harmful exploitation of populations.

47 The Agreement represents a decisive and global response to the challenge of climate change, with the purpose of keeping global warming well below 2°C and redoubling efforts to limit the temperature increase to 1.5°C. It offers a fair, ambitious, balanced, and lasting global framework to support the efforts of all countries against climate change, in the context of eradicating poverty and hunger and promoting sustainable development. Brazil actively participated in all phases of the negotiations that culminated in the Agreement. At the Paris Conference, the Brazilian Delegation facilitated discussions on differentiation and worked with other key actors to promote consensus on central issues for the outcome of the Agreement, presenting proposals for common understanding that safeguard the environmental integrity of the international regime against climate change and increase the global ambition level (https://www.gov.br/mre/pt-br/canais_atendimento/imprensa/notas-a-imprensa/aprovacao-do-acordo-de-paris).

48 Brazil's Nationally Determined Contribution (NDC) reaffirms the commitment to reduce total net greenhouse gas emissions by 37% by 2025, and officially undertakes the commitment to reduce Brazilian emissions by 43% by 2030. The NDC also states the indicative goal of achieving climate neutrality — that is, net-zero emissions — by 2060. This long-term goal may be reviewed in the future, depending on the functioning of the Paris Agreement's market mechanisms, without dismissing the possibility of adopting an even more ambitious long-term strategy. Brazil's NDC is one of the most ambitious in the world due to four main characteristics. First, because it refers to absolute emissions, and not relative factors such as carbon intensity or historical growth trends, as most NDCs from developing countries. Second, because it refers to the entire economy, and not to specific sectors. Third, because of the magnitude of the goals (37% and 43%), which even surpass the goals of several developed countries. Fourth, because it includes an intermediate goal by 2025, forcing a trajectory of reductions throughout the decade and not just by 2030 (https://www.gov.br/mre/pt-br/canais_atendimento/imprensa/notas-a-imprensa/2020/apresentacao-da-contribuicao-nacionalmente-determinada-do-brasil-perante-o-acordo-de-paris).

Photo: Brazilian Army



Environmental recovery operations in the São Francisco River carried out by Brazilian Army engineering units.

In the Amazon region, the protection of biodiversity, of mineral and water resources, and the energy potential for the Brazilian territory constitute a priority for the country. Its rivers form the largest drainage basin in the world, characterized as the largest surface freshwater reserve on the planet, potentially contributing 40% of the country's energy, although only one-fifth of this potential is currently being utilized.

Photo: Brazilian Air Force



Brazilian Air Force (FAB) A-29 Super Tucano aircraft on aerial patrol over the Amazon region.

The sustainable exploitation and socioeconomic development of the Amazon will continue to be vital for national integration, requiring increased capabilities to provide security and sovereignty, with intensified military presence and effective State action, in order to prevent external influence on local communities. For improving this security, it is essential to consolidate cooperation and integration with other Amazonian countries.

In the context of environmental protection and preservation, the Defense Sector carries out diverse actions, being of vital importance for the protection of this enormous natural heritage. In this regard, it has conducted protection, preservation, recovery, sustainability, and environmental education measures implemented by the Ministry of Defense and the Armed Forces, in addition to executing operations to support governmental agencies whose institutional missions are related to the environmental area.

Photo: Brazilian Army



Interagency operations of the Armed Forces against environmental crimes.

CYBERSECURITY AND CYBERDEFENSE

The issues with implications for National Defense include cybersecurity and cyberdefense. In an increasingly digitized and connected world, where cyberspace has become a dimension of geopolitical dispute, there is a concrete probability of countries suffering cyberattacks from diverse origins and with difficult attribution of liability. Such actions can cause considerable damage to essential services or critical infrastructure or to other strategic sectors, posing new challenges for States in the 21st century.

Photo: Brazilian Army



Cyber defense exercise conducted by specialized units.

International cooperation in the field of cybersecurity and cyberdefense has been an important element for the more effective protection of assets in cyberspace. Coordinated work between public authorities and private initiative is crucial to good results in these issues.

The international community seeks to achieve adherence to norms, in the form of treaties[49] and agreements. The UN and the OAS, to cite relevant forums for Brazil, have focused on the issue and also on the aspect of training teams from Member States to face threats originating from Cyberspace, which are growing in terms of capabilities and technologies employed.

The adoption of the United Nations Group of Governmental Experts (GGE) report has become important to advance responsible State behavior in cyberspace, which enabled the expansion of common understandings as to voluntary norms for responsible behavior in cyberspace, adopted by consensus in 2015 by the United Nations General Assembly. The 2021 report was also endorsed by consensus by the General Assembly.

The UN continues to focus on the issue, currently under discussion in the second Open-Ended Working Group on Security and Use of Information and Communication Technologies (Open-Ended Working Group — OEWG), composed of all Member States and with a mandate until 2025. However, the cybersecurity debate, in addition to been extensive and complex, reflects geopolitical cleavages, which causes additional obstacles to the indispensable gradual and cumulative building of consensus.

Brazil assesses the possibility of the use of information and communication technologies as threats and risks to National Defense, especially in view of the extensive outreach of these technologies in contemporary societies. Cybercrimes committed by state or non-state actors (including international criminal organizations and terrorist groups), acting in a coordinated manner against state or private entities, constitute a significant threat to national security and international stability.

The scenario of cyberattacks against strategic national assets requires the implementation of a necessary defense framework for effectively conducting comprehensive cybermeasures, enabling the Country to act with freedom of action in cyberspace of interest to National Defense and precluding possible cyberattacks. Thus, it is important to raise national awareness in terms of cybersecurity and cyberdefense and better prepare the Country to protect its ICT assets and enhance its cyberresilience.

In 2020, Brazil released its National Cybersecurity Strategy[50] and, in 2021, established the National Information Security Policy[51], addressing cybersecurity and cyberdefense. These documents guide state initiatives for information security, cybersecurity, and cyberdefense, in compliance with the international commitments undertaken by the Country. The successive quadrennial editions of the END have established the Cyber Sector as one of the sectors with strategic importance for national defense, assigning to the Brazilian Army the responsibility for its coordination and development.

Within the framework of the Institutional Security Cabinet of the Presidency of the Republic, there was the creation of the Secretariat of Information Security and Cybersecurity, which includes the Department of Information Security and the Department of Cybersecurity, elevating the topic to the same level as the strategic space and nuclear sectors.

The Defense Sector, with the aim of contributing to the implementation of the State's capacity-building for National Defense, in the scope of cybernetics, and to comply with provisions in the National Defense Strategy (END) on the Cybernetic Sector is developing the National Defense Cybernetic Defense Program (PDCDN), which aims to equip the Defense Sector with the necessary defense structure to effectively conduct cybernetic measures, enabling freedom of action in the cyberspace of interest to National Defense and precluding potential cybernetic attacks, supporting national resilience.

Regarding operational measures, the Cyber Defense Command (ComDCiber)[52] is expanding the Cyber Guardian Exercise[53], annually by including participants from various sectors that are strategic for society, and transforming it into the most relevant exercise in the Southern Hemisphere in this area.

Another relevant measure was the creation of the Aeronautics Cyber Defense Center Nucleus, dedicated to the appropriate handling of cyber protection, exploitation, and attack actions within the framework of the Brazilian Air Force, integrating the Military Cyber Defense System alongside its counterparts in the Army (Cyber Defense Center) and the Navy (Naval Special Operations Command).

Brazil is aware of the growing challenge that cybersecurity and cyberdefense represent in the context of National Defense and seeks to carry out its actions in cyberspace, respecting international order, but considering the need to defend national sovereignty and the right to self-defense of the States. Regarding the Defense Sector, the building of cyberdefense capabilities, in the Ministry of Defense and the military branches, has these references as guiding principles, with proactivity in pursuing and maintaining the ability to neutralize threats in cyberspace continuing to be fundamental for maintaining operational readiness.

49 Decree No. 11,491 of April 12, 2023, which promulgated the Convention on Cybercrime signed by the Federative Republic of Brazil, in Budapest, on November 23, 2001.

50 Decree No. 10,222 of February 5, 2020.

51 Decree No. 9,637 of December 26, 2018, amended by Decree No. 9,832 of June 12, 2019, and by Decree No. 10,641 of March 2, 2021.

52 Joint Command that operates as the central body of the Military Cyber Defense System (SMDC), comprising members of the Armed Forces, with permanent operation and organized into capabilities, around the SMDC, for measures aimed at ensuring the effective use of cyberspace by National Defense, as well as preventing or hindering hostile actions against its interests.

53 Simulated cyberattack protection training, promoted by ComDCiber, involving the Armed Forces, public agencies, and private entities from the electric, financial, nuclear, and telecommunication sectors.

Photo: Brazilian Army



Task force composed of Leopard tanks and M113 armored vehicles.

CHAPTER 2

THE NATIONAL ENVIRONMENT

INITIAL CONSIDERATIONS

Brazil has continental dimensions. It is an agro-environmental powerhouse whose territory and jurisdictional waters harbor abundant natural resources, extensive potable water reserves, and unparalleled biodiversity. It holds a prominent global position in food production as a major producer of animal and vegetable protein. From another perspective, the country has one of the world's largest manufacturing sectors, with excellent and diverse production capacity. Most of its energy matrix, around 50%, is supplied by clean and renewable sources, such as hydroelectric, solar, and wind power, contributing to atmospheric decarbonization and global sustainability.

Due to its political-strategic stature[54] in the international system and the need to defend its population, sovereignty, heritage, national interests, wealth, and values, the Country cannot fail to duly consider National Defense, possessing the capacity to deter any intention or attempt at external aggression, synergistically employing national power.

This chapter addresses the main aspects of national power that relate to National Defense in order to present the Country's capacity to achieve and maintain national objectives, mainly the National Defense Objectives (OND)[55].

NATIONAL POWER

National power[56] is presented as the interdependent conjugation of wills and assets available for achieving the objectives and defending the interests of a nation. The desirable consolidation of national power is conditioned by the country's development, a continuous process associated with the highest-level strategic planning.

The preparation of national power consists of a set of activities for its consolidation, either by maintaining or improving existing power, or by transforming potential into power. The efficiency of preparation depends on policies and strategies that provide the necessary conditions for national development.

Photo: Brazilian Army



ASTROS II Multiple Launch Rocket System (MLRS).

The complexity of the international conjuncture indicates that Brazil needs to remain attentive to possible threats, potential or manifest, that may oppose national interests, the consolidation of national

54 The Political-Strategic Stature of a nation is the set of attributes that are perceived and recognized by other nations and that define the relative level of its participation and influence in the international context (ESCOLA SUPERIOR DE GUERRA, 2015, p. 108).

55 Available at: https://www.gov.br/defesa/pt-br/assuntos/copy_of_estado-e-defesa/politica-nacional-de-defesa.

56 National power is the collective of people and means that act in compliance with the national will to achieve and maintain national objectives. (ESG, Fundamentos do Poder Nacional, 2022, p. 33).

sovereignty, and the development and well-being of its people. Upholding the constitutional principles that govern the Brazilian State, with emphasis on Article 1 of the Constitution, which lists sovereignty as the first foundation, Brazil must possess the conditions to deter any type of external aggression and, should it occur, have the capacity for proper and proportional immediate response, compatible with the country's political-strategic stature.

It is important to note, in this context, the security of critical infrastructures[57], which requires the participation of all society (state or private, civilian and military actors). The assessment of Defense priorities must consider the impacts arising from the unavailability of critical sectors, which, given the mutual dependency or interference relations, can affect the national logistical capacity and production chain, degrading national power.

Consequently, Brazil must invest in building and enhancing the State's capabilities for National Defense, as contained in the END, to provide adequate effectiveness to National Defense. In this context, it is essential that the Armed Forces are adequately prepared and maintained in a permanent state of readiness to be employed to accomplish their constitutional purpose, established in art. 142 of the Constitution[58].

Photo: Brazilian Air Force



Brazilian Air Force (FAB) F-39 Gripen NG combat aircraft.

THE BRAZILIAN TERRITORY

The Brazilian territory, located in South America, has about 8.5 million km² of land area and 5.7 million km² of jurisdictional waters, making it the fifth-largest country in territorial extension in the world.

Photo: IBGE



Federative Republic of Brazil in the South American regional context.

Brazil borders nine South American countries and one overseas territory of France, which represents a line 16,866 km long. As provided in art. 20 of the Constitution[59], the 150 km strip along the borderland is designated as the border strip, considered fundamental for National Defense, as it represents 27% of the National Territory, encompassing 11 federal units and about 600 municipalities, with a population of about 10 million inhabitants. The observed significant population growth and the densification of urban centers along this area justify the priority given to the sustainable development of these regions, to national integration, and to cooperation with border countries, including in tackling transnational crime.

The national territory is composed of five regions, with their own characteristics: North, Northeast, Central-West, Southeast, and South.

The Northern region accounts for over 45% of Brazilian territory and is characterized, among other elements, by its low population density and extensive border area. The Brazilian Amazon, which is part of the continental Pan-Amazon, with over 4.5 million km², harbors significant mineral reserves and the greatest biodiversity on the planet. The region has the potential to articulate different areas of South America, continental — Amazonian and Guiana Shield — and maritime — Atlantic and Pacific — and through these, the Caribbean Sea.

The Northeast is the second most densely populated geographical region in absolute terms, impacted by the natural phenomenon of drought and with its population concentrated along the coast, where the main urban centers are located. Characterized by its easternmost bulge, which lies closest to the West African coast, the region occupies a highly strategic geographical position for maritime navigation and defense operations in the South Atlantic.

Photo: IBGE



Geostrategic division into administrative regions.

The Central-West, an area of agricultural frontier expansion, is a national political center and has the smallest total population compared to the other regions. At the same time, its geographical position is strategic from a continental point of view, as it comprises the central area of interconnection between different sub-regions of South America, including through the bioceanic route[60].

The Southeast is the most densely populated region and the one with the largest total number of inhabitants, being also the most urbanized and developed area in the country, with the largest population centers.

57 According to the National Policy on Critical Infrastructure Security, approved by Decree No. 9,573 of 2018, critical infrastructures are facilities, services, assets, and systems whose interruption or destruction, total or partial, causes a serious social, environmental, economic, political, or international impact, or damage to the security of the State and society.

58 The Armed Forces, consisting of the Navy, the Army, and the Air Force, are permanent and regular national institutions, organized on the basis of hierarchy and discipline, under the supreme authority of the President of the Republic, and are established for the defense of the Homeland, the guarantee of the constitutional powers and, at the initiative of any of these, of law and order (Federal Constitution, Art. 142).

59 The 150 kilometer-wide strip along the borderland, designated as the border strip, is considered fundamental for the defense of the national territory, and its occupation and use will be regulated by law.

60 The Bioceanic Route connects the Atlantic Ocean to the Pacific Ocean, in Chile, with Porto Murtinho, in Mato Grosso do Sul, as the starting point from Brazil. The Route that passes through four countries — Brazil, Paraguay, Argentina, and Chile —, in addition to promoting increased trade, provides cultural integration and tourism. (https://www.semadesc.ms.gov.br/rota-bioceanica-revela-mundo-de-possibilidades-para-o-comercio-industria-e-turismo-da-america-latina/)

The South region is the smallest in territorial extension, borders the Platine countries, and presents high rates of urbanization and population density. Moreover, in the 19th century this region received European immigrants (Italians, Germans, and Poles, among others), which greatly influenced the culture of the southern population.

All geographical regions of Brazil have critical infrastructures with strategic value to the Country, in the areas of energy, communications, transportation, water, finance, digital government, and biosafety and biosecurity, constituting important focal points for National Defense.

The country comprises six biomes with distinct characteristics: Amazon, Atlantic Forest, Cerrado, Caatinga, Pampa, and Pantanal. They are important not only for possessing abundant natural resources, but also for featuring environments with major fauna and flora diversity. The Amazon Rainforest is considered the reserve with the greatest biological diversity on the planet, with indications that it is home to at least half of all living species on Earth. The Cerrado is considered an ecosystem with extremely rich biodiversity. The Atlantic Forest has water resources that supply 70% of the national population.

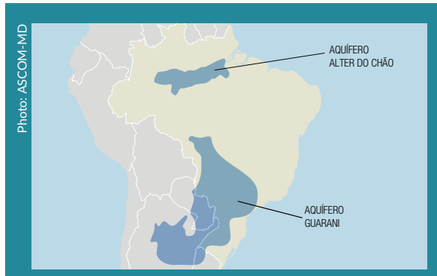
Brazil holds 12% of the planet's freshwater reserves, accounting for 53% of South America's water resources. A large part of the country's borders is defined by bodies of water — there are 83 border and transborder rivers, which occupy 60% of the Brazilian territory, in addition to drainage basins and aquifers. Brazil promotes initiatives aimed at fostering regional cooperation in water resource management, in order to ensure full access to water for the regional populations. On a bilateral level, Brazil and its neighbors collaborate with a view to the integrated management of border and cross-border water resources.

Photo: IBGE



Brazilian hydrographic regions — ANA and IBGE.

Photo: ASCOM-MD



ALTER DO CHÃO AND GUARANI AQUIFERS

The Alter do Chão and Guarani Aquifers rank among the largest underground freshwater reserves in the world. The Alter do Chão Aquifer, located beneath the world's largest drainage basin (Amazon River), extends under Brazilian soil, with an estimated potential volume of 86,000 km³. The Guarani Aquifer has about 70% of its total area located in Brazilian territory (840,000 km²), with an underground water reservoir with an estimated capacity of 45,000 km³.

The Brazilian waterway network constitutes a vital factor for national integration. The country has twelve large drainage basins. The following are the four main drainage basins: to the north, the Amazonian; in the center, the Tocantins-Araguaia and São Francisco; and, to the south, the Paraná, Paraguay, and Uruguay sub-basins, which compose the La Plata Basin. There is major potential for coordinated operations that facilitate intermodal transport, with direct impacts on national development and South American integration.

Brazil is a continental country with a maritime vocation, supported by its extensive coastline with approximately 7,500 km in extension, whose development is intrinsically associated with the sea. The valuable natural resources, high potential for living and non-living resources, Brazil's largest oil and natural gas reserves, large population concentrations along the coast, important urban centers, and the strong dependence on maritime traffic for foreign trade activities demonstrate the undeniable strategic and economic importance of the South Atlantic for the Country.

Brazil's jurisdictional waters and Continental Shelf in the South Atlantic represent an area equivalent to that of the Brazilian Amazon, hence called the Blue Amazon, totaling 5.7 million km². The Brazilian State carries out and has intensified measures for the tracking, monitoring, and control of maritime traffic, in addition to incidents in the maritime surveillance area under Brazil's responsibility.

THE BRAZILIAN STATE

Brazil is a Federative Republic[61] that adopts presidentialism as its system of government. The separation of powers — Executive, Legislative, and Judicial — is, in the Brazilian legal system, a fundamental principle, based on the independence and harmony among the three Branches of Government.

The Brazilian Federation is formed by the indissoluble union of the 26 states and the Federal District and has over five thousand five hundred municipalities. These federative entities possess political autonomy, under the terms of the Constitution, and can enact laws, elect governors, and manage their own resources.

The Country is established on constitutional foundations, among which is National Sovereignty, understood as the maintenance of the inviolability of the Nation, ensuring the capacity for self-determination and coexistence with other Nations, in terms of equal rights, not accepting any form of intervention in internal affairs, nor participation in acts of this nature in relation to other nations.

FOREIGN POLICY AND DIPLOMACY

Brazil's Foreign Policy considers that there is a deficit in global governance, aggravated by the paralysis of mechanisms represented by international organizations. Given this context, the Foreign Policy is mainly tasked with consolidating Brazil's position in its strategic environment and in the world, consistently with national values and interests aligned with the Constitution.

61 CF Art. 1 - The Federative Republic of Brazil, formed by the indissoluble union of the States and Municipalities and the Federal District, constitutes a Democratic State under the Rule of Law and has as its foundations: I - sovereignty; II - citizenship; III - the dignity of the human person; IV - the social values of labor and free enterprise; V - political pluralism.

The Country's diplomatic agenda is guided by an integrated view of the three pillars of sustainable development — the economic, social, and environmental aspects —, with special consideration of the protection of biodiversity, the defense of indigenous rights, the preservation of the Amazon and other biomes, and the creation of employment and income for millions of Brazilians.

Brazil also works toward consolidation as a model for energy transition and a low-carbon economy. The country supports the approach of a first-rate environmental and climate diplomacy, active and determined to defend our interests and to play the role of facilitator and consensus builder.

As an agro-environmental powerhouse, with a crucial role in global food security, it works to support all links in the global food supply chain, including the free circulation of production inputs and technologies and access to quality food.

In the field of innovation diplomacy, a set of initiatives is proposed to promote the internationalization of innovation systems, with a view to contributing to the generation of qualified employment and to the expansion of competitiveness for the national economy, to improve the country's integration into global value chains. For example, innovation diplomacy includes the following functions:

- bringing public and private entities in the National Innovation System closer together to facilitate their integration into the international market;
- proposing agendas of national interest to be executed abroad, to elevate Brazil's profile as a knowledge generation hub, strengthening the Brazil brand in innovation; and
- participating in the design of public policies and strategies to enhance the National Innovation System, based on successful international benchmarks.

THE NATIONAL DEFENSE POLICY (PND)

The PND is the highest-level guiding document for planning actions aimed at national defense. Primarily focused on external threats, it establishes objectives for the preparation and employment of national power for national defense.



National Defense Policy and National Defense Strategy.

Analysis of the international and national environments, their projections, and the Political Conception support the establishment of the National Defense Objectives (OND), which must be interpreted as the conditions to be achieved and maintained permanently by the Brazilian nation within the scope of Defense. They are:

- **OND 1:** Ensure sovereignty, national heritage, territorial integrity, and territorial inviolability;
- **OND 2:** Ensure Defense capability to enable the accomplishment of the constitutional purpose of the Armed Forces;
- **OND 3:** Promote technological and productive development in the Defense area;
- **OND 4:** Preserve national cohesion and unity;
- **OND 5:** Safeguard the nation's persons, property, resources, and interests situated abroad;
- **OND 6:** Expand Brazilian society's engagement in National Defense matters;
- **OND 7:** Contribute to regional stability and international peace and security; and
- **OND 8:** Contribute to Brazil's projection on the international arena and its integration into international decision-making processes.

FOREIGN AND DEFENSE POLICIES

Foreign and Defense Policies are complementary and inseparable. The maintenance of regional stability and the construction of a more cooperative and peaceful international environment, of major interest to Brazil, will be favored by the joint operation of the Ministries of Defense and Foreign Affairs.

The coordinated participation of military personnel and diplomats in multilateral forums enhances the capacity of Foreign and Defense Policies to promote Brazilian interests abroad. This joint operation must aim at diversifying strategic partnerships, cooperation, and military exchange with the Armed Forces of friendly nations to strengthen relations between countries.

The growing cooperation with South American nations on Defense matters will contribute to avoiding possible tensions or crises among the region's States and to maintaining a peaceful environment in Brazil's strategic environment. Through cooperation, Brazil will thus strengthen the close association between its Defense Policy and its Foreign Policy.

THE NATIONAL DEFENSE STRATEGY (END)

The END guides the Brazilian State segments as to the measures that must be implemented for the achievement of the PND objectives. Therefore, it is the link between the country's positioning on Defense matters and the measures that are necessary to effectively equip the State with the capacity to meet its interests.

Based on the National Defense Policy (PND), the National Defense Strategy (END) clearly and objectively defines the strategies that must guide Brazilian society in actions to defend the Homeland. It addresses the bases on which the Country's Defense must be structured, indicating the actions that must be conducted within the scope of all levels of the three Branches of Government and the interaction between the various levels leading these actions and the non-governmental segments of the Country.

It also presents State Capabilities adequate to ensure the effectiveness of National Defense, both in peacetime and in conflict.

The National Defense Council (CDN) is the advisory body to the President of the Republic on matters related to national sovereignty and the defense of the democratic Rule of Law. It plays a fundamental role in ensuring national security and preserving national interests, also serving as an assessment tool for domestic and foreign investments in Brazil and the exploitation of its resources and heritage. The CDN is composed of: the Vice-President of the Republic, the President of the Chamber of Deputies, the President of the Federal Senate, the Minister of Justice, the Minister of State for Defense, the Minister of Foreign Affairs, the Minister of Planning, and the Commanders of the Navy, the Army, and the Air Force.

ECONOMY

Brazil's economy is driven by an important manufacturing sector, a vigorous service sector, rich natural resources, and a renewable energy matrix, which provides the country with the necessary energy security and situates it as the largest economy in Latin America and one of the largest economies in the world.

Gross Domestic Product (GDP)

Brazil's GDP in 2023 was R$ 10.9 trillion (US$ 2.17 trillion), placing the country among the 10 largest economies in the world. The components of Brazilian GDP that contribute the most to its performance include the agribusiness, industry, and service sectors.

Industry

The Brazilian industrial sector works toward strengthening national production, employing around 8.5 million Brazilians and accounting for 19.5% of the country's formal jobs.

The numbers demonstrate the importance of industry for Brazil, accounting for significant shares of Brazilian exports of goods and services and for business investment in research and development.

Photo: Brazilian Air Force



KC-390 multimission transport aircraft on Embraer's production line.

Brazil's neo-industrialization includes decarbonization, innovation, and the creation of more sustainable and efficient means of production. There is major synergy between this project and the Brazilian government's initiatives geared toward the green economy.

Technologically advanced industries have significant potential to contribute to the Defense industry and National Security, whether through spillover effects and dual-use technologies or through their flexibility and capacity for conversion to Security and Defense Objectives in critical times. They also contribute to the reduction of vulnerabilities in strategic production chains.

Transport

Road Mode

The spatial distribution of transport logistics in Brazilian territory shows a predominance of highways, mainly concentrated in the South-Central region of the country. In terms of percentage, 61.1% of all cargo transported in Brazil uses the road mode.

Rail mode

The main railway lines are used for the transport of commodities, mainly iron ore and grains from the agribusiness. Some of the most important railways are: the North-South Railway, which connects the region of Anápolis (GO) to the Port of Itaqui, in São Luís (MA), predominantly transporting soybeans and soybean meal; the Carajás Railway, which connects the Carajás Mountains to the Ponta da Madeira Terminal, in São Luís (MA), mainly carrying iron ore and manganese; and the Vitória-Minas Railway, which predominantly transports iron ore to the Tubarão Port.

Water Mode

Inland waterways are predominantly used for the transport of commodities, such as grains and ores, agricultural inputs, oil and derivatives, products with low added value and whose large-scale production and transport provide competitiveness. The exception is the North region, where transportation by small passenger and cargo vessels is of historical importance.



National hydrographic chart.

In addition to the Solimões/Amazonas and Madeira inland waterways, this region relies heavily on other navigable rivers for intra-regional transportation. Other inland waterways of extreme importance for the country are the Tietê-Paraná and Paraguay waterways, which play an important role in the transportation of agricultural products in the state of São Paulo and the Central-West Region.

Air Mode

Air transport impacts the economy through job creation; consumption generated by airlines and their supply chains; trade, tourism, and investment flows from users of all airlines operating in the country; and the connections between city pairs that make these flows possible. In total, 1.1% of Brazil's GDP results from air transport and foreign tourism by air mode.

Pipeline Mode

Pipeline transportation in Brazil can be basically divided into two categories: pipelines for fuels and derivatives, and pipelines for ores, enabling large quantities of products to be moved safely, reducing the traffic of hazardous cargo by trucks, trains, or ships.

According to updated data from the National Petroleum Agency (ANP), the Brazilian pipeline network for fuels and derivatives is divided into pipelines intended for the movement of oil, natural gas, ethanol, and derivatives.

Regarding slurry pipelines, according to data from the National Land Transport Agency (ANTT), the Brazilian network consists of 5 active projects, used for the transport of iron ore and bauxite.

Ports

Ports primarily serve as export gateways for commodities, mainly soybeans, iron ore, oil, and its derivatives, which are among Brazil's main export products. Regarding soybeans, notable ports include Itacoatiara (AM), Paranaguá (PR), Rio Grande (RS), Salvador (BA), Santarém (PA), São Francisco do Sul (SC), and Itaqui (MA).

Fuels and petroleum derivatives are notable in several terminals in the Northeast, especially Aratu (Candeias-BA), Itaqui (MA), Fortaleza (CE), Suape (Ipojuca-PE), Maceió (AL), and São Gonçalo do Amarante (Pecém-CE).



Port infrastructure.

The ports that handle the most iron ore are the private terminals of Ponta da Madeira, owned by Vale S.A., in São Luís (MA), and Tubarão, in Vitória (ES). The first primarily receives production from the Carajás Mountains in Pará, and the latter is associated with production from the state of Minas Gerais.

The largest amount of cargo handled in the country's state-managed ports is located at the Port of Santos (SP), due to its strategic position. It ranks third in the ranking that considers Organized Ports and Private Use Terminals (led by the Private Terminals of Ponta da Madeira and Tubarão) and handles, on a large scale, general cargo stored and transported in containers. It is the outlet for the highest value-added production headed to other regions of the country and for export, in addition to being the disembarkation point that is closest to the country's largest consumer center, notably the São Paulo Metropolitan Area.

Photo: DNIT



Santos port complex (SP).

Blue Amazon and the Blue Economy — "Ocean GDP"

The Blue Amazon is an extensive maritime area, with approximately 5.7 million km², that is unquestionably important for being the main transport route for the country's foreign trade, for its marine biodiversity, for its fishing resources, in addition to its influence on Brazil's climate and the ocean's role as a global climate regulator.

The Brazilian sea holds immense reserves of oil and gas, in addition to other non-living resources (salt, gravel, sands, phosphorites, cobalt-rich crusts, sulfides, and polymetallic nodules, among others), which represent important sources of wealth, in addition to containing a high variety of marine organisms of biotechnological value that possess properties with wide applications, mainly in the areas of pharmaceuticals, cosmetics, food, and agriculture. Other notable activities include tourism, maritime transport, fishing and aquaculture, shipbuilding, and nautical sports. Moreover, it has one of the largest hubs for submarine cables in the world, responsible for transmitting telecommunications signals.

Approximately 19% of the national Gross Domestic Product (GDP) corresponds to the "Sea GDP," with 2.6% resulting from activities directly related to the sea and 16.4% from activities indirectly related to the sea. It should also be noted that the conservation of coastal ecosystems is essential for the Blue Economy. It is estimated that 50% of artisanal fishing in the country is associated with the mangrove areas on the Brazilian coast.

The Armed Forces, especially the Brazilian Navy (MB), contribute to the Sea GDP by boosting the defense economy, fostering various industrial and service sectors, and driving the Blue Economy.

The dynamism and evolution of oceanographic scenarios and interests of all kinds increasingly demand a robust presence of the Brazilian Navy in the Blue Amazon, in addition to the development of monitoring and control systems capable of facing present and future threats. It must be interpreted from four perspectives: economic[62], scientific[63], environmental[64] and sovereignty[65].

62 **Economic:** related to national development, based on the abundant living and non-living resources in Brazilian Jurisdictional Waters and the importance of maritime transport for foreign trade.

63 **Scientific:** deals with the potential for technological research and development.

64 **Environmental:** assumes a position that goes beyond the regulatory aspect, as the continuity of oceanic spaces and the mobility of marine currents increase the possibility of introducing and dispersing non-native species and the compromising exploitation of the marine environment, which requires the enhancement of pollution monitoring and control capabilities, both accidental and intentional pollution.

65 **Sovereignty:** associated with the duties of the Brazilian Navy, which represents the State's authority and oversees the use of force at sea.

Agribusiness

Another important factor for national development is agribusiness. This sector contributes about 23% of the National GDP, with the country being, since 2008, the third largest global exporter of agricultural products, and prominent as an important player in the world food system.

Brazil is the third largest exporter of corn in the world, behind the United States and Argentina. In addition to corn, other notable exports are soybeans, wheat, sugar, chicken meat, and pork.

Photo: Agência Gov



Brazilian agricultural production.

Fishing and Aquaculture

Fishing is an activity of major importance for the economy, food security, preservation of cultural values, and conservation of the environment in Brazil. It occurs along its extensive maritime coast and in its continental waters with large freshwater amounts, rich in biodiversity.

Fishing activity contributes to the national economy, with Brazil being a traditional exporter of fishery products, such as shrimp, lobster, and fish.

Brazil has played an outstanding role in the conservation of global marine resources, as a member of the International Commission for the Conservation

of Atlantic Tunas (ICCAT) since its establishment in 1969, having actively participated in its work in negotiations involving fishing quotas for the main stocks exploited in the sea.

Natural resources

Brazil exhibits a major diversity of natural resources, including biological, water, energy, and mineral resources. The country has one of the largest freshwater reserves in the world and also very nutrient-rich soil, which favors agriculture and livestock farming.

The pre-salt reserves have supplemented this potential and are leading the country to a new level of oil and natural gas production and consolidating its technological capacity to sustainably manage the wealth available in its vast maritime area.

Energy

In a world marked by unequal distribution of energy sources, energy security is a central issue for national policies and international relations, being directly related to national resilience.

The guarantee of full access to energy for the population, the demand for investments in renewable and non-renewable sources, the environmental concerns, and the international energy exchanges represent geopolitical aspects that are important for the Country. Brazil's leadership in renewable energies, such as bioenergy and hydroelectricity, and its prominence in the exploitation of non-renewable resources, such as oil and gas, are credentials that reinforce the country's role in this area.

Photo: Ministry of Mines and Energy



Wind farm: renewable energy generation.

Renewable Energies

Brazil is one of the pioneers in the research, development, and use of renewable energy sources. Currently, about 50% of the national energy matrix is composed of renewable sources, a number that contrasts with the world average of 18%. These characteristics represent a fundamental comparative advantage, giving Brazil a prominent role.

A coordinated foreign policy, seeking to leverage synergies, always in line with national capabilities and interests, contributes toward consolidating Brazil's position as a relevant energy power and is guided by both the imperative to promote Brazilian sustainable development and the aspiration to contribute to global efforts for greenhouse gas emission reduction.

Photo: MAPA



Biofuel production (corn-based ethanol).

Bioenergy, a renewable energy source, corresponds to 8.8% of the national energy matrix. According to all main projections and scenarios, massive acceleration in the global deployment of sustainable bioenergy will be necessary for the world to achieve the Paris Agreement goals of keeping the global temperature rise well below two degrees Celsius. Brazil is working in various forums to give international visibility to bioenergy and foster its increased use in other countries.

As a result of favorable geographical and environmental characteristics on land and at sea, several projects are under development aiming at diversifying the energy matrix by increasing and establishing onshore and offshore wind farms.

Brazil's efforts to globally promote bioenergy include work within the Biofuture Platform and the Mercosur Ad Hoc Group on Biofuels (GAHB), which meets semi-annually for bloc countries to exchange information on national biofuel projects and policies.

Photo: Norte Energia



Belo Monte hydroelectric power plant (PA).

Furthermore, Brazil has continuously engaged in debates on the sustainability of bioenergy in various international forums and in third countries, as controversies on this matter are still raised. The above forums include the International Civil Aviation Organization (ICAO), the Global Bioenergy Partnership (GBEP), the International Maritime Organization (IMO), and the Intergovernmental Panel on Climate Change (IPCC).

Nuclear Energy

Nuclear power generation accounts for 3% of the Brazilian energy matrix, concentrated in Angra dos Reis (RJ), at the Almirante Álvaro Alberto Nuclear Power Plant.

The nuclear complex, composed of the Angra 1, 2, and 3 power plants, is projected to generate up to 3,395 MW of electricity when the third plant becomes operational.

In addition to contributing to the generation of electrical energy, the use of nuclear energy also fosters research in the areas of health, food, engineering, and materials development.

Photo: Brazilian Army



Almirante Álvaro Alberto nuclear power plant — Angra dos Reis (RJ).

Oil and natural gas

Brazil is one of the world leaders in the prospection and production of oil and natural gas in deep and ultra-deep waters. Thanks to its large reserves in the pre-salt polygon, Brazil is expected to rank among the top five oil producers in the coming years. Brazil also plays a prominent role in terms of energy technology research and development, with centers of excellence on the matter.

Engagement in multilateral institutions and forums on energy and energy transition

Brazil actively participates in the main international organizations and initiatives related to energy. It has been an "associate country" of the International Energy Agency (IEA), linked to the Organisation for Economic Co-operation and Development (OECD), since 2017, when the "Joint Association Declaration" was signed. The declaration allows Brazil to participate in the permanent groups and committees of the IEA, in addition to its ministerial assemblies.

In the G20[66], Brazil participates in discussions within the scope of the Energy Sustainability Group, which discusses issues of major importance in the global energy landscape. Within the BRICS[67], it is committed to the development of the Energy Research Cooperation Platform (ERCP).

In 2022, Brazil joined the International Solar Alliance (ISA), an international organization headquartered in India, which aims to increase the production and use of solar energy worldwide through support for research, development, cooperation, and financing.

Brazil follows the discussions within the Latin American Energy Organization (OLADE), the main forum that addresses energy issues in the region. Its founding treaty and subsequent regulations grant it competences in energy integration, renewable energy, energy efficiency, and energy security, among others. Within the scope of MERCOSUR, there are discussions on issues related to energy in regional integration and to geology and mining.

Mining

The mining sector represents an important source of foreign exchange for Brazil's trade balance. In 2020, the sector's surplus was US$ 28 billion, representing 54% of the entire economy's positive balance. Brazil is attentive to the prospection and aggregation of critical minerals, essential for the energy transition.

In addition to niobium, a sector in which Companhia Brasileira de Mineração e Metais (CBMM) holds global leadership, the country has proven reserves of rare earths, vanadium, tantalum, bauxite, and graphite, among others. These minerals are at the epicenter of the current economic transformation, known as the Fourth Industrial Revolution, and are essential components for the Defense and renewable energy industries. Therefore, the development of these deposits will represent Brazil's integration into a high-value-added chain, which will create high-income jobs in the 21st century.

Country blocs

Brazil participates in important country blocs, among which the Southern Common Market (MERCOSUR) and BRICS.

Southern Common Market (MERCOSUR)

The Southern Common Market (MERCOSUR) is a regional integration process based on the Treaty of Asunción, signed in 1991 by Argentina. Bolivia is a State in the process of joining MERCOSUR.

MERCOSUR is an open and dynamic process. Since its creation, its main objective has been to provide a common space that provides commercial and investment opportunities, through the competitive integration of national economies into the international market, with the free circulation of goods, people, and productive factors.

MERCOSUR has played a strategic role by overcoming geopolitical rivalries and consolidating democracy in the subcontinent, promoting an unprecedented level of political dialogue and coordination and bringing the societies of Member States increasingly close, which is normally known as "citizen integration." In its over 30 years of existence, "citizen MERCOSUR" has developed a common legal framework on issues such as recognition of qualifications, social security, justice, health, border integration, among others. The bloc has concluded multiple agreements with countries or groups of countries, granting them, in some cases, Associated State status — this is the situation of South American countries. They participate in bloc activities and assemblies and have commercial preferences with the Member States. MERCOSUR has also signed trade, political, or cooperation agreements with a diverse number of nations and organizations on the five continents.

One of MERCOSUR's objectives is to reduce asymmetries among its members and promote social cohesion, especially in less developed regions, in order to support the integration process.

BRICS

Brazil, Russia, India, China, and South Africa are the five countries that initially formed the group called BRICS. During the XV Summit, held in South Africa in August 2023, the BRICS announced the accession of five new countries: Saudi Arabia, Egypt, the United Arab Emirates, Ethiopia, and Iran. The group constitutes a strategic platform to promote cooperation among developing countries and seeks to work towards fairer global trade and the democratization of global governance in a context of severe crisis of multilateralism. The BRICS also aim to establish agreements among member countries in the areas of agriculture, science and technology, culture, Internet governance and security, social security, intellectual property, health, tourism, among others.

Within the BRICS, in July 2015, the New Development Bank (NDB) was established, with an authorized initial capital of US$ 100 billion and a subscribed initial capital of US$ 50 billion, with the objective of financing infrastructure and sustainable development projects in emerging and developing countries. The NDB was conceived as an institution of universal scope, open to all UN Member States.

Sectoral partnership with the Association of Southeast Asian Nations (ASEAN)

Deepening relations with ASEAN[68] is strategic for Brazil, as it represents a growing share of Brazilian foreign trade.

In the first half of 2023, Brazil exported more to Southeast Asian countries than to some European countries, with the Strait of Malacca, a transit route for Brazilian exports to other parts of the Asia-Pacific (APAC), being the region that absorbed 45% of all Brazilian exports.

66 The G20 comprises the countries with the largest economies in the world. The Member States assemble annually to discuss economic, political, and social initiatives. The group is defined as the main forum for international economic cooperation (agreement established by leaders at the Pittsburgh Summit in September 2009).

67 The BRICS is a partnership between the world's developing economies.

68 ASEAN is composed of eleven nations: Brunei, Cambodia, Darussalam, Philippines, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, and Vietnam. Its aim and purpose are promoting active collaboration and mutual assistance on matters of common interest in the economic, social, cultural, agricultural and industrial, scientific, and transportation spheres.

Deepening Brazil's ties with ASEAN, by contributing to regional peace and stability, supports the country to continue obtaining foreign exchange through exports to the Asia-Pacific region and to acquire imports that are essential for Brazil's economic development. ASEAN Member States are also responsible for a significant volume of purchases of defense products from Brazil, constituting important partners for the development of the Brazilian defense industry.

India, Brazil, and South Africa (IBSA) Forum

The IBAS[69] enhances Brazil's Foreign Policy by fostering political coordination among three countries with similar diplomatic profiles and addressing cooperation issues that require high levels of trust, such as defense and cybersecurity.

IBSAMAR, created within the scope of the 2004 IBSA Defense Ministers Assembly, consists of joint naval exercises between the navies of India, Brazil, and South Africa.

The main objective of the exercise is to increase interoperability between the three navies, as well as to develop common understanding and procedures for maritime security operations[70], in addition to raising the level of mutual trust between the three partners.

69 The IBSA brings together India, Brazil, and South Africa and represents a group of democratic countries, with multi-ethnic and multicultural societies, that share common values, such as the defense of democracy and human rights.

70 Set of actions that provide waterway traffic security and maritime protection; Waterway Traffic Security: set of actions aimed at ensuring the safeguarding of human life and navigation safety, at sea and in inland waters, and the prevention of environmental pollution by vessels, platforms, or their support facilities; and Maritime Protection: set of isolated or inter-institutional operations, in which agencies act singularly, coordinatedly, or cooperatively, respecting their legal competences, with the purpose of defending national interests; implementing and overseeing compliance with laws and regulations, at sea and in inland waters; and acting in the prevention and repression of illicit acts or threats, in the Blue Amazon and in maritime areas of interest.

Population and Culture

Brazil has a population of approximately 203 million inhabitants, which constitutes its greatest living heritage and ongoing legacy. In recent years, it has achieved increasingly significant levels of social development, sought the elimination of poverty, increased schooling and life expectancy, and reduced social inequalities.

Brazilian society is the result of the convergence of populations with diverse geographical and ethnic backgrounds. Since the initial colonization, individuals of Native American, European, and African origin have intermingled, resulting in a mixed-race population. In the late 19th century and early 20th century, Brazil received new migratory flows from the most diverse origins, mainly European, Middle Eastern, and Eastern, increasing miscegenation and leaving significant marks on Brazilian culture. The 20th century saw intense internal migratory movements, associated with environmental factors, socioeconomic factors, and policies to promote territorial occupation. These movements deserve consideration because they can intensify because of the evolution of climate change, with impacts on the population and public order.

Economic cycles have attracted migrants to different regions. The population increase in the North region of Brazil, for example, was driven by rubber extraction in the late 19th century. Subsequently, the industrialization process established the Southeast region as the main destination for population movements.

Miscegenation, the European, indigenous, and African heritages, and the contributions from waves of Asian and Middle Eastern migrants and their different cultures are responsible for a unique and original identity. The official Brazilian language, Portuguese, is one of the main foundations of national identity and a vector for the transmission of culture and traditions. Music, arts, literature, and sports are elements that also contribute to the process of forming national identity. These elements encompass local characteristics, sayings, and knowledge, contributing to the development of great cultural richness.

Religious freedom and State secularity are also markedly evidenced in the Brazilian population, being manifested through respect and peaceful coexistence of people of different religions and beliefs, materialized in art. 5, opening paragraph, items VI to VIII and art. 19, opening paragraph, item I, of the Constitution.

Urbanization

One of the major structural transformations observed in economies and societies in the 20th century is the rise of large cities. The change is such that the world rural population, which in 1950 was 70%, will have transformed into 30% by 2050.

Urbanization in Brazil was faster than in some other parts of the world. According to IBGE data, the urban population in Brazil, which was 36.1% in 1950, reached 61% in 2022, which required accelerated structural changes in Brazilian cities.

SCIENCE AND TECHNOLOGY

Science, Technology, and Innovation (ST&I) activities are imperative to enhance and maintain the operational capabilities of the Armed Forces, seeking to reduce vulnerabilities imposed by technological lag and dependence on foreign defense products. Therefore, we underscore the constant and intense interaction of the Armed Forces' ST&I sectors with related Brazilian public and private entities, notably concerning emerging and disruptive technologies.

Photo: Brazilian Air Force



Development of aeronautical technologies at the Institute of Aeronautics and Space.

In the field of Science, Technology, and Innovation (ST&I), the formation of the country's main institutions is associated with international collaboration. The framework that guides Science, Technology, and Innovation activities in the Country is the National Strategy for Science, Technology, and Innovation (ENCTI).

Photo: Brazilian Navy



Submarine Development Program (PROSUB)..

Based on the ENCTI guidelines, the aim is to guide the institutional activities of the bodies and units that compose the MCTI structure, through four lines of action related to the Country's Defense and Security:

- **Line I:** "recovery, expansion, and consolidation of the National System for Science, Technology, and Innovation," which aims to support Science, Technology, and Innovation (ST&I) Institutions, including military ones;
- **Line II:** "reindustrialization on new foundations and support for innovation in companies," which encompasses strategic government areas, including BID companies, and direction towards advanced technologies that may have dual-use or spillover capabilities;
- **Line III:** "science, technology, and innovation for national strategic programs and projects," which textually cites the "expansion of national technological autonomy and capabilities" in the development of Brazilian space and nuclear programs, and specifically in National Defense, in addition to the reduction of vulnerabilities in strategic production chains, such as the areas of health, energy, food, minerals, and information and communication systems; and
- **Line IV:** "science, technology, and innovation for social development," which is notable for its focus on social development with an impact on national security.

The Country is undertaking a set of actions to promote the internationalization of its innovation systems, with a view to contributing to the creation of skilled employment and to increasing the competitiveness of the national economy, to improve the Country's integration into global value chains.

Defense Industrial Base (BID)

The Defense Industrial Base (BID) is the set of public and private, civil and military bodies, companies, and entities, governed by Brazilian legal order, that carry out or conduct research, projects, development, industrialization, production, repair, conservation, overhaul, conversion, modernization, maintenance, integration, decommissioning, or termination of defense goods and services.

For successful consolidation, the BID relies on joint and harmonious work between the productive sector, essentially concentrated in private initiative, and the development sector in charge of the State.

Photo: ASCOM-MD



Brazilian Defense Materiel Industry.

State-owned defense companies such as EMGEPRON (Empresa Gerencial de Projetos Navais), IMBEL (Indústria de Material Bélico do Brasil), AMAZUL (Amazônia Azul Tecnologias de Defesa S.A.) and NAV BRASIL (Serviços de Navegação Aérea S.A.) play a crucial role in Brazil's defense industrial base, encompassing everything from the development and production of military equipment to the research and development of technologies that are strategic for National Defense. One of its main contributions is the pursuit of national sovereignty, ensuring that the country has autonomy in the production and maintenance of its defense assets, avoiding excessive dependence on foreign suppliers. Moreover, these companies foster Brazil's technological advancement through research and innovation projects, supporting strategic sectors such as aerospace, cybernetics, and nuclear sectors, which not only reinforces defense capabilities but also drives the development of other economic sectors. Furthermore, they create skilled jobs, invest in infrastructure, and contribute to regional economic growth, while their participation in programs for international cooperation and export of defense products increases national revenue and consolidates the country's position in the global market.

The Ministry of Defense seeks to promote conditions that enable boosting the Brazilian Defense Industrial Base, empowering the national industry to achieve autonomy in technologies that are strategic for the Country. Aware of the magnitude of this challenge, it also works to ensure continued budgetary effort for Strategic Defense Projects.

A competitive and consolidated Defense industry creates skilled jobs and fosters technological development, with productive chains for other industry sectors.

The Defense productive sector has the following characteristics: need for large-scale production, high expenditure in research and development, long project maturation periods, and a market that is strongly influenced by government purchases and exports, with highly competitive actors.

Defense Product trade is restricted and highly regulated. Several countries design technological and industrial policies geared toward their Defense industry, with government procurement guided not only by technical and economic factors, but also by strategic and geopolitical interests. This aspect leads to restrictions and bans on transfers of various products and technologies from countries that possess them to countries that lack them.

Regarding the domestic market, the BID has been increasingly able to meet the demands of the Brazilian Armed Forces, which has kept imports of this type of product at reduced levels, despite the need for external procurement of products with higher technological sophistication, which are not within the scope of the national industry.

The consolidation of the BID is one of the most important goals defined in the National Defense Strategy (END). In addition to the purpose of providing products, services, and systems that are necessary for the Armed Forces, the sector functions as a driver of technological innovations with civil applications, given the dual nature of the technologies involved.

The integration of programs and activities between the Ministry of Defense and the Ministry of Science, Technology, and Innovation has intensified in recent years, with coordination to foster priority projects that represent significant technological innovations and drive the evolution of BID.

The coordinated effort and initiatives in the work of military and civilian Scientific, Technological, and Innovation (ST&I) Institutions, academia, and companies result in the consolidation of the entire BID.

The military branches support centers of excellence, whose production, particularly regarding applied research, has been fundamental to the scientific and technological achievements that have occurred in Brazil.

Brazil's Defense Industrial Base (BID) is consolidating with initiatives resulting from legislation[71]

71 Notably, Law No. 12,598 of March 21, 2012, Decree No. 7,970 of March 28, 2013, and Decree No. 8,122 of October 16, 2013, and, more recently, Decree No. 11,169 of August 10, 2022.

for Defense Companies and Products, and more recently with the National Defense Industrial Base Policy. This new policy aims to ensure that the BID is competitive and autonomous in technologies that are strategic and indispensable for National Defense.

The prospect of expanded demand for Strategic Defense Products affords an excellent opportunity for developing and strengthening the Defense Industrial Base. However, there are challenges in keeping pace with the expansion of demand and competitively consolidating the national Defense industry, such as: increasing investments in research, development, and innovation; expanding participation in domestic and international markets; and boosting the supply chain in Brazil.

Seeking strategic partnerships between BID bodies and entities and foreign public and private bodies and entities must be a priority with the goal of projecting power to expand Brazil's technological capacity and reduce the procurement of defense goods and services abroad, as well as the acquisition of Defense goods and services whose intellectual property remains of foreign origin, even if they are produced and carried out in the Country.

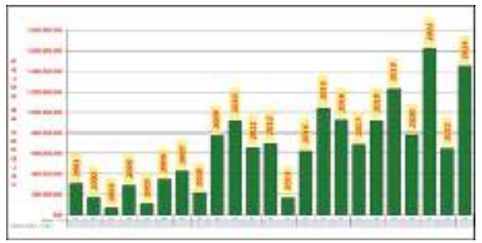
Photo: ASCOM-MD



LAAD Defence & Security (international defense sector event).

The Secretariat of Defense Products of the Ministry of Defense (SEPROD) fosters and disseminates BID defense products by holding fairs and exhibitions in the Country, such as LAAD Defence & Security, which has become the largest and most important event in the sector in Latin America.

Thanks to the quality of national products and promotional initiatives, BID "Authorized Exports" have achieved significant levels and made a relevant contribution to Brazil's trade balance.



National Mobilization

National Mobilization is a set of activities planned, guided, and undertaken by the State, complementing National Logistics, aimed at enabling the Country to execute strategic actions in the field of National Defense. The measures conducted in one of the mobilization coordination areas cause repercussions in the others, which requires that its structure — which is the country's own administrative structure — has integration of activities conducted since peacetime. To this end, the issue is addressed by a law[72], a regulatory decree[73] and a national policy[74]. The President of the Republic has the prerogative to decree it, with authorization of the National Congress, and conditioned on foreign aggression.

72 Law No. 11,631 of December 27, 2007.

73 Decree No. 6,592 of October 2, 2008.

74 Decree No. 7,294 of September 6, 2010.

National Mobilization System (SINAMOB)

The SINAMOB consists of the set of bodies[75] that operate in an ordered and integrated manner in order to plan and carry out all phases of National Mobilization and Demobilization, which must ensure the integration of the capabilities of the Executive, Legislative, and Judicial Branches, within the scope of the Federal, State, Federal District, and Municipal governments. Such actions enable guidance and coordination with maximum efficiency and promote the flow of information among its constituent bodies. The Ministry of Defense, as the Central Body, aims to guide, supervise, and conduct the activities of the System.

Sectoral Military Mobilization System (SISMOMIL)

The Sectoral Military Mobilization System (SISMOMIL) is coordinated by the Ministry of Defense, in conjunction with SINAMOB, of which it is a subsystem, and aims to coordinate with the Armed Forces the actions necessary for the preparation and execution of plans, in order to ensure the continuous, adequate, and timely employment of the assets and the conditions necessary for military confrontation of foreign aggression. Military mobilization capability is closely linked to the concept of strategic elasticity, which represents the capacity to rapidly scale the human and material resources available to the military instrument.

Military Service

Military Service is an essential element for the mobilization of the Brazilian people in defense of national sovereignty. In Brazil, it is mandatory for male citizens. Women and clergy are exempt from mandatory military service in peacetime, being subject, in wartime, according to their aptitudes, to duties resulting from the necessity of complementing military logistics. Brazil's military service legal framework is contained in the Constitution[76], in the Military Service Law[77] and the Law on Military Service Provision[78] by students of Medicine, Pharmacy, Dentistry, and Veterinary Medicine.

75 Art. 6 of Law No. 11,631, of December 27, 2007.

76 Art. 143 of the Constitution of the Federative Republic of Brazil of 1988.

77 Law No. 4,375, of August 17, 1964.

78 Law No. 5,292, of June 8, 1967.

Photo: Brazilian Air Force

Field hospital (HCAMP/FAB) deployed on COMARA riverine vessels during Operation Excelsior.

CHAPTER 3

THE DEFENSE SECTOR

INITIAL CONSIDERATIONS

States, not rarely, may find themselves in situations of conflict of interest with other National States, characterizing a conflict. Primarily, conflicts should be resolved through political, diplomatic, or legal means. However, failure or delay in resolution can escalate the conflict to a situation of international crisis, which, if characterized as a political-strategic crisis involving, for example, some kind of threat to National Sovereignty or the integrity of national heritage, can reach levels of confrontation or even, although undesirable, armed conflict.

At times, the stages described may overlap or progress more rapidly. In the event of escalation to a situation of armed conflict, or even before, the Brazilian State will have the duty — as per provisions in art. 21, opening paragraph, item III, of the Constitution — to ensure the defense of the Country, which will thus employ national power for defense of the national territory, sovereignty, and national interests.

Brazil, aware of the importance of national defense and assured by regulation in the Constitution, has sought to converge efforts to enhance the effectiveness of the Defense Sector. To this end, the Ministry of Defense works to expand the operational capacity of the military instrument, consisting of the Armed Forces — the Navy of Brazil, the Army of Brazil, and the Brazilian Air Force —, to keep them in a permanent state of readiness to accomplish their constitutional purpose.

The Brazilian Armed Forces are permanent and regular national institutions, with their own structures, organized based on hierarchy and discipline, subordinate to the Minister of State for Defense[79] under the supreme authority of the President of the Republic, as provided for in art. 142 of the Constitution.

The Ministry of Defense and the Commands of the Armed Forces, based on the Constitution, Complementary Law No. 97, of June 9, 1999, and other regulations, have the mission of "*Preparing the Armed Forces, keeping them in a permanent state of readiness to be employed in the accomplishment of their constitutional purpose, that is, in the defense of the Homeland, in the guarantee of constitutional powers, in the guarantee of law and order; in the fulfillment of subsidiary duties; and in support of foreign policy; in order to contribute to the national defense effort.*"

Photo: Brazilian Air Force



SAR (Search and Rescue) aircraft on operational mission.

The need for the Forces to effectively contribute to the national defense effort implies keeping them permanently ready to accomplish their constitutional purpose. Therefore, the maintenance of modern and equipped Armed Forces, integrated and adequately distributed throughout the national territory, in a state of immediate readiness, and the development of national mobilization capacity are important for an adequate and proportional response to any type of aggression against the Country.

79 Article 3 of Complementary Law No. 97, of June 9, 1999.

The Armed Forces must conceive their organizational and operational frameworks based on military defense capabilities, consistent with the country's Defense assets and considering the characteristics of each service. These Capabilities stem from the State's National Defense Capabilities.

Military defense capabilities are raised jointly, within the scope of the Defense Sector, to enable the planning, structuring, and definition of processes and responsibilities, aiming at the preparation and employment of the Armed Forces. These capabilities are supplemented by the military capabilities of the military branches, to meet their subsidiary duties and the specificities of each one of them.

Given the peculiarities of modern armed conflicts, there must be consideration, primarily, of the joint employment of the Forces, rationalizing assets of all kinds, scaling the capabilities of each of them, and prioritizing the complementarity of their operational functions. This employment becomes viable through the synergistic use of their characteristics and potential, increasing interoperability, without disregarding, however, the possibility of their singular employment.

Photo: Brazilian Army



Leopard armored vehicle.

Thus, the above demonstrates the primary need for effective capabilities for monitoring and control of airspace, territory, Brazilian Jurisdictional Waters (BJW), and other areas of strategic interest, in addition to the capability for rapid response to any threat or aggression. These activities demand that the Forces increasingly operate in a networked manner, increasing the exchange of information, which, given the dimensions of the continental space, will require the ability to reach the region of interest in a timely manner.

Brazilian legislation also establishes that the Armed Forces have the duty of supporting national development and civil defense (National Policy for Civil Protection and Defense — PNPDEC), in addition to other specific purposes.

The contribution to national development occurs through the development of programs and projects for the promotion of citizenship, the reduction of the social deficit, and the execution of direct actions, in line with public policies, which aim to support the construction of national infrastructure.

Cooperation with the National System for Civil Protection and Defense (SINPDEC) is implemented during disasters in which the support of the Armed Forces is fundamental for adequate and necessary assistance to the population in an emergency.

Still within the scope of development, the Defense promotes the fostering of scientific research through the development of various technologies, in its own ST&I institutions, in conjunction with the Defense Industrial Base (BID) established in the Country, with relevant participation in the national Gross Domestic Product (GDP), due to the high added value of its products.

The Armed Forces are also responsible, while preserving the exclusive competences of the judicial police, for addressing offenses in the land border strip, in the airspace, at sea, and in inland waters, in coordination with other agencies of the Executive Branch, according to the specific duties of the Navy, the Army, and the Air Force.

Additionally, the three Forces must be capable of operating, individually or jointly, in international operations, whether in expeditionary, peacekeeping, or humanitarian operations, to meet commitments undertaken by the Country or to safeguard Brazilian interests abroad and, thus, contribute to the objectives of Brazil's Foreign Policy.

Photo: Brazilian Navy



UH-12 helicopter escorting the BAMP Atlântico (A140).

THE MINISTRY OF DEFENSE

The Ministry of Defense was created on June 10, 1999, replacing the Armed Forces General Staff (EMFA). The former Military Ministries were transformed into the Commands of the Navy, Army, and Air Force, being commanded by General Officers in the highest ranks of the military career: Fleet Admiral, Army General, and Air Lieutenant General, respectively[80].

The Ministry of Defense is also a political actor responsible for fostering cooperation with other government sectors related to National Defense, aligning Defense projects with programs conducted by other areas of government, mainly associated with national development and diplomacy.

The Ministry of Defense and the Armed Forces have authority over a diverse range of matters, some of which are of major sensitivity and complexity for the Brazilian nation. Its areas of competence and organizational framework are contained in Decree No. 11,337 of January 1, 2023.

The employment of the Armed Forces in the defense of the Homeland and in the guarantee of constitutional powers, law, and order, and in participation in peacekeeping operations is the responsibility of the President of the Republic, who must instruct the Minister of State for Defense to activate operational bodies.

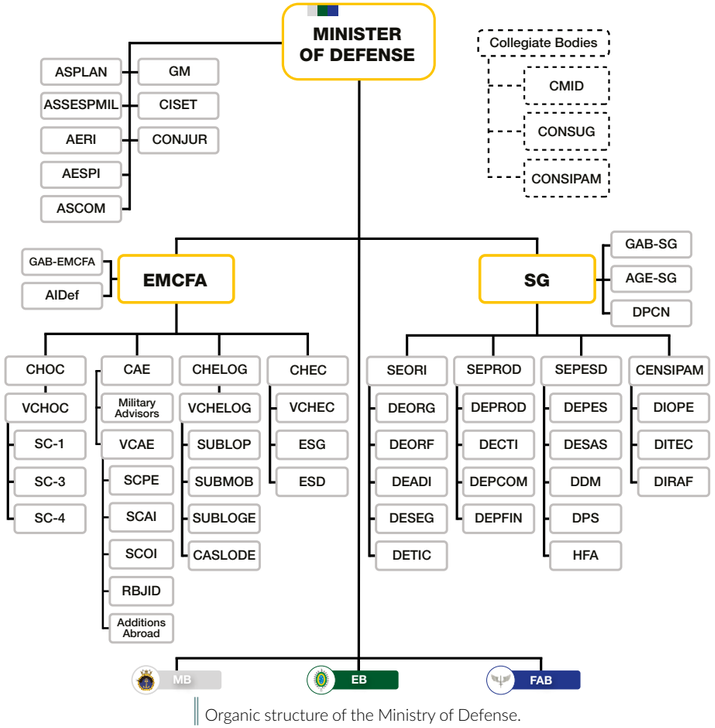
The Military Defense Council (CMiD), composed of the Commanders of the Navy, Army, Air Force, and the Chief of the Joint Staff of the Armed Forces, chaired by the Minister of State for Defense, has the mission of advising the President of the Republic regarding the military employment of the Armed Forces.

80 Complementary Law No. 97, of June 9, 1999, establishes that the Navy, the Army, and the Air Force each have one Commander, indicated by the Minister of State for Defense and appointed by the President of the Republic, who, within the scope of their attributions, directs and manages their respective Force.

The mission of the Defense Sector to keep the Armed Forces in a state of readiness for deployment led to the implementation of an organizational framework within the Ministry that would enable effective operation in planning and coordinating the employment of the military instrument, constituted by the Armed Forces.

Notably, this framework includes as a collegiate body the Superior Council of Governance of the Ministry of Defense (CONSUG-MD), a deliberative body that is part of the Regimental Structure of the Ministry of Defense with the purpose of defining directives for the public governance policy of the Ministry of Defense and the Armed Forces. It is presided over by the Minister of State for Defense and includes the Commanders of the Navy, Army, and Air Force, the Chief of the Joint Staff of the Armed Forces, and the Secretary-General of the Ministry of Defense.

In 2019, the CONSUG-MD approved the Sectoral Strategic Defense Plan 2020–2031 (PESD 2020–2031), which constitutes the institutional plan of the Defense Sector and aims to provide the conditions for Defense to achieve and maintain effectiveness in accomplishing its institutional mission. Notably, the documents of the PESD 2020–2031 include the Strategic Defense Project Portfolio 2020–2031 (PPED 2020–2031).



Organic structure of the Ministry of Defense.

JOINT CHIEFS OF STAFF OF THE ARMED FORCES (EMCFA)

The EMCFA is a permanent advisory body to the Minister of State for Defense. It is responsible for planning the joint employment of the Armed Forces and advising the Minister of State for Defense on the planning of joint training operations and exercises, in the work of Brazilian forces in peacekeeping operations and other duties that may be assigned to it.

The EMCFA plays a fundamental role in the execution of the END, as it is responsible for coordinating interoperability programs with the aim of optimizing military assets for national defense, border security, and humanitarian operations.

The position of Chief of the Joint Staff of the Armed Forces (CEMCFA) is exclusive to a General Officer of the highest rank, indicated by the Minister of State for Defense and appointed by the President of the Republic. Under its coordination, the CEMCFA has a committee consisting of the Chiefs of Staff of each of the Armed Forces.

The Joint Chiefs of Staff of the Armed Forces are structured into four Commands, namely:

Joint Operations Directorate (CHOC)

It is responsible for planning and monitoring joint operations and exercises of the Armed Forces. It involves sizing joint Defense assets, formulating and updating the strategic doctrine and planning for joint employment of the Armed Forces. It monitors the employment of joint or singular Operational Commands, proposes directives, plans, coordinates, and monitors the work of the Armed Forces in peacekeeping operations, in subsidiary assignments, and in operations to support the National System for Civil Protection and Defense.

Strategic Affairs Directorate (CAE)

The scope of CAE's activities includes monitoring the political and strategic conjunctures related to National Defense. It also participates in representations in organizations in Brazil and abroad. This Command has close contact with the Ministry of Foreign Affairs and with military attachés commissioned in other countries. It advises the Minister of State for Defense in proposals for cooperation with other countries.

Logistics and Mobilization Directorate (CHELOG)

CHELOG is responsible for matters related to logistics, national mobilization, and military service. It coordinates the planning, execution, and monitoring of programs and projects geared toward the logistical integration of the Armed Forces and military and national mobilization. Additionally, this Command is responsible for Capability-Based Planning (CBP).

Education and Culture Directorate (CHEC)

The CHEC operates in education and culture matters within the Defense Sector, primarily concerning the interaction of the Armed Forces' educational systems with the Brazilian Superior War College (ESG) and the Brazilian Superior Defense College (ESD), in the promotion of the development of Defense studies; in the interaction of Defense Sector educational institutions with similar institutions, public or private, nationally and internationally; in the promotion of actions that contribute to the Armed Forces in the preservation of historical-cultural heritage; and others within its area of operation. The CHEC also

coordinates and supervises the conduct of education and the assessment of the teaching-learning process at ESG and ESD, which are educational institutions subordinate to the Ministry of Defense.

The Brazilian Superior War College (ESG)

The ESG was established in 1949 with the purpose of developing and consolidating the knowledge necessary for the exercise of advisory and management functions and for national security planning within the governmental sphere, transmitting to civilians and military personnel broad knowledge about Brazilian issues. Over time, new demands arose, which led the College to adapt to the transformations of Brazilian society.

Specifically aiming to boost the interoperability mindset, the ESG currently has, within its framework, the Joint Operations Doctrine Institute (IDOC), which is responsible for researching and studying the joint operations doctrine and providing standardization of training on this doctrine within the Defense Sector.

Photo: ASPLAN-MD



Superior War College — Rio de Janeiro (RJ).

The ESG framework also includes the Marechal Cordeiro de Farias Strategic Studies Center (CEECF), responsible for research, education, and extension activities in the areas of International Security and National Defense, aiming to provide the Ministry of Defense with institutional advisory on specialized issues, including participation in the update of the National Defense Policy (PND), National Defense Strategy (END), and the Defense White Paper. The CEECF, in the fulfillment of its duties, publishes specialized journals and exchanges knowledge with various academic institutions, with emphasis on those that develop studies on National Defense and similar frameworks of friendly nations. It also represents the ESG in the Association of Ibero-American Defense Colleges.

The Brazilian Superior Defense College (ESD)

Photo: ASCOM-MD



Superior Defense College — Brasília (DF).

The Brazilian Superior Defense College (ESD), founded in 2021 and headquartered in Brasília (DF), conducts academic activities on issues of interest to National Defense, considering the fields of security and development, with the purpose of contributing to promoting the defense mindset in Brazilian society. Its primary focus is on civil servants of the Legislative, Executive, and Judicial branches and institutions of interest to the Defense sector, but it also serves military personnel of the Armed and Auxiliary Forces and representatives of friendly nations. The ESD plays an important role in fostering a closer relationship between the bodies that constitute the country's administrative and political center, through the formation of knowledge networks on the interfaces between Security, Development, and Defense, contributing toward broader perspectives in Defense and encouraging the fundamental engagement of all segments of Brazilian society in Defense matters.

SECRETARIAT-GENERAL (SG)

The SG is the central management body of the organizational framework of the Ministry of Defense. It advises the Minister of State for Defense on the definition of directives and the formulation of national and sectoral defense strategies related to matters within the competence of its subunits, coordinates strategic planning, and directs and supervises the strategic and administrative management of the Ministry, except with regard to the Armed Forces and military matters within the competence of the Joint Chiefs of Staff of the Armed Forces (EMCFA). Its framework includes the Secretariat of Budget and Institutional Organization (SEORI), the Secretariat of Personnel, Health, Sports, and Social Projects (SEPESD), and the Secretariat of Defense Products (SEPROD), in addition to the Management and Operational Center of the Amazon Protection System.

Secretariat of Budget and Institutional Organization (SEORI)

SEORI develops directives related to the modernization of organizational frameworks and the rationalization and integration of common administrative procedures for the Armed Forces and the Central Administration of the Ministry of Defense. Additionally, it coordinates the joint preparation of the Armed Forces' budget proposal, in accordance with the priorities established in the National Defense Strategy, manages the multi-year plans according to the budget proposals of the Armed Forces and the Central Administration of the Ministry of Defense, and provides technical inputs for the assessment of strategic projects of interest to the Ministry.

Secretariat of Personnel, Health, Sports, and Social Projects (SEPESD)

SEPESD formulates, updates, and monitors the execution of sectoral directives, policies, and strategies for civilian and military personnel of the Defense and prepares general directives and complementary instructions for activities related to military sports, when involving aspects that are common to more than one Force. In addition, it coordinates the execution of social projects under the responsibility of the Ministry of Defense, proposes the formulation and update of the health care and social care policy and strategy for the Armed Forces, and supervises the management of the Armed Forces Hospital (HFA) in Brasília (DF).

Secretariat of Defense Products (SEPROD)

SEPROD proposes the formulation update and monitoring the execution of the National Defense Science, Technology, and Innovation Policy, geared toward technological development and the creation of new defense products, the National Defense Industry Policy, and the Defense Product Procurement Policy. It also proposes regulations and supervises operations related to the control of imports and exports of Defense products, and represents the Ministry of Defense in relation to other Ministries and in national and international forums involving Defense products or matters related to ST&I.

It works with the federal government to assist in establishing special incentives for the Defense industry,

regarding product purchases and contracts, to promote its development and foster higher competitiveness in the international market. It also works on the supervision and promotion of basic industrial technology activities of common interest to the Armed Forces, supervises ST&I activities aimed at the development and industrialization of new Defense products, and supervises the collection of information on military technology

Amazon Protection System Management and Operation Center (CENSIPAM)

The CENSIPAM proposes, monitors, implements, and executes policies, directives, and initiatives concerning the Amazon Protection System (SIPAM — from Portuguese *Sistema de Proteção da Amazônia*). Additionally, in conjunction with federal, state, district, municipal, and non-governmental bodies, it promotes the gradual and structured activation of SIPAM and conducts the continuous updating and evolution of the technological concept and apparatus of that System.

STRATEGIC DEFENSE SECTORS

The END listed three sectors as strategic: the nuclear, cyber, and space sectors. The Ministry of Defense Ministerial Directive No. 14/2009 determined that the nuclear sector would be coordinated by the Brazilian Navy, the cyber sector by the Brazilian Army, and the space sector by the Brazilian Air Force. In the three sectors, the priority is to enhance the country's scientific and technological capacity and train human resources, with the aim of enabling the country to be ready to face present challenges and future uncertainties.

The Nuclear Sector

Brazil is among the countries with nuclear fuel cycle technology, from mining to the production of fuel elements, notably isotopic enrichment and applications in energy generation and in the medical and industrial fields. In addition, the country has uranium reserves that are sufficient to meet its needs.

Its main objective is the technological consolidation and autonomy of the nuclear industry as a cutting-edge segment, essential for development. The use of nuclear technology in Brazil is exclusively oriented toward peaceful applications. It is also noted that Brazil's nuclear industrial park is considered an international benchmark, particularly regarding the safety and security of facilities and waste control.

Photo: Brazilian Navy



PWR-type nuclear reactor model — Navy Technology Center in São Paulo.

Since 1979, the Brazilian Navy (MB) has contributed to the Brazilian Nuclear Program, having achieved total mastery over the nuclear fuel cycle, and currently supplies fuel processing centrifuges to Indústrias Nucleares do Brasil (INB). An essential part of the Navy Nuclear Program (PNM) is the construction of the reactor for the Conventionally Armed Nuclear-Powered Submarine (SCPN), which will considerably enhance Brazil's defense capabilities in the South Atlantic.

It is important to emphasize that the SCPN will solely use nuclear energy for driving its propulsion systems, and all its armaments will be conventional. Naval nuclear propulsion is recognized as legitimate, in full compliance with constitutional regulations on the exclusively peaceful use of nuclear energy, as well as with international instruments to which Brazil is a party, whether at the bilateral level (Brazil-Argentina agreement on the exclusively peaceful uses of nuclear energy), regional level (Treaty of Tlatelolco), and multilateral level (NPT and Quadripartite Agreement).

The Cyber Sector

The Cyber Sector encompasses the operational area and the science and technology area. Under the Army's coordination, significant advancements have been achieved in training specialized personnel and in developing high-level technological solutions.

Photo: SERPRO



Cyber Defense Command (ComDCiber).

Building capacity to operate in cyberspace requires the conduct of activities in several areas, such as personnel training, intelligence, scientific research, doctrine, operational preparation and employment, and personnel management. It also includes the protection of its own assets and the capacity for networked operation.

The Cyber Defense Command (ComDCiber), a joint military organization within the Army Command's organizational framework, activated in 2016, joins efforts with other governmental organizations and has the following main responsibilities: planning, guiding, supervising, and controlling operational, intelligence, doctrine, science and technology, and capacity-building activities in the Defense Cyber Sector.

The bodies subordinate to ComDCiber are the Cyber Defense Center and the National Cyber Defense School. The first aims to conduct operational activities within the scope of the Military Cyber Defense System, while the school has the mission of fostering and disseminating the capabilities that are necessary for Cybersecurity and Cyberdefense in National Defense.

The Space Sector

The main objective of the Brazilian Space Program (PEB) is the development and subsequent use of space technologies for the solution of national problems, with tangible benefits for Brazilian society. Space projects promote the scientific and technological development of research and development institutions (ST&I institutions) and national industries in the aerospace sector, thus boosting aerospace power, scientific research, innovation, national launch operations, and technological services in aeronautical, space, and defense systems. The achievement of the capacity to develop high-value-added technologies is reflected in the country's economic development and currently plays a strategic role, which in turn contributes to the expansion of Brazil's role in the geopolitics of the most internationally influential nations.

The Brazilian Space Program (PEB) — a summation of initiatives conducted by the Brazilian Space Agency (AEB) through the National Program for Space Activities (PNAE), and by the Ministry of Defense, through the Aeronautics Command (COMAER), concerning the Strategic Program for Space Satellites (PESE) — has as its main objective the achievement of autonomy in the production, launch, operation, and replacement of space systems, through the development of the space access segment.

Photo: Brazilian Air Force



Space launch vehicle launch sequence.

The PESE is geared toward the implementation of fundamental infrastructure for the END. It is justified by the unique military defense capabilities added to the program. However, given its dual nature, this infrastructure is also used in civil applications, providing significant benefits to society.

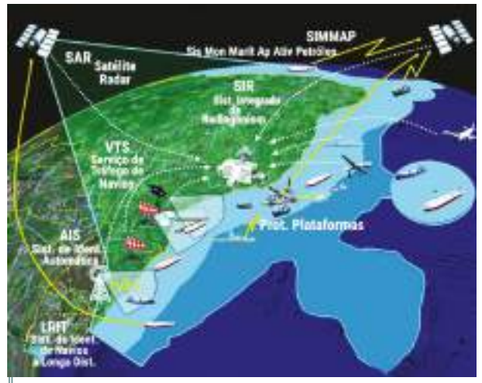
Still within the scope of Defense, the PESE will provide the necessary space infrastructure to support various Defense programs and projects, such as the Blue Amazon Management System (SisGAAz), the Integrated Border Monitoring System (SISFRON), the Brazilian Aerospace Defense System (SISDABRA), and the Amazon Protection System (SIPAM), among others. This infrastructure is also expected to be intensely used to support police and inspection operations, significantly contributing to the reduction of illicit activities in the Country.

The Alcântara Space Center (CEA) and the Barreira do Inferno Launch Center (CLBI), located in the states of Maranhão and Rio Grande do Norte, respectively, are organizations of the Aeronautics Command. These bodies operate in missions for launching and tracking orbital and suborbital artifacts and collecting and processing their payload data, including scientific tests and experiments of interest to Aeronautics related to the National Aerospace Development Policy.

Monitoring and Control Systems

Blue Amazon Management System (SisGAAz))

The SisGAAz (from the Portuguese *Sistema de Gerenciamento da Amazônia Azul*) was designed to be the main command and control system of the Brazilian Navy. It provides for the management of maritime activities, including surveillance, monitoring, pollution prevention, and natural resources, among others, related to the international concept of Maritime Security and the protection of the Brazilian coastline.



Blue Amazon Management System (SisGAAz).

The System is aimed at obtaining effective insights into everything associated with the marine environment that can impact Defense, the economy, and the environment, focusing on Brazilian Jurisdictional Waters (BJW). This expanded awareness enhances this defense by enabling the monitoring and control of threats as early as possible. This anticipation, combined with the mobility and presence of Brazil's Naval Power, will enable the defense of the Brazilian Jurisdictional Waters.

Integrated Border Monitoring System (SISFRON)



Integrated Border Monitoring System (SISFRON).

The SISFRON (from the Portuguese *Sistema Integrado de Monitoramento de Fronteiras*) will contribute to the Army in maintaining border strip monitoring and in prompt response to any threat or aggression, especially in the Amazon region. The prospect is to interconnect SISFRON with similar systems of the other Forces, the Ministry of Defense, and other federal agencies, with a view to employment in an interagency environment, which can contribute to the sustainable development of border regions and the fight against cross-border crimes.

Brazilian Airspace Control System (SISCEAB)



National radar surveillance coverage and FIR (Flight Information Regions).

The SISCEAB (from Portuguese *Sistema de Controle do Espaço Aéreo Brasileiro*) has the mission of providing air traffic safety and fluidity, as established by national regulations and international agreements and treaties to which Brazil is a signatory. Its central body is the Airspace Control Department (DECEA), which is responsible for planning, regulating, and managing SISCEAB and for controlling airspace and providing Air Navigation Services, such as: Flight Information, Air Traffic Management, Search and Rescue, Communication, Navigation, and Surveillance, in addition to activities related to Aeronautical Meteorology, Aeronautical Cartography, Aeronautical Telecommunications, and Flight Inspection.

The System, which is responsible for a total area of 22 million km², is divided into five major control areas managed by four Integrated Air Defense and Air Traffic Control Centers (CINDACTA), headquartered in the cities of Brasília (DF), Curitiba (PR), Recife (PE), and Manaus (AM), in addition to the Southeast Airspace Control Regional Center (CRCEA), located in São Paulo (SP).

Brazilian Aerospace Defense System (SISDABRA)

The SISDABRA has as its central body the Aerospace Operations Command (COMAE), which is a Joint Operational Command, being, in peacetime, directly subordinate to the Commander of Aeronautics and, when in a conflict situation, to the Supreme Commander of the Armed Forces[81].

Its mission is to conduct the aerospace defense of the National Territory against all forms of threat, in order to ensure the exercise of national sovereignty in Brazilian Airspace; to employ the assets under its operational control, including those necessary for establishing the procedures to be adopted in relation to hostile aircraft or those suspected of trafficking narcotic substances and related drugs; and to plan, coordinate, supervise, control, and execute the employment of aerospace power.

Amazon Protection System (SIPAM)

SIPAM is a legacy of the Amazon Surveillance System (SIVAM) project. Its purpose is to provide a broad infrastructure for data collection, storage, processing, and dissemination, to integrate information and produce updated knowledge about the region and contribute to effective governmental operation in the Legal Amazon. It uses a complex technological infrastructure, composed of integrated remote sensing subsystems, radars, meteorological stations, and data collection platforms installed in the region and capable of monitoring and producing information in near real-time. Its main objective is to implement a deforestation detection system in the Amazon using orbital radar imagery, with the project structured into three components:

1. reception and storage infrastructure: involves the construction, structuring, and maintenance of a platform for receiving, storing, and pre-processing radar images;
2. human resource capacity-building: aims to improve and disseminate, throughout the four-year project, knowledge about the application of radar technology among CENSIPAM public servants; and
3. Systematic monitoring and alerting, divided into two sub-items: (i) systematic production of deforestation data in the first year of the project; and (ii) development of a semi-automatic data production tool, with the generation of alerts for deforestation hotspots for appropriate measures by oversight bodies.

Defense Intelligence System (SINDE)

The Ministry of Defense is part of the Brazilian Intelligence System (SISBIN) and must support the Brazilian Intelligence Agency (ABIN) with specific data and knowledge related to the area of Defense. Thus, in 2002, the Defense Intelligence System (SINDE) was established within the framework of the Ministry of Defense and the Armed Forces, with the objective of integrating the planning and execution of Defense Intelligence activities.

METAREA

METAREA V is the maritime area under the responsibility of Brazil, related to Meteorology, whose purpose is supporting the safeguard of human life and navigation. Thus, by legal duty, the Marine Meteorological Service (SMM) has the role of monitoring, forecasting, and releasing meteorological and oceanographic conditions in METAREA V. This duty includes the necessary monitoring of the formation of subtropical or tropical cyclones, which are low-frequency atmospheric events, but whose occurrence can have a major impact on maritime and coastal activities, due to intense wind and associated high waves.

Science, Technology, and Innovation

The Ministry of Defense, in coordination with other ministries and with representatives from the business and academic sectors, currently implements initiatives to integrate specific sectors of science and technology systems in Brazil for the benefit of National Defense interests.

The interaction between government bodies, civil and military research institutions, universities, and companies in the BID area is fundamental for integrating efforts in the creation of high-tech hubs in various areas. Thus, technological hubs must be directly associated with planning processes involving government and society, with special emphasis on state incentives for technological development. Technological hubs, such as those in São José dos Campos (SP) and Santa Catarina, can be considered examples of synergy in the Brazilian scientific-technological sector.

Photo: Brazilian Air Force



F-39 Gripen fighter aircraft.

81 Art. 142 of the Federal Constitution: The Armed Forces, consisting of the Navy, the Army, and the Air Force, are permanent and regular national institutions, organized on the basis of hierarchy and discipline, under the supreme authority of the President of the Republic, and are established for the defense of the Homeland, the guarantee of the constitutional powers and, at the initiative of any of these, of law and order.

THE BRAZILIAN MILITARY INSTRUMENT

BRAZILIAN NAVY

The Brazilian Navy`s origin dates back to July 28, 1736, when a decree by D. John V, King of Portugal, created the Secretariat of State for the Navy Affairs and Overseas Dominions, an organ directly subordinate to the monarch and responsible for the administration of the human and material resources necessary for the full operational capacity of a War Navy.

In 1808, because of the Napoleonic invasions, the Portuguese Royal Court moved to Rio de Janeiro; then, the Prince Regent, D. John VI, appointed D. João Rodrigues de Sá e Menezes, Count of Anadia, for that Secretariat, formalizing his transfer to Brazil.

In 1821, before his return to Portugal, D. John VI appointed squadron commander Manoel Antônio Farinha as Secretary of State for the Navy Department in the then United Kingdom of Portugal, Brazil, and the Algarves. Even before the declaration of Independence, on September 7 of the following year, a naval force, identified with the process of political emancipation, was operating under the command of Division Chief Rodrigo de Lamare, in support of the contingents that would promote Independence in Bahia.



Photo: Brazilian Navy

Frigates Liberal (F43) and União (F45) in naval operations.

To combat the concentrations of Portuguese troops, which were stronger in the captaincies of Bahia, Maranhão, Grão-Pará, and Cisplatina, and to repel any attempt at recolonization by the former metropolis, it was necessary to prepare a Fleet capable of achieving naval dominance, intercepting the arrival of Portuguese reinforcements, blockading enemy positions, and maintaining the maritime communication lines of the new Empire, thus guaranteeing national unity. The agile action of the Brazilian Navy ships and the great distance from their supply bases and from the center of political power contributed to the Independence project reaching all regions of the then Colony, preventing the political disintegration observed in the Spanish possessions in the Americas.

Brazil's maritime interests are historical and broad. The sea was the route for discovery, colonization, trade, foreign invasions, and the consolidation of Independence, as well as an arena for defending sovereignty in various episodes, including two world wars.

In the 21st century, the geopolitical complexity and importance of the sea for Brazil's development led to multiple scenarios for Navy operations, which, added to the immense maritime expanses, pose major challenges to the accomplishment of the mission of the Brazilian Navy.

Naval Power, an integral part of Maritime Power, can operate at sea, in inland waters, and in certain limited land areas of interest for naval operations, including the overlying airspace. Thus, the aim is to contribute to the achievement and maintenance of the National Defense Objectives, defined in the National Defense Policy (PND), according to the initiatives established by the National Defense Strategy (END).

BRAZILIAN NAVY MISSION

To prepare and employ Naval Power, to contribute to the defense of the Homeland; to the guarantee of constitutional powers and, at the initiative of any of these, of law and order; to the accomplishment of subsidiary duties provided for by Law; and to the support of Foreign Policy.

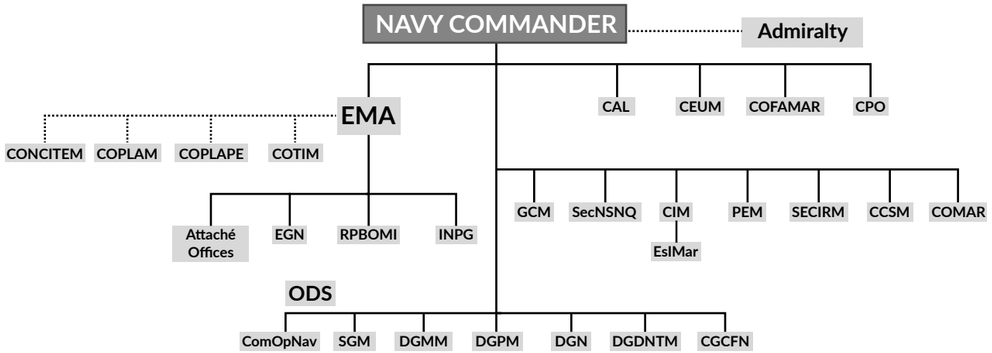
To conduct its tasks, the Navy prepares its operational and support bodies, in compliance with the policies established by the Ministry of Defense.

The Navy has the following specific subsidiary duties:

- guiding and controlling the Merchant Marine and its related activities, as far as National Defense is concerned;
- ensuring the safety of water navigation;
- contributing to the formulation and conduct of national policies related to the sea;
- implementing and enforcing compliance with laws and regulations, at sea and in inland waters, in coordination with other Executive Branch agencies, federal or state, when necessary, due to specific competences; and
- cooperating with federal agencies in the repression of crimes of national or international repercussion, concerning the use of the sea, inland waters, and port areas, in the form of logistical, intelligence, communication, and training support.

MARITIME AUTHORITY

The Commander of the Navy is vested, by Law[82], as the "Maritime Authority." The Maritime Authority's duties are related to matters pertaining to Maritime Power.



ORGANIZATIONAL FRAMEWORK

The Navy Command has the following organizational framework:

a) A General Directorate body, the Navy Staff (EMA).

b) Superior Advisory Body, the Admiralty.

c) seven bodies for Direct and Immediate Assistance to the Commander of the Navy:
- Office of the Commander of the Navy (GCM);
- Secretariat of Naval Nuclear Safety and Quality (SecNSNQ);
- Navy Intelligence Center (CIM);
- Navy Internal Control Center (CCIMAR);
- Navy Special Attorney's Office (PEM);
- Secretariat of the Interministerial Commission for Maritime Resources (SeCIRM); and
- Navy Social Communication Center (CCSM).

d) Seven Sectoral Management Bodies (ODS):
- Naval Operations Command (ComOpNav);
- Navy Secretary-General's Office (SGM);
- Navy Material General Directorate (DGMM);
- Navy General Directorate of Personnel (DGPM);
- General Directorate of Navigation (DGN);
- Navy General Directorate of Nuclear and Technological Development (DGDNTM); and
- General Marine Corps Command (CGCFN).

82 Complementary Law No. 97, of June 9, 1999.

NAVAL OPERATIONS COMMAND (COMOPNAV)

Photo: Brazilian Navy



BAMP Atlântico (A140) and Corvette Barroso (V34).

The Naval Operations Command (ComOpNav) is responsible for the readiness and employment of Naval, Aeronautical, and Marine Corps Forces in Naval Warfare operations and actions for defense of the Homeland, in Limited Force Employment activities, for the accomplishment of subsidiary duties provided for by law, and for support to Foreign Policy.

The ComOpNav comprises the Fleet Command-in-Chief (ComemCh), the Naval District Commands (ComDN), the Fleet Marines Force Command (ComFFE), the Maritime Operations and Blue Amazon Protection Command (COMPAAz), the Naval Special Operations Command (CoNavOpEsp), and the Naval Warfare Doctrine Development Center (CDDGN).

The ComemCh is the core of Brazil's Naval Power, with the purpose of maintaining subordinate commands at the highest degree of readiness for naval operations and naval warfare actions. The Fleet Command-in-Chief has the duty to:

- plan naval and air operations;
- supervise, at the Fleet level, the deployment of subordinate commands;
- supervise administrative activities related to military organizations;
- submit to higher echelons regulations on the employment, organization, and maintenance of subordinate commands and establishments; and
- supervise, within the scope of the Fleet, the deployment of resources necessary for the readiness of subordinate commands and bodies.

Administratively, the Fleet is subdivided into forces, which are organized according to the operational environment in which their units operate. Namely:

- Surface Force Command (ComForSup);
- Submarine Force Command (ComForS); and
- Naval Air Force Command (ComForAerNav).

Photo: Brazilian Navy



Amphibious vehicles (CLAnf) for amphibious operations.

For execution and assessment of naval operations delegated to the Fleet, there are also two subordinate Military Organizations: The Command of the First Fleet Division (ComDiv-1) and the Command of the Second Fleet Division (ComDiv-2).

NAVAL AIR FORCE

Photo: Brazilian Navy



SH-16 Seahawk naval helicopter.

The Naval Air Force Command, headquartered in São Pedro da Aldeia (RJ), has under its command, among other military organizations, a naval air base, five helicopter squadrons, one interceptor and attack aircraft squadron, in addition to one remotely piloted aircraft squadron.

NAVAL DISTRICTS

The ComDNs have the mission to prepare and employ Naval, Aeronautical, and Marine Corps Forces to contribute to the accomplishment of the Navy's Mission in their corresponding areas of jurisdiction. There are nine in total, headquartered in the cities of Rio de Janeiro (RJ), Salvador (BA), Natal (RN), Belém (PA), Rio Grande (RS), Ladário (MS), Brasília (DF), São Paulo (SP), and Manaus (AM).

MARINE CORPS (CFN)

The Brazilian Navy has an amphibious and expeditionary Marine Corps in permanent readiness. This troop, preferably integrating the "amphibious set," with naval and air assets, can operate across the full spectrum of military operations in peacetime, crisis, or conflict situations.

The Marine Corps can also be employed to protect naval and port facilities of interest, defend archipelagos and oceanic islands in Brazilian Jurisdictional Waters, and ensure control of inland waterways during riverine operations. In addition, it contributes to the Navy's effort in support of Foreign Policy through participation in international peacekeeping operations and humanitarian operations.

Organization

Photo: Brazilian Navy



Joint operational exercise — Operation Furnas 2023.

The Marine Corps is distributed in the Operational and Support Sectors within the Brazilian Navy's organizational framework. Most of its members constitute the Operational Sector as part of the Fleet Marine Force (FFE) or military organizations subordinate to the ComDN, whether they are Riverine Operations Battalions or Marine Corps Groups. To meet the demands of Nuclear, Biological, Chemical, and Radiological (NBCR) Defense, it has NBCR Defense Battalions established in the Brazilian Navy's main nuclear facilities and in the FFE.

GENERAL DIRECTORATE OF NAVIGATION (DGN)

The DGN aims to contribute to the application of Naval Power, the consolidation of Maritime Power, and the subsidiary activities of the Brazilian Navy, concerning activities related to maritime affairs, navigation safety, safeguard of human life at sea and in inland waters, prevention of water pollution by vessels and support facilities, hydrography, oceanography, and marine meteorology, contributing to the development of the Blue Economy and supporting the Foreign Policy. The following specialized directorates are subordinate to the DGN: Directorate of Ports and Coasts (DPC) and Directorate of Hydrography and Navigation (DHN).

The DPC aims to contribute to the guidance and control of the Merchant Marine and its related activities, as they pertain to National Defense; to the safety of maritime navigation; to the prevention of pollution from vessels, platforms, and their support facilities; to the formulation and execution of national policies concerning the sea; and to the implementation and enforcement of laws and regulations at sea and in inland waters.

The DHN aims to contribute to the safeguard of human life, national development, and the application of Naval Power, through the production and release of information on navigation and marine environment safety.

The DPC and DHN are responsible for the development and approval of the Maritime Authority Regulations (NORMAM) related to their competences, thus contributing to the accomplishment of the tasks assigned to the Maritime Authority. These regulations are based on Treaties, Codes, Conventions, and Resolutions enacted by international bodies, to which Brazil is a signatory, such as the International Hydrographic Organization and the International Maritime Organization.

MILITARY CAPABILITIES

Photo: Brazilian Navy



Riachuelo-class submarine (S40).

The Navy currently has a staff of approximately 77,000 military personnel. In any situation, the Navy must be able to accomplish the 6 basic tasks of Naval Power: deny the use of the sea, control maritime areas and inland waters, project power, conduct maritime protection, provide maritime security, and contribute to national security and development. The Naval Force, composed of different types of ships, possesses the strategic capabilities of adaptability, situational awareness, cooperativeness, expeditionary nature, mobility, permanence, combat power, presence, readiness, and resilience, which enable it to accomplish a broad spectrum of missions, from humanitarian and peacekeeping missions to typical crisis maneuver or armed conflict missions.

To fulfill its mission of supporting the defense of national sovereignty, territorial integrity, and maritime interests, the Force needs to have submarines, whose exceptional mobility ensures the advanced defense of the farthest maritime border.

The surface naval force has medium and large vessels, capable of operating and remaining at sea for extended periods, and smaller vessels, dedicated to patrolling the coastline and major navigable rivers in Brazil.

To ensure readiness and safeguard Brazil's sovereignty and interests, both domestically and abroad, the Navy maintains forces ready for immediate deployment (Rapid Deployment Force) in naval warfare operations and actions, in peacetime or situations of crisis and conflict.

The Navy, by employing its naval, air, and marine assets, is capable of conducting non-combatant evacuation operations, peacekeeping operations, humanitarian actions, and projecting an amphibious force to accomplish a mission.

NAVY EDUCATION

Photo: Brazilian Navy



Visual navigation training.

Navy education adopts a continuous and progressive training process, with its own characteristics, constantly updated and improved, from initial education to the highest levels of qualification, with the aim of providing Navy personnel with the basic, vocational, and military-naval knowledge necessary to fulfill their constitutional mission.

The Navy Education Directorate (DEnsM) is the central body of the Naval Education System (SEN), being responsible for educational activities under the terms of the Basic Framework of the Brazilian Navy Organization, in order to exercise, without prejudice to the provided subordination, the normative guidance, functional supervision, and specific inspection of the execution organizations.

MAIN SCHOOLS

Naval School (EN)

The Naval School (EN) was created in 1782, in Lisbon, Portugal, by Royal Charter from Queen D. Maria I, under the name Royal Academy of Gardes-Marine. In Brazil, it was first installed at the Monastery of São Bento and remained there until 1832. Thereafter, it underwent numerous facility changes, even operating on board ships. Finally, in 1938, it settled on Villegagnon Island, in the city of Rio de Janeiro.

Its higher education program lasts five years and trains Naval Officers for the initial ranks of the careers of the Navy Corps (CA), Marine Corps (CFN), and Navy Intendants (CIM). At the end of the fourth year, cadets are declared midshipmen (GM) and, at the end of the fifth year, they graduate and obtain a bachelor's degree in Naval Sciences.

Naval College (CN)

In February 1949, the Naval College (CN) was created, an educational institution whose purpose is to prepare youth to constitute the Cadet Corps of the Naval School. Admission is through a public examination, and the program offers secondary education, in addition to specialized military-naval training.

Naval War School (EGN)

Established in 1914 and located in the city of Rio de Janeiro, the Naval War School (EGN) is a higher military education institution whose purpose is to support the training of Officers for operational and administrative duties, prepare them for staff functions, and build their capacity for command, leadership, and management positions in the higher echelons of the Navy. To this end, it has the task of administering, updating, standardizing, and expanding the knowledge of Officers and conducting scientific research of interest to the Navy in the areas of National Defense, Maritime Power, Naval Warfare, and Administration.

The EGN offers General Staff Programs for intermediate officers and higher military education programs (General Staff Program for Senior Officer — CEMOS, Higher Program — CSUP, and Maritime Policy and Strategy Program — CPEM), all with an approximate duration of one year.

Study Coordination Center in São Paulo

For several years, the Navy has trained its military engineers through a partnership with the University of São Paulo (USP) and, to this end, maintains a Study Coordination Center on the USP campus.

Almirante Alexandrino Training Center (CIAA)

The CIAA originates from the Sailor Quarters, created in 1836, in the city of Rio de Janeiro. It is responsible for the training and improvement of enlisted personnel, providing programs for training, specialization, improvement, advanced improvement, special technical qualification, expedited training, special training, and training for enlisted personnel of the conscripted and volunteer military service.

Almirante Wandenkolk Training Center (CIAW)

CIAW was created in 1945 and is located on Enxadas Island, in Rio de Janeiro. The CIAW aims to train and qualify Officers for performing, in peace and war, the functions provided for in the Military Organizations (OM) of the Brazilian Navy. In addition to the Training Programs for Active and Reserve Navy Officers, the CIAW offers the Training Program for Officers from Friendly Navies (CFOMA), contributing to Brazil's diplomacy and foreign policy.

Almirante Graça Aranha Training Center (CIAGA)

The CIAGA originates from the Merchant Marine School of the Ministry of the Navy, created in 1956, in the city of Rio de Janeiro. It is the main component of the Directorate of Ports and Coasts (DPC) framework dedicated to Maritime Vocational Training. It is responsible for the training, specialization, improvement, and updating of personnel in the Merchant Marine professional categories, offering programs aimed to prepare personnel to hold positions and perform functions and occupations peculiar to the categories that compose the Merchant Marine and related activities, as well as providing the necessary qualification training for basic general military functions, especially those deemed essential for the training of Reserve Naval Officers.

Almirante Sylvio de Camargo Training Center (CIASC)

The CIASC originates from the Marine Corps Training Center, created in 1955. Located in Rio de Janeiro, it is responsible for training and improving enlisted personnel and officers of the Marine Corps. This Center offers specialization programs for corporals, training and improvement programs for sergeants, and advanced amphibious and expeditionary warfare improvement programs for Officers.

Photo: Brazilian Navy



Military training at CIASC.

Its organizational framework comprises the Naval Center for Peacekeeping and Humanitarian Operations (COpPazNav), responsible for preparing military personnel of the Brazilian Navy, other Armed Forces, Auxiliary Forces, and Military personnel from Friendly Nations, as well as civilians from the staff of the Navy itself and other bodies and institutions, for naval peacekeeping operations through its programs duly accredited by the United Nations.

SCIENCE, TECHNOLOGY AND INNOVATION (ST&I) INSTITUTIONS

The Navy Science, Technology, and Innovation System (SCTM) has fifteen ST&I institutions, and its central executive body is the Navy General Directorate of Nuclear and Technological Development (DGDNTM), which conducts the planning, guidance, coordination, and control of the Navy's nuclear, scientific, technological, and innovation activities.

Naval System Project Center (CPSN)

The Naval System Project Center (CPSN) has highly specialized professionals working in an integrated manner in the development of naval asset projects. Thus, the CPSN supports Strategic Projects of the Naval Force, currently participating in the design of Brazil's Conventionally Armed Nuclear-Powered Submarine Project and in the development of the Patrol Ship Procurement Program (PRONAPA).

Navy Technology Center in São Paulo (CTMSP)

The Navy Technology Center in São Paulo (CTMSP), with headquarters in São Paulo and Iperó (SP), was created in 1986 with the purpose of supporting the procurement of systems, equipment, components, materials, and techniques in the areas of propulsion and power generation of interest to the Brazilian Navy, especially those related to the nuclear sector.

Navy Nuclear Development Directorate (DDNM)

The Navy Nuclear Development Directorate (DDNM), headquartered in the city of São Paulo, originated from the CTMSP in 2017 being established on the USP campus in the city of São Paulo. It was created with the purpose of developing and improving facilities, systems, equipment, components, instruments, materials, manufacturing processes, assembly, and maintenance in the areas of nuclear power generation and associated technologies.

Navy Technology Center in Rio de Janeiro (CTMRJ)

Activated in 2017, the CTMRJ aims to unify the Administrative and Science, Technology, and Innovation (ST&I) Management of its subordinate Organizations: Naval System Analysis Center (CASNAV), Admiral Paulo Moreira Marine Study Institute (IEAPM), and Navy Research Institute (IPqM); meet the technological demands arising from the SDGs; oversee non-nuclear projects of the Navy; advise the Force's various management levels; and provide technical guidance in its areas of expertise.

Admiral Paulo Moreira Marine Study Institute (IEAPM)

Established in 1985, located in the city of Arraial do Cabo (RJ), the IEAPM aims to plan and execute scientific, technological, and innovation activities in the areas of oceanography, meteorology, biotechnology, marine geology and geophysics, underwater acoustics, remote sensing, oceanographic instrumentation, and coastal and oceanic engineering, to contribute to the development of models, methods, systems, equipment, materials, and techniques that provide a better understanding and effective use of the marine environment, in the interest of the Navy.

Navy Research Institute (IPqM)

Founded in 1959 in Rio de Janeiro, the Institute's mission is the development of technologies necessary for the Navy, concentrating its research and development activities on weapon systems, sensors, electronic warfare, acoustic warfare, digital systems, and materials technology.

Naval System Analysis Center (CASNAV)

Established in 1975, CASNAV aims to provide integrated technical and multidisciplinary solutions to meet high-level demands from the Naval Administration in its areas of expertise, namely: Operational Research, Strategic, Operational and Administrative System Engineering, Modeling, Simulation, System Security and Cryptography.

Navy General Directorate of Nuclear and Technological Development (DGDNTM)

The DGDNTM, headquartered in the city of São Paulo, in addition to serving as the central executive body of the SCTM, is also recognized as an ST&I institution, contributing directly to the preparation of the Navies of Tomorrow and of the Future; the application of Naval Power in activities related to Science, Technology, and Innovation; the Submarine Development Program (PROSUB); and the Navy Nuclear Program (PNM). It should also be noted that the DGDNTM has the Technological Innovation Center, a sector responsible for managing the Navy's innovation, intellectual property, and technological intelligence directives, being also shared by the Navy's other ST&I institutions.

Marine Corps Technology Center

Established in 1971 under the name Special Repairs and Supplies Center of the Marine Corps, it was transformed into a Technology Center in 2012, and its purpose is to support the technological development of the Brazilian Navy through Science, Technology, and Innovation activities and the immediate deployment and supply of specific materials for the Marine Corps and light weapons for the entire Brazilian Navy.

EXCHANGE AND COOPERATION WITH OTHER COUNTRIES

The Navy supports Brazil's foreign policy through exchange and cooperation with various countries, with Naval Diplomacy initiatives, in a complementary manner, in coordination with the Ministries of Foreign Affairs and Defense.

The Naval Force, with its mobility, flexibility, versatility, and permanence characteristics, is an important Naval Diplomacy instrument, as it has access not only to countries in the strategic environment but also to other areas of interest. In

addition to visits by Brazilian Navy ships to foreign ports, other activities of the Force contribute significantly to the Country's Foreign Policy, notably including the following:

- presence of Brazilian Naval Attachés in various countries;
- meetings, events, visits, and lectures for foreign attachés accredited in Brazil;
- Staff meetings with various Friendly Navies;
- participation of Brazilian Navy Officers in courses and exchanges abroad;
- participation in Symposia, Conferences, virtual Exercises, War Games, Defense Fairs, sports activities, and other events;
- offering of courses at the educational institutions of the Brazilian Navy for foreign military personnel, especially the Training Course for Friendly Navies;
- contribution to UN humanitarian initiatives and peacekeeping missions;
- participation in international maritime forums, such as the Zone of Peace and Cooperation of the South Atlantic (ZOPACAS), the Conference of Navies of the Community of Portuguese Language Countries (CMCPLP), the Inter-American Naval Conference (IANC), the Group of Friends of the Gulf of Guinea (G7++FoGG), the International Maritime Organization (IMO), and others;
- representation trips abroad of the Brasil School Ship and the Cisne Branco Tall Ship;
- combined naval exercises with Friendly Navies, notably the GUINEX Commission, led by the Brazilian Navy in the Gulf of Guinea; and
- support provided by the Brazilian Navy to various Friendly Navies, such as hydrographic surveys, participation of military personnel in Naval Advisory Missions in Namibia, Cape Verde, and São Tomé and Príncipe, and Marine Corps Technical Advisory Groups in Namibia and São Tomé and Príncipe, etc.



Photo: Brazilian Navy

Aeronaval capabilities of the Brazilian Navy.



Photo: Brazilian Navy

Peacekeeping Operations Course for Women (COpPazNav), 2024 edition.

BRAZILIAN ARMY

The Brazilian Army's origin dates back to the colonial period, in the early days of the nation's formation, during the fight against Dutch invaders. The first Battle of Guararapes, which occurred on April 19, 1648, was the historical event considered the genesis of the Army. On that occasion, the forces that fought against the invaders were genuinely formed by Brazilians (white, black, and indigenous people).

In 1822, the Army cooperated in the conquest of independence, supporting Emperor D. Pedro I in the struggle that consolidated the political emancipation of the Country.

Still during the imperial period, the Army fought in the Platine conflicts and contributed to the guarantee of the integrity of Brazilian territory. Led by Marshal Deodoro da Fonseca, the Brazilian Army was a fundamental piece for the establishment of the republican regime in 1889.

In the 20th century, the Brazilian Army gained international recognition by fighting Nazism and Fascism on the battlefields of Italy and by sending thousands of men and women on various peacekeeping operations. Thus, the Army has played and continues to play a relevant role in maintaining national unity and integrity. Its historical evolution is intertwined with that of the country itself. It is present throughout the national territory.

The geopolitical complexity entails multiple scenarios for the operation of the Army, whose mission is conditioned by the continental dimensions of a territory characterized by a variety of geographical environments and an extensive border



Photo: Brazilian Army

Gepard 1A2 anti-aircraft defense system (VBC AAe).

BRAZILIAN ARMY MISSION

Contributing to the guarantee of national sovereignty, constitutional powers, law and order, safeguarding national interests and supporting national development and social well-being. To this end, the Land Force must be prepared and kept in a permanent state of readiness.

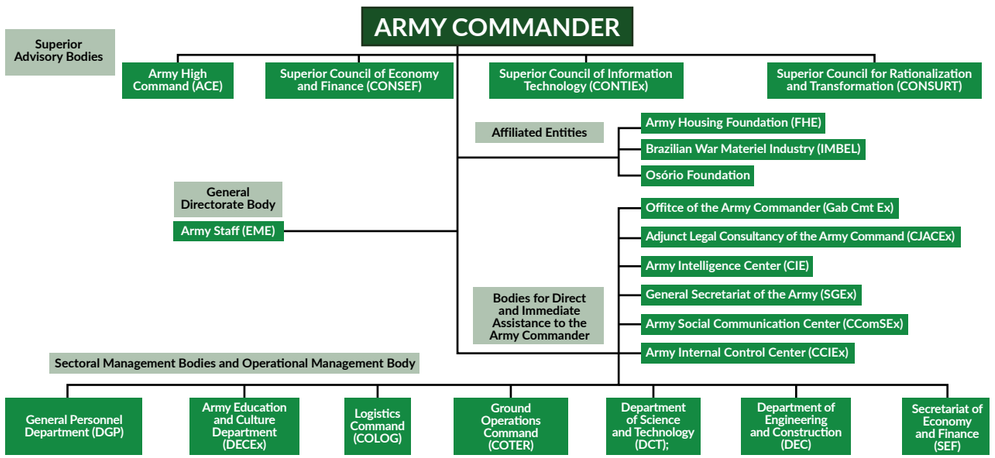
Thus, the Army must:

- permanently integrate into the Nation;
- promote national security and cohesion, internal peace, and social harmony;
- maintain capability to operate as an instrument of deterrence and employment of national power;
- develop the capacity for power projection to support Brazil's international integration; and
- ensure a high level of readiness.

The Army is also responsible, while preserving the exclusive competences of the judicial police, for operating, through preventive and repressive actions, in the land border strip, against cross-border and environmental crimes, either alone or in coordination with other Armed Forces or federal Executive Branch bodies, carrying out, among others, the following actions:

- patrolling;
- inspection of people, land vehicles, watercraft, and aircraft; and
- arrest in the act.

ORGANIZATIONAL FRAMEWORK



The Army Command has the following organizational framework:

a) A General Directorate body, the Army Staff (EME);

b) four Superior Advisory Bodies:
- Army High Command (ACE);
- Superior Council of Economy and Finance (CONSEF);
- Superior Council of Information Technology (CONTIEx); and
- Superior Council for Rationalization and Transformation (CONSURT);

c) six Bodies for Direct and Immediate Assistance to the Army Commander:
- Office of the Army Commander (Gab Cmt Ex);
- General Secretariat of the Army (SGEx);
- Army Intelligence Center (CIE);
- Army Social Communication Center (CComSEx);
- Army Internal Control Center (CCIEx); and
- Adjunct Legal Consultancy of the Army Command (CONJUR-EB);

d) an Operational Management Body:
- Ground Operations Command (COTER); and

e) six Sectoral Management Bodies:
- General Personnel Department (DGP);
- Army Education and Culture Department (DECEx);
- Logistics Command (COLOG)
- Department of Science and Technology (DCT);
- Department of Engineering and Construction (DEC); and
- Secretariat of Economy and Finance (SEF).

The Army has approximately 680 military organizations and 220 Tiro de Guerra local military training institutions distributed throughout the national territory, with an approximate staff of 215,000 military personnel.

LAND FORCES

The Land Forces proper is composed of eight Military Area Commands:

- Amazon Military Command — CMA;
- North Military Command — CMN;
- Northeast Military Command — CMNE;
- East Military Command — CML;
- Southeast Military Command — CMSE;
- South Military Command — CMS;
- West Military Command — CMO; and
- Plateau Military Command — CMP.

Photo: Brazilian Army



Guaicurus light armored vehicles.

Land Forces Framework

The Military Area Commands encompass large operational commands, the Army Divisions (DE), and large logistical, administrative, and territorial commands, the Military Regions (RM). The Ground

Force has 6 DE and 12 RM. The South and East Military Commands have divisional artillery (two in the CMS and one in the CML), and the Amazon, Northeast, West, East, and South Commands each have an engineering group.

Brigades are combined arms commands that can be subordinate to Army Divisions or be directly subordinate to Military Area Commands. Currently, the Army has 25 brigades.

There are also six specific employment commands:

- Army Aviation Command (CAvEx);
- Special Operations Command (COpEsp);
- Army Electronic Communications and Warfare Command (CComGEx);
- Army Artillery Command (CmdoArtEx);
- Cyber Defense Command (ComDCiber); and
- Army Air Defense Command (Cmdo DAAe Ex).

In addition, the Brazilian Army has five Engineering Groups and two Logistics Groups.

Photo: Brazilian Army



Land Force in permanent readiness status.

EDUCATION AND CULTURE

Army Education, with its own characteristics, aims to train human resources for positions and duties provided for in military organizations.

The Army Education System comprises education, training, and research activities in educational establishments, research institutes, and other military organizations with such responsibilities, and participates in the organization of cultural activities.

The Brazilian Army also uses courses, internships, undergraduate programs, and graduate programs, attended outside its educational system, for training its personnel, as per relevant legislation.

MAIN SCHOOLS

Agulhas Negras Military Academy (AMAN)

The AMAN`s origins date back to 1792, with the creation, in Rio de Janeiro, of the Royal Academy of Artillery, Fortification, and Design, the first military school in the Americas. During the 19th century, it was known as the Royal Military Academy, Imperial Military Academy, and Court Military Academy. From 1906 to 1910, it operated in Porto Alegre, at the War School, and, from 1913, at the Military School of Realengo (RJ). Only on January 1, 1944, was it installed in its permanent headquarters, in Resende (RJ), being named the Military School of Resende. In 1951, it was renamed the Agulhas Negras Military Academy.

AMAN is the higher education institution that trains career combat officers for the Army. The training course offers activities based on the development of skills necessary for the military profession. The course lasts five years, with the first year being held at the Army Cadet Preparatory School (EsPCEx), located in the city of Campinas, and the remaining four years at AMAN.

AMAN was mainly conceived by Marshal José Pessôa Cavalcanti de Albuquerque, who chose the location for the new headquarters, developed the project that would materialize it, and revived the title of "cadet," also adopting historical uniforms and creating the Saber of Caxias.

Photo: Brazilian Army



Officer graduation — Academia Militar das Agulhas Negras.

Photo:

Army Cadet Preparatory School (EsPCEx)

Located in the city of Campinas, EsPCEx is responsible for selecting and preparing young Brazilians for admission to AMAN. After the conclusion of the course, which lasts one year, the graduate is admitted to AMAN as a cadet.

Army Command and General Staff School (ECEME)

Established in 1905 and located in Rio de Janeiro, ECEME is an educational institution whose mission is to prepare senior officers for general staff, command, leadership, management, and advisory functions at the highest decision-making levels.

ECEME contributes toward building a joint defense and doctrine mindset, along with the Navy school (EGN), the Air Force school (ECEMAR), the Superior War College (ESG), the Superior Defense College (ESD), and civilian universities. Annually, it receives officers from friendly nations for its courses, mainly officers from South America.

The ECEME has the Meira Mattos Institute (IMM), which develops and disseminates scientific research, graduate programs, and Defense Studies, creating academic graduate education opportunities for military and civilian personnel.

Military Institute of Engineering (IME)

Located in the city of Rio de Janeiro, IME originates from the merger, in 1959, of the Army Technical School with the Military Institute of Technology.

Photo: Brazilian Army



Technical training at the Military Institute of Engineering (IME).

The IME's mission is to train officers for the Military Engineers staff of the Army. It offers the following programs: undergraduate program, exclusively for officers from AMAN; Training and Undergraduate program, for young civilians who have completed high school; and Training program, for graduated engineers who wish to join the Force. It also offers master's programs in the areas of Materials Science, Chemistry, Systems and Computing, and in Cartographic, Defense,

Electrical, Mechanical, Nuclear, and Transportation Engineering, and doctoral programs in the areas of Materials Science, Defense Engineering, and Chemistry, for civilians and military personnel.

Brazilian Army Combatant NCO School (ESA)

The ESA was created due to the need for greater professionalization in the troop corps. Its origin dates to the School of Sergeants of 1894, when, at the time, it occupied the facilities of the old Military School of Realengo, in Rio de Janeiro (RJ). In 1949, it was transferred to the city of Três Corações (MG), forming the first class of Sergeants in 1950.

Photo: Brazilian Army



School of Sergeants of Arms (ESA).

The ESA is the military educational institution responsible for training combat sergeants of the arms of the Infantry, Cavalry, Artillery, Engineering, and Communications. The program, which lasts two years, became a higher education technologist-level program in 2019. This curricular modification aims to develop in Army graduates' vocational competencies (knowledge, skills, and attitudes) that enable them to analyze the complex situations of modern battlefields and the challenges posed by combat.

School of Sergeants of Logistics

Located in the city of Rio de Janeiro, it was created in 2010 by the transformation of the School of Military Equipment. It is the military educational establishment responsible for training sergeants of Logistics, Military Equipment Maintenance of Automotive Vehicles, Military Equipment Maintenance of Armament, Military Equipment Mechanical Operator, Communications Maintenance, Health, Topography, and Music; for the capacity-building of sergeants of Logistics, Military Equipment Maintenance of Automotive Vehicles, Military Equipment Maintenance of Armament, Military Equipment Mechanical Operator, Communications Maintenance, Health, Topography, and Aviation; for the specialization training of sublieutenants and sergeants of Music; and for the specialization training of officers and sergeants of Health of the Brazilian Army. All curricular activities are aimed at enabling students to perform the functions to be carried out in troop corps.

School of Health and Complementary Training of the Army (ESFCEx)

ESFCEx offers the training of officers from the Complementary Officer Corps and the Army Health Corps.

The former Army Health School (EsSEx) was created by Decree No. 2,232, of January 6, 1910, under the name "Military Medical Application School" and with the purpose of providing basic knowledge essential for military life, initially to physicians and, later, to pharmacists, dentists, and veterinarians who entered, through public examination, the Army Health Corps.

Photo: Brazilian Army



Army Complementary Training School (ESFCEx).

For over a century, the school has provided initial, advanced, and specialized training to military personnel who perform technical activities related to the mission of the Health Service, supporting the operation of the Ground Force and providing high-level medical, laboratory, dental, and nursing care for the entire military family.

The former Army Administration School (EsAEx), in turn, was created on April 5, 1988, and is headquartered in the city of Salvador (BA). The school began its activities in 1989, offering training and specialization programs for career graduates and officers of the Army. With the creation of the Complementary Officer Corps (QCO) in 1989, in response to the changes required by the modernization process that the Brazilian Army was undergoing, the EsAEx was then tasked with training the officers of this new Corps. On November 8, 2010, the Army Administration School (EsAEx) was transformed into the Army Complementary Training School (EsFCEx).

In 2021, the former EsSEx and EsFCEx were unified, giving rise to the current School of Health and Complementary Training of the Army (ESFCEx) in Salvador (BA).

Thus, the Army unified the training of the Health Service, Military Chaplains, and the Complementary Corps into a single Educational Establishment.

SCIENCE, TECHNOLOGY, AND INNOVATION INSTITUTIONS

Army Technology Center (CTEx)

Established in 1979 and located in Rio de Janeiro (RJ), CTEx is a Military Organization subordinate to the Department of Science and Technology (DCT), whose primary mission is the research and development of defense products of interest to the Army. The Center conducts its activities in the following areas of operation: Armament and Ammunition, Missiles and Rockets, Military Vehicles (Armored and Unarmored vehicles), Remotely Piloted Systems, Advanced Materials (Composites, Carbon, and Energetic), Information and Communication Technology (Radar, Military Radio, and Optronics), Virtual Simulators, and Chemical, Biological, Radiological, and Nuclear Defense.

Photo: Brazilian Army



Guarani armored personnel carrier (VBTP).

The CTEx mainly aims to pursue innovation, promoting cooperation between governmental bodies at all levels, the Brazilian industrial base, and universities.

Army System Development Center (CDS)

Created in 1996, the System Development Center (CDS) is a technical and executive organization, part of the Department of Science and Technology (DCT), whose mission is to design, analyze, develop, integrate, improve, assess, maintain, and sustain software products and data structures of corporate systems of interest to the Army, supporting the Software Lifecycle for the Army. Thus, among the CDS's responsibilities are to design, develop, analyze, integrate, improve, assess, maintain, and sustain software products and data structures of corporate systems of interest to the Army.

Army Evaluation Center (CAEx)

Established in 1984, the Army Evaluation Center (CAEx) has the mission to plan, coordinate, control, and execute the evaluation and assessment of Military Equipment, the technical evaluation of Army-Controlled Products, the ballistic value examination of ammunition, and technical collaboration involving material of interest to the Army.

Army Integrated Telematics Center (CITEx)

Created in 1997, CITEX is a Sectoral Support body within the Department of Science and Technology (DCT) and has twelve directly subordinate Military Organizations: The Area Telematics Centers (CTA), the Telematics Centers (CT), and an Information Technology Technical Detachment (DTTI), located in the various Military Regions, to which they provide Telematics support. The CTAs also support the Military Area Commands of their regions. CITEX is responsible for implementing and maintaining the Army Strategic Command and Control (C2) system, to provide a secure and timely flow of information to commanders at all levels.

Directorate of Manufacturing (DF)

Established in 2005, the Directorate of Manufacturing is a support body of the Department of Science and Technology (DCT) whose purpose is to manage activities related to the production, revitalization, repowering, industrial-level maintenance, modernization, and nationalization of Military Systems and Materials to support the Ground Force and to promote the relationship between the Army Science, Technology, and Innovation System and the Defense Industrial Base.

Directorate of Geographic Service (DSG)

Established in 1953, the Directorate of Geographic Service originates from the former Geographic Service, created in 1890. The body provides technical and regulatory support to the Department of Science and Technology (DCT), being responsible for overseeing, within the Army, activities related to geographic and meteorological information, imaging, the preparation of cartographic products, and the supply and maintenance of technical material under its management.

Army Electronic Communications and Warfare Command (CCOMGEx)

Established in 2009, the Army Electronic Communications and Warfare Command (CCOMGEx) is the result of the merger of the former Directorate of Electronic Communications and Informatics Material (DMCEI) and the Electronic Warfare Training Center (CIGE). The CCOMGEx has the mission to provide and manage the operational capabilities for electronic communications, warfare, and cyber warfare, to support the Ground Force, also cooperating in human resource training, doctrinal formulation, and operations, in addition to conducting the logistical management of all electronic communications and warfare material.

EXCHANGE AND COOPERATION WITH OTHER COUNTRIES

The Brazilian Army is present on all continents of the world, with military personnel carrying out diplomatic missions, in addition to various permanent and temporary missions, teaching, student, and operational missions.

Military Diplomacy, understood as the range of military activities aimed at contributing toward the achievement of Brazil's Foreign Policy (PEB) goals, seeks to promote exchanges and cooperation, building relationships of mutual trust, to support personnel training, security, development, regional stability, and world peace.

Photo: Brazilian Army



Combined operations with allied nation forces.

Photo: Brazilian Air Force



Formation flight of F-39 and F-5 aircraft.

In alignment with the PEB, and in compliance with the provisions of the Directive for Activities of the Brazilian Army in the International Area (DAEBAI), the exchanges and cooperation carried out by the Army with other countries have the following purposes:

a) **Capacity-building**
Achieved through activities aimed at seeking the knowledge necessary for the development or updating of new capabilities acquired from friendly nations. Due to their high added value for the Brazilian Army, they are considered a priority.

b) **Cooperation**
Reinforced by actions coordinated between the Brazilian Army and the armies of friendly nations, to foster a climate of mutual trust. This category includes invitations and requests for the Force to provide military instructors and advisors to other countries.

c) **Integration**
Obtained through activities that aim at combined work between armies, such as during participation in international exercises and operations.

d) **New Opportunities**
The Army General Staff is responsible for defining the activities to be conducted with a focus on new opportunities, notably with armies of countries with which interactions are still not relevant, but which may prove interesting and aligned with the Army's objectives for international exchanges and cooperation.

Photo: Brazilian Air Force



KC-390 Millennium aircraft.

BRAZILIAN AIR FORCE

The Brazilian Air Force originated from the aviation divisions of the Brazilian Navy and the Brazilian Army. In 1916, the Navy founded the Naval Aviation School on Enxadas Island, in the city of Rio de Janeiro. In 1919, the Army created the Military Aviation School, headquartered at Campo dos Afonsos, in the same city.

In 1932, Campo dos Afonsos had the first flight of the Military Air Mail, still under the auspices of Military Aviation, a service that gave rise to the current National Air Mail (CAN), of fundamental importance for national integration.

In 1941, during World War II, the Ministry of Aeronautics was created, arising from the combination of air assets and human resources from the Army, the Navy, and the Department of Civil Aviation. Its armed branch was initially named National Air Forces, and, in June of the same year, it was named the Brazilian Air Force.

The Air Force had its baptism of fire during World War II. It participated in the South Atlantic campaign, combating the Axis submarine threat, and fought in the skies of Italy, alongside the Allied Forces with the 1st Fighter Aviation Group and the 1st Liaison and Observation Squadron.

With the creation of the Ministry of Defense in 1999, the Ministry of Aeronautics was transformed into the Aeronautics Command. The challenges to be faced by the Brazilian Air Force are proportional to the 22 million km² of its area of operation. The continental extension of the airspace to be controlled, defended, and monitored and the complexity of the current international context pose multiple challenges for the Air Force, which must be capable of responding to demands with modern and efficient assets.

Photo: Brazilian Air Force



A-1M aircraft (attack).

AIR FORCE MISSION

Maintain sovereignty in airspace and integrate the national territory, with a view to defending the homeland.

The Air Force operates to prevent the use of Brazilian airspace and outer space for hostile acts or acts contrary to national interests. To this end, it must have effective capability for surveillance, control, and defense of the airspace over sensitive points and areas of the national territory, with detection, interception, and destruction resources.

Consistently contributing toward the development of the Nation, it participates in the integration of its territory. To this end, it makes available, whenever possible, its operational and logistical resources to take the State's presence to all parts of the Country, in support of federal, state, or municipal public bodies, as well as in support of public and social policies. The Air Force's additional subsidiary duties are to:

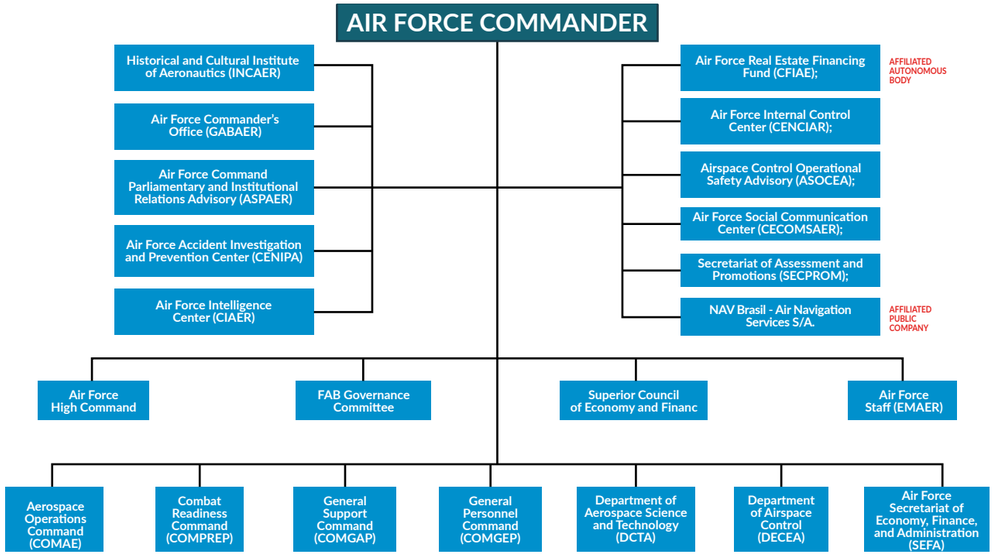
- guide, coordinate, and control Civil Aviation activities;
- provide the safety of air navigation;
- contribute to the formulation and conduct of the National Aerospace Policy;
- establish, equip, and operate, directly or by assignment, aerospace, aeronautical, and airport infrastructure;
- operate the CAN;
- cooperate with federal agencies, when necessary, in the repression of crimes of national and international repercussion, regarding the use of airspace and airport areas, in the form of logistics, intelligence, communication, and training support; and
- operate, continuously and permanently, while preserving the exclusive competences of the judicial police, through actions to control Brazilian airspace, against all types of illicit air traffic, with emphasis on those involved in the trafficking of prohibited drugs, weapons, ammunition, and illegal passengers, jointly operating with competent inspection agencies, which will be responsible for the task of acting after the landing of aircraft involved in illicit air traffic will fall, and may, in their absence, inspect people, land vehicles, vessels, and aircraft, as well as make arrests in the act (flagrante delicto).

Photo: Brazilian Air Force



H-36 Caracal helicopter.

ORGANIZATIONAL FRAMEWORK



The Aeronautics Command has the following organizational framework:

a) A General Directorate Body:
- Air Force Staff (EMAER).

b) Three Superior Advisory Bodies:
- Air Force High Command;
- FAB Governance Committee; and
- Superior Council of Economy and Finance.

c) Nine bodies for Direct and Immediate Assistance to the Commander:
- Air Force Commander's Office (GABAER);
- Air Force Intelligence Center (CIAER);
- Air Force Social Communication Center (CECOMSAER);
- Air Force Accident Investigation and Prevention Center (CENIPA);
- Air Force Command Parliamentary and Institutional Relations Advisory (ASPAER);
- Historical and Cultural Institute of Aeronautics (INCAER);
- Air Force Internal Control Center (CENCIAR);
- Secretariat of Assessment and Promotions (SECPROM); and
- Airspace Control Operational Safety Advisory (ASOCEA).

d) Seven Sectoral Management Bodies:
- Combat Readiness Command (COMPREP);
- Aerospace Operations Command (COMAE);
- General Support Command (COMGAP);
- General Personnel Command (COMGEP);
- Air Force Secretariat of Economy, Finance, and Administration (SEFA);
- Department of Airspace Control (DECEA); and
- Department of Aerospace Science and Technology (DCTA).

e) an Attached Autonomous Body: Air Force Real Estate Financing Fund (CFIAE); and

f) an Affiliated Public Company: NAV Brasil - Air Navigation Services S/A.

COMBAT READINESS COMMAND (COMPREP)

The COMPREP is responsible for the governance of processes related to the preparation of Air Force assets under its responsibility, sectoral projects, and strategic projects of COMAER, within its area of operation. Seven Regional Air Commands (COMAR), nineteen Air Bases, the Operational Applications Institute (IAOp), and the Brigadeiro Velloso Testing Range (CPBV) are subordinate to COMPREP.

Photo: Brazilian Air Force



SC-105 Amazonas aircraft (SAR).

The COMAR aims to supervise the final processes and the management and support processes related to Air Force assets operating based, deployed, or in transit within their area of responsibility, through subordinate Military Organizations (OM), or systemically through the other OMs located within their jurisdiction.

Air Bases have the purpose of preparation and deployment of subordinate Military Units and organizational management related to logistical support for personnel and assets assigned to them or that will operate deployed, in compliance with directives, plans, and orders from Superior Commands.

The IAOp is a Military Organization whose purpose is to conduct Operational Application activities and produce operational knowledge. It is headquartered in the city of São José dos Campos.

The Brigadeiro Velloso Testing Range (CPBV) is a Military Organization responsible for providing the administrative and operational support necessary for tactical trials, tests, experiments, and training of interest to COMAER. Its headquarters and exercise area are located in Serra do Cachimbo, Pará state.

Photo: Brazilian Air Force



C-98A Grand Caravan aircraft.

EDUCATION - MAIN SCHOOLS

Air Force Academy (AFA)

The Air Force Academy (AFA) is the successor institution to the former Aeronautics School, originally based at Campo dos Afonsos (RJ), which, since the creation of the Ministry of Aeronautics in

1941, has trained aviation and logistics officers for the Air Force. In 1971, the Aeronautics School was transferred to the city of Pirassununga (SP), receiving the name Air Force Academy.

Currently, it is responsible for training cadets in the Aviation Officer Training Course (CFOAV), the Logistics Officer Training Course (CFOInt), and the Air Force Infantry Officer Training Course (CFOInf), qualifying them for declaration as Officer Aspirants. This higher education program lasts four years and prepares cadets for military activities within their respective staff.

Photo: Brazilian Air Force



Military ceremony at the Air Force Academy (AFA).

At the end of the final year, Officer Aspirants receive, respectively, bachelor's degrees in Aeronautical Sciences with a specialization in Military Aviation, in Logistics Sciences with a specialization in Aeronautical Logistics, and in Military Sciences with a specialization in Aeronautical Infantry, in addition to all being awarded a bachelor's degree in administration with an emphasis on Public Administration.

Air Force University (UNIFA)

Established in 1983 and headquartered in Rio de Janeiro, UNIFA's purpose is to plan, guide, coordinate, and control programs intended for the vocational development and advanced military education necessary for the functions of Senior Officers and General Officers. It also offers master's, doctoral, and specialization programs, in addition to various internships.

Air Force Command and General Staff School (ECEMAR)

ECEMAR, subordinate to UNIFA, was created in 1947 in Rio de Janeiro, being the higher education Military Organization of the Air Force Command, whose purpose is to provide advanced military education programs for Officers of the Brazilian Air Force and Officers of Friendly Nations. It also has the responsibility for updating the students' knowledge on matters related to aerospace power, air warfare, and high-level administration of the Force, through the Aerospace Policy and Strategy Program (CPEA) and the Command and General Staff Program (CCEM).

Aeronautics Institute of Technology (ITA)

Established in 1950, ITA, headquartered in São José dos Campos (SP), is a specialized university training institute, offering undergraduate and graduate programs in the aeronautics and aerospace field of knowledge. Its purpose is to promote, through education, teaching, research, and extension, the progress of science and technology in these areas. This institute is one of the essential elements for the development of the scientific-technological complex located in the Paraíba Valley (SP). It is subordinate to the Department of Aerospace Science and Technology (DCTA).

Photo: Brazilian Air Force



Scientific research at the Aeronautics Institute of Technology (ITA).

The Aeronautics Command, in partnership with the Ministry of Education, is implementing the first ITA campus in the Northeast region. The unit will operate at the Fortaleza Air Base, in Ceará.

Air Force Cadet Preparatory School (EPCAR)

Headquartered in Barbacena (MG), it was created on March 28, 1949, initially as the Preparatory Course for Air Cadets, being named the School on May 21, 1950. Its creation sought to meet an emerging need of the Brazilian Air Force (FAB): to prepare youth, intellectually and militarily, for integration into the Aeronautics School, currently the Air Force Academy (AFA).

EPCAR has students enrolled in all three years of high school, maintaining its institutional mission of preparing young students to become Cadets of the Brazilian Air Force, through the Preparatory Course for Air Cadets (CPCAR).

School of Aeronautics Specialists (EEAR)

It was created on March 25, 1941, at Ponta do Galeão, Governador Island, Rio de Janeiro (RJ). Subsequently, between 1950 and 1951, it was transferred to its current headquarters in Guaratinguetá (SP). Its creation sought to meet the need for enhanced training of technicians to supply the growing demand for specialized professionals.

The EEAR has the mission of training career graduates for the COMAER, through courses and internships in 28 different specialties.

Photo: Brazilian Air Force



CRUZEX 2018 multinational exercise (Brazil, Chile, USA, Peru, and Uruguay).

SCIENCE, TECHNOLOGY, AND INNOVATION INSTITUTIONS

Institute of Aeronautics and Space (IAE)

The IAE resulted from the merger, in 1991, of the Institute for Research and Development (IPD) and the former Institute for Space Activities, with the mission of developing scientific-technological solutions to boost Brazil's Aerospace Power through Research, Development, Innovation, Launch Operations, and Technological Services in aeronautics, space, and defense systems.

Institute for Advanced Studies (IEAv)

The Institute for Advanced Studies was created in 1982, with the functional emancipation of the Laboratory for Advanced Studies, which, in turn, originated from the splitting of the Advanced Studies Division of the IAE in 1981. The IEAv began to operate as a Military Organization of the Aeronautics Command, subordinate to the then General Command of Aerospace Technology, today called the Department of Aerospace Science and Technology (DCTA), with the purpose of expanding scientific knowledge and the mastery of strategic technologies to boost Brazil's Aerospace Power.

Institute of Operational Applications (IAOp)

The Institute of Operational Applications is subordinate to COMPREP and was created in 2016. Its purpose is to conduct Operational Application activities and produce operational knowledge, aiming to improve the preparation and employment of the Brazilian Air Force (FAB) through research and development to support the operational area, in addition to planning and conducting Operational Evaluations of FAB operational equipment and systems and the respective update of employment doctrine.

Alcântara Space Center (CEA)

Photo: Brazilian Air Force



Space infrastructure — CEA integration tower.

In 1983, the Alcântara Launch Center Nucleus (NUCLA) was activated, with the purpose of providing local logistical and infrastructure support for launching larger vehicles than those that could be supported by the Barreira do Inferno Launch Center (CLBI). The CEA, formerly known as the Alcântara Launch Center, aims to conduct the launch and tracking of aerospace vehicles and collect and process their payload data, conduct tests, experiments, basic or applied research, in addition to other technological development activities of interest to COMAER, related to the National Policy for the Development of Space Activities (PNDAE).

Barreira do Inferno Launch Center (CLBI)

In 1964, the Working Group for Special Studies and Projects was created, subordinate to EMAER, with the purpose of preparing teams specialized in rocket launching, establishing meteorological and ionospheric sounding programs in cooperation with foreign organizations, encouraging Brazil's private industry to make progress in space technology, and choosing a location and building a rocket launching site in Brazil. As a result of the work of this Group, the Barreira do Inferno Launch Center was created in Natal (RN) in 1965, with the purpose of executing and providing support for the launch and tracking of aerospace vehicles and the collection and processing of their payload data. Another objective of this Center is to conduct tests, experiments, basic or applied research, and other technological development activities of interest to Aeronautics, related to FAB's Strategic Conception for Research and Development and to the PNDAE.

Photo: HFA



Armed Forces Hospital (HFA).

EXCHANGE AND COOPERATION WITH OTHER COUNTRIES

The Air Force conducts a series of exchange and cooperation activities with other Nations, especially with countries in the strategic environment and the Community of Portuguese Language Countries (CPLP), in addition to the participation of foreign cadets in the AFA's CFOAV, the participation of its Officers in the Inter-American Defense Board (IADB) and Inter-American Defense College (IADC), and participation in UN Peacekeeping Missions. It is worth noting the Brazilian Aeronautical Technical Mission in Paraguay, established in 1982, to provide technical, operational, and administrative advisory services to the Air Force of that country. Also noted are the FELINO operations, designed to offer joint training to the Armed Forces of the nine CPLP countries (Angola, Brazil, Cape Verde, Guinea-Bissau, Equatorial Guinea, Mozambique, Portugal, São Tomé and Príncipe, and East Timor). Held annually, they aim to provide military personnel from Portuguese-speaking countries with integrated training for peacekeeping and humanitarian aid missions.

PARTICIPATION OF THE BRAZILIAN ARMED FORCES IN THE WORLD WARS

WORLD WAR I

Brazil's participation in World War I was motivated by a series of attacks on Brazilian merchant ships in the North Atlantic. In April 1917, the Paraná Merchant Ship was sunk near the English Channel, which motivated the Brazilian government to break diplomatic relations with Germany. During the following months, three other Brazilian merchant ships were also sunk by German submarines, which led to the recognition of the state of war with the German Empire on October 26, 1917. President Wenceslau Brás formed an alliance with the Triple Entente countries and, despite lacking significant military capability, Brazil provided them with logistical support by sending agricultural supplies and raw materials.

In fulfillment of the commitments undertaken at the Inter-Allied Conference, the Brazilian government sent a Military Medical Mission composed of civilian and military physicians to work in a military hospital set up in the French capital, Paris. A contingent of Navy and Army aviators integrated into the Allied Air Forces, and, in addition, part of the Fleet was mobilized for anti-submarine warfare. To fulfill the Navy's duties, there was determination for the organization of a task force called "Naval Division for War Operations" (DNOG), consisting of ships obtained from the divisions that formed the Brazilian fleet. The DNOG incorporated: the Rio Grande do Sul and Bahia cruisers; the Piauí, Rio Grande do Norte, Paraíba, and Santa Catarina destroyers; the Belmonte supply ship; and the Laurindo Pitta tugboat. The total naval contingent was about 1,500 men. The division was tasked with patrolling the area of the maritime triangle, whose vertices were the city of Dakar, on the African coast, the island of São Vicente, in the Cape Verde archipelago, and Gibraltar, at the entrance to the Mediterranean.

During their stay in the Theater of Operations, the DNOG crew was exposed to the Spanish Flu virus, brought by European ships to the West African coast. Even suffering losses due to the epidemic, with 156 fatal victims, the DNOG did not fail to fulfill its mission until the armistice on November 11, 1918.

WORLD WAR II



Representação do soldado brasileiro na Segunda Guerra e o símbolo da FEB — "Cobra Fumando"

Brazil's participation in World War II was strongly motivated by successive attacks on Brazilian merchant ships by Axis submarines, which led to the deaths of 982 crew members and passengers between March 1941 and October 1943. Responding to popular pressure due to the deaths of 607 people in six sinkings of ships dedicated to coastal shipping lines between August 15 and 19, 1942, Brazil declared war on the Axis at the end of the same month. The country's participation in this conflict was more significant than in World War I.

The Navy was responsible for controlling the shipping lanes between the Caribbean and South America, escorting merchant ship convoys and patrolling against Axis submarines and warships in conjunction with ships and aircraft of the United States Navy, in the Battle of the Atlantic.



Torpedeamento do navio mercante "Buarque" — 1942

Navio de guerra da Marinha enfrentando um submarino

The protection provided to Allied merchant shipping in the South Atlantic enabled constant commercial flow of commodities to North American industries, contributing to the war effort and the maintenance of supply to the national economy, which was dependent on maritime routes for regional trade and fuel imports. The Navy also participated in joint and combined operations, including naval air patrols and port defense to prevent Axis attacks on Brazilian soil.

Photo: Brazilian Army



Brazilian Expeditionary Force (FEB) in Italy.

The Army sent about 25,000 men to fight in Europe against the Axis. The Brazilian Expeditionary Force (FEB) was integrated into the Fifth US Army. After heavy losses, FEB's first successful operation was the attack on the fortified position of Monte Castelo, which was occupied and garrisoned by a highly qualified enemy division. In continuation of the success achieved, FEB carried out its subsequent missions with equally significant results. The first opposing force to surrender in Italy surrendered to the members of the FEB, the famous "Smoking Snake." During the Italy campaign in World War II, the Brazilian Expeditionary Force took over 20,000 prisoners.

The Air Force was created during World War II, in 1941. In 1942, it began its engagement in the Maritime Air Patrol of Brazilian waters. In 1943, the

1st Fighter Aviation Group was created. In that same year, an Axis submarine was sunk by an Air Force plane off the coast of Rio de Janeiro.



Emblem of the 1st Fighter Aviation Group.

The 1st Fighter Aviation Group operated in Italy from 1944 and was part of the US 350th Fighter Group, carrying out over 2,000 missions and being prominent as one of the three foreign air units to be honored with an American distinction (US Presidential Unit Citation).



P-47 Thunderbolt bomber on operational mission in Italy.

It should also be noted the participation, in Italy, of the 1st Liaison and Observation Squadron, which operated jointly with the Divisional Artillery, both of which were units of the Brazilian Expeditionary Force. In this joint operation, the aircraft crews were composed of Air Force pilots and Army aerial observers, whose task was to regulate artillery fire.

BRAZILIAN ARMED FORCES IN PEACEKEEPING OPERATIONS

For over six decades, the country has participated in special peacekeeping and political missions under the aegis of the United Nations, having contributed more than 55,000 Brazilian military and police personnel. Integrated operations in Africa (Angola; Congo; Ivory Coast; Egypt/Gaza Strip; Eritrea and Ethiopia; Guinea-Bissau; Yemen; Liberia; Mozambique; Central African Republic and Chad; Democratic Republic of Congo; Western Sahara; Senegal; Somalia; Sudan; South Sudan; Uganda and Rwanda), in the Caribbean and in Central and South America (Costa Rica; El Salvador; Guatemala; Haiti; Honduras; Nicaragua; and Dominican Republic), in Asia (Cambodia; India; Pakistan; Lebanon; Nepal; Syria and East Timor), in Oceania (New Guinea) and in Europe (Bosnia-Herzegovina; Cyprus; Croatia; Eastern Slavonia; Kosovo and Macedonia).

Brazil provided military contingents in Suez (UNEF-I), Congo (ONUC), Angola (UNAVEM-III), Mozambique (ONUMOZ), and East Timor (UNTAET/UNMISET). Brazil participated in five missions of the Organization of American States (OAS) in the Ecuador-Peru Military Observer Mission (MOMEP).

Notably, Brazil participated in the United Nations Stabilization Mission in Haiti (MINUSTAH), which ended in September 2017, with the deployment of approximately 36,000 military personnel. The participation in MINUSTAH demonstrated the importance Brazil attributed to stabilization in Haiti, the consolidation of multilateralism, the integration of Latin America and the Caribbean, and solidarity as a principle of foreign policy.

The excellence and expertise of Brazilian military personnel in peacekeeping missions are recognized by the international community and by the United Nations. The high performance of the Brazilian military personnel reflects the quality of the training received before the mission and the vocational training acquired within the Armed Forces.

It should be noted that, throughout the entire period of the mission, Brazil held uninterrupted command of the Military Force.

Another Brazilian participation that should be noted was Brazil's presence in UNIFIL's Maritime Task Force (MTF). For about a decade, starting in February 2011, a Brazilian Admiral commanded UNIFIL's Maritime Task Force, the only UN peacekeeping mission with a maritime component, and Brazilian Navy ships (Frigates, Corvettes, or Offshore Patrol Vessels) served as the flagships of this force, from November 2011 to December 2020, when the mission ended.

Currently, Brazil maintains its continued stance of readiness and capability development to employ its Armed Forces in peacekeeping missions under the aegis of the UN. In this context, Brazil's Joint Peacekeeping Operation Center and the Naval Peacekeeping Operation Center, institutions of excellence in capacity building and training dedicated to the preparation of military personnel, police officers, and civilians from Brazil and sister nations, remain with the firm purpose of training the peacekeepers of the future.

Photo: Brazilian Army



Base of the Brazilian contingent (BRABAT) in MINUSTAH.

Brazil has established itself as an important provider of peacekeeping training. In addition to courses at national peacekeeping training centers, Brazil sends instructors to UN courses within the framework of the triangular partnership program and contributes to the drafting and review of training manuals, policies, and materials, and hosts UN courses.

An example of national participation is that, since April 2022, Brazil has had the first military troop approved by the United Nations (UN) certified with "Level 3" of the United Nations Peacekeeping Capability Readiness System (UNPCRS), which corresponds to a high-level readiness and the capability to operate in Peacekeeping Missions.

Photo: Brazilian Navy



UN-certified Marine Corps.

This troop is the Operational Rapid-Deployment Peacekeeping Marine Corps, also called Quick Reaction Force (QRF). This staff consists of 220 military personnel, 10% of whom are women.

Thus, reiterating the commitment to multilateralism and the primacy of the United Nations' legitimacy in responding to global peace and security challenges, including through participation and improvement in operations, the Country continues to contribute to international peace and security, with almost a hundred military and police personnel holding positions as military observers and staff officers in current UN peacekeeping missions, in addition to assigning military personnel to positions at the organization's headquarters in New York, USA. It should be noted that the quality and expertise of Brazilian military personnel can be proven by Brazilian generals holding the positions of Force Commander in the Multidimensional Integrated United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO) since May 2018 and Chief of Staff of the United Nations Mission in South Sudan (UNMISS) since 2020.

Photo: Brazilian Air Force



Infantry battalion for peacekeeping operations.

Photo: Brazilian Navy



Piranha IIIC 8x8 armored vehicle.

CHAPTER 4

THE TRANSFORMATION OF DEFENSE

INITIAL CONSIDERATIONS

Brazil, by virtue of its importance in the international system and the indispensability of facing challenges of the most diverse kinds in the field of National Defense, must possess Armed Forces compatible with its political-strategic stature.

Because of the need to improve the preparation and employment of the Armed Forces and equip them with Military Defense Capabilities compatible with the fulfillment of their constitutional purpose, transformation processes have been implemented that aim to introduce innovations consistent with the operational needs of the Military Instrument. It is important to note that, within the defense sector, the concept of transformation entails developing entirely new military capabilities rather than merely upgrading existing ones, which falls strictly under the scope of modernization.

Considering that Defense Military Capabilities have life cycles and that there will be a permanent need for the Armed Forces to be equipped with new capabilities, it is observed that a transformation process has continuity as a characteristic; that is, it will always be ongoing, in order to keep the Armed Forces in conditions to be effectively employed in the fulfillment of their institutional missions.

However, a transformation process must develop with great breadth and involve the Armed Forces as a whole. Although operational missions are carried out by the operational branch of each Single Force, the transformation must also advance in other sectors, ensuring that non-operational branches are included in the processes.

It is important to note that the effectiveness of a transformation process is also associated with the capacity for acquiring and applying cutting-edge technology in the research and development of new weapon systems and platforms, to the optimization of the production capacity of the Defense Industrial Base (BID), and to the pursuit of autonomy in the area of Science, Technology, and Innovation (ST&I) to, thus, reduce dependence on foreign supply chains for sensitive defense products.

From another perspective, it is important to underscore that the transformation of Defense, beyond improving the capability of the Armed Forces, benefits Brazilian society, as it creates conditions for the development of dual-use technologies, enhances the training of professionals in various areas, creates jobs, and promotes interaction between Defense and other national and international strategic sectors.

BUDGETARY REGULARITY AND PREDICTABILITY IN THE TRANSFORMATION OF THE DEFENSE SECTOR

The sustainability of Strategic Defense Sector Programs and Projects is an essential requirement for the success of the Armed Forces' transformation. The Brazilian State's capacity to guarantee resources for the development of Defense programs and projects constitutes part of the main pillars for mitigating risks and damages associated with possible discontinuity caused by insufficient resources and deficient budgetary predictability.

Therefore, regarding resource allocation to Defense, it is of paramount importance to follow the three principles below:

- **stability:** resources allocated to Defense should not undergo abrupt fluctuations, so Defense projects can be maintained over time;
- **regularity:** the disbursement of funds must be programmed and regular, enabling schedules to be met as planned; and
- **predictability:** this principle provides security for medium- and long-term planning, ensuring that initiated projects do not suffer discontinuity, with consequent damage to the public treasury.

The major challenge posed to the Country, particularly in the Defense Sector, has been to adapt Strategic Programs and Projects and make them more flexible in relation to the budgetary situation, prioritizing their survival and sustainability and the fulfillment of established timelines.

DEFENSE STRATEGIC PROJECT PORTFOLIO (PPED)

The Defense Sector, through the PPED[83] listed the main strategic programs and projects of the Armed Forces (Strategic Defense Initiatives — IED) that have high relevance for the Defense Sector. The IEDs that are part of the "National Defense" sub-portfolio contribute to the construction of new Military Defense Capabilities whose strategic effects can be jointly felt by more than one Single Force.

The PPED has a planned duration of twelve years, being related to the Sectoral Strategic Defense Plan 2020-2031 (PESD 2020-2031). The importance of IEDs relates to the creation of conditions for the development of dual-use technologies, as well as the promotion of interaction between Defense and other national and international strategic sectors. From another perspective, they constitute Programs and Projects that drive the transformation of the Armed Forces.

Photo: ASCOM-MD



Strategic planning — PPED.

It should be noted that the Armed Forces, in addition to the constant initiatives of the PPED, have their own Strategic Project Portfolios, funded by specific budgetary resources from the Ministry of Defense. Thus, the IEDs that are part of the PPED 2020-2031 are also part of the portfolios of the Armed Forces, since they are responsible for managing the programs and projects.

Despite the prioritization of directing budgetary resources to the Strategic Programs and Projects that are part of the PPED 2020-2031, it should be noted that all Strategic Programs and Projects developed by the Ministry of Defense and the Armed Forces are important in the Defense Sector. This prioritization in resource allocation for each program or project is associated with budgetary constraints, the acquisition of defense capabilities and military assets, and the risks associated with each program or project.

DEFENSE STRATEGIC PROJECT PORTFOLIO 2020-2031 (PPED 2020-2031)

Integrated IEDs

- Navy Nuclear Program (PNM);
- Submarine Development Program (PROSUB);
- Blue Amazon Management System Program (SisGAAz);
- Patrol Ship Development Program (PRONAPA);
- National Defense Cyber Defense Program (PDCDN);
- Integrated Border Monitoring System (SISFRON) Program;
- ASTROS Strategic Program;
- Armored Forces Strategic Program;
- Space System Strategic Program (PESE);
- SISDABRA Program;
- KC-390 Program;
- F-39 Program;
- Defense Strategic Command and Control Program;
- Project HX-BR; and
- Project TH-X.

BRAZILIAN NAVY STRATEGIC PROGRAMS AND PROJECTS

TRANSFORMATION CONCEPT

The Brazilian Navy directs and conducts its transformation process in accordance with the challenges traced throughout its strategic planning process. Thus, it aims to become a modern, prepared, and motivated Force, with a high degree of technological autonomy, with a magnitude compatible with Brazil's political-strategic stature in the international system, capable of contributing to Homeland Defense and to safeguarding national interests, at sea and in inland waters, in line with society's aspirations.

Photo: Brazilian Navy



BAMP Atlântico and frigate Independência (F44).

The Brazilian Navy will be modern by possessing technologically updated assets and systems for Naval Power tasks in naval warfare settings (submarine, surface, air, and amphibious) and in cyberspace. It will be prepared by reaching a high level of readiness and preparedness, regarding

83 https://www.gov.br/defesa/pt-br/orgaos-vinculados/conselho-superior-de-governanca-do-ministerio-da-defesa/resolucoes

doctrine, organization, personnel, education, material, training, infrastructure, and interoperability, possessing ready-to-deploy assets and supporting the Country's Rapid Response capability. It will be motivated by having human resources with solid moral education, belief in the Institutional values, high professional capacity, and awareness of their credibility in relation to society.

The Surface Naval Force will have ships in size and quantity for the achievement of Brazil's constant objective of having a modern, prepared, and motivated Navy, with balanced operational capabilities and coherent size as to Brazil's political-strategic stature in the international arena.

Thus, the Navy will have ships of sufficient size to operate and remain at sea for a long time, in addition to ships dedicated to patrolling the Brazilian coast and main rivers. It must also have mobile logistic support ships, necessary for Naval Force mobility in areas of interest.

Ensuring sea denial requires establishing a large-scale Submarine Naval Force, composed of conventional diesel-electric and nuclear-powered submarines.

To ensure power projection, the Brazilian Navy will also maintain Marine Corps assets in a permanent state of readiness to act in naval warfare operations and in operations of limited scope and duration. Having such assets is also essential for the defense of archipelagos and oceanic islands in Brazilian Jurisdictional Waters, naval and port facilities, and for participation in international peacekeeping operations, humanitarian operations, and in support of Brazilian Foreign Policy in any region that constitutes a strategic area of interest, such as the South Atlantic.

Photo: Brazilian Navy



Submarine Tonelero.

The Navy must also have transport and patrol ships and vessels for oceanic, coastal, and riverine operations, designed according to the same functional versatility requirements that guide the construction of high-sea warships. The Force must increase its presence on waterways, especially in the two major drainage basins, the Amazon River basin and the Paraguay-Paraná system. To this end, it must employ assets that are suitable for this operational setting, such as patrol vessels and transport ships equipped with the necessary aerial assets.

Technological autonomy must be seen as a challenge to be overcome, aiming at reducing the technological gap and foreign dependence on defense assets, systems, and equipment.

Thus, the Brazilian Navy organizes its needs into Strategic Programs and Projects. This system is aligned with best practices in public resource governance and management, promoting enhancement of state investment, improvement of the Defense sector, and development of the country. Therefore, the Brazilian Navy's Strategic Portfolio includes the following strategic programs:

NAVY NUCLEAR PROGRAM (PNM)

The PNM was created in 1979 with the initial purpose of mastering the nuclear fuel production cycle and pressurized water reactor (PWR) projects for peaceful purposes, notably for application in naval propulsion.

The purpose of the program is to obtain a nuclear power plant, which will be the Naval Nuclear Propulsion Plant (PNE) of the Conventionally Armed Nuclear-Powered Submarine (SCPN), which will considerably enhance Brazil's defense capability in the South Atlantic.

Complementarily, the results achieved by the program will contribute to advancements in other areas that benefit from national nuclear development, such as power generation, medicine, agriculture, etc.

Photo: Brazilian Navy



Nuclear energy laboratory — Sorocaba (SP).

NAVAL POWER MODERNIZATION

Photo: Brazilian Navy



ADEREX 2023 operational exercise.

The Naval Power Modernization Program is strategic and includes subprograms and projects related to the acquisition and development of naval, aeronautical, and marine corps assets, such as: Submarine Program (PROSUB); Surface Asset Acquisition Program (PROSUPER); Patrol Ship Acquisition Program (PRONAPA); Hydroceanographic and Antarctic Support Asset Acquisition Program (PROHIDRO); Aeronautical Asset Acquisition Program (PROAERO); Marine Corps Asset Program (PROADSUMUS); and the National Anti-Ship Missile Program (Esporão) Program, aiming to increase the Brazilian Navy's operational capability to fulfill its constitutional mission. Notably, the following subprograms:

a) **Submarine Program (PROSUB)**

PROSUB is part of a broad strategic program of the Brazilian State, conceived in 2008, through a partnership established between Brazil and France. The project, based on "simultaneous engineering," includes the construction of an Industrial Infrastructure to support submarine operations and maintenance, the construction of four conventional submarines, and the design and construction of the first Brazilian Conventionally Armed Nuclear-Powered Submarine.

Photo: Brazilian Navy



Submarine Humaitá (S41) during sea trials.

PROSUB represents a significant technological leap for the Country, based on intellectual capital, sensitive engineering, and cutting-edge technology, in addition to considerably enhancing the Defense Policy, boosting personnel training, and consolidating national sovereignty. The main purpose of the Program is to expand the capacity for protection of our Blue Amazon, a 5.7 million km2 maritime area, thereby expanding the Brazilian frontier.

b) Surface Asset Acquisition Program (PROSUPER) - Acquisition of Tamandaré-Class Frigates

Photo: Brazilian Navy



Tamandaré-class Frigate Program — launching 2024.

In 2017, the Brazilian Navy initiated the Tamandaré-class Frigate Program, which aims to acquire, through construction, high technological development escort ships with a displacement of approximately 3,500 tons and a high degree of a high degree of domestic content Thus, they will be able to oppose multiple threats, being able to protect Brazil's extensive maritime area, carry out search and rescue operations, as well as enable the fulfillment of international commitments undertaken by Brazil. The new ships are expected to be delivered in the period between 2025 and 2029.

c) Patrol Ship Acquisition Program (PRONAPA)

The program's objective is the construction of coastal and oceanic patrol vessels, to be developed and built nationally, which will be employed in actions supporting related activities, naval inspection, and the surveillance of inland waters, territorial sea, contiguous zone, and the Exclusive Economic Zone, in compliance with current legislation.

Additionally, it includes the modernization of industrial infrastructures in partnership with BID companies.

d) Hydroceanographic and Antarctic Support Asset Acquisition Program (PROHIDRO)

PROHIDRO provides for a set of projects for acquisition of hydro-oceanographic vessels to be employed in the Blue Amazon and polar waters so the Navy can fulfill its duties related to hydrographic, oceanographic, meteorological, cartographic, and nautical signaling activities, ensuring support for the application of Naval Power, within its scope of operation. The expected results are improved collection and accuracy of marine geospatial data in Brazilian Jurisdictional Waters (BJW) and in international waters of interest to the Country, improved effectiveness of aids to navigation, support to national research in the marine environment, promotion of Brazilian shipbuilding, and contribution to national development.

e) Aeronautical Asset Acquisition Program (PROAERO)

PROAERO provides for a set of projects for acquisition of fixed-wing, rotary-wing, and/or remotely piloted aircraft for combat and support missions, tactical flight simulators for helicopters, and medium and small-sized training and general-purpose helicopters.

f) ADSUMUS Strategic Program (PROADSUMUS)

PROADSUMUS is aimed at ensuring the readiness and expeditionary capability of the Marine Corps (CFN), maintaining and expanding the capabilities of its operational units, both within the Fleet Marine Force and in the Riverine Operation Battalions and Marine Corps in the Naval Districts distributed throughout the national territory, as well as in units focused on Nuclear, Biological, Chemical, and Radiological Defense.

To this end, the Program provides for the acquisition of assets such as machine guns, mortars, anti-tank missiles, all-terrain operational vehicles, battle vehicles, anti-aircraft artillery systems, field artillery, aerotactical control radar, and bridging and obstacle-crossing equipment by 2040. The program also provides for projects for creation of units and the construction, expansion, and modernization of facilities and assets for the Amphibious Brigade, centered in the Fleet Marine Force, the Riverine Operation Battalions, and the district Marine Corps.

Photo: Brazilian Navy



JLTV 4x4 light tactical vehicles.

g) Esporão Program

The Program provides for a set of development and acquisition projects at the national level for National Anti-Ship Missiles (MANSUP) and Air-to-Surface Anti-Ship Missiles (MANAER) to eliminate foreign dependence. The consequent acquisition of new technologies will enable the modernization of our manufacturing sector and enhance the intellectual quality of our defense professionals.

Photo: Brazilian Navy



Frigate Liberal (F43) — MANSUP missile launch.

ACHIEVEMENT OF FULL OPERATIONAL CAPABILITY (OCOP)

The purpose of OCOP is the maintenance or modernization of current facilities and assets, including the maintenance of spare parts, weapons, and ammunition. Furthermore, the Program is aligned with the National Defense Objective for promotion

of technological and productive development in the Defense area, which provides for the incorporation of national-content dual-use technologies, with relevant prospects for the creation and sustainment of direct and indirect jobs.

Photo: Brazilian Navy



SH-16 Seahawk helicopter.

BLUE AMAZON MANAGEMENT SYSTEM (SisGAAz)

The program is designed to provide continuous monitoring and protection of maritime areas of interest and inland waters, including their living and non-living resources, ports, vessels, and critical infrastructure. It aims to counter threats, emergencies, environmental disasters, hostilities, and illicit activities, thereby contributing to the security and defense of the Blue Amazon and driving national development.

The SisGAAz has a dual conception, supporting the activities of the Brazilian Navy in fulfilling its constitutional purpose and subsidiary duties. It will be connected to the Federal Police networks, the Brazilian Institute of the Environment and Renewable Natural Resources, the Federal Revenue Service, and Petrobras, among other agencies and companies capable of fostering and more quickly sharing relevant information necessary for protecting the Blue Amazon. The Brazilian system will have modular and gradual implementation, with participation of the BID. Furthermore, it has the potential to facilitate the planning and execution of operations, optimizing resources of all kinds.

STRATEGIC MARITIME MINDSET PROGRAM

It has two subprograms: the Navigation Safety Program, which aims to contribute to hydrography, cartography, maritime meteorology, and Aids to Navigation, as well as to the broad operation of the Aquatic Traffic Safety System (SSTA) in the BJWs; and the Brazilian Antarctic Program (PROANTAR), which aims to promote diversified scientific research in the Antarctic region and, thus, ensure Brazilian participation in international forums on that strategic area.

BRAZILIAN ARMY STRATEGIC PROGRAMS AND PROJECTS

TRANSFORMATION CONCEPT

The transformation process of the Brazilian Army is totally aligned with its institutional strategic plan. Thus, the Brazilian Army seeks to be a Force capable of making its presence felt, modern, equipped with adequate assets, highly prepared professionals, and military capabilities that ensure effectiveness in fulfilling its institutional mission.

The Ground Force, structured and prepared for carrying out (joint, singular, and interagency) operational missions, must possess Defense Military Capabilities that equip the Brazilian State with the necessary deterrent tools to safeguard its interests and territory. Furthermore, within the limits of its constitutional duties, it must contribute to national development.

Seeking to ensure the inviolability of the national territory, the Ground Force must, among other capabilities, be able to neutralize concentrations of hostile forces along the land border and support coastal defense and anti-aircraft defense.

The Ground Force must be able to make its presence felt through the mobility of its assets, especially its light, mechanized, and armored brigades, supported by the State's capability for National Defense Logistics. Thus, the Army, adopting a readiness posture and in conjunction with the other military branches, must have the capacity to concentrate the necessary forces to guarantee decisive superiority in combat.

The Army must also have the capacity for power projection, constituting an Expeditionary Force, for peacekeeping operations, humanitarian aid, or other operations, to fulfill commitments undertaken under the aegis of international organizations or to safeguard Brazilian interests abroad.

The building and consolidation of military capabilities will be attained by developing programs and projects that enable the transformation of the Army and boost effectiveness in fulfilling its mission.

The Army Strategic Project Portfolio programs and projects also result in significant benefits for national development, such as the consolidation of the defense industrial base, the development of dual-use technologies, the creation of jobs, the international projection of Brazil, social peace, and security.

Notably, the Strategic Project Portfolio includes the following programs and projects:

NATIONAL DEFENSE CYBER DEFENSE PROGRAM (PDCDN)

The objective of the program is to equip the Defense Sector with the necessary Defense structure to effectively conduct cyber actions that enable freedom of action in the cyberspace of interest to National Defense, precluding possible offensive cyber actions.

Photo: Brazilian Army



The implementation of the Military Cyber Defense System (SMDC), with the Cyber Defense Command (ComDCiber) as its central body, will contribute to expanding the country's capacity to act with freedom of action in cyberspace, in order to raise the level of information and communication security and national cyber defense capability, integrating the public and private spheres, in cases of hostile cybernetic actions.

As a contribution to national Cybersecurity, the SMDC conducts interagency operations and supports the cyber protection of national critical infrastructures of interest to National Defense, particularly through the Cyber Guardian Exercise.

STRATEGIC ARMORED FORCE PROGRAM

The objective of the program is to support the implementation of Mechanized Infantry and the modernization of Mechanized/Armored Cavalry and Armored Infantry and to acquire wheeled and tracked armored vehicles and their component systems and subsystems.

Photo: Brazilian Army



VBTP Guarani.

The Program seeks to obtain updated Military Employment Systems and Materials (SMEM) that meet the operational needs of the armored and mechanized Military Organizations of the Brazilian Army, equipping them with interoperable Command and Control subsystems and aiming and fire control, propulsion, suspension, and weapon subsystems with the greatest possible commonality with other armored vehicles. The obtainment, whether by acquisition, development, or both, will promote Research, Development, and Innovation (RD&I).

ASTROS STRATEGIC PROGRAM

The ASTROS Program provides, within its scope, for Research and Development (R&D) projects, acquisition and modernization of ASTROS System vehicles and construction of Military Organization (OM) facilities.

Photo: Brazilian Army



ASTROS artillery system.

The R&D area currently develop projects for the 300 km Tactical Cruise Missile (MTC-300) and the SS-40G Guided Rocket, both contracted with the company AVIBRAS and executed in partnership with the Brazilian Army, as well as the ASTROS Integrated Simulation System (SIS-ASTROS), developed by the Federal University of Santa Maria (UFSM).

Thus, it will support the organization of the Brazilian Army missile and rocket artillery, enabling the Ground Force to be equipped with a long-range, high-precision strategic fire support system, capable of employing guided rockets and tactical cruise missiles, which will contribute toward Brazil consolidating its deterrent capability.

INTEGRATED BORDER MONITORING SYSTEM PROGRAM (SISFRON)

The objective of the program is to provide the Army with the necessary monitoring and control assets for operations in the Brazilian land border area, also enabling cooperation with the actions of other government entities, with the support of sensors, processors, actuators, and other technological assets that ensure an agile and secure flow of reliable and timely information, in order to enable the exercise of Command and Control at all levels of Army operations.

Photo: Brazilian Army



Tactical communications support vehicle.

The Program has a high degree of complexity due to interoperability at the physical, informational, and doctrinal levels, due to the technological modernity of its components, the scope of its deployment, and the varied operational settings of use.

STRATEGIC AVIATION PROGRAM

The Army Strategic Aviation Program, created in 2017, is aligned with the National Defense Strategy (END), as it establishes that the Ground Force must consist of modern assets and trained personnel and that Army brigades must be flexible and possess tactical and strategic mobility.

Photo: Brazilian Army



HM-3 maneuver helicopter.

The program was conceived by establishing the premise of ongoing pursuit of intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) capabilities, without losing sight of expanding the achieved capability of having the Brazilian Army present, through its combat aircraft, in any part of the national territory. In parallel, the Army Aviation is also employed in supporting the population, through the execution of humanitarian and subsidiary missions, in all corners of Brazilian territory.

STRATEGIC AIR DEFENSE PROGRAM

The main objective of the Program is the recovery of low-altitude Anti-Aircraft Defense and the achievement of medium-altitude Anti-Aircraft Defense capability, with the modernization of Military Organizations that compose the Ground Force Anti-Aircraft Defense, in order to provide Brazil with benefits, such as: mastery of critical anti-aircraft defense technologies; contribution to the structuring of the Ground Force for combat in the broad spectrum; increase in defense capability for strategic infrastructures; support for airspace monitoring; increase in interoperability among the Armed Forces and expansion of exchange and partnerships with the national scientific-technological sector; and consolidation of the Defense Industrial Base.

Photo: Brazilian Army



SABER M-60 radar.

ARMY STRATEGIC CYBER DEFENSE PROGRAM (PEEDCIBER)

The Program was created to build capabilities and develop doctrine that enable the Brazilian Army to join the ranks of armies with the capacity to operate freely in cyberspace, with the resulting benefits for Command and Control activities at the strategic, operational, and tactical levels, thereby contributing to resilience.

Photo: Brazilian Army



Cyber defense capabilities.

The Program has 6 structuring projects, with the objective of building cyber capacity in the Army. These projects are conducted by Military Organizations associated with the sector, such as the Military Institute of Engineering, the Army Communication and Electronic Warfare Command, the Army System Development Center, the Army Integrated Telematics Center, the Army Intelligence Center, and the Cyber Defense Center. It meets demands and provides increased capabilities for more than fifty organizations specifically related to the area, in addition to providing defense for the Ground Force's operational and strategic networks.

FULL OPERATIONAL CAPABILITY OBTAINMENT PROGRAM

The Program was conceived with the general objective of equipping the Brazilian Army's Military Organizations with the necessary Military Employment Systems and Materials for obtaining and maintaining the adequate operational capabilities for effective employment of the Ground Force.

The aim is to recover and/or obtain new military capabilities by replacing technologically obsolete defense products or those at the end of their life cycle, increasing logistical interoperability among the Forces, improving individual and collective soldier equipment, and boosting the effectiveness of logistical support for ground military assets.

The Program is important due to the urgent need to equip the Ground Force with the necessary military employment systems and materials for the maintenance and/or acquisition of required capabilities, within the context of the Brazilian Army Transformation.

Photo: Brazilian Army



Land Force combatant.

Photo: Brazilian Army

Infantry specialized in caatinga operations.

STRATEGIC BRAZILIAN AIR FORCE PROGRAMS AND PROJECTS

TRANSFORMATION CONCEPT

Grounded in its strategic plan and, consequently, in the established mission, prospect, and strategic objectives, the Brazilian Air Force conducts its transformation process focused on acquiring capabilities to build an Air Force with a great deterrent effect, operationally modern, and operating in integration with the other military branches.

The Institution's major challenge is to anticipate the future context in which it will be employed, in order to develop strategies that will lead it to its vision of the future. In order to face these uncertainties, the Air Force assets must be kept up-to-date and capable of meeting Brazil's demands and internationally undertaken commitments. The sizing of these assets will depend on the needs presented by the Brazilian State and the possibilities of resources that can be employed, considering that investments in the Aerospace sector always result in positive technological developments for various other areas, given the associated high degree of technology.

In any future scenario, the dependence on ST&I investments is a constant. For the consolidation of Aerospace Power, it is very important that there is a continuous flow of resources allocated directly to the development of military capabilities, requiring that FAB makes an effort to realign its priorities due to budgetary limitations.

Photo: Brazilian Air Force



P-3AM Orion maritime patrol aircraft.

In the operational field, mastering the information cycle is vital for anticipating potential threats. In a world characterized by uncertainty and instability, knowledge represents the first line of defense for National Defense. The integration of operational settings will increasingly require joint action by the Brazilian Armed Forces, with the participation of other government agencies.

Mastery of the space setting is essential for Air Force operations and national development. The Brazilian Air Force plays a preponderant role in research and development related to this aspect, but the full conquest of space will depend on a firm state policy.

The cyber setting also constitutes a sensitive factor for the performance of the Brazilian Air Force. This aspect tends to have its importance exacerbated in the future. Therefore, it is paramount that the Air Force continuously stays updated to operate in cyberspace.

The management of the Brazilian Air Force must allow for the rapid implementation of acquired capabilities. These capabilities are directly influenced by several factors, such as organization, personnel, collective training, systems, supplies, equipment, support, command, and management. Of all these, the items related to human resources are critical, as they are fundamental to the effective implementation of capabilities. Their continuous improvement will determine the requalification of the Brazilian Air Force personnel, also generating new training methodologies.

Therefore, the main objectives of the Brazilian Air Force Transformation are to ensure the perpetuity and evolution of the Force, through a process of continuous improvement and, at the same time, to increase the effectiveness of the resources employed, around a Capability-Based Planning (CBP).

In order to conduct its transformation, the Aeronautics Command conceived strategic programs/projects that directly support this purpose. Notably, they include:

STRATEGIC SPACE SYSTEM PROGRAM (PESE)

Photo: Brazilian Air Force



Geostationary Defense and Strategic Communications Satellite (SGDC-1).

The objective of the program is to achieve autonomy in the production, launch, operation, and replacement of space systems, through the development of the space access segment, as well as to provide products and services that enhance the capabilities of the military branches in different employment domains, expanding Command and Control and battle space awareness, among other aspects. It will also provide society with the benefits arising from knowledge production, based on remote sensing, enabling the combat of illicit activities, the preservation of environmental resources and mineral wealth, the support in case of natural disasters, the guarantee of food and water security, among others.

The PESE is composed of launch centers, launch vehicles, satellite control and operation centers, and satellite fleets with diverse applications, such as communications, earth observation, information survey, meteorology, space monitoring, positioning, navigation, and time).

SISDABRA PROGRAM

The objective of the Program is to enhance institutional tools, logistical capacity, and the development of cutting-edge platforms, which directly contribute or will contribute to Brazilian Aerospace Defense, consistently with the exercise of sovereignty in Brazilian airspace as per Decree-Law No. 1,778 of March 18, 1980 and Decree No. 9,077 of June 8, 2017.

The objective of this Program is to enhance the technological capabilities of current aerial vectors, surface-to-air missiles, equipment in general, and logistics, as well as to provide for the development of more modern detection and surveillance platforms, associated with Aerospace Defense.

KC-390 PROGRAM

The objective of the Program consists in the development and acquisition of cargo aircraft to meet the needs of the Brazilian Air Force for logistical air transport within national and/or global territory (troops and cargo), in-flight refueling, aeromedical evacuation, and in-flight firefighting, as well as the logistical needs associated with the platform.

Photo: Brazilian Air Force



KC-390 Millennium aircraft.

F-39 PROGRAM

The objective of the Program is to provide the Brazilian Air Force with modern multi-employment fighter aircraft, consolidating its capability to fulfill the institutional mission of maintaining sovereignty in national airspace, considering all infrastructure and logistics for supporting the combat power of the new state-of-the-art vector, as well as to promote the technological development of the Brazilian aerospace industry.

Photo: Brazilian Air Force



F-39 Gripen fighter aircraft.

The Program will expand the Brazilian Air Force's capability in carrying out Aerospace Control, Interdiction, Intelligence, Surveillance and Reconnaissance, and Force Protection tasks, also encompassing the ancillary equipment and supporting systems necessary for the support and employment of state-of-the-art combat-capable equipment.

PROJECT HX-BR

The objective of the Program is to provide Brazil with the technological capability to design, develop, and produce rotary-wing aircraft and to equip the Armed Forces with modern general-employment aircraft.

Photo: Brazilian Air Force



H-36 Caracal helicopter.

It provides for the acquisition of medium-sized helicopters, intended for combat support and interdiction tasks and training missions, which can also be used in humanitarian, national integration, and civic-social initiatives. In addition, the Project provides for the acquisition of specific armaments for helicopters, integration systems, logistical support, flight simulators, and technology transfer in the area of rotary-wing aircraft.

PROJECT TH-X

The objective of the Project is to replace and standardize the light helicopter fleets of the Brazilian Air Force and the Navy, promoting increased interoperability and effectiveness of deployment, considering the aircraft needed for training in the Brazilian Air Force and maritime training and operation in the Brazilian Navy.

HYPERSONIC PROPULSION PROJECT (PROPHIPER)

Photo: Brazilian Air Force



Illustration of the hypersonic propulsion technology demonstrator (14-X).

The PROPHIPER consists in the development of a technological demonstrator for an aircraft with hypersonic propulsion.

With this line of research, Brazil is positioned among the few countries in the world seeking to master this technology, which is considered one of the most efficient means for space access in the future, and can be used to place satellites into orbit and make suborbital flights. This project has major potential to foster the development of the national industry and build technical capacity in human resources.

STRATEGIC REMOTELY PILOTED AIRCRAFT PROJECT (ARP)

The Project consists in obtaining new remotely-piloted aircraft (RPA) systems. These aircraft must be capable of operating networked, at high altitudes, controlled via satellite, possessing a wide area of operation and application, depending on the embarked payload, in order to boost the capabilities of ground and air forces in fulfilling the institutional missions of the Brazilian Air Force.

Photo: Brazilian Air Force



RQ-900 Hermes 900 UAV.

PROJECT KC-30

The Project consists in the conversion of Airbus A330-200 aircraft, incorporated into COMAER inventory in 2022, into Multi Role Tanker Transport (MRTT), that is, they will be capable of performing the in-flight refueling mission.

Photo: Brazilian Air Force



KC-30 aircraft (A330 MRTT).

Considering the continental dimensions of our Country, aircraft of this category need to be capable of, in addition to transporting large quantities of personnel and material, supporting the deployment of fighter aircraft over longer distances, for actual use or for transit to training missions abroad, such as Red Flag and Lion Effort

STRATEGIC DEFENSE COMMAND AND CONTROL PROGRAM

The Program, coordinated by the Ministry of Defense, aims to consolidate Command and Control projects, under development in the Joint Chiefs of Staff of the Armed Forces or within the Armed Forces, with potential to promote interoperability.

Thus, under centralized governance, such a program enables project synergy and resource savings, maintaining focus on solutions that provide system standardization, integration, and compatibility across the different branches of the individual services, with an emphasis on Joint Operations.

Photo: ASCOM-MD



Joint Operations Center (COC/MD).

Photo: Brazilian Air Force

Remotely piloted aircraft (ARP) RQ-900.

CHAPTER 5

DEFENSE AND SOCIETY

INITIAL CONSIDERATIONS

The Defense Sector has as main mission to prepare the Armed Forces for deployment according to their constitutional purpose, as per Article 142 of the Constitution. However, Complementary Law No. 97, of June 9, 1999[84], establishes that the Armed Forces must accomplish general subsidiary duties, in order to contribute toward national development and civil defense, and particular subsidiary duties[85], such as providing security for water and air navigation and operating the National Air Mail. It also supports federal, state, and municipal public agencies in the repression of transnational crimes in the border strip.

From the perspective of public policies for the promotion of citizenship, the Defense Sector understands its social responsibility and the need to contribute toward national development, for example, through collaboration in the development of national infrastructure and the implementation of social programs geared toward improving the well-being of the needy population and reducing Brazil's social deficit.

It is also important to note the role played by the Ministry of Defense and the Armed Forces in environmental preservation and protection, cooperating with other governmental bodies or carrying out specific activities.

Thus, the accomplishment of subsidiary duties constitutes a historical operation of the Brazilian Armed Forces, aware that contributing toward national development strengthens the integration and preservation of national cohesion and unity, thereby consolidating National Sovereignty.

GENERAL SUBSIDIARY DUTIES

BORDER STRIP OPERATION

The Armed Forces operate in coordination with other state agencies along the border strip — including inland waterways and the maritime coast — conducting preventive and repressive actions to counter cross-border crimes.

In June 2011, the federal government launched the Strategic Border Plan (PEF), under the direct coordination of the Vice President of the Republic, aimed at reinforcing the State's presence in the areas bordering 10 countries.

Photo: Brazilian Army



Special Border Post (PEF) Vila Bittencourt.

84 Complementary Law No. 97, of June 9, 1999 - Art. 16. The Armed Forces are responsible, as a general subsidiary duty, for contributing toward national development and civil defense, as determined by the President of the Republic. Sole paragraph. For the purposes of this article, the aforementioned general actions include participation in institutional public utility or social interest campaigns.

85 Complementary Law No. 97, of June 9, 1999 - Art. 16-A. The Armed Forces are responsible, in addition to other pertinent actions, also as subsidiary duty, while preserving the exclusive competencies of the judicial police, for operating, through preventive and repressive actions, in the land border strip, at sea, and in inland waters, regardless of possession, ownership, purpose, or any encumbrance thereon, against cross-border and environmental offenses, either independently or in coordination with other bodies of the Executive Branch, carrying out, among others, the following actions: I - patrolling; II - searching individuals, land vehicles, vessels, and aircraft; and III - arrests in the act (flagrante delicto).

In 2016, the PEF was replaced by the Integrated Border Protection Program (PPIF)[86] under the management of the Institutional Security Cabinet of the Presidency of the Republic (GSI).

Photo: Brazilian Navy



Riverine operations — Marine Corps.

In the context of border protection, since 2011, the Joint Chiefs of Staff of the Armed Forces of the Ministry of Defense (EMCFA) has coordinated the execution of Operation Ágata, the executive branch of the PPIF in the Ministry of Defense, which constitutes a large-scale action aimed at reinforcing the security of Brazil's 17,000 km of land borders and 7,500 km of maritime borders.

Photo: Brazilian Air Force



Air interdiction — Operation Ágata (A-29).

Throughout the operation, Brazilian Navy, Brazilian Army, and Brazilian Air Force military personnel carry out missions aimed at curbing crimes such as drug trafficking, smuggling, customs fraud, arms and ammunition trafficking, environmental crimes, illegal immigration, and illegal mining. The actions include airspace surveillance and policing and patrol and inspection operations in the Exclusive Economic Zone (EEZ) on major rivers and roads providing access to the Country. In military operations, the destruction of aircraft classified as hostile may even occur when legally provided coercive means have been exhausted.

Photo: Brazilian Navy



Counter-narcotics operations at the border — Içá River.

In addition to the Defense, Operation Ágata involves the participation of other Ministries and several government agencies, including: Federal Police (PF), Federal Highway Police (PRF), National Public Security Force (FNSP), Brazilian Intelligence Agency (ABIN), Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), National Foundation for Indigenous Peoples (FUNAI), Brazil's Federal Revenue Service (RFB), and security agencies of the states in the border regions, operating under the coordination and guidance of EMCFA.

Photo: Brazilian Navy



Interagency operations against transborder crimes.

Operations are planned and executed in integration, with continuous coordination between the Armed Forces and public security agencies at the federal, state, district, and municipal levels, in the context of interagency operations.

Photo: Brazilian Army



Air operational safety briefing for military personnel and members of public security forces during interagency operations.

CIVIC-SOCIAL ACTIONS (ACISO)

ACISO are temporary, episodic, or scheduled activities to assist and aid underserved communities, conducted by Military Organizations of the Armed Forces, at various command levels, leveraging human and material resources.

Photo: Brazilian Air Force



Humanitarian support to Yanomami indigenous communities.

They are aimed at providing support to underprivileged communities through health care services and medical-dental guidance, maintenance and renovation of schools and community health centers, installation of identification stations for issuing birth certificates and identity cards, in partnership with the responsible agencies, in addition to disseminating notions of citizenship and patriotism.

Generally, the activities are held concurrently with the execution of military exercises, with services provided to the population in the respective areas of operations.

86 The Integrated Border Protection Program (PPIF) has the following objectives: I - to integrate and coordinate public security actions of the Federal Government, intelligence, customs control, and the Armed Forces with the actions of states and municipalities located in the border strip, including their inland waters, and on the maritime coast; II - to integrate and coordinate with neighboring countries the actions provided for in item I; III - to improve the management of human resources and the structure intended for the prevention, control, inspection, and repression of cross-border crimes; and IV - to seek coordination with the actions of the Permanent Commission for the Development and Integration of the Border Strip (CDIF) (Decree No. 8,903, of November 16, 2016).

SUPPORT FOR INDIGENOUS COMMUNITIES

The Armed Forces carry out actions to support indigenous peoples throughout the national territory, coordinated with other ministries, in order to provide those populations with health care (through telemedicine), security, innovation, and support for other needs.

Photo: Brazilian Air Force



H-60L helicopter in support of indigenous populations.

Historically, the Forces have always been involved in assisting indigenous populations. In this context, Marshal Cândido Mariano da Silva Rondon (1865-1958), of indigenous descent, was a military officer in the Brazilian Army and a sertanista (explorer of the wilderness and expert on indigenous affairs) who worked on the integration of western and northern Brazil, leaving a great legacy of protection and defense of these native Brazilians.

In several of these actions, the facilities of the Special Border Platoons (PEFs)[87] of the Army are used as a base for services, thus becoming support points for various communities located in the vicinity of their headquarters.

In 2023, the Armed Forces participated in Operation Yanomami, which provided emergency service to the indigenous tribe after which the operation was named. The military actions in the region were coordinated by the Amazon Joint Operational Command, which provided support to the integrated work of the task force mobilized by the federal government. The Armed Forces were employed to provide logistical air support to the various government agencies that participated in the food basket transportation operation. The field hospital, set up by the Brazilian Air Force, served hundreds of indigenous people. Additionally, air transportation was provided to indigenous people so they could undergo more urgent medical procedures.

Photo: Brazilian Air Force



Airlift logistics in Operation Yanomami.

Due to the environmental characteristics of the Yanomami Indigenous Lands, with dense forests and difficult access, Operation Yanomami and Operation Ágata North Border (for the removal of illegal miners from the indigenous reserve), which are extremely dependent on aerial operations, achieved a huge logistical effort that demonstrates the high degree of cooperation between the Ministry of Defense and the other Ministries. The following are some approximate data:

- 5.8 million km² traveled by aircraft;
- 7,400 flight hours;
- 270 indigenous people evacuated;
- 1,000 airdropped loads (constitute a historical role of the Armed Forces);
- 40,000 basic food baskets distributed;
- 70 tons of material for runway repair;
- 2,400 medical service provisions; and
- 800 public agents transported (FUNAI, IBAMA, National Public Security Force, and Federal Police).

Photo: Brazilian Navy



Healthcare assistance in isolated communities — Mato Grosso.

Photo:

Food distribution during the drought in Amazonas

In the face of the severe drought that caused historical low river levels in Amazonas, and in solidarity with the demands of the Brazilian people, the Armed Forces, during 2023, engaged in a major logistical effort to minimize the strong impacts on river transportation.

Photo: Brazilian Army



Distribution of supplies during drought situations.

COMBATING PANDEMICS AND ENDEMICS

The Armed Forces, in coordination with the Ministry of Health, carry out operational and logistical support throughout the national territory in the fight against endemic and pandemic diseases, with emphasis on operations to combat the *Aedes aegypti*, the mosquito that transmits Dengue, Zika, and Chikungunya.

Photo: Brazilian Air Force



Logistic transport (C-130) during the COVID-19 pandemic.

87 The Special Border Platoons (PEFs) are a kind of advanced vanguard of the Amazon Military Command, composed on average of 50 soldiers and officers. They are distributed at strategic points in the border, almost always located on the banks of the great Amazonian rivers, the only means of surface transportation. They are responsible, for example, for controlling drug trafficking, illegal logging, or other exploitation of natural resources, such as wild animals. However, the main task of the platoons is to permanently inspect the border, checking markers and monitoring suspicious movements. Also composed of professionals such as physicians and dentists, among others, the platoons end up serving as catalysts for settlement and development processes. Around them, it is common to observe the flourishing of small villages and, in various places, such as Maturacá and Estirão do Equador — the latter in the Javari Valley, on the border with Peru —, the PEF has been incorporated into the daily lives of indigenous peoples (Source: Agência Senado).

Regarding endemic diseases, the Armed Forces, through their Chemical and Pharmaceutical Laboratories, cooperate with the Ministry of Health by producing medications not prioritized by the private sector, especially those used in the treatment of endemic diseases such as tuberculosis and leprosy.

In the context of Operation Covid-19, the Ministry of Defense activated the Joint Operations Center[88], supported by the Armed Forces Hospital (HFA), which supported the Forces in various health care initiatives, including in indigenous communities, transportation of materials, acquisition and distribution of health supplies, training and education of personnel at a national level (Humanitarian Logistics Task Force of Operation Care, in the states of Amazonas and Roraima) and international level (Operation Return of Brazilians from Wuhan, China), in addition to blood donation campaigns, vaccination campaigns, and other activities, some in close coordination with the Ministry of Health.

Photo: Brazilian Army



Vaccination campaigns in remote areas — Tabatinga (AM).

In its diagnostic support and monitoring activities, the HFA adapted its molecular research laboratory structure and elevated its biosafety level to Level II (NB2). The adaptation enabled diagnostic support for combating the COVID-19 pandemic, the implementation of the "Sentinel Laboratory," geared toward integration with various laboratories and detection, diagnosis, and monitoring of arboviruses, as well as other emerging or re-emerging viral or bacterial infectious diseases that may require epidemiological consideration in the Country.

Operation *Carro-Pipa* (Water Tanker Operation)

The Armed Forces and the National Secretariat for Civil Protection and Defense (SEDEC) of the Ministry of Regional Integration and Development have worked jointly since 2005 on the Emergency Potable Water Distribution Program in the Brazilian semi-arid region, also known as "Operation *Carro-Pipa*" (Water Tanker Operation), whose main objective is to supply water for human consumption in areas affected by drought in the northeastern semi-arid region. This project was created by the federal government, through SEDEC, involving state and municipal federative entities, as well as other agencies of the National Civil Defense and Protection System (SINPDEC).

The Brazilian Army is specifically responsible for the execution of the Operation, which includes the contracting of water tanker trucks, the coordination, and the supervision of water distribution in the most inhospitable corners of the Northeast backlands. It is one of the most significant subsidiary activities conducted by the Armed Forces, being of major importance to the population of the areas served.

HOSPITAL CARE IN THE AMAZON AND PANTANAL (ASSHOP)

The Brazilian Navy carries out ASSHOP Operations in the Amazon Region and the Pantanal, which aim to provide medical and dental care and health guidance to the riverside and indigenous populations of those regions, who live in communities that are still needy and, for the most part, isolated from regular health care and basic sanitation.

Photo: Brazilian Navy



Brazilian Navy hospital ship providing medical and analytical assistance in the Amazon.

These operations employ Hospital Care Ships (NAsH), belonging to and crewed by Brazilian Navy personnel. The NAsH, and before them the Corvettes, which the Brazilian Navy has had in the region for over 40 years, are known by the riverside populations as the "Ships of Hope."

AEROMEDICAL EVACUATIONS

The Brazilian Air Force conducts, when necessary, aeromedical evacuation operations in support of the population residing in hard-to-reach areas of the national territory, maintaining specialized personnel (physicians, nurses, and nursing technicians) capable of implementing this complex operation in a country with continental dimensions such as Brazil.

Photo: Brazilian Air Force



Aeromedical evacuation in CBRN environment.

TRANSPORT OF ORGANS, TISSUES AND TEAMS (TOTEQ)

The Aeronautics Command (COMAER), through the Air Navigation Management Center (CGNA), conducts the coordination of flights and facilitation of all stages involved in the air transport of organs and tissues to be transplanted and the collection or transplant teams.

Photo: Brazilian Air Force



Air transport of organs for transplantation.

Once the demand is received, the CGNA professionals begin searching for the closest suitable flight that meets the required air travel. The rule is the utilization of commercial aviation flights. When the route is not served by a regular airline, the Aerospace Operations Command (COMAE) is mobilized and provides a military aircraft for this transport.

88 During Operation COVID-19, the Ministry of Defense activated the Joint Operations Center and the Logistics and Mobilization Coordination Center. At the same time, ten Joint Commands were activated, covering the entire national territory, in addition to the Aerospace Operation Command (COMAE). These structures operated 24 hours a day, throughout the entire period of the operation. Approximately 34,000 military personnel were employed in Operation COVID-19. The logistical support flights transported oxygen, ventilators, medications, vaccines, health care teams, and patients, aiming to meet the needs of the Brazilian population. The total distance flown in one year was equivalent to 55 laps around the Earth.

In the context of the Brazilian Air Force's transport aviation, normally there are aircraft and crews on permanent standby to meet any demands that may arise, including those related to the transport of organs and tissues. Thus, in principle, there are crews capable of executing this mission from the following locations: Manaus (AM), Belém (PA), Recife (PE), Brasília (DF), Rio de Janeiro (RJ), Guarulhos (SP), and Canoas (RS).

SCIENCE AND TECHNOLOGY IN HEALTH

The Armed Forces Hospital (HFA), established in 1972 with the mission of providing highly complex medical-hospital care and conducting training and research activities, was recognized as a Science, Technology, and Innovation Institution of the Ministry of Defense (ICT-MD) in 2018.

Photo: HFA



Armed Forces Hospital — Brasília (DF).

Thus, the HFA was elevated to the level of institutions capable of conducting basic or applied scientific or technological research with the purpose of developing innovative products, equipment, and solutions. Thus, it began to operate in the development and implementation of projects focused on health care, realistic simulations, technical training, support for clinical and diagnostic solutions, consolidating partnerships with public or private universities and research centers, according to the interests and needs of the Ministry of Defense.

ENVIRONMENTAL PROTECTION

The Ministry of Defense and the Armed Forces operate in environmental protection, establishing and overseeing the implementation of regulations, supporting other state agencies, promoting best practices by Military Organizations, and providing adequate professional training.

Photo: Brazilian Army



Deterrent presence in support of environmental enforcement.

Photo:

Through the Management and Operational Center of the Amazon Protection System (CENSIPAM), technological intelligence actions are conducted, using remote sensing, communications, and advanced data analysis techniques.

In addition to support actions, there are specific operations and actions, such as the Brazilian Air Force's interdiction of clandestine airstrips used by illegal mining operations; contributions to firefighting efforts; and support for public safety and enforcement agencies in combating environmental crimes.

In this context are noted Operations VERDE BRASIL 2, in 2020 and 2021, and YANOMAMI, in 2023 and 2024, supporting the inspection of compliance with laws and regulations, the repression of cross-border and environmental crimes, and the enhancement of the preparedness and readiness of operational assets. There were also preventive and repressive actions against environmental crimes in the Amazon region, due to the significant increase in the occurrence of illegal fires, mining, and deforestation, not only in the border areas but also in indigenous lands and federal environmental conservation units.

The operations were coordinated by the Joint Operations Center of the Ministry of Defense. The Armed Forces military personnel operated in interagency settings jointly with the Federal Police, Federal Highway Police, Brazilian Air Force, IBAMA, Chico Mendes Institute for Biodiversity Conservation (ICMBio), National Public Security Force (FNSP), Brazilian Intelligence Agency (ABIN), and the Amazon Protection System (CENSIPAM).

COOPERATION WITH THE NATIONAL CIVIL PROTECTION AND DEFENSE SYSTEM (SINPDEC)

The Armed Forces cooperate day and night with SINPDEC organs and agencies by conducting disaster response actions, whether for natural or man-made disasters, in the affected areas, providing the population with relief, care, and the restoration of essential services.

The actions can employ Military Engineering in bridge launching for traffic restoration; in the use of land vehicles, boats, and aircraft in search and rescue operations or in the transportation of civilians and evacuation of disaster-stricken areas; in the distribution of donations; clearing of roads; medical care; image analysis and social and religious care.

Photo: Brazilian Army



Support to Civil Defense in emergencies.

In response to the heavy rainfall that affected the city of Petrópolis (RJ) in February 2022, the Armed Forces promptly mobilized their resources to aid the local population and authorities. The action was implemented with operations for Search and Rescue support, Civil Defense support, medical care, and logistics.

The support in Petrópolis was an example of how the Armed Forces can be employed to aid the population in public calamity situations. The quick response was fundamental to saving lives and alleviating the suffering of the population.

Photo: Brazilian Army



Natural disaster response operations (Petrópolis, 2022).

BRAZILIAN ANTARCTIC PROGRAM (PROANTAR)

A national interdisciplinary program, created in 1982, PROANTAR enables Brazil's uninterrupted presence in the Antarctic region, conducting research in the most diverse fields of knowledge, in order to ensure that Brazil is included in the highest-level discussions on the geopolitics of the oceans, specifically the Southern Ocean.

The execution of activities to be developed by Brazil in Antarctica is shared by several governmental organs, such as the Brazilian Navy, responsible for operational and logistical activities; the Ministry of Environment and Climate Change, whose participation is focused on environmental aspects and compliance with the Madrid Protocol guidelines; the Ministry of Science, Technology and Innovation, tasked with defining the scientific policy of the Program; the National Council for Scientific and Technological Development (CNPq), responsible for the funding and coordination of scientific research; and the Ministry of Foreign Affairs, responsible for the political aspects related to the Program; in addition to various universities and research institutes from all regions of the Country.

Almirante Maximiano Polar Ship and *Ary Rongel* Oceanographic Support Ship carry out, during the summer period, the transportation of researchers for the installation of equipment and collection of samples, in addition to the development of onboard research and logistical support for the maintenance of the country's infrastructure on the frozen continent, and hydrographic surveys essential for improving navigation safety, safeguarding life at sea, and protecting the marine environment of the southern seas. Two UH-17 helicopters provide greater flexibility and efficiency for the deployment of temporary camps in the region. Starting in 2025, incorporation is scheduled for *Almirante Saldanha* Polar Ship, which will replace the *Ary Rongel* ship. Annually, the Brazilian Air Force conducts approximately ten support flights for personnel and material transportation between Brazil and Antarctica and resupply of the Comandante Ferraz Antarctic Station (EACF) with cargo airdrops, by parachute, during the winter period.

The EACF is continuously operated by the Brazilian Navy. Its facilities combine technology and sustainability, with seventeen modernly equipped laboratories, providing the scientific community with the necessary equipment for the preparation, processing, and analysis of samples in situ.

Photo: Brazilian Navy



Antarctic support ship Ary Rongel.

Photo: Brazilian Navy



Comandante Ferraz Antarctic Station.

MANAGEMENT AND OPERATIONAL CENTER OF THE AMAZON PROTECTION SYSTEM (CENSIPAM)

Photo: CENSIPAM



CENSIPAM Center — Brasília (DF).

The mission of CENSIPAM is to contribute to the protection, integration, sustainable development, and quality of life within the Legal Amazon, the territorial sea, Brazil's Exclusive Economic Zone (EEZ), and other areas of strategic interest. Created on April 17, 2002, it is related to the Ministry of Defense and is the organ responsible for managing the Amazon Protection System (SIPAM).

The System uses data produced by a technological infrastructure, composed of integrated subsystems of remote sensing, radars, meteorological stations, and data collection platforms, installed in the Amazon Region. Thanks to this apparatus, SIPAM is capable of completely monitoring the region and producing information in near real-time.

In addition to technological infrastructure, CENSIPAM comprises three Regional Centers (Manaus, Belém, and Porto Velho) and works with various partner institutions, state governments, and municipal governments. This transversality makes SIPAM a modern and innovative data collection, storage, processing, and dissemination system, which enables articulated and integrated operation of various governmental institutions at all federal levels, aiming at regional protection and sustainable development.

CENSIPAM hosts the Amazon Protection Integration Group (GIPAM), which includes representatives from ABIN, ANM, IBAMA, ICMBio, INCRA, INPE, FUNAI, PF, PRF, RFB, Brazilian Forest Service (SFB, from the Portuguese Serviço Florestal Brasileiro, and FNSP. These specialists work collaboratively in the integration and analysis of databases, satellite images, and field information to provide prioritized and qualified alerts that support operations to combat environmental crimes, such as deforestation. GIPAM produces detailed reports to support inspection agencies, the planning and actions for conservation, protection, and sustainable development in the Legal Amazon.

Furthermore, since 2020[89], CENSIPAM has been assigned new duties, which have extended its monitoring scope to the Territorial Sea and the Exclusive Economic Zone (EEZ), our Blue Amazon, especially with the purpose of tracing oil slicks and non-cooperative vessels, in coordination with the Brazilian Navy. The same normative device enables CENSIPAM to also operate in other areas considered of interest.

Photo: CENSIPAM



CENSIPAM operational coverage.

89 Decree No. 10,293 of March 25, 2020.

The SIPAM has the following functions:

- support and contribute to partner organizations, States, and Municipalities in the Amazon in controlling deforestation, combating biopiracy, protecting Conservation Units, monitoring land occupation and use, protecting indigenous reserves, defending border areas, protecting strategic mineral resources, and implementing health care, education, and social inclusion programs for Amazonian populations;
- produce, disseminate, and provide data and information related to temperature and precipitation projections, flood and drought events, in order to enable different government levels to make informed decisions;
- integrate data and produce information and knowledge about the hydrometeorological conditions of the Amazon region, through the SipamHidro tool, in order not only to assist public agencies and other institutions in mitigating the impacts caused by severe events and flood and drought events, but also to enable different governmental levels to make informed decisions;
- support the deployment of firefighting teams in Brazil through the Fire Panel platform;
- monitor the Earth's surface using Synthetic Aperture Radar technology with the SipamSAR tool, which can see the terrain even when it is under cloud cover, which hinders the use of orbital optical sensors;
- support public security and inspection agencies in operations to combat environmental crimes and support operations conducted by the Armed Forces, with qualified personnel working in the field or remotely for geoprocessing of satellite images and preparation of adapted maps with additional data to guide more effective action on the ground;
- monitor illegal deforestation, using the various available sources of data on the subject and prioritizing deforestation alerts for operations to combat environmental crimes in the Legal Amazon;
- survey and update information about the area of operation using drones, provide communication support through a mobile satellite antenna V-SAT, prepare and issue Intelligence reports, and provide infrastructure for the establishment of operational bases at its facilities;
- monitor the Blue Amazon by collecting data to support government actions in defense of the Territorial Sea and the EEZ, with the possibility of acting in other areas of interest;
- monitor the electromagnetic spectrum, flights of unknown origin, irregular landing strips, and illegal mining sites;
- maintain updated geospatial data from various sources of interest in the CENSIPAM database, as well as produce thematic information resulting from spatial analyses;
- facilitate fixed-line communication via satellite in remote areas to serve partner institutions and small communities;
- provide support to the program for monitoring isolated indigenous peoples, in partnership with FUNAI;
- update the digital cartographic database for mapping the road network of small municipalities;
- support research activities in the region;
- offer updated information about the Amazon region;
- promote exchange between governmental institutions operating in the Brazilian Amazon, through the collection and sharing of information, knowledge, and infrastructure, in order to contribute to the development of public policies in the region; and
- support the integration of Amazon Basin countries, in order to enable the formation of an environmental defense belt in South America.

CENSIPAM's environmental protection initiatives involve a series of integrated actions in the Amazon territory. These activities include the development of studies and projects, with defined research lines (deforestation, lightning detection, and meteorology), oriented toward evaluating and monitoring the impacts of anthropogenic action, and the application of geoprocessing and remote sensing techniques, focused on tracing these impacts and designing corresponding mitigating measures, supported by an implemented local logistics.

Photo: CENSIPAM



Monitoring of the Legal Amazon.

PARTICULAR SUBSIDIARY DUTIES

BRAZILIAN NAVY

Safety of Navigation

Complementary Law No. 97, of June 9, 1999, designated the Commander of the Navy as the Brazilian Maritime Authority (AMB), due to the subsidiary duties that this regulation assigns to the Brazilian Navy. In this military branch, the Directorate of Ports and Coasts (DPC) and the Directorate of Hydrography and Navigation (DHN) are responsible

for developing and approving the Maritime Authority Regulations within their respective competencies.

The purpose of the DPC is to contribute to Safety of Navigation by establishing norms and procedures for matters within its competence concerning the sea.

The DHN carries out activities related to navigation, hydrography, operational oceanography, nautical cartography, marine meteorology, and aids to navigation, ensures the quality of Safety of Navigation activities in maritime area of interest to Brazil and in inland waterways, and contributes to national research projects in Brazilian Jurisdictional Waters and to those arising from international commitments.

Environmental Pollution Prevention

The DPC and the Naval District Commands are representatives of the AMB for the environment, thus being responsible for the prevention of environmental pollution by vessels, platforms, or their support facilities. In this context, the DPC has the following duties:

I. to monitor and assist Captaincies, Delegacies, and Agencies regarding matters related to the prevention of environmental pollution caused by ships, platforms, and their support facilities;

II. to analyze matters related to the environment and directly related to AMB's competence;

III. to contribute to the exchange of environmental information with organs and entities of the Brazilian maritime community and national and international organizations;

IV. to contribute to the drafting of contracts and agreements with private, mixed, or governmental entities or companies, seeking partnerships for management of the environment of interest to the Brazilian Navy;

V. to supervise actions for the development of environmental management programs and pollution incident response action instruments in the Navy, providing specialized technical support on these matters; and

VI. to propose regulations on matters related to the prevention of environmental pollution caused by ships, platforms, and their support facilities.

Photo: Brazilian Navy



SAR area under Brazil's responsibility (14.2 million km²).

Search and Rescue Service (SAR)

The Brazilian Navy implemented, organized, and operates the Maritime Search and Rescue Service (SALVAMAR BRASIL). This service is geared toward emergencies that may affect seafarers at sea and on inland waterways.

SALVAMAR BRASIL is organized according to regulations established by the International Maritime Organization (IMO), which include compliance with the Global Maritime Distress and Safety System (GMDSS); the establishment of a Search and Rescue Region (SRR); the existence of SAR Coordination Centers (MRCC/RCC), as necessary; adequate assets to respond to SAR emergencies; and the organization of a Ship Information System. When necessary, there is coordination with the Aeronautical Search and Rescue System.

Since 2021, the Blue Amazon Maritime Operation and Protection Command (COMPAAz) has operated as the supervisory body for SALVAMAR BRASIL, with the Naval Districts being the coordination organs within their respective Search and Rescue sub-regions.

Brazilian Representation in the International Maritime Organization (RPB-IMO)

The IMO is the specialized agency of the United Nations (UN) created for the purpose of promoting safe, environmentally sound, efficient, and sustainable navigation through cooperation. This purpose will be achieved by adopting the highest practicable standards of maritime safety, navigation efficiency, and prevention and control of pollution by ships, as well as by considering related legal issues and effectively applying IMO instruments seeking their universal and uniform application. To achieve this purpose, the IMO has a structure composed of an Assembly, a Council, five main technical committees (Maritime Safety, Marine Environment Protection, Legal, Technical Cooperation, and Facilitation) and several Subcommittees that support the work of the committees. The Brazilian Navy has a Permanent Representation of Brazil[90] in the IMO.

The Permanent Representation, accredited with the IMO (RPB-IMO), is based in London, England. This Representation operates through a Coordinating Commission for IMO Affairs (CCA-IMO), coordinated by the Chief of Naval Staff, advised by an Executive Secretariat (Sec-IMO) and exercised by the Directorate of Ports and Coasts by delegation of competence from the General Directorate of Navigation. In turn, the DGN is responsible for establishing dialogue with the maritime, port, and academic communities, through a Consultative Forum.

Aids to Navigation (AtoN)

Aids to Navigation activities have been conducted in Brazil for over three centuries since the Santo Antônio lighthouse was established in Bahia in 1698, being the first one known on the American Continent. Currently, the Brazilian Navy's structure includes the Almirante Moraes Rego Aids to Navigation Center (CAMR), whose mission is to plan, execute, and control activities related to aids to navigation in Brazil's maritime area of interest and on inland waterways, in order to contribute to navigation security.

Aids to navigation activities in Brazil are regionalized. Thus, in the different regions of the Country, the CAMR, the Nautical Signaling Services and the Northern Hydrography and Navigation Center and the Port Captaincies and their Delegations and Agencies are responsible for maintaining and operating the aids to navigation signaling systems under the responsibility of the Navy.

The Navy also guides the establishment and maintenance and oversees the operation of other

90 Decree No. 3,402 of April 4, 2000.

aids that are under the responsibility of the private sector, mostly beacons, buoys, and markers that compose the channels providing access to private ports and terminals.

Photo: Brazilian Navy



Research vessel Vital de Oliveira.

Such complex Aids to Navigation Signaling Systems are distributed along 3,502 nautical miles of coastline, with an average of one lighthouse for every 26 nautical miles of coastline; and also along the vast navigable network of Brazil's hydroelectric potential, with about 27,000 nautical miles, equivalent to almost seven times the length of the country's coastline.

BRAZILIAN ARMY

Military Engineering Works and Services

Military Engineering, since the 19th century, has a tradition of cooperating in the construction of national infrastructure.

In the Brazilian Army, the Directorate of Cooperation Works is the technical-normative support organ of the Department of Engineering and Construction, responsible for superintending (directing, inspecting, and supervising) the execution of Engineering works and services by Military Engineering Organizations, carried out in cooperation with other organs through agreements or equivalent mechanisms (partnerships). This activity, implemented in the context of cooperation for national development, also provides troop training.

Photo: Brazilian Army



Military engineering in road infrastructure.

Military Engineering works normally include the construction of highways, railways, bridges, dams, artesian wells, and numerous other projects. The Army has extensive experience in highway construction, maintenance, and rehabilitation throughout the national territory, employing its own personnel and equipment.

The works foster national economic development, interconnecting regions and improving road conditions and railways in the country. This results in higher capacity for people and cargo transportation from ports and airports and a specialized workforce, fostering regional and national economic development.

Border Strip Security

In land border areas, the Army operates in coordination with the other military branches and government agencies in the prevention and repression of cross-border and environmental crimes. Actions or operations are carried out to curb crimes such as drug trafficking, smuggling and customs fraud, arms and ammunition trafficking, environmental crimes, illegal immigration, and illegal mining.

Photo: Brazilian Army



Land border surveillance.

To reinforce the capability of Brazilian military personnel along the country's 16,886 km of land border, the Army invested in the creation of the Integrated Border Monitoring System (SISFRON).

The project, initiated in 2012, provides for the implementation of an integrated set of technological resources, such as surveillance and monitoring, information technology, electronic warfare, and intelligence systems.

In addition to enhancing monitoring capacity, mobility, and presence in the border region, SISFRON contributes to greater regional integration.

Oversight of Controlled Products

The Federal competence to authorize and oversee the production and trade of war material provided for in art. 21, opening paragraph, item VI, of the Constitution, is exercised by the Army.

The complexity and diversity of the pertinent activities and responsibilities required the creation of the Directorate of Controlled Products Oversight - DFPC, headquartered in Brasília, which centralizes the operation of the Inspection System.

The inspection structure efficiently carries out the technical and bureaucratic duties through its internal sections and the harmonious work of the Military Regions, executed by the Oversight of Controlled Products. From this perspective, this Inspection Service is responsible for technically and functionally overseeing the work of the Regional Network, composed of the Oversight of Controlled Products of Administrative Units, Military Service Delegations, Inspection Posts, and Civilian Factories that have military inspectors.

The work gains even more efficiency in operation and cooperation with other public organs by establishing data and information integration protocols with the National Secretariat of Public Security of the Ministry of Justice and Public Security and in partnership with the Federal Police.

Environmental Protection

The Brazilian Army has military organizations located in all national biomes: Amazon, Pantanal, Cerrado, Caatinga, Atlantic Forest, and Pampas. The military properties of the Brazilian Army represent important preserved fragments of the native vegetation of these ecosystems. Thus, Military Organizations contribute to the preservation of fauna and flora species and the microclimatic regulation of large urban centers.

The Army has established operational, educational, logistical, technical, and administrative procedures for internal environmental management. The legislation also provided for awareness-raising and sensitization concerning the importance and necessity of environmental preservation. Environmental protection initiatives are implemented in all regions of Brazil.

Photo: Brazilian Army



Environmental preservation at military facilities.

In the Force, the Department of Engineering and Construction plays a consulting role for environmental issues. Its Directorate of Patrimony and Environment proposes and enforces regulations related to environmental protection. The management of natural resources on military properties, in addition to supporting nature, also enables the creation of suitable natural environments for instruction and training. This is a collective endeavor whose mission is the improvement of structures and the establishment of soil and water resource management programs, as well as the care for flora and fauna.

BRAZILIAN AIR FORCE

Integrated Brazilian Airspace Control

The airspace under federal responsibility extends beyond national borders. It extends beyond Brazil's territory and reaches a significant part of the Atlantic Ocean, totalling 22 million km2, over land and sea, as agreed upon in international treaties. In Brazil, airspace control .

Photo: Brazilian Air Force



Airspace control — Brasília tower.

The Department of Airspace Control (DECEA) is the organization of the Aeronautics Command responsible for this duty. It comprises human resources, equipment, auxiliary assets, and infrastructure with the mission of providing safety and fluidity for flights in the area under its responsibility.

Thus, the evolution of air traffic flow in national and international airspace is controlled daily by the Integrated Air Defense and Air Traffic Control Centers, also known as CINDACTAs, subordinate to DECEA.

They operate on airspace subdivisions called Flight Information Regions (FIR). In Brazil, there are five FIRs under the scope of four CINDACTAs:

- **CINDACTA I (Brasília-DF):** Responsible for FIR Brasília, which covers the Central region of Brazil;
- **CINDACTA II (Curitiba-PR):** Responsible for FIR Curitiba, which covers the South and part of the South-Central Brazil;

- **CINDACTA III (Recife-PE):** Responsible for FIR Recife and FIR Atlântico, which cover the Northeast and the area overlying the Atlantic; and
- **CINDACTA IV (Manaus-AM):** Responsible for FIR Manaus, which covers a large part of the Amazon region..

Photo: Brazilian Air Force



A-29 aircraft flying over the Amazon region.

At the same time, CINDACTAs combine civil air traffic control and military air defense operations, a successful integration solution that has been recommended by the International Civil Aviation Organization (ICAO) (a UN agency that establishes international standards for aviation) to other signatory countries, as a model for resource economy and operational safety. In addition to the CINDACTAs, there is also the Regional Southeast Airspace Control Center (CRCEA-SE), responsible for controlling the highest-density air traffic flow in the country, along the air terminals of São Paulo and Rio de Janeiro.

Search and Rescue Service (SAR)

The Aeronautical Search and Rescue System (SISSAR) was conceived in 1997, with the objective of improving the activities related to the provision of service by COMAER in the airspace under the responsibility of Brazil, concerning the rescue and safe return of survivors of aeronautical and maritime accidents.

Photo: Brazilian Air Force



Maritime SAR operations.

To fulfill its mission, SISSAR has DECEA as its central organ, which is responsible for training and building the capacity of human resources, as well as for standardizing, managing, controlling, supporting, and technically supervising the regional organs responsible for search and rescue operations within their respective areas of jurisdiction. These organs are the Aeronautical Rescue Coordination Centers (ARCC), known as SALVAERO.

The ARCCs are responsible for checking information about an emergency, planning all actions to be conducted, and requesting the support of aeronautical resources from COMAE, which provides the aircraft for the fulfillment of SAR missions.

The ARCCs coordinate Search and Rescue Operations until they are considered completed, that is, when the object of the search has been located, and all its occupants have been rescued. In case the efforts were not successful in locating the objective, the mission may be suspended and may be restarted provided that new facts justify its continuation.

Regarding air assets, COMAER has a squadron specially trained for SAR missions: the Second Squadron of the Tenth Aviation Group — Pelican (2nd/10th GAV), located in Campo Grande (MS), which does not preclude other Air Units from also carrying out such missions. The Pelican Squadron operates SC-105 aircraft (Amazonas) and H-60L (Black Hawk) helicopters.

National Air Mail (CAN)

The CAN is a Brazilian military transport service that seeks to integrate the country's diverse regions and enable governmental action in hard-to-reach communities, carrying out missions for aeromedical evacuation, vaccination, ballot box transportation, or any action that enables the integration of an isolated point of the territory into the rest of the country, thus playing a relevant social role in the communities. It also operates as an instrument for integration between South American countries and the world, when necessary, providing an active service recognized nationally and internationally.

Specialized Works

The COMAER, through the Amazon Region Airport Commission, conducts construction and paving¬ works for airports and airport buildings, in addition to public roads in Municipalities in the Amazon, contributing to national integration, since certain locations can only be accessed by airplane or helicopter.

Environmental Protection

COMAER implements several nationwide initiatives, focusing on environmental preservation, notably improving air traffic flow, which optimizes traffic and reduces fossil fuel consumption by civil and military aircraft, and employs military aircraft in combating forest fires.

Internally, the COMAER promotes educational sustainability activities, protects areas under its guard against deforestation, and creates an Energy Efficiency Program, notably with the installation of photovoltaic power plants in several military facilities.

Aeronautical Accident Investigation and Prevention

COMAER is responsible for conducting activities related to the prevention and investigation of all aviation accidents in national territory, whether with civil aircraft or military aircraft of other Armed Forces and auxiliary forces. These activities are carried out by the Aeronautical Accident Investigation and Prevention Center (CENIPA).

Safety recommendations are prepared for each serious accident or incident in order to resolve specific problems or prevent new similar occurrences.

Space Power

COMAER is responsible for collaborating with the Brazilian Space Agency (AEB) in defining the country's policy regarding access to and use of outer space, as an instrument of political and military action or a factor for economic and social development. This work, which is an instrument of the Brazilian State, is represented in the National Space Activity Program (PNAE).

The current version of the PNAE[91], which covers the period of 2022–2031, provides guidelines for the Country to increase its autonomy in relation to space activities, to achieve the strategic vision of "being the South American country leading the space market."

Access to Space

COMAER has the duty of ensuring that the country achieves mastery of the four aspects of space use: control center, launch center, launch vehicle, and space platform.

The Strategic Space Satellite Program (PESE)[92], is structured in this context, comprising the following segments:

- **ground:** represented by the Space Operation Center (COPE), primary and secondary, responsible for satellite control and operation;
- **space access:** represented by the Alcântara Launch Center (CLA) and the Barreira do Inferno Launch Center (CLBI), which have structures for launching space vehicles of various sizes, both civilian and military; and
- **space:** represented by the Satellites (LESSONIA, CARPONIS, CALIDRIS, and ATTICORA constellations), with each constellation having its own characteristics that enable meeting the demands of the Brazilian Armed Forces and the State.

91 Available at: https://www.gov.br/aeb/pt-br/programa-espacial-brasileiro/politica-organizacoes-programa-e-projetos/programa-nacional-de-atividades-espaciais

92 Available at: https://www.gov.br/defesa/pt-br/assuntos/estado-maior-conjunto-das-forcas-armadas/doutrina-militar/publicacoes

In addition, there are other initiatives, such as research into space-related technologies, the development of launchers (such as the Microsatellite Launch Vehicle (VLM), developed by the Aeronautics and Space Institute (IAE)), and the construction of small satellites (such as the ITASAT, developed by the Aeronautics Institute of Technology (ITA)).

Finally, several actions are being implemented for the effective establishment of the Alcântara Space Center (CEA). The objective is to enable the CEA to carry out non-military launch operations, including the preparation, launch, and tracking of launch vehicles. Initially, the launches would be limited to Category II (vehicles up to 30 meters in size and weighing less than 100 tons).

REPATRIATION OPERATIONS

In early 2023, after an earthquake in Turkey, 17 people, Brazilians and foreigners, were evacuated to Brazil by the Brazilian Air Force.

Photo: Brazilian Air Force



Repatriation operations (Israel/Palestine).

Similarly, after Hamas attacked Israel and the escalation of the crisis, the Brazilian Air Force conducted "Operation Returning in Peace," demonstrating the importance of the country having Air Power with strategic reach, robust logistical

capacity, and a high level of operational readiness. Using Air Force planes, more than 1,400 people were repatriated to national territory, making it the largest repatriation operation in Brazilian history.

CITIZENSHIP PROMOTION

The missions of the Defense Sector include supporting Public Policies that promote citizenship and vocational training for a portion of Brazilian society, in coordination with other social programs and projects, to create opportunities for individuals, with emphasis on people in situations of vulnerability. Currently, the Defense Sector coordinates or directs the Forces in Sport Program, the *João do Pulo* Project, the Citizen Soldier Project, the Rondon Project, the High-Performance Athlete Incorporation Program, and the *Calha Norte* Program (a Brazilian federal initiative for regional development).

FORCES IN SPORTS PROGRAM (PROFESP)

The PROFESP is conducted by the Ministry of Defense with the support of the Armed Forces and other Ministries, since 2003, with the objective of contributing to the recognition of children and adolescents, the reduction of social risks, and the strengthening of citizenship, social inclusion, and social integration. Its beneficiaries are youth aged 6 to 18 years who receive support and resources for practicing various socially inclusive activities focused on education, sports, and physical and mental health at various Military Organizations of the Navy, Army, Air Force, and the Ministry of Defense. The workshops offered include athletics, swimming, rowing, sailing, canoeing, music, board games, soccer, basketball, and academic tutoring.

Photo: Brazilian Navy



PROFESP Program — social inclusion through sports.

The Program annually benefits approximately 30,000 children and adolescents in situations of social vulnerability throughout the national territory, with the participation of over 200 Military Organizations.

For the coming years, an increased participation of children and adolescents is planned, with the expansion of the number of supporting Military Organizations, aiming to take a significant number of those benefited by the project out of the situation of social vulnerability.

JOÃO DO PULO PROJECT (PJP)

This project enables the social inclusion of people with disabilities (PwD), over six years of age, preferably in situations of social vulnerability.

Photo: PJP-MD



PJP Program — archery competition.

Photo: Brazilian Navy

Amphibious operation “Jeanne d’Arc 2024”.

Annually, through access to educational, physical, and sports activities and socially inclusive actions, PJP promotes the reduction of social risks, the consolidation of citizenship, and the social inclusion and integration of approximately 1,000 people with disabilities, in various locations across the national territory, with the participation of about 30 Military Organizations.

The Project's name pays homage to one of the greatest Brazilian sportsmen, the military man and specialized jumper João Carlos de Oliveira. In 1975, at the Pan American Games held in Mexico City, he set the world record in the Triple Jump event with a mark of 17.89 meters, which earned him the affectionate nickname "João do Pulo" (João the Jumper). He was a four-time gold medalist at the Pan American Games (twice in the triple jump and twice in the long jump). The athlete also won two bronze medals at the Olympic Games (Montreal 1976 and Moscow 1980). In 1981, his athletic career was brutally interrupted when he suffered a serious car accident and had a leg amputated.

CITIZEN SOLDIER PROJECT (PSC)

The Citizen Soldier Project includes a set of actions conducted by the Brazilian Navy, the Brazilian Army, and the Brazilian Air Force, coordinated by the Ministry of Defense, to socially and vocationally prepare young conscripts in Compulsory Military Service. The Project aims to complement the building of citizenship and the entry of these military personnel into the job market, upon completion of their military service time.

Since 2004, the initiative has benefited over 260,000 youth across Brazil. The courses, taught by civil, public, and/or private institutions of recognized competence, include basic notions of entrepreneurship, ethics, and citizenship, according to the demand of the regional labor market and the preference of those interested. Some disciplines included are information technology, telecommunications, mechanics, food, civil construction, graphic arts, garment making, textiles, electricity, commerce, communication, transportation, computing, and health care.

The Ministry of Defense, through a partnership, plans to prepare approximately 33,000 young people across Brazil between 2024 and 2027.

Photo: PSC



Citizen Soldier Project.

RONDON PROJECT

Photo: RONDON Project



Operation "Zero" — Rondônia (1967).

The Rondon Project is a strategic interministerial initiative of the federal government, coordinated by the Ministry of Defense, in partnership with state governments, municipal governments, and Higher Education Institutions, which aims to bring solutions developed in the academic setting to municipalities with a low Human Development Index (HDI). These solutions are implemented through sustainable measures for social inclusion and regional inequality reduction, contributing to the consolidation of National Sovereignty.



The name Rondon Project pays tribute to Marshal Cândido Mariano da Silva Rondon (1865–1958), a military officer, explorer of Brazil's hinterland, and engineer, renowned for his expeditions in Mato Grosso and the Western Amazon Basin, as well as for his support of Brazil's Indigenous peoples.

Photo: RONDON Project



Operation Rondon — civic-social activities.

The initiatives implemented are primarily focused on the areas of health care, culture, education, environment, human rights and justice, labor, communication, technology, and production. The Armed Forces provide logistical support to the operations and ensure adequate security conditions for all participants.

The first operation, called Pilot Operation or Zero Operation, was carried out in July 1967 with the participation of thirty students and two university professors from the then State University of Guanabara, Fluminense Federal University, and Pontifical Catholic University of Rio de Janeiro. For 28 days, the Rondon Project participants conducted medical care, surveys, and research work in the territory of Rondônia.

Since 2005, the Rondon Project has completed approximately 100 Operations, bringing transformative actions to over 1,300 Municipalities, and has been present in almost all states. The Project had approximately 25,000 participants (students and professors) and trained over two million knowledge multipliers, including producers, public agents, teachers, and local leaders.

HIGH-PERFORMANCE ATHLETE INCORPORATION PROGRAM (PAAR)

The PAAR was initiated in 2008 because of a partnership between the Ministry of Defense and the Ministry of Sport, with the objective of supporting Brazilian military teams in high-level sporting events, which are conducted by the International Military Sports Council (CISM).

The program is managed by the Brazilian Military Sports Commission (CDMB), which is part of the Department of Military Sports of the Ministry of

Defense, and its main responsibilities include the implementation of military sports policy within the Armed Forces, as well as the promotion and dissemination of sports culture throughout the national territory. In this regard, the CDMB chairman is part of the National Sports Council, which designs sports policies in Brazil.



Photo: COB

Entry into the program is by voluntary enlistment, and the selection takes into consideration the athletic results in national and international competitions. Thus, the medals won throughout their careers are converted into scores in the selection process for sports, providing quality to the PAAR.

After the athletes become military personnel, they are entitled to all career rights: medical, dental, and psychological care, including physical therapists and nutritionists, in addition to having adequate military sports facilities for training, at centers of excellence of the Navy (Almirante Adalberto Nunes Physical Education Center (CEFAN), of the Army (Army Physical Training Center and Deodoro Sports Complex), and of the Air Force (Air Force Sports Commission (CDA).

CALHA NORTE PROGRAM (PCN)

The Calha Norte Program (PCN) was created in 1985 by the federal government to contribute to the maintenance of National Sovereignty, Territorial Integrity, and the promotion of orderly development in its area of operation.

Starting in January 2025, the PCN underwent a restructuring process: the activities of its civil branch were transferred to the Ministry of Regional Integration and Development, with a focus on social strengthening and the execution of structural works. Its military branch has gained emphasis in the field of energy transition, with projects focused on sustainability and the modernization of military units in the Amazon.

The Program contributes to development in its area of operation, increasing the presence of Public Power in the region, providing aid to its populations, and settling people in the region.

They carry out works that provide improved basic infrastructure in the areas of defense, education, sports, public safety, health care, social care, transportation, and economic development of states and municipalities.

The Program provides improved conditions that enable the local population to remain in the region and reinforces the social integration of this population, especially indigenous peoples, isolated communities, and riverine communities.

They carry out basic infrastructure works, mainly for the defense, communication, education, energy, culture, leisure, basic sanitation, health care, and transportation sectors, as well as the acquisition of equipment and vehicles.

Currently, the Program covers 783 Municipalities in 10 states of the Federation (Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Mato Grosso do Sul, Pará, Rondônia, Roraima, and Tocantins), of which 170 are located, in whole or in part, along the 16,885.7 km of the border strip, corresponding to 59.2% of the national territory, where about twenty-seven million people live, including 90% of Brazil's indigenous population.



Photo: Brazilian Army

4th Special Border Platoon — Surucucu.

CHAPTER 6

NATIONAL DEFENSE STUDIES

GENERAL CONSIDERATIONS

The Brazilian population, which for many years has lived free from armed conflicts, has a low threat perception, whether potential or manifest, that could oppose national sovereignty, the achievement of the nation's fundamental objectives, or the attainment of national interests. History shows that, even during the periods of the two world wars, the population and leaders at the time did not clearly perceive threats to our Country, possibly due to the apparent absence of any risk to our territorial integrity, given that national borders had long been consolidated, which was the result of effective work by Brazilian diplomacy. However, since the approval, in 1996, of the then-called National Defense Policy (PND)[93] and, in 2008, of the National Defense Strategy (END), Brazilian society has become increasingly aware of its responsibility regarding National Defense.

Aiming to contribute to the process of building knowledge on National Defense and to collaborate so that the issue is featured prominently in Brazilian society, the Defense Sector develops programs, projects, and activities oriented toward raising the awareness of important strategic sectors, particularly in academia, on the relevance of National Defense for the Country.

93 The National Defense Policy (PND), approved in 1996, was the first initiative to guide the efforts of all Brazilian society in order to obtain capabilities at the national level, aiming to develop the conditions to guarantee Brazil's sovereignty, integrity, and the achievement of national objectives. Updated in 2005, the Policy was complemented by the END, which underwent a new update in 2012, then with the denomination of PND.

STRATEGIC DEFENSE DOCUMENTS

The PND and the END emphasize the importance of introducing National Defense-related issues into the core of Brazilian society. To this end, these strategic documents established the National Defense Objective VI (OND VI[94]), described as "Increasing the engagement of Brazilian society in National Defense matters," which should be understood as the need to increase the participation of important sectors of Brazilian society in discussions related to the issue, providing conditions for building a solid Defense culture.

STRATEGIC SECTORAL DEFENSE PLAN 2020–2031 (PESD 2020–2035)

The Defense Sector Institutional Plan — PESD 2020–2035 is strategically aligned with the Strategic Defense Documents, having, within the Sectoral Defense Policy, objective number 9, described as "Fostering the Development of Defense Studies." This objective promotes the conduct of studies and debates on issues related to National Defense within the Defense Sector and Brazilian society, particularly in academia, as well as its



Strategic Sectoral Defense Plan 2024-2035

94 OND VI establishes two Strategies for achieving the Objective: ED-13 — Promotion of the Defense theme in education and ED-14 – Use of Social Communication.

inclusion in the country's educational system, with the purpose of building knowledge on an issue that affects the nation's existence as a sovereign and respected entity in the international community.

DEFENSE AND ACADEMIA

The Defense Sector, particularly the Directorate of Education and Culture of the Ministry of Defense and the educational institutions of the Armed Forces, maintains ongoing dialogue with Higher Education Institutions (HEIs), aiming at the production and dissemination of knowledge of interest to National Defense. With this purpose, it promotes the organization and development of events, studies, and research that seek to provide the academic community with tools for reflection on strategic issues related to National Defense.

The Ministry of Defense also works in partnership with funding agencies, such as the Coordination for the Improvement of Higher Education Personnel (CAPES), the National Council for Scientific and Technological Development (CNPq), and the Research Support Foundations (FAPs), to foster the development of studies and the creation of research lines focused on National Defense issues, in academic graduate programs, for the training and qualification of specialized personnel (master's, doctorate, and postdoctoral internships).

NATIONAL DEFENSE EDUCATION AND RESEARCH SUPPORT PROGRAMS AND ACTIVITIES

NATIONAL DEFENSE SCIENTIFIC AND TECHNOLOGICAL EDUCATION AND RESEARCH SUPPORT PROGRAM (PRÓ-DEFESA)

The PRÓ-DEFESA[95] program, developed by the Ministry of Defense in partnership with CAPES, aims to foster joint research projects to enable intellectual production and the training of postgraduate human resources in areas of interest to National Defense, thus contributing to the development of knowledge in the field.

PRÓ-DEFESA
PROGRAMA DE APOIO AO ENSINO E À PESQUISA CIENTÍFICA E TECNOLÓGICA EM DEFESA NACIONAL

Higher Education Institutions and Science, Technology, and Innovation Institutions (ICTs, from the Portuguese *Instituições de Ciência e Tecnologia*), public and private, non-profit, and military research and education institutions that have academic graduate programs recognized by the Ministry of Education and areas of concentration or research lines in National Defense participate in the Program. Institutions that submit a viable project for the implementation of these research lines and demonstrate unequivocal institutional commitment to the implementation of the submitted project and to the promotion of education and research on National Defense, even after the project's conclusion, may also compete.

The Program grants scholarships and financial support to projects geared toward the creation and consolidation of areas of concentration and research lines in academic graduate programs on National Defense.

95 Available at: https://www.gov.br/capes/pt-br/acesso-a-informacao/acoes-e-programas/bolsas/programas-estrategicos/formacao-de-recursos-humanos-em-areas-estrategicas/pro-defesa

PROGRAM FOR RESEARCH ABROAD IN AREAS THAT ARE STRATEGIC FOR NATIONAL DEFENSE (PROPEX-DEFESA)

PROPEX-Defesa[96] is the result of a partnership between the Ministry of Defense and the Ministry of Education, through CAPES. It promotes relevant Defense-related research and studies developed by Brazilian Higher Education Institutions, Brazilian Research Institutes, organs of the Ministry of Defense, and of the Armed Forces.

The creation of the program was motivated by issues such as the need to absorb technology in sensitive areas (nuclear, cybernetics, space, biosafety, and biodefense), strategic issues related to the use of Naval, Land, and Aerospace powers by groups of military and civilian researchers in the Country in association with foreign institutions, to provide solutions to leverage priority ongoing projects and contribute to the replacement of personnel in Research, Education, and Development Institutes and in BID companies, in the aforementioned areas.

96 Available at: https://www.gov.br/capes/pt-br/acesso-a-informacao/acoes-e-programas/bolsas/bolsas-e-auxilios-internacionais/encontre-aqui/paises/multinacional/programa-de-pesquisas-no-exterior-em-areas-estrategicas-para-a-defesa-nacional-propex-defesa#:~:text=O%20Programa%20de%20Pesquisas%20no,%C3%A1reas%20estrat%C3%A9gicas%20para%20a%20Defesa.

PILOT STRATEGIC ACTION

The Pilot Strategic Action constitutes a state action, which will enable the Country to increase its capacity to absorb technologies in areas that are strategic for National Defense, particularly in the nuclear, space, cyber, biosafety and biodefense sectors, strategic studies related to the employment of naval, land military and aerospace powers, and other sectors directly connected to the strategic and mobilizing projects of the Armed Forces.

Its implementation, through a pilot action called Strategic Pilot Action, through Project Order with CNPq, as well as its continued execution, will contribute to the development of autochthonous and innovative knowledge and solutions and to the advancement in the execution of projects in sensitive areas, where knowledge is not shared, promoting scientific and technological autonomy.

The training, qualification, and retention of human resources, as provided for in the Action, are directly related to the execution of ongoing projects in strategic areas, and aim to reduce foreign dependence gradually and progressively in the sectors, with a high degree of operational autonomy. To this end, the demands presented, to be met throughout the execution of the action, were traced through a careful survey and prioritization, carried out jointly by the Armed Forces, development agencies, academia, and ICTs.

The action will therefore contribute to the training, qualification, and effective retention of personnel in civil and military educational, research, and development institutions, and in companies operating in areas that are strategic for defense.

ÁLVARO ALBERTO PROGRAM

The Álvaro Alberto Program[97], for fostering research in International Security and National Defense, provides financial support for research projects on issues that are relevant to Brazil's international integration and the management of National Defense, in the field of Applied Social Sciences and Humanities, in two research lines: Strategic Environment and Defense Economy.

Researchers and faculty affiliated with higher education institutions (HEIs), public and private, non-profit, research and technological institutions (ICTs), and Military Education and Research Institutions may participate in the Program.

PROGRAM FOR ACADEMIC COOPERATION IN NATIONAL DEFENSE (PROCAD-DEFESA)

PROCAD-DEFESA[98] is an initiative of the Ministry of Defense, in partnership with CAPES, aimed at fostering cooperation between civilian and military institutions for the implementation of projects focused on education, scientific and technological research production, and the training of qualified human resources in Defense. Its primary objective is to support joint research projects by leveraging the human resources and infrastructure of participating institutions. The program focuses on training and retaining highly qualified personnel in strategic areas, ensuring that academic and technical outputs are effectively applied within both the public and private sectors.

PROCAD-DEFESA targets researchers, faculty, and students affiliated with higher education institutions (HEIs), ICTs, public and private, non-profit, Brazilian institutions, and Military Education and Research Institutions.

Several educational and research institutions, such as Military, Technological, Governmental, and from the Productive Sector, work on joint research projects to consolidate the Brazilian mindset in Defense. Thus, 15 projects were selected, with 145 research scholarships and 460 researchers, in addition to approximately R$ 13.7 million in investment provided by CAPES.

NATIONAL DEFENSE DISSERTATION AND THESIS CONTEST (CDTDN)

The CDTDN[99] is a national competition, held biennially, in partnership with CAPES. Its objectives are to identify, give visibility to, and value, through cash prizes and support for participation in academic-scientific conferences, dissertations and theses by Brazilian authors whose themes are related to National Defense.

The Contest may be entered by master's and doctoral students whose theses and dissertations were approved in the last two years in academic Graduate Programs, integrated into the CAPES graduate program assessment system, as well as works approved in military Graduate Programs.

97 Available at: https://www.gov.br/defesa/pt-br/assuntos/ensino-e-pesquisa/copy_of_defesa-e-academia/programa-alvaro-alberto

98 Available at: https://www.gov.br/capes/pt-br/acesso-a-informacao/acoes-e-programas/bolsas/programas-estrategicos/formacao-de-recursos-humanos-em-areas-estrategicas/programa-procad-defesa

99 Available at: https://www.gov.br/defesa/pt-br/assuntos/ensino-e-pesquisa/copy_of_defesa-e-academia/concurso-de-dissertacoes-e-teses-sobre-defesa-nacional-cdtdn

NATIONAL DEFENSE MONOGRAPH CONTESTS (CMDN)

The CMDN[100] is promoted by the Ministry of Defense as a regular and biennial activity, in partnership with the Ministry of Education, which aims to awaken in undergraduate students — the sphere from which future master's and doctoral students will arise — an interest in issues related to National Defense. It is nationwide and intended for former students and students enrolled in undergraduate programs recognized by the Ministry of Education.

ACADEMIC CONGRESS ON NATIONAL DEFENSE (CADN)

It constitutes an outreach activity with the academic community, conducted by the Coordination of Academic Extension and Cooperation of the Superior School of Defense (ESD). It is an educational activity, held annually, with university students from civil and military educational institutions as its target public. It is held in partnership with the main officer training schools of the Armed Forces: Naval School (EN), Agulhas Negras Military Academy (AMAN), and Air Force Academy (AFA).

The events have the following main objectives:

- to foster interaction between students and teachers from military schools and civilian higher education institutions participating in the event;
- to awaken in civilian congress participants an interest in issues related to National Defense;
- to encourage congress participants to reflect on current issues of interest to Defense; and
- to contribute to the dissemination of Defense matters within Brazilian society.

The CADN[101] is conducted by teams composed of students and faculty from Brazilian Higher Education Institutions accredited by the Ministry of Education, from the Officer Training Schools of the Armed Forces, from the Aeronautics Institute of Technology (ITA), and from the Military Institute of Engineering (IME). It employs dynamics of lectures, study groups, and debates, providing a fruitful interaction between faculty and students from civilian and military institutions. Annually, the Ministry of Defense publishes, in a public notice, the conditions for the qualification of HEIs interested in participating in the congress.

EXTENSION PROGRAM IN NATIONAL DEFENSE (CEDN)

The CEDN[102] is an activity held in partnership with Higher Education Institutions (HEIs) throughout the country. The project aims to foster reflection and studies on National Defense, as well as disseminate knowledge in the area to society. Since 2023, this interaction with the university community has been conducted by the Coordination of Academic Extension and Cooperation of the Superior School of Defense (ESD). Held for over 12 years, the CEDN currently has a hybrid format (in-person and online), with at least two editions per year.

100 Available at: https://www.gov.br/defesa/pt-br/assuntos/ensino-e-pesquisa/copy_of_defesa-e-academia/concurso-de-monografias-sobre-defesa-nacional

101 Available at: https://www.gov.br/esd/pt-br/a-esd/pesquisa-e-pos-graduacao/eventos-academicos/congresso-academico-sobre-defesa-nacional-cadn

102 Available at: https://www.gov.br/esd/pt-br/a-esd/pesquisa-e-pos-graduacao/eventos-academicos/curso-de-extensao-em-defesa-nacional-cedn.

The program activities are carried out with the participation of specialists indicated by the Ministry of Defense and by faculty and speakers suggested by partner HEIs. The Extension Program totals 20 class hours, and students with at least 75% attendance are certified. The program is free and intended for undergraduate and graduate students, as well as individuals interested in the issue of National Defense.

GRADUATE PROGRAMS IN EDUCATIONAL INSTITUTIONS OF THE MINISTRY OF DEFENSE

GRADUATE PROGRAM IN INTERNATIONAL SECURITY AND DEFENSE (PPGSID) OF THE SUPERIOR WAR SCHOOL (ESG)

The PPGSID of the ESG aims at academic training at the graduate level and the consolidation of the scientific, technological, and innovation base related to National Defense and International Security. Additionally, it contributes to the conception of the national and regional Defense mindset and to advisory services to the Ministry of Defense and other organs responsible for the formulation of policies related to Defense.



Superior War College — Rio de Janeiro (RJ).

The PPGSID focuses, above all, on the study of global conflicts, political tensions, and policies and strategies related to National Defense planning. The Program covers, directly or indirectly, disciplines related to geopolitical studies and political and economic decision-making in Defense.

The year 2014 marked the beginning of the PPGSID formulation process, meeting the State's strategic need for educating civilians in Defense matters, as established by the END. In October 2018, the master's Program in International Security and Defense was recognized and recommended by CAPES.

The PPGSID[103] has an Area of Concentration, International Security and Defense, and two Research Lines: Geopolitics and International Security, and Defense Policies, Strategies, and Planning.

GRADUATE PROGRAM IN SECURITY, DEVELOPMENT AND DEFENSE (PPGSDD) OF THE SUPERIOR DEFENSE SCHOOL (ESD)

In 2023, ESD implemented the PPGSDD[104], an academic master's program, seeking to train qualified professionals for the exercise of functions related to planning, advising, analyzing, and implementing public policies, in addition to a staff of professionals and intellectuals capable of conducting reflections and research in the field of Defense.

The Program aims to:

a) promote the engagement of Brazilian society in matters of National Defense;

b) train and improve the qualification of human resources, civilian and military, in matters of National Security and Defense;

c) enable its faculty, students, and researchers to contribute to scientific and technological research related to the interrelations between Security, Development, and Defense (SDD);

d) contribute to the integration between different sectors, perspectives, and interfaces with the debate on SDD;

e) constitute a space capable of increasing the degree of interdisciplinarity related to education, research, extension, and dissemination in the area of Defense;

f) contribute to higher integration between the School and the different national institutes of strategic studies, public or private; and

g) foster the study of the Defense issue in academia, with emphasis on the DF region and its neighboring states, extending to the various organs of the Branches of the Republic, their agencies and autonomous agencies, and especially to society as a whole.

Photo: ASPLAN-MD



Superior Defense College — Brasília (DF).

GRADUATE PROGRAMS IN EDUCATIONAL INSTITUTIONS OF THE ARMED FORCES

BRAZILIAN NAVY

Naval War School Graduate Program in Maritime Studies (PPGEM)

The PPGEM[105] is designed to qualify civilian and military professionals in maritime studies, enhancing specialized training and fostering research to expand academic knowledge in areas vital to naval power and national defense. The major advantage of this program is its multidisciplinary aspect, combining multiple disciplines, as has been observed in similar Maritime Studies programs in countries with a consolidated academic tradition such as the United Kingdom and the United States of America.

Thus, the aim is to train specialist doctors and masters capable of advising various governmental and private sectors on Defense matters with an emphasis on the maritime field, in addition to preparing personnel capable of formulating naval defense and international relations policies within the scope of the Ministry of Defense and the National Congress, as well as participating in discussion forums in organizations such as the United Nations (UN), the Organization of American States (OAS), and the International Maritime Organization (IMO).

It is also intended to train professionals in political management of science, technology, and innovation in research institutes focused on the maritime field and legal analysts capable of advising private companies and government organs

103 Available at: https://www.gov.br/esg/pt-br/composicao/pesquisa-e-pos-graduacao/mestrado.

104 Available at: https://www.gov.br/esd/pt-br/a-esd/mestrado

105 Available at: https://www.marinha.mil.br/ppgem/

on Maritime Law, International Law, and the Law of Armed Conflicts. In addition, there is the training of researchers in Maritime Studies in the academic field with an emphasis on education and research in the areas of Defense, conjunctural scenarios, technology, and legal matters.

The Professional Doctoral Program is geared toward graduates from an academic graduate program recognized by CAPES, and the Professional Master's Program is geared toward graduates from any undergraduate program recognized by the Ministry of Education. The student body is composed of professionals from the fields of International Relations, Political Science, Law, History, Social Sciences, Administration, Economics, Naval Sciences, and Psychology, among others. Due to the program's high interdisciplinarity, it also has broad areas of operation, such as: Maritime Transport, Logistics, Justice, Press, Academia, Defense, Oil and Gas, and Infrastructure.

BRAZILIAN ARMY

Meira Mattos Institute (IMM)

The IMM is the structure of the Army Command and General Staff School (ECEME) focused on the school's connection with the academic environment and strategic study centers within and outside the Country, and on conducting strategic studies, events, and study trips within the scope of ECEME.

In this context, the IMM conducts high-level assessments on political and strategic issues of interest to ECEME and the Army, when requested. The Department of Research and Graduate Education (DPPG) is the section of the IMM that conducts scientific research activities and the Graduate Program in Military Sciences (PPGCM)[106],consisting of master's, doctoral, and postdoctoral programs, all carried out at ECEME.

Among other activities, the DPPG also contributes to the selection of issues to be studied at PPGCM and maintains close relationships with military and civilian higher education institutions, both domestic and foreign, as well as with CAPES, CNPq, and other technical-normative bodies involved in postgraduate education.

Furthermore, the IMM has, within its structure, the Center for Political and Strategic Studies, the Section for Inter-agency Events and Relations, and the Section for Publication, Dissemination, and Cataloging.

BRAZILIAN AIR FORCE

Graduate Program in Aerospace Sciences (PPGCA)

The PPGCA[107], of the Air Force University, conducts Master's and Doctoral programs to contribute to the improvement of the quality of tasks performed by the Brazilian Aerospace Power, in peacetime or in case of armed conflict. Its main objectives are to:

- train personnel in areas of interest in Aerospace Power, with emphasis on the fundamentals and doctrinal bases of relevant subjects;
- foster research that contributes to the expansion of the philosophical, scientific, and military knowledge of Aerospace Power; and
- contribute to the dissemination of matters of interest to National Defense related to Aerospace Power.

The Program offers spots for Armed Forces Officers and civilians holding a bachelor's or master's degree in any field of knowledge, and whose research projects are of interest to the Air Force Command.

Graduate Program in Operational Human Performance (PPGDHO)

The PPGDHO[108] aims to train qualified human resources to systematize and dynamize the production of applied scientific knowledge and the development of products, methods, techniques, processes, and technical-professional innovations that meet the specific needs for improving the operational performance of military personnel.

The PPGDHO is intended for the training of Armed Forces Officers and civil servants holding a higher education position, functionally linked to the Ministry of Defense, Navy Command, Army Command, and Air Force Command, who hold a degree from Armed Forces Officer training schools, or who hold degrees from higher education programs recognized by the Ministry of Education, in areas of knowledge related to the Program's Research Lines and Technical Production.

Its main objectives are to:

- train human resources of the Armed Forces for the investigation, proposal, management, and evaluation of intervention mechanisms for building the capacity of military personnel in the biopsychosocial dimensions, aiming for the efficiency and effectiveness of human performance in the fulfillment of duties and operational missions employing military power; and
- evaluate the effects of applying methods, techniques, processes, and other technical-professional products developed or improved for the purpose of enhancing the training and operational performance of Brazilian Armed Forces military personnel.

106 Available at: http://www.eceme.eb.mil.br/instituto-meira-mattos-imm.

107 Available at: https://www2.fab.mil.br/unifa/ppgca/.

108 Available at: https://www2.fab.mil.br/unifa/ppgdho/.

CHAPTER 7

DEFENSE BUDGET

GENERAL CONSIDERATIONS

The institutional peace and stability of a Nation require the adoption of measures in the areas of diplomacy, development, and defense. National defense and national development are deeply interdependent; the country's development is a vital factor in providing the human and material resources required to sustain the potential deployment of its military instrument. At the same time, the defense apparatus must be consistent with the most advanced practices and technologies, which requires the nation to remain at the cutting edge of state-of-the-art scientific and technological development. The Brazilian State, therefore, strategically outlines integrated policies and invests in those sectors, laying the foundations to solidify a modern, secure society, while remaining convinced of its role in upholding national sovereignty and interests.

Regarding the investments to be made in National Defense, the objectives to be achieved in this important strategic vector of the Brazilian State must be considered. In this context, the Defense Sector (Ministry of Defense and Armed Forces) is noted, considering that its effectiveness requires adequate budgetary allocation and efficient management that enable the construction and consolidation of military defense capabilities, which facilitate the effective fulfillment of the institutional mission of the Armed Forces.

The military instrument must have the necessary capabilities for surveillance, monitoring, control, and defense of Brazil's Jurisdictional Waters, land borders and airspace under national jurisdiction, and must be capable of defending national interests, contributing to the consolidation of National Sovereignty and deterrence. This requires adequate allocation and efficient management of budgetary resources in the Defense Sector, with a view to financing the Sector's expenses and investing in projects and programs geared toward modernizing and transforming the Armed Forces, which also contributes to the development and enhancement of the Defense Industrial Base (BID).

This present chapter is aimed at addressing the peculiarities of the Brazilian Defense Budget and the budgetary statements that illustrate the evolution of expenses inherent to National Defense and comparing Brazil's defense investments in relation to the international system, prioritizing the strategic neighborhood. The presented values are expressed in real terms, that is, adjusted for inflation in the period, as measured by the Broad National Consumer Price Index (IPCA), calculated by the Brazilian Institute of Geography and Statistics (IBGE).

BUDGETARY PROCESS

Brazil's budgetary process is based on a hierarchy of three ordinary laws: the Multi-Year Plan Law (PPA), the Budgetary Guidelines Law (LDO), and the Annual Budget Law (LOA). These legal devices are provided for in Article 165 of the Constitution.

The PPA is the federal government's medium-term planning instrument, which establishes, in a regionalized manner, the guidelines, objectives, and goals of the federal public administration for capital expenditures, and others arising from them, and for those related to continuing programs, for a period of four years. The Multi-Year Plan presents, among others, the strategic programs and projects of the Defense Sector, to continue the Defense Sectoral Strategic Plan 2020-2031 (PESD 2020-2031).

The LDO is the guiding document for the preparation of the LOA, which sets out the priorities and goals of the federal public administration for each fiscal year.

The LOA is the instrument that enables the execution of government programs included in the Multi-Year Plan. Its main objective is to set the expenditure programming for a given fiscal year, considering the current fiscal situation in the Country. The process of preparing this law provides for resources for current expenses[109] and investments in the Defense Sector.

PRINCIPLES OF THE DEFENSE BUDGET

The allocation of defense resources in the Annual Budget Law should be guided by three principles:

- **stability:** resources allocated to Defense should not undergo abrupt fluctuations, so Defense projects can be maintained over time;
- **regularity:** the disbursement of funds must be programmed and regular, enabling schedules to be met as planned; and
- **predictability:** this principle provides security for medium and long-term planning, ensuring that initiated projects do not suffer interruptions, with consequent damage to the public treasury.

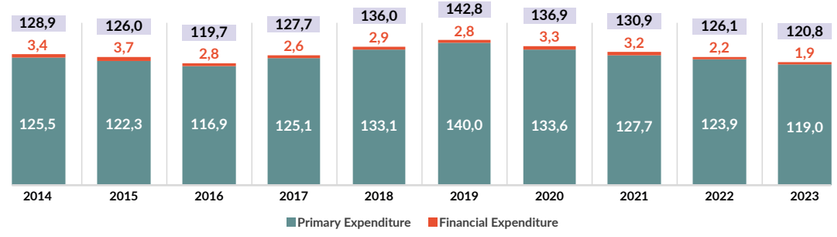
EXECUTION OF THE DEFENSE BUDGET

The expenses of the General Budget of the Union can be classified into two main groups: primary and financial. Primary spending, also known as non-financial expenses, correspond to the set of expenses that enable deliveries to society, and financial expenses are those arising from the government's financial operations, such as debt amortization, interest payments (interest payments), and loan granting.

In the last 10 years, the primary spending of the Ministry of Defense represented, on average, 97.8% of the total and financial expenses 2.2%

109 Intended for the maintenance of public services and current transfers, which are budgetary allocations applied to expenses of other public or private entities, not corresponding to direct consideration in goods or services.

Total Expenditure of the Ministry of Defense
(R$ billion)



Source: SIOP BI, as of December 2023.

Notes: Values updated according to the 2023 average IPCA; and Values based on committed expenditures, except extraordinary credits.

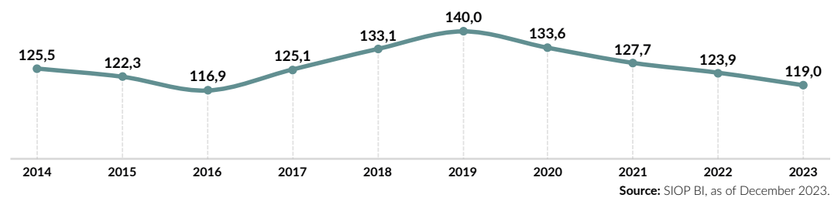
PRIMARY SPENDING

The total primary spending of the Ministry of Defense, meaning that related to the provision of goods and services in the Defense area, has declined since 2014, partly due to the fiscal crisis experienced at that time. However, in the period from 2017 to 2019, it showed growth driven by the increase in personnel expenses and the capitalization of EMGEPRON. Starting from the 2020 fiscal year, it resumed a downward trend.

Primary expenses are subdivided into mandatory, those that the Union has a constitutional or legal duty to execute, and discretionary, whose execution depends on the government's judgment regarding the convenience and timeliness of their execution, according to established priorities.

The mandatory primary expenses of the Ministry of Defense showed growth in the period from 2017 to 2020, when they reached the highest amount (R$ 119 billion) in the fiscal year 2020. Starting in 2021, this growth trend was interrupted, being 4.2% lower that year than in 2020, and in 2023, about 11% lower than the amount in 2020.

Primary Expenditure
(R$ billion)



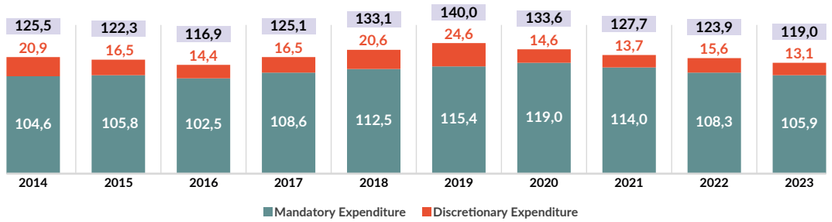
Source: SIOP BI, as of December 2023.

Notes: Values updated according to the 2023 average IPCA. Values based on recognized obligations, except extraordinary credits.

Regarding discretionary primary spending, growth is observed in the period from 2017 to 2019, driven by the capitalization of EMGEPRON. In contrast, it presented lower values in subsequent years, because of a more restrictive fiscal policy adopted by the Brazilian government.

It should be noted that, in December 2016, Constitutional Amendment No. 95 was published, which established a New Fiscal Regime, with the creation of a "Spending Cap" for the primary expenses of each Branch of Government. In general, this measure harmed the discretionary spending group, more specifically the investment group, since mandatory expenses are necessarily executed in their entirety, by legal force. This fiscal regime was replaced by the New Fiscal Framework in fiscal year 2023, with the enactment of Constitutional Amendment No. 126, of December 21, 2022.

Mandatory and Discretionary Primary Expenditure
(R$ billion)



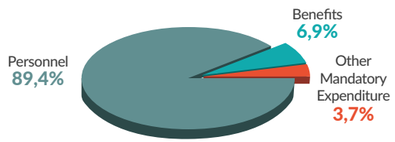
Source: SIOP BI, as of December 2023.

Notes: Values updated according to the 2023 average IPCA. Values based on recognized obligations, except extraordinary credits.

MANDATORY PRIMARY SPENDING

Considering the mean mandatory primary spending in the timeframe from 2014 to 2023, personnel expenses[110] were the most representative and corresponded, on average, to 89.4% of the total. Expenses with Benefits represented 6.9% and Other Mandatory Expenses 3.7%.

Mandatory Primary Expenditure
(Average 2014–2023)



Source: SIOP BI, as of December 2023.

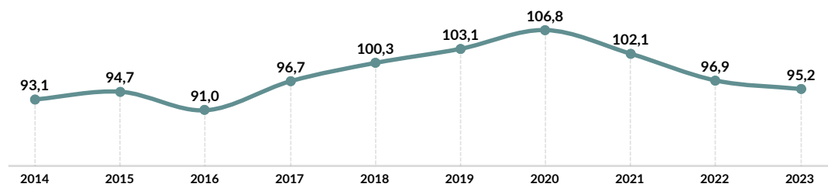
Notes: Values updated according to the 2023 average IPCA. Values based on recognized obligations.

110 Total expenditures on active and retired civilian and military personnel, reservists, military retirees, and pension beneficiaries, including all forms of remuneration and personal benefits of any nature, as well as social charges and contributions paid by the entity to pension and social security funds.

PERSONNEL SPENDING

In the period from 2016 to 2020, personnel expenses showed a growth trend due to staggered adjustments made to military pay in those years, which also impacted other personnel-related expenses.

Personnel Expenditure
(R$ billion)



Source: SIOP BI, as of December 2023.

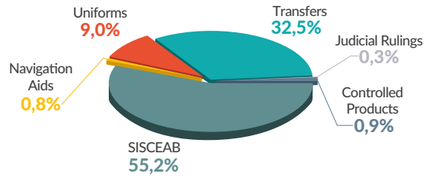
1. Personnel Expenditure (R$ billion)
2. Source: SIOP BI, as of December 2023.
3. Notes: Values updated according to the 2023 average IPCA. Values based on recognized obligations.

OTHER MANDATORY PRIMARY SPENDING

The group of other mandatory primary expenses of the Union comprises those inherent to the Brazilian Airspace Control System (SISCEAB), navigation security, control and inspection of products controlled by the Brazilian Army, transit and uniforms of military personnel, as well as judicial sentences.

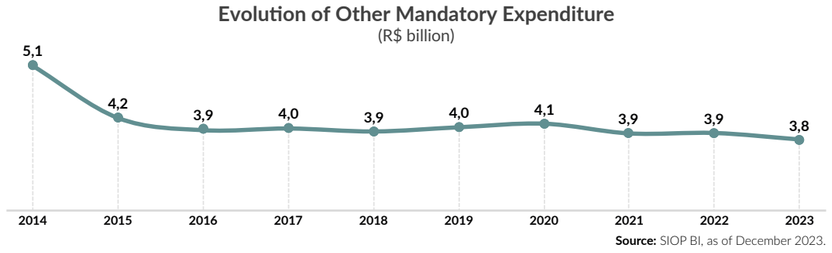
Considering the average of Other Mandatory Expenses, in the period from 2014 to 2023, the largest volume, about 55.2%, refers to the maintenance and modernization of air traffic surveillance and control equipment, SISCEAB. These percentages did not show significant variations over this period.

Other Mandatory Primary Expenditure
(Average 2014–2023)



Source: SIOP BI, average from 2014 to 2023.

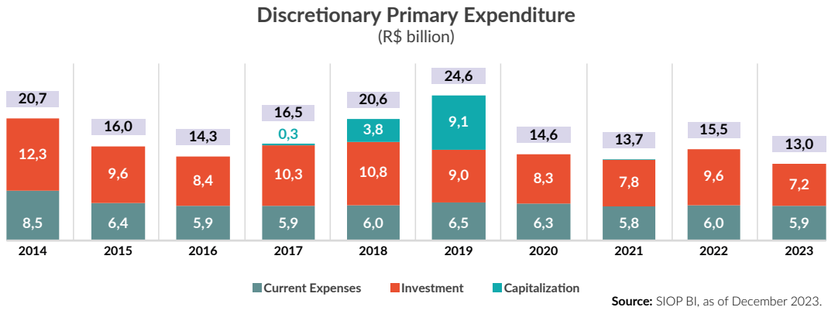
Notes: Values updated according to the 2023 average IPCA. Values in recognized obligations.



Source: SIOP BI, as of December 2023.

EXECUTION OF DISCRETIONARY PRIMARY SPENDING

Discretionary expenses are those incurred based on the availability of resources and the manager's discretion in prioritizing spending. This group includes current expenses (intended for the maintenance of public services), investment expenses (related to the acquisition of real estate, facilities, equipment, among others), and financial investments (related to the acquisition of real estate or capital goods in use; acquisition of securities representing the capital of companies or entities of any kind; among others).



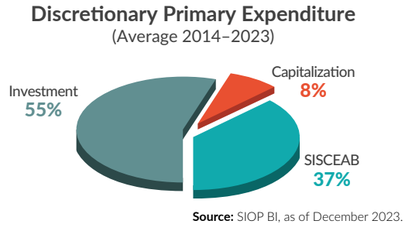
Source: SIOP BI, as of December 2023.

Notes: Values updated according to the 2023 average IPCA. Values based on recognized obligations, except extraordinary credits.

The amount of discretionary primary expenses incurred from 2014 to 2023 is composed of the groups of investments, current expenses, and capitalizations of state-owned companies, with the main ones referring to investments in strategic defense projects; current expenditures and functioning of military organizations; and capital contributions to EMGEPRON, made in the fiscal years 2017 to 2019.

Considering the mean discretionary primary spending from 2014 to 2023, investment expenses[111] represent 55%.

111 Intended for the acquisition of real estate, facilities, equipment, permanent materials, and software.



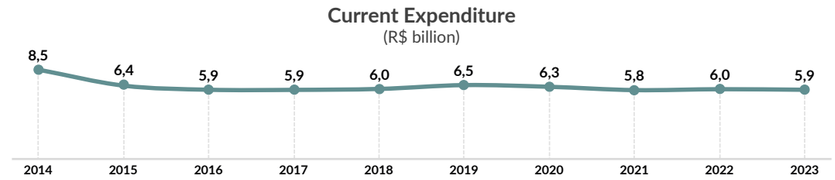
Source: SIOP BI, as of December 2023.

In the investment group, Strategic Defense Projects represent the largest volume of expenses.

CURRENT EXPENSES

The Ministry of Defense's current expenses represent 37% of the volume of discretionary primary spending and consist predominantly of those related to the functioning and maintenance of military organizations and the preparation and funding of the Armed Forces' core activities.

Over the course of 10 years (2014 to 2023), there was a reduction in current expenses by around 30.6%, a fact related to the restrictive fiscal context of recent years, combined with Constitutional Amendment No. 95/2016, which more strongly impacted discretionary spending.

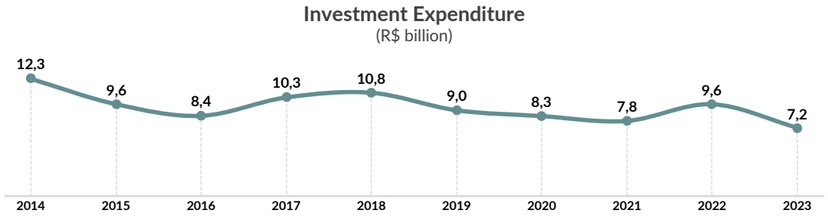


Source: SIOP BI, as of December 2023.

Notes: Values updated according to the 2023 average IPCA. Values based on recognized obligations, except extraordinary credits.

CAPITAL EXPENDITURES

Investment expenses primarily include those related to the strategic projects of the Armed Forces, such as the Submarine Development Program (PROSUB), the Navy Nuclear Program (PNM), the Astros Program, the Integrated Border Monitoring System (SISFRON), the Multipurpose Fighter Acquisition Project (F-39), the Military Tactical Cargo Aircraft Development and Acquisition Project (KC-390), and the HX-BR Helicopter Acquisition Project.



Source: SIOP BI, as of December 2023.

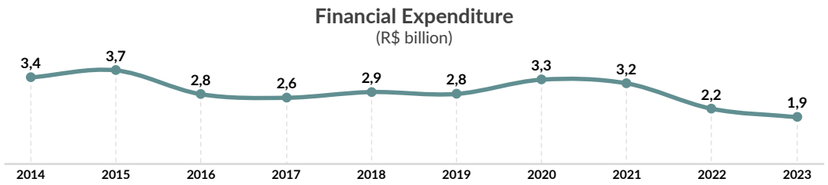
Notes: Values updated according to the 2023 average IPCA. Values based on recognized obligations, except extraordinary credits.Values do not include Expenditure Nature Group (GND) 5.

Investment expenses decreased by 41.5% in the period from 2014 to 2023. This decrease resulted, in part, from the deepening of the fiscal crisis in the country and from the impacts of the enactment of EC No. 95/2016.

FINANCIAL EXPENSES

Financial expenses include the payment of interest, debt amortization[112] and the Union's contribution to the funding of the Federal Public Servants' Pension Scheme.

The largest volume of financial expenses, in the period from 2014 to 2023, refers to the payment of contractual debt resulting from project financing, i.e., amortization and interest expenses. In addition to these, in a less representative volume, "Other Financial Expenses" are noted, such as contributions to public servants' pensions.



Source: SIOP BI, as of December 2023.

112 Expenses for the amortization of the MD's contractual debt refer to the payment and/or refinancing of the principal and the monetary or exchange rate adjustment of the contractual external public debt.

IMPACTS ON THE DEFENSE BUDGET AND PROSPECTS

Despite the budgetary principles mentioned at the beginning of this chapter, defense spending, especially investment expenses that encompass Defense Projects, has been particularly impacted in recent fiscal years, given the current fiscal situation and rules.

It should be noted that budget shortfalls may necessitate contract renegotiations, which disrupt the physical and financial schedules of projects. This often leads to extended deadlines, the accrual of fines and interest, and an overall increase in total project costs. Depending on the magnitude of the cut, it may result in the discontinuation of the project and the possibility of employee layoffs, as well as the demobilization of the involved companies linked to the Defense Industry Base, in addition to the loss due to non-receipt of the contract object within the due period.

From this perspective, the Ministry of Defense is studying regulatory alternatives that ensure the continuity of investments in strategic projects in the sector, mainly to enable the fulfillment of the strategic objectives established in its National Defense Policy (PND).

INTERNATIONAL DEFENSE BUDGET

WORLD DEFENSE SPENDING

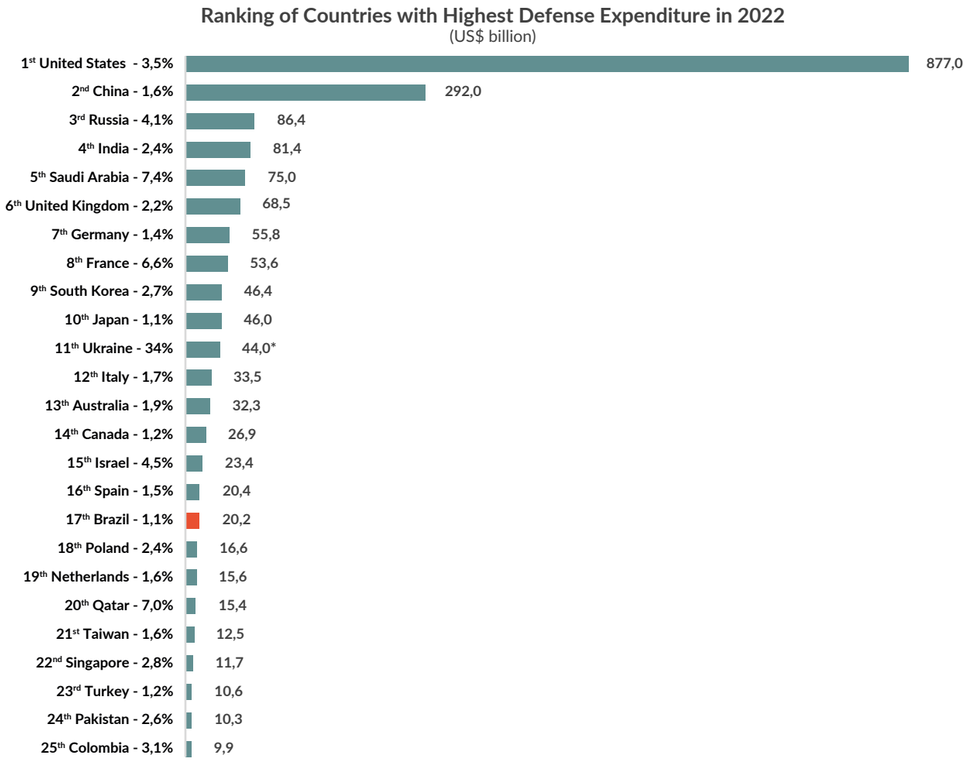
The comparison between defense budget data for different countries is useful for obtaining a rough estimate of their investments in this sector.

Information on the operational preparedness and capacity of the Armed Forces is difficult to measure. The Stockholm International Peace Research Institute (SIPRI) periodically releases data on the countries' defense spending. This information is intended to show the ranking of countries that invest the most in the Sector. The information is available at: https://www.sipri.org/databases/milex.

In 2022, the countries' total Defense spending worldwide was USD$ 2.21 trillion. In the ranking of the 25 countries with the largest volumes spent in this sector, Brazil ranked 17th, with spending of approximately 20.2 billion dollars.

It is important to note that, in 2022, 39.6% of global defense spending was made by the United States of America, followed by China, whose investment percentage represented about 13.2% of the total. The investments of other countries represented, individually, less than 4% of the global value.

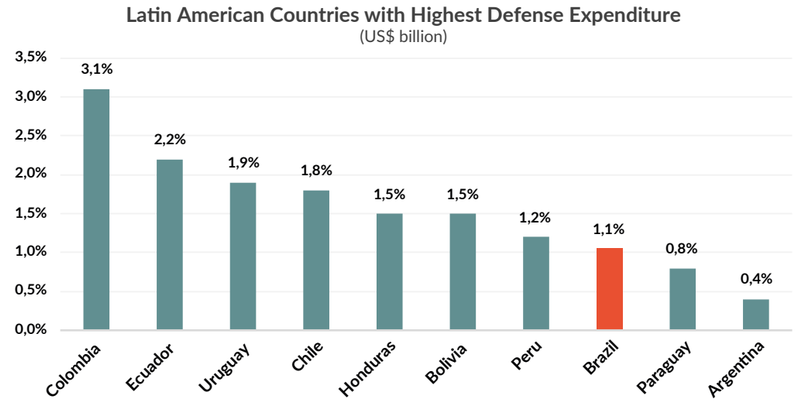
Regarding the Gross Domestic Product (GDP), Ukraine had the largest percentage invested in 2022, around 34%, followed by Saudi Arabia with 7.4%, Qatar with 7%, and France with 6.6%. The percentage invested by Brazil in relation to GDP was 1.1%.



Source: https://www.sipri.org/databases/milex, accessed on 03/27/2024.

DEFENSE SPENDING IN LATIN AMERICAN COUNTRIES

Regarding Defense Spending in Latin American Countries, Brazil had the largest volume of defense spending in 2022, approximately 20.2 billion dollars, ranking 1st among these countries. However, in relation to GDP, the amount spent corresponded to 1.10%, while Colombia invested 3.10% and Ecuador 2.16% of their respective GDPs.



Source: https://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS?end=2022&start=1960&view=chart, accessed on 09/05/2024.

FINAL CONSIDERATIONS

Brazil, as a sovereign state aware of its role in the International System, possesses the necessary determination to defend its interests, its wealth, its population, its culture, and its heritage. To this end, it remains attentive to changes occurring in the international environment and seeks to increase its resilience to face international crises that may impact Brazilian society.

In a world marked by geopolitical clashes, uncertainties, changes, and a strong restructuring of power relations between States, the continuous development and optimization of the Brazilian State's defense capabilities are fundamental for a robust deterrent posture that serves, on the one hand, as a pillar supporting National Sovereignty and, on the other hand, as a pillar of stability for the Country and its strategic environment.

Brazil's commitment to international peace and security continues to be a cornerstone of its Defense Policy, in synergy with its Foreign Policy. The transparency with which we share the purposes of the Military Instrument aims to strengthen mutual trust and reduce uncertainties among friendly nations. This White Paper seeks to reinforce understanding and cooperation, which are essential for facing common challenges in defense and its interactions with the economy, education, science, technology and innovation, health care, and the environment.

The Defense sector's effectiveness is boosted by the development of the Brazilian State's National Defense capabilities, which must be constantly enhanced, together with society and in alignment with other Brazilian public policies. In this context, the modernization, innovation, and transformation of Defense Military Capabilities are fundamental to enable greater qualification and operational advantage for the Armed Forces, in addition to the potential spillover to other strategic national sectors, leveraging the country's technological development and economic growth.

Consolidating the Defense Industrial Base (BID) and enhancing competencies in science, technology, and innovation are vital for enabling greater national autonomy and independence and for the Armed Forces to effectively fulfill their Constitutional Mission. This requires, mandatorily, adequate budgetary allocation and an efficient management and planning process that enables building priority military defense capabilities for structuring strategic defense potential, providing the Military Instrument with adequate power to deter or respond to possible threats, manifest or potential, in the international arena.

The Brazilian Military Instrument will be as strong as its ability to stay updated with technological innovations, whether in terms of the evolution of structures, doctrines, and equipment, or by the imperative to seek solutions for new challenges, such as those posed by climate change, which will demand joint efforts for the adaptation and resilience of the Brazilian State.

In this regard, the continuous promotion of studies in the Defense area led by the Ministry of Defense, including through different initiatives in partnership with universities, research centers, and other sectors of government and society, is paramount. In-depth research by a growing and diverse community of experts — both military and civilian — enables the expansion of critical dialogue among researchers, public policy makers, and decision-makers, providing civic engagement in the formulation of Defense Policy, in addition to leveraging civil-military relations.

As we conclude this fourth edition of the Defense White Paper, we reiterate the Defense Sector's unwavering commitment to Brazil's sovereignty and to the protection of our interests and our heritage. This document, based on the directives established in the National Defense Policy (PND) and the National Defense Strategy (END), demonstrates that, even though Brazil is a country with a peaceful tradition, Defense is essential for a sovereign nation and cannot be relegated to a secondary role.

We invite all Brazilian society to actively engage in reflection on National Defense. The White Paper is not just a presentation of policies; it is a tool for transparency and democratization of defense knowledge, a bridge to more informed and active participation of Brazilian citizens in Brazil's collective security and in the construction of a Defense Policy aligned with national interests. Thus, as we face an uncertain future, Brazil remains firm in its purpose of building a nation that is increasingly democratic, developed, secure, just, and influential on the international stage



MINISTRY OF

DEFENSE