MINISTRY OF DEFENSE

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INTRODUCTION

The Ministry of Defense leads the management of the Armed Forces in the ongoing effort to maintain their organizations and structure for the benefit of the country's development, in caring for the population and in generating opportunities. The main mission of the ministry is sovereignty, defense and work. To this end, focused on its three main strategic sectors – nuclear, cybernetic and space, Defense develops its strategic projects along with the Navy, the Army and the Air Force.

The National Defense Strategy (NDS) has as one of its structuring axes the strengthening of the Defense Industrial Base (DIB), which seeks the ongoing improvement, technological autonomy and competitiveness of its products to serve both the Forces and the global defense market.

In the defense industry sector, the country stands out as a relevant production and exporting hub in the face of the global market. The naval industry, the development of the nuclear sector, armored vehicles, rocket launch vehicles, new transport and fighter aircraft, satellites, surveillance radars and other products stand out.

The Brazilian defense industry is thus part of the competitive global scenario, innovating and generating opportunities for new markets and new ventures. The Brazilian defense industry is responsible for approximately 3.58% of the GDP, generating 2.9 million direct and indirect jobs. It thus participates in a significant portion of the national economy and is consolidated as the largest in the regional segment.

The Ministry of Defense has relations with the defense industry and many of the representative entities of the sector in Brazil. This partnership provides the necessary inputs for the development of strategic projects for the Armed Forces, especially regarding human value, technological development and the infrastructure required to achieve the objectives of each project with quality, timeliness and security.

The defense sector requires the development of state policy, budget and strategy. Preserving sovereignty and maintaining the Armed Forces in a permanent state of operational readiness, with equipment, means of transport and other factors that guarantee availability for action are the main objectives that outline the goals of the Ministry, for which all initiatives in favor of the Brazilian State are developed.

Strategic Projects

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Sgt Johnson / Força Aérea Brasileira

H-XBR PROJECT

The HX-BR project wishes to provide the Brazilian aerospace industry the technology needed for helicopters design and production of.

The project includes the manufacture of 50 medium-sized helicopters for general use by the Brazilian Armed Forces and the Government. A Consortium formed by the companies AIRBUS

HELICOPTERS and HELIBRAS (Itajubá-MG) was contracted for this purpose, including an offset program.

The sum of 50 H-225M aircraft are intent to be delivered: 16 to the Brazilian Navy, 16 to the Brazilian Army and 18 to the Brazilian Air Force, two dedicated exclusively to support the President of Brazil.

The Project includes the integration of specific armaments, logistics support, training and qualification of human resources and technology transfer, which enables Brazil to conceive, develop and produce medium-sized helicopters.

The H-225M performs tactical transport missions, troops and cargo, in-flight refueling, search and rescue in combat and maritime patrol. In addition, the helicopter can be employed in humanitarian aid and logistics transport missions.

Operating from a huge variety of airfields and offshore, these aircraft are capable of all-weather operations, including the night vision goggles functionality. The range of over 280 nautical miles can be extended by the ability to be refueled in flight.

The first helicopter was delivered in 2014, assembled and tested in Brazil. The mission system was developed with the participation of the national industry, which includes integration of electronic warfare sensors, weapons and sea radar.

In 2015, the Brazilian Air Force received its first aircraft in the operational version, with self-protection capabilities, in-flight refueling. It has also equipment that expand the Armed Force's operational capability.

So far, 44 aircraft have been delivered: 14 to the Brazilian Navy, 14 to the Brazilian Army, 14 to the Brazilian Air Force and 2 to the Special Transport Group of the Brazilian Air Force, that gives support to the President of Brazil.

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TH-X PROJECT

The TH-X Project was designed to equip the Brazilian Navy and the Brazilian Air Force with H-125 light helicopters, ensuring fleet standardization, interoperability, joint operations, and operational synergy between the Forces. The project promotes the unification of training processes, reducing operational costs and enhancing integrated training capacity. A total of 27 helicopters will be acquired, with 15 allocated to the Navy and 12 to the Air Force, focusing on basic pilot training.

The contract was signed with the manufacturer, which will assemble the helicopters in Brazil through its local subsidiary, Helibras, utilizing national suppliers for key equipment production. The agreement also includes technology transfer, professional training, and integrated logistical support, reinforcing the Brazilian Defense Industrial Base (BID).

The H-125 helicopters are designed for all-weather operations, equipped with advanced digital avionics and capable of day and night training missions, including night vision goggle (NVG) operations. Their versatility also supports light transport and logistical missions.

The first aircraft delivery occurred in 2024, with the final delivery scheduled for 2027. The helicopters will be assigned to Navy and Air Force training centers, promoting joint training and resource optimization.

The TH-X Project symbolizes the Ministry of Defense's commitment to modernizing the Armed Forces, supporting the national defense industry, and enhancing Brazil's operational capabilities.

Divulgação / Marinha do Brasil

DEFENSE

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BRAZILIAN NAVY

Divulgação / Marinha do Brasil

FRIGATES
"TAMANDARÉ" CLASS

The Brazilian Navy, under the "Construction of the Core of Naval Power" Strategic Program, and as a result of an immediate need to renew the Naval Force, develops the Project to obtain, by construction, the "Tamandaré" Class Frigates.

This Project provides for the acquisition of four versatile ships, endowed with high combat power, capable of protecting the extensive Brazilian Maritime Area, with more than 5.7 thousand km² – "Blue Amazon"; to conduct Search and Rescue operations; monitoring and combating pollution, piracy, illegal fishing, among other threats; and meeting the international commitments assumed by Brazil.

The ships, that are built in the national territory, will be launched between 2025 and 2029, and are made with high level of nationalization of components and equipment, in addition to the transfer of technology. This fact will contribute to the generation of jobs and to the strengthening of the country's shipbuilding and defense industry.

Érico Alves / Ministério da Defesa

NAVY

PROSUB

DEFENSE AND SOVEREIGNTY

In order to contribute with defense and sovereignty over Brazilian Jurisdictional Waters, the Brazilian Navy has concentrated its efforts on the Submarine Development Program (PROSUB), which will expand the Force's operational capacity to protect and preserve our Blue Amazon.

As part of the new Growth Acceleration Program – PAC, of the Federal Government, and under coordination of the Navy Command, PROSUB was created in 2008, comprising the construction of an Industrial Infrastructure and Support for the operation and maintenance of submarines, the construction of four conventional submarines and the construction project of the first Brazilian conventionally armed submarine with nuclear propulsion.

Supported by three pillars: technology transfer, except in the nuclear area, nationalization of equipment and systems, and personnel training, the Program is enabling the first industrial complex and logistical support dedicated to naval means with nuclear propulsion in the southern hemisphere.

Divulgação / UFEM

Steel Structure Manufacturing Unit (UFEM), Itaguaí - RJ

Divulgação / Marinha do Brasil

Submarine Tonelero (S-42).

Built in an area of 750 thousand square meters, the Itaguaí Naval Complex will house the industrial and support infrastructure, composed of a Steel Structures Manufacturing Unit, two shipyards, one for construction and another for maintenance, a naval base, a Specialized Maintenance Complex, two dry docks, workshops, administrative areas, 13 piers and one shiplift with a capacity to support 8 thousand tons, in addition to an Instruction and Training Center for submarine crews.

The first of four Brazilian conventional submarines (S-BR), the Submarine "Riachuelo" (S-40) was launched to the sea on December 14th, 2018. In sequence, the Humaitá (S-41) was launched in 2020. The next to be launched are the Tonelero (S-42), in 2025, and the Almirante Karam (S-43), scheduled for 2026.

The first Brazilian conventionally armed submarine with nuclear propulsion, main scope of the program, will be named "Álvaro Alberto", a tribute to the Admiral who was the pioneer in the use of nuclear technology in the country.

The completion of the Program will also strengthen several sectors of the national industry of strategic importance for the country's economic development.

Additional Information: www.prosub.mar.mil.br

NAVY

PNM
NAVY'S NUCLEAR PROGRAM

Beginning in 1979, the Navy's Nuclear Program covers two major projects: the nuclear fuel cycle domain and the development of an embedded nuclear plant for submarines, which includes the previous construction of a prototype on land, the Nuclear-Electric Power Generation Laboratory (LABGENE).

The domain of the difficult process of uranium enrichment by ultracentrifugation, a technology with high added value, was reached by the Brazilian Navy, in 1988.

Based on this technology, the Brazilian Navy started to collaborate with the Nuclear Industries of Brazil (NIB) and, since 2000, has supplied ultracentrifuges to its industrial plant in Resende/RJ, where nuclear fuel is produced for the nuclear power plants of Angra dos Reis, a good example of the dual use of this technology.

For the society, another benefit of this Program was the launching of the Foundation Stone of the Brazilian Multipurpose Reactor (RMB), in June 2018, which will make Brazil self-sufficient in the production of radioisotopes – a fundamental input for the manufacture of radiopharmaceuticals of great importance for the treatment of diseases in several areas of Medicine, such as cardiology, oncology, hematology and neurology. In addition to sectors linked to health, the RMB will have numerous applications, such as research in the nuclear, agroindustry and environment areas, for example.

At the same time, the integration tests for LABGENE's turbogenerators began – the first nuclear power plant fully designed in the country. Just a few countries in the world have been able to conquer these technologies to date.

Others positive aspects of investing in nuclear energyare the nationalization of processes and Industrial equipment, the innovations resulting from the program's partnerships with universities and research institutes and the generation of direct and indirect jobs. There are also the direct effects of the program in achieving the country's independence in sensitive technologies and in the development of the Defense National Industry.

Felipe Barra / Ministério da Defesa

Construction of the first PROSUB (S-BR1) conventional submarine at UFEM, in Rio de Janeiro

NAVY

Strategic Projects

BRAZILIAN ARMY

Divulgação / Exército Brasileiro

ARMORED FORCES

ARMY STRATEGIC PROGRAM

The Strategic Armored Forces Program is an initiative of the Brazilian Army to modernize the Armored and Mechanized Brigades, increasing the mobility, protection, and combat power of the Groud Forces. The program covers the acquisition and development of new armored combat means, both wheeled and tracked.

The main objective of the program is to modernize the Army's combat capabilities, focusing on armored and mechanized brigades, essential for national defense and Brazil's international projection. The program involves the modernization of existing armored vehicles and the introduction of new platforms with advanced weapons, protection, and command technologies.

Studio Cerri

About 90% of the components used to manufacture Guarani are made in Brazil

New Family of Wheeled Armored Vehicles (NFBR)

One of the main components of Armored Forces Program is the New Family of Wheeled Armored Vehicles, consisting of 4X4, 6X6, and 8X8 armored vehicles, as well as 155 mm self-propelled howitzers. These new vehicles increase troop mobility and are integrated with modern weapons and command systems.

The program also includes the modernization of armored vehicles such as the CASCAVEL and LEOPARD 1A5 BR, as well as the acquisition of new tracked combat vehicles, suitable for difficult terrains and more complex operations.

The program invests in research and development of new defense technologies, with the aim of reducing dependence on imports and increasing Brazil's technological autonomy. In addition, the program includes training and adaptation of military units for the use of the new armored vehicles.

The Armored Forces Program is crucial to ensure that the Brazilian Army has a modern and effective combat capability, strengthening national security and Brazil's position on the international stage. The program also boosts the development of the national defense industry.

SISFRON

INTEGRATED SYSTEM OF BORDER SURVEILLANCE

The Integrated Border Monitoring System (SISFRON) is a strategic tool for security and development on the Brazilian Land Border. In an increasingly connected and complex world, the security of a country's borders is not limited to traditional patrolling and surveillance. With a territorial extension that covers different ecosystems and a rich cultural diversity, Brazil faces unique challenges in protecting its land borders. In this context, SISFRON emerged as a pioneering initiative, aimed at strengthening the capacity of the Army and the Country to ensure security, sovereignty, and sustainable development in its border.

Brazil shares 16,886 kilometers land borders with ten countries. This vast extension covers areas of difficult access, including parts of the Amazon, the Pantanal, and the southern region of the country. Geographical diversity and associated logistical challenges make monitoring and controlling these areas a complex task, requiring advanced and integrated technological solutions. SISFRON is a response to these challenges.

Developed with the aim of providing the Brazilian Army with the necessary means for effective action in border areas, the system represents a qualitative leap in terms of national security. Using censoring technologies, operational support, and decision-making support, SISFRON cooperates to reduce cross-border illicit activities, enhancing environmental preservation, protection of indigenous communities, and promotion of socio-economic development in these regions.

SISFRON Program has the potential to radically transforms security and development in Brazil's border regions. By improving the capacity to monitor and respond to cross-border threats, the system contributes to the protection of national territory and the promotion of peace and sustainable development. Additionally, cooperation with other government agencies and the mobilization of the Defense Industrial Base strengthen the social and economic fabric of border regions, generating opportunities for growth and integration.

The successful implementation of SISFRON represents a milestone in Brazil's defense and development strategy, requiring a long-term commitment to investment in technology, human capacity building, and interagency cooperation. By facing contemporary challenges and as the project evolves, its benefits are expected

Divulgação / Exército Brasileiro

Radar SABER M60.

ARMY

to extend beyond strengthening the country's defense capacity, contributing to the strengthening of sovereignty, regional integration, and sustainable socio-economic development in Brazil.

As a Strategic Program of the Army, SISFRON is headquartered at the Army Projects Office of the Army General Staff, in Brasília/DF. It is organized into 9 implementation phases, which are called Sensoring and Decision Support Projects (Pjt SAD), which extend along almost 17 thousand linear kilometers of the land border, 150 kilometers wide of the border strip into the interior of the country, covering 570 municipalities in 11 Brazilian states.

The Phase 1 of SISFRON, also called the Pilot Project, was implemented on 27 November 2012, around the 4th Mechanized Cavalry Brigade, in the city of Dourados, Mato Grosso do Sul State. The Pilot Project developed over more than 10 years and is in the process of being concluded, having achieved the project's objectives.

Currently, four phases of the program are underway simultaneously:

- **Pjt SAD 2**, implemented on 1st April 2020 and in execution, with deliveries planned within the scope of the Project aimed at equipping the 13th Motorized Infantry Brigade, in Cuiaba/MT, the 18th Border Infantry Brigade, in Corumbá/MT, and the military units directly subordinate to the Western Military Command.
- **Pjt SAD 3**, implemented on 07 June 2023 and in execution to provide the technological resources that will support the component structures of the 15th Mechanized Infantry Brigade, in Cascavel/PR;
- **Pjt SAD 3ª**, implemented on 22 November 2019 and in conclusion, with the objective of equipping the Special Border Platoons of the 2nd Jungle Infantry Brigade, in São Gabriel da Cachoeira/AM and the 16th Jungle Infantry Brigade, in Tefé/AM with modern technological means, necessary to monitor and control the border strip; and
- **Pjt SAD 7**, implemented on 09 February 2024 and in execution to provide the technological resources that will support the component structures of the 1st Jungle Infantry Brigade, in Boa VistaRR.

The continuity and success of SISFRON are essential to ensure the security, prosperity, and sustainability of Brazil's border regions in the 21st century.

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Integrated Border Monitoring System (SISFRON).

ARMY

CYBER DEFENSE STRATEGIC
PROGRAM OF THE ARMY

The Cyber Defense Strategic Program of the Army (Prg EE Def Ciber) was created in 2011, with the objective of generating capabilities and developing doctrine, to enable Brazilian Army to join the time of countries that have the ability to operate in cyberspace, with freedom of action. With this, Brazil became part of the restricted group of countries with its own development capacity in this Strategic Sector for Defense, for which the Army is responsible.

When the Project was created, the need for an operational body capable of exercising governance, in a collaborative manner, among the actors involved in this theme was identified. To this end, in 2010, the Cyber Defense Center (CDCiber) was created, a Joint Operational Command, part of the Army structure, which from its inception has shown a vocation for interagency operations.

Since its implementation, the project has been the main driver of the establishment of Cyber Defense structures, in addition to having already delivered important solutions, mostly national, such as the Cyber Actions Simulator (SACi), which allows the training of cyber protection of critical structures; the Cyber Security Laboratory (LaSC), at the Military Engineering Institute (IME); the Cyber Protection Modules (MPC), for use in operational networks; in addition to the modernization and increased resilience of the Army's Telematics System (SisTEx); among many others.

In 2014, the Ministry of Defense issued new guidelines to enhance the Cyber Defense sector in the country. Based on this guidance, in 2015, the Cyber Defense in National Defense Program (PDCDN) was created and, in 2016, the Cyber Defense Command (ComDCiber), a joint structure, permanently activated, which had CDCiber as its operational arm.

Recently, the Army decided to extend its program, and has been working in various areas to enable the implementation of this Military Capability, and conducting, among other activities: the organization of CDCiber, the planning and execution of cyber security for corporate networks and systems, the development of secure systems, the improvement of the training structure for preparation and operational employment, the production of knowledge from the cyber source and the scientific research structure in the cyber area. All these initiatives are enhancing the combat power of the Ground Force, providing freedom of action in cyberspace, in addition to encouraging and inducing the development of national technological capacity.

ARMY

Strategic Projects

BRAZILIAN AIR FORCE

Sgt. Batista / Força Aérea Brasileira

KC-390
MILLENNIUM PROJECT

The largest military aircraft ever produced in Brazil, the KC-390 Millenium represents a milestone in the excellence of project management in the Brazilian Air Force. This is because it manages to combine the best requirements and offset packages to improve sectors of the Brazilian Defense Industrial Base. Altogether, more than 50 Brazilian companies participate in the project, which also has the collaboration of Argentina, Portugal and Czechia.

The project foresees the development and acquisition of 19 aircraft capable of transporting cargo and troops throughout the national territory or anywhere on the globe. The aircraft is also capable of refueling other aircraft in flight, carrying out aeromedical evacuation, dropping parachutists and cargo and being used for fire fighting in flight.

Sgt Johnson / Força Aérea Brasileira

The new backbone of military transport aviation in Brazil, has the capacity to operate in the most diverse scenarios and configurations. Due to its capacity to transport up to 50.700lbs, the aircraft can accommodate large equipment, such as weapons and even the Brazilian Army's Guarani armored vehicle.

The development contract was signed in 2009 between Brazilian Air Force and EMBRAER, constituting the KC-X Project. In early 2015, the KC-390's first flight was carried out, beginning the testing phase of the two prototypes.

The most relevant facts in the project are:

- In September 2024, the seventh KC-390 Millennium multi-mission aircraft was delivered.
- The KC-390 Millenium participated in the distribution flights of material and supplies intended to combat the effects of the COVID-19 pandemic throughout the national territory;
- In the Lebanon Mission, the aircraft transported materials, medicines, health equipment and food to Lebanon;
- During Operation Taquari 2, which began in May 2024 to provide support to those affected by heavy rains in Rio Grande do Sul, the KC-390 transported 1,544 tons of donations and 4,831 passengers; and
- In support of Operation Pantanal 2, which began in June 2024, the KC-390 worked to fight fires in extensive areas of the Pantanal, reaching the significant milestone of more than 1 million liters of water released in 84 flights.

F-39 E/F GRIPEN PROJECT

F-X2 PROJECT

Defense is one of the main sectors able to push forward technology and innovation, increase the export of products with greater added value and bring benefits to the Brazilian economy. Therefore, when making purchases of military equipment, the country seeks to become increasingly competitive with cooperation agreements that enable huge technological growth.

In this context, the F-X2 project has started from the Brazilian Air Force requirements to substitute fighter aircrafts and aim to incorporate important technological advances in the Brazilian Industrial Defense Base.

As in the 1980's, when Brazil jointed into a historic partnership with Italy in the AMX Program, bringing the knowledge to Brazil produce jets, now a cooperation agreement with Sweden takes the country to a new level in the aerospace industry.

Signed in 2014 by the Brazilian Air Force, the contract with the Swedish company SAAB provides for the acquisition of 36 aircraft Gripen, 28 single-seat units and 8 two-seaters.

The Swedish company SAAB is responsible for developing the aircraft in partnership with the Brazilian aerospace industry, which is being prepared to produce parts and assemble the last Gripen units here in Brazil, as result of a technology transfer program. The delivery of the first batch of aircraft is scheduled for October 2021.

The supersonic multi-role F-39 Gripen fighter will be used by Brazilian Air Force in air defense, attack and recognition missions, including airspace policing measures and other related to the Aerospace Power employment.

Due to a national strategy to support the industry, Brazil currently has trained companies that could be included in the offset package dealt by the Brazilian Air Force and SAAB, allowing the Brazilian Defense Industrial Base to take part in the Gripen NG development process.

The technology transfer program consists of about 60 key projects. The most expressive is the Gripen Design and Development Center (GDDN), located at the EMBRAER factory unit in Gavião Peixoto/SP.

More than 350 Brazilian professionals, including engineers, technicians and pilots from the Brazilian Air Force and SAAB's partner companies in Brazil were on-the-job trained in Sweden, under Swedish technicians oversee. Subsequently, these professionals will be employed directly in the Gripen aircraft manufacturing in Brazil. This process is part of the technology transfer programs, in which skills and knowledge will be acquired by the Brazilian industry, enabling the final assembly of these aircraft in Brazil. The contract also provides logistics support and the acquisition of the initial Gripen's armament package.

The contribution of this project is to further strengthen the Brazilian air defense and to leverage business opportunities for the Brazilian aeronautical industry through technical and commercial cooperation between Brazil and Sweden.

In the last few months, the most important milestones reached in the project were:

- The first Gripen E in the Brazilian line completed the initial production phase and is now in final assembly.
- The F-39E Gripen aircraft stood out at CRUZEX 2024. The world debut of the F-39E Gripen in a highly complex multinational exercise exceeded expectations. Acting as both an Allied Force and an Opposing Force, systems integration and performance were exceptional, demonstrating the capabilities of the F-39E Gripen as a modern weapons platform.

Sgt. Bianca / Força Aérea Brasileira

Gripen NG is the only fighter aircraft in the Southern Hemisphere capable of supersonic speeds over long distances

PESE
STRATEGIC SPACE SYSTEMS PROGRAM

The Program's objective is ensuring Brazil's autonomy in manufacture, launch, space systems operation and replacement, based on the development of dual-use products, for military and civil aims and improve the country's technological and industrial sovereignty. That is the goal of the Strategic Space Systems Program (PESE), a Ministry of Defense Program that establishes a strategy for deployment of space systems, based on projects of development communications, remote sensing and geolocation satellites, launch vehicles, among others.

PESE is part of the National Space Activities Program (PNAE) that establishes the strategy for implementing dual-use space systems. The Program aims to promote scientific, technological and industrial development in order to assure the outer space pacific exploitation.

As established by the National Defense Strategy (END), it is up to the Brazilian Air Force, in partnership with the Brazilian Space Agency (AEB), through a scientific-technological interaction with the Defense Industrial Base in order to conduct projects related to this strategic sector.

Due to its large territorial dimensions and biodiversity, Brazil demands huge communications, meteorology and image production systems, in addition to strategic data services obtained from the satellites technology that must be a domain of the Brazilian State. Furthermore, space monitoring is an integral and indispensable condition for the strategic tasks that guide the Brazilian Air Force, namely: multiple and cumulative surveillance and air superiority.

The Program consists of the following Strategic Projects: Carponis; CEBRA; Lessonia; PROPHIPER; and Launch Vehicles.

The **Carponis Project** aims to establish a constellation of high-resolution optical remote sensing satellites designed to capture detailed images of strategic areas and objects, both within and beyond national borders. These data are essential for planning, supervision, execution, and evaluation of military operations, as they enable continuous and precise observation of the Earth's surface without geographical restrictions or the limitations of airborne sensors. As a result, the project will significantly enhance the Armed Forces' reconnaissance and surveillance capabilities.

The **Brazilian Space Complex (CEBRA)** aims to strengthen national access to space by enabling the use of the Brazilian Air Force Command's (COMAER) infrastructure for commercial space launch operations from Brazilian territory. The project includes investments to improve infrastructure and expand CEBRA's operational capacity, covering research, development, preparation, launch, tracking, and safety activities. Additionally, it focuses on the continuous training of professionals to support the entire space operations chain.

Lessonia Project, with its constellation of Radar Remote Sensoring (RRS) satellites, in full operation since January 2025, represents a significant advance for Brazilian society. In addition to meeting the demands of the Ministry of Defense and civilian government, the system provides high-resolution products that translate into concrete benefits for the country. Precise monitoring of deforestation, identification of illicit activities in our territorial sea and detailed analysis of natural catastrophes are just some of the applications. The images generated by Lessonia satellites were crucial in tackling floods in Rio Grande do Sul in 2024, demonstrating the project's potential in emergency situations.

Controlled by the Aeronautics Command's Space Operations Center, Lessonia satellites, launched on August 16, 2024, consolidate Brazil as a protagonist in the use of outer space for remote sensing.

PROPHIPER Project aims to develop a technological demonstrator for a hypersonic air-breathing vehicle. The experimental platform, known as 14-X, is an unmanned prototype equipped with a scramjet engine, which is integrated into the fuselage and has no moving parts. This project positions Brazil among the nations striving to master hypersonic technology, which is considered one of the most efficient alternatives for future space access. Beyond satellite deployment, hypersonic propulsion also has the potential to enable suborbital flights. PROPHIPER has an innovative approach, seeking to increase the Technology Readiness Level of solutions involved in hypersonic flight. At the same time, the project fosters the national aerospace sector, drives scientific and technological research, and promotes the training of specialized professionals, ensuring the country remains competitive in the medium and long term.

The **Launch Vehicles Project** aims to develop rockets designed for deploying microsatellites into equatorial and polar orbits, as well as transporting special payloads such as scientific modules and hypersonic experiments on suborbital missions. The development of these launch vehicles aligns with Brazil's strategic space directives, contributing to the country's autonomy in satellite launches, strengthening international collaborations, fostering mutually beneficial technological and industrial projects, and training specialized professionals. Additionally, the project seeks to consolidate the national space industry, promoting innovation and increasing the sector's competitiveness.

MINISTRY OF DEFENSE

MINISTER OF DEFENSE
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