



THE BLUE GUYANA AND THE BLUE AMAZON

Sovereignty, Geoeconomics & Strategic Cooperation in the South Atlantic

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EXECUTIVE SUMMARY

The Blue Guyana — the French Exclusive Economic Zone off Guyana — and the Brazilian Blue Amazon together constitute one of the most under-exploited strategic frontiers of the 21st century. These two maritime spaces, which adjoin in the equatorial South Atlantic, hold considerable potential in critical seabed minerals, offshore hydrocarbons, marine biodiversity, and strategic navigation routes. In a context where Europe depends on China for 97% of its magnesium, 71% of its gallium, and 90–98% of rare earths, this structural dependence constitutes a sovereignty vulnerability. The combination of Blue Guyana and Blue Amazon can offer France, Brazil, and their European partners an alternative lever of unprecedented geostrategic scope. This note analyzes the geopolitical, geoeconomic, and institutional conditions for enhanced Atlantic cooperation between France, Brazil, and the European Union, articulated around three axes: sovereignty over critical submarine resources, offshore energy security, and maritime security in the South Atlantic.

1. THE SOUTH ATLANTIC: A RENEWED STRATEGIC FRONTIER

The South Atlantic is no longer merely a transit space between continents. In the 21st century, it has become a zone of intense geostrategic competition, where the interests of major global powers — the United States, China, Russia — intersect with the sovereign aspirations of riparian states. For France and Brazil, this space represents far more than a maritime periphery: it constitutes the core of their presence and influence in a geopolitical arc stretching from the Gulf of Guinea to the confines of Antarctica.

The concept of "critical minerals" does not designate a geological category but a strategic condition. A mineral becomes critical when two factors converge: its centrality in the essential industries of the energy transition and digital economy — batteries, electronics, defense — and the perceived fragility of its supply, due to its concentration in a limited number of supplier or processing countries. This combination — industrial importance and supply vulnerability — explains why minerals known for decades have taken a central place on the international agenda. In this context, lithium and copper occupy a particularly strategic position: the former is a key input for batteries, the latter for electrification and energy infrastructure. Various estimates, including those of the International Energy Agency (2025), converge on significant growth in demand for these two minerals in the coming decades, with concrete risks of imbalance between supply and demand.

It is precisely this convergence that gives Blue Guyana and Blue Amazon a new strategic dimension. The seabed of the equatorial South Atlantic hosts significant concentrations of polymetallic nodules, hydrothermal sulfides, and cobalt-rich ferromanganese crusts rich in manganese, cobalt, nickel, copper, zinc, and rare earths. Added to this are offshore hydrocarbon resources — of which the Brazilian pre-salt is the most spectacular manifestation — and marine biodiversity, the new frontier of pharmaceutical and industrial bioprospecting.

2. FROM RESOURCE TO STRATEGIC VARIABLE: THE SEA AS A LEVER OF POWER

2.1 The geopolitics of resources and control of value chains

The geopolitics of resources has undergone a profound transformation over the past decade. Control of critical mineral supply chains is now considered, in the national strategies of major powers, as an issue of industrial sovereignty and national security on par with access to hydrocarbons in the 20th century. This transformation does not result solely from the evolution of demand. It is the product of deliberate political decisions — Chinese industrial policy, the European Critical Raw Materials Act, the American Inflation Reduction Act and CHIPS Act — which have politicized access to resources and elevated supply security to a first-order strategic variable. The strong concentration of processing in a few countries — particularly China — has highlighted that control of supply chains depends not only on resource availability, but on the capacity to transform, finance, and organize them. This is why one increasingly speaks of "mineral diplomacy" to designate the growing international action of states in organizing supply, investment, and access conditions to critical minerals markets.

2.2 The political organization of global demand

The rise of critical minerals has not simply translated into increased demand, but into a deeper transformation: the political organization of that demand. Major industrialized economies have begun to act deliberately on access conditions to these resources, deploying strategies combining diplomatic, financial, regulatory, and technological instruments. An emerging set of mechanisms aims to reduce vulnerabilities, stabilize supply, and, above all, influence the conditions of integration of resources into value chains. Among these mechanisms are long-term offtake agreements, mobilization of public and private financing backed by these commitments, identification and promotion of strategic projects, and growing coordination between states to guarantee preferential access. This process represents a fundamental qualitative change: the market no longer merely reacts to price signals — it is now actively structured by states, which seek to influence variables previously beyond their reach: supply predictability, project viability, and future allocation of production. This transformation leads to increasing integration between economic diplomacy and supply securitization.

2.3 Between strategic organization and actual commercial flows

In this context, it is essential to distinguish between the strategic organization of demand and its actual materialization. For critical minerals — and particularly for copper and lithium — real demand remains heavily concentrated in China, which is not only the central actor in processing but also the main destination for current exports from producer countries. This reality creates structural tension. While various advanced industrialized economies advance in building alternative supply schemes, existing commercial flows reflect significant dependence on Chinese demand. In the case of copper, for example, the majority of concentrate exported by countries like Chile or Peru is destined for this market, while refined copper shows more marked geographic diversification. This implies that international insertion must be conceived both in terms of strategic alignments and according to actual market conditions. The compatibility between foreign policy objectives and effective commercial dynamics thus becomes a central element of any strategy for insertion into critical minerals value chains.

3. THE BLUE GUYANA: ATLANTIC WINDOW OF FRENCH AND EUROPEAN SOVEREIGNTY

3.1 A ZEE with under-evaluated resources

The Guyanese ZEE extends over approximately 130,000 km² in the equatorial Atlantic, between the mouth of the Amazon to the southwest and the Guyanese continental plateau to the northeast. Its seabed presents complex geology, marked by sedimentary deposits from the Amazon and archaic volcanic formations of the Guyanese basement. Preliminary studies by Ifremer have highlighted the presence of hydrothermal sulfides and ferromanganese concentrations in certain deep zones, although their economic evaluation remains to be refined. More immediately, the Guyanese ZEE hosts developing offshore petroleum activity. The discovery of the Zaedyus field in 2011 by Total (now TotalEnergies) had opened important perspectives, but its development was not pursued in the context of low prices in 2014-2016. In the new energy context, marked by the 2022 crisis and

diversification imperatives, these resources regain strategic relevance. The geographical position of French Guyana also confers it a role as an "Atlantic gateway": its proximity to the Brazilian ZEE creates conditions for natural maritime and economic cooperation between the two states. The Franco-Brazilian maritime boundary, defined by bilateral agreements, is one of the rare direct maritime boundaries between an EU member state and a BRICS state.

3.2 The Blue Guyana as a European outpost in the South Atlantic

For the European Union, Blue Guyana represents far more than a French national ZEE. It is the only maritime space of the EU directly present in the South Atlantic, making it a geostrategic asset of the first order for European maritime policy. The fact that France is simultaneously a northern and southern Atlantic power — thanks to its overseas territories — confers on the EU a global oceanic presence that few other political entities possess. Within the framework of the Critical Raw Materials Act adopted by the EU in 2024, French Guyana can be mobilized as a privileged entry point for partnerships in critical minerals with Brazil and other states in the Amazonian and Atlantic region. Blue Guyana offers Europe a double advantage: immediate legal sovereignty, without the need for complex diplomatic negotiation, and geographical proximity to the submarine resources of the Atlantic ridge and equatorial abyssal plains.

4. THE BRAZILIAN BLUE AMAZON: MARITIME POWER AND STRATEGIC RESOURCES

4.1 A claimed maritime identity

The Blue Amazon is a strategic concept developed by the Brazilian Navy in the 1990s to designate Brazilian maritime space in the South Atlantic. It covers the entire Brazilian ZEE (3.6 million km²) and the extended exclusive economic zone recognized by the CLCS since 2007 (bringing the total to approximately 4.5 million km²). This maritime territory hosts resources that have profoundly transformed Brazil's economic and strategic trajectory. Offshore petroleum exploitation is central there. The pre-salt — the geological layer of light petroleum discovered in 2006-2007 under a thick salt layer 200-300 km from the coasts — has elevated Brazil to the rank of global petroleum power. Petrobras is today one of the world's leading operators in ultra-deep water production. In 2023, Brazil produced approximately 3.8 million barrels per day, positioning the Blue Amazon as one of the most important hydrocarbon production spaces in the world outside the Middle East. But the Blue Amazon is also the convergence of the Amazon with the Atlantic: the immense fluvial delta transports sediments rich in minerals that reconfigure coastal marine bottoms and generate unique ecosystems. Guyanese-Amazonian marine biodiversity — of which the Amazon Reef, discovered in 2016, constitutes the most spectacular expression — represents a natural heritage of considerable scientific and economic potential.

4.2 Mineral resources of the Atlantic seabed

While pre-salt hydrocarbons constitute the best-known wealth of the Blue Amazon, mineral resources of the marine seabed represent an open and strategic frontier. The zones of extension of the Brazilian continental shelf, recognized by the CLCS, include geological formations conducive to the presence of polymetallic nodules and cobalt-rich crusts. The Vitória-Trindade Chain, this volcanic arc extending eastward from Brazil to Trindade Island, is the subject of in-depth geological studies. Concentrations of cobalt, nickel, and platinum group elements have been identified there. The Marine Mineral Resources Research Program (REVA) of the Brazilian Navy, in partnership with the University of São Paulo and CPRM, has documented these potential riches for over two decades.

5. EUROPEAN CRITICAL DEPENDENCIES AND THE ATLANTIC WINDOW

The level of European Union dependence on China for critical minerals today constitutes one of the most documented structural vulnerabilities of the European economy. These figures are not simple economic indicators: they measure an unprecedented strategic vulnerability in a context of heightened geopolitical competition.

Critical Mineral	Europe / China Dependence	Strategic Main Use
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Magnesium	97%	Light alloys, aeronautics, electric vehicles
Gallium	71%	Semiconductors, solar panels, LED
Rare Earths	90–98%	Permanent magnets, wind turbines, electric vehicles
Germanium	59%	Optical fibers, infrared detectors, semiconductors
Tungsten	66%	Industrial tooling, armaments, electronics
Cobalt	68% (DRC / China)	Li-ion batteries, high-temperature alloys

This situation has concrete consequences on Europe's capacity to develop autonomous strategic industries. China's export control policy implemented since 2023 — notably on gallium, germanium, and rare earths — has demonstrated the reality of these vulnerabilities. Diversification of supply sources is now a geopolitical imperative enshrined at the heart of the 2024 Critical Raw Materials Act. It is in this context that Blue Guyana and Blue Amazon take on their full importance. Together, these two maritime spaces can contribute to a European strategy for diversifying critical minerals supply, articulated around three pillars: exploration and exploitation of the equatorial Atlantic seabed, valorization of terrestrial resources of adjacent Amazonian basins, and construction of an integrated Atlantic logistics chain.

KEY DATA: The Atlantic Strategic Potential

- **Total French ZEE:** 11.7 million km² (2nd worldwide) — of which ~130,000 km² in Guyana
- **Brazilian Blue Amazon:** 4.5 million km² in the South Atlantic
- **Brazilian offshore petroleum production:** ~3.8 Mb/d (2023), 95% in deep waters
- **Direct Franco-Brazilian maritime boundary:** sole EU-BRICS boundary in the Atlantic
- **Amazon Reef:** 9,600 km², unique submarine ecosystem discovered in 2016
- **Petrobras investments in pre-salt:** >USD 250 billion over the 2020-2030 decade

6. TOWARDS A STRATEGIC FRANCO-BRAZILIAN-EUROPEAN PARTNERSHIP

6.1 A bilateral relationship to deepen

The Franco-Brazilian relationship has a solid diplomatic base. The Franco-Brazilian Strategic Partnership, established in 1997 and deepened since, covers domains ranging from space cooperation (Ariane / VLS, Kourou base) to defense (technology transfer agreement for Scorpène submarines, PROSUB program), through cooperation on biodiversity and climate change. The Kourou launch base in French Guyana alone symbolizes the depth of this cooperation: it is from the Atlantic Amazon that Europe and Brazil access space. However, this relationship has not yet fully embraced the Atlantic maritime dimension as a central axis of cooperation. Blue Guyana and Blue Amazon remain largely absent from formal bilateral cooperation frameworks, confined to sectoral agreements on fishing, maritime surveillance, or the marine environment. The time has come to move beyond this fragmented approach to build an integrated Atlantic architecture.

6.2 The axes of Atlantic geoeconomic cooperation

Strategic cooperation between France, Brazil, and the European Union in the South Atlantic should articulate three complementary axes:

- **Critical minerals axis:** a joint Franco-Brazilian program for exploration and evaluation of mineral resources of the equatorial Atlantic seabed, integrating the scientific capacities of Ifremer and the Brazilian REVA Program, and benefiting from the institutional framework of the ISA for zones beyond national jurisdictions.
- **Offshore energy axis:** an industrial and technological partnership in the domain of marine renewable energies (MRE), notably floating offshore wind and wave energy, adapted to the specific conditions of the tropical Atlantic.
- **Maritime security axis:** strengthening operational cooperation between the French National Navy and the Brazilian Navy for surveillance and securitization of the South Atlantic, including the fight against illegal fishing, drug trafficking, and other forms of transnational maritime crime.

6.3 The catalytic role of the Franco-Brazilian border

The land border between French Guyana and Brazil — the longest border between a European territory and a BRICS country — is an under-exploited asset. Cross-border cooperation initiatives in the domain of Amazon surveillance, developed within the framework of the Franco-Brazilian Border Working Group, show that this border can be a laboratory of cooperation rather than a line of fracture. For the maritime dimension, this "border laboratory" logic can be extended: coordination of maritime patrols in the offshore border zone between French and Brazilian ZEEs, harmonization of maritime surveillance systems (VMS for fishing, AIS for navigation), and creation of a marine scientific cooperation zone encompassing the waters of both countries near the Amazon delta would constitute concrete advances.

7. GOVERNANCE, LAW OF THE SEA AND REGIONAL COOPERATION

7.1 The institutional framework of the South Atlantic

The South Atlantic has an original institutional framework, marked by the coexistence of several regional cooperation mechanisms with partially overlapping mandates. The Zone of Peace and Cooperation of the South Atlantic (ZPCSA), created by United Nations General Assembly resolution in 1986, brings together 24 African and South American riparian states of the South Atlantic in a framework of cooperation for peace, security, and development. Although France is not a member of the ZPCSA — due to the presence of French Guyana, a European territory — it maintains close links with several of its members. The articulation between the ZPCSA and the EU-Brazil partnership could constitute a vector of diplomatic influence for a more inclusive and balanced maritime governance architecture. The ISA, based in Kingston (Jamaica), plays a growing role in regulating the exploitation of mineral resources of international seabeds. Brazil is one of the most active actors in this institution, and France exercises significant influence there, notably via its exploration contracts for polymetallic nodules in the Clarion-Clipperton Zone (Pacific) and in the Central Atlantic Zone. Franco-Brazilian coordination within the ISA, notably on the elaboration of the Mining Code regulating seabed mining exploitation, would represent a major diplomatic and normative lever.

7.2 The European Critical Raw Materials Act and its Atlantic implications

Regulation (EU) 2024/1252, the Critical Raw Materials Act, establishes a framework to guarantee secure and sustainable access for the European Union to critical raw materials. It notably sets the objective that no third country represents more than 65% of European imports of a given critical mineral by 2030. This provision, directly targeting the current concentration of supplies in China, creates a favorable political framework for diversification toward Atlantic partners. The Memorandum of Understanding signed between the EU and Brazil in 2023 on sustainable value chains for raw materials constitutes a first step in this direction. Its ambition goes well beyond raw supply: it includes objectives of industrial and technological cooperation, aiming to enable Brazil to move up the value chains of processing and transformation of minerals, rather than remaining confined to the role of supplier of raw materials. For Blue Guyana, this European framework creates specific opportunities: the mineral resources of the Guyanese ZEE, falling directly under EU law, could be integrated into European strategic supply schemes without requiring the diplomatic complexities of an agreement with a third country.

7.3 Regulatory governance as a strategic issue

Beyond formal institutional frameworks, competition for critical minerals is expressed in a less visible but equally determining space: the definition of standards and regulatory frameworks that condition market access. In this space, competition is not played out solely in terms of production or logistics, but in the capacity to influence the rules determining which products can circulate, under what conditions, and with what associated costs. Recent regulatory decisions in Europe illustrate this dynamic concretely. In March 2025, the European Commission approved a delegated decision classifying black mass — the intermediate material from recycling lithium-ion batteries, rich in lithium, cobalt, and nickel — as hazardous waste. Under the Basel Convention and the European regulation on exports of hazardous waste, this classification entails a prohibition on exporting black mass to non-OECD countries. Designed with an environmental logic, the measure has the effect of retaining this material within the European economy and favoring the development of domestic recycling capacities. Furthermore, the Risk Assessment Committee of the European Chemicals Agency (ECHA) has classified lithium carbonate, chloride, and hydroxide as substances toxic for reproduction of category 1A under the CLP regulation, classification

integrated into ATP list 21 in force since September 2025. Such classification automatically activates usage restrictions under the REACH regulation and may restrict market access conditions in Europe for products containing these substances.

8. THE TECHNOLOGICAL AND SCIENTIFIC DIMENSION

Sovereignty over marine resources is not limited to the legal capacity to exploit a ZEE or continental shelf. It requires technological and scientific capacities enabling identification, evaluation, and ultimately sovereign exploitation of these resources. The experience of terrestrial critical minerals shows that countries that remain at the stage of supplying raw materials — without developing their own capacities for processing, refining, and transformation — are structurally disadvantaged in global value chains. On this point, France and Brazil have complementary assets that deserve to be valorized within a framework of enhanced Atlantic cooperation. Ifremer (French Research Institute for Exploitation of the Sea) is one of the world's most advanced oceanographic research institutions, with recognized expertise in seabed geology, marine biology, and deep diving technologies. The National Center for Scientific Research (CNRS), IPG Paris, and several French universities maintain active research programs on the geology of the equatorial Atlantic. On the Brazilian side, the Oceanographic Institute of the University of São Paulo (IO-USP), CPRM (Geological Service of Brazil), the Petrobras Research and Development Center (CENPES) — one of the world's largest R&D centers in the petroleum sector — and the PROMAR program of the Brazilian Navy constitute a first-rate maritime and geological research ecosystem. The convergence of these capacities — French expertise in fundamental research and marine geology, Brazilian expertise in offshore engineering and deep-water exploitation — offers the conditions for an exceptional scientific and technological partnership for exploration and evaluation of mineral resources of the South Atlantic. The extension of this ecosystem to other European partners with complementary capacities — Norway for offshore technologies, Germany for metallurgy of rare metals, the Netherlands for submarine robotics — would further strengthen the comparative advantage of such an Atlantic alliance.

9. GEOGRAPHY, LOGISTICS AND INDUSTRIAL ARCHITECTURE

As the analysis developed by CARI for Argentina shows, competition for critical resources is not played out solely in extraction zones, but in the capacity to integrate these resources into efficient logistical and productive schemes. For Blue Guyana and Blue Amazon, this logistical dimension takes on particular importance due to the geographical distance from major European consumer markets. The geographical position of French Guyana, however, offers a significant advantage: it is both a European territory and a logistical base in the equatorial Atlantic. The port of Dégrad des Cannes, located at the mouth of the Cayenne River, and port infrastructures under development at Saint-Laurent-du-Maroni represent natural entry points for a Franco-Brazilian Atlantic logistics chain. The Franco-Brazilian road bridge project over the Oyapock, inaugurated in 2017, illustrates the maturation of this terrestrial connection. For seabed resources, logistics is more complex and implies heavy technological investments: specialized mining vessels, sediment lifting systems, processing installations on board or in nearby ports. The experience of Brazilian offshore petroleum production — which has developed an entire industrial support ecosystem around offshore oil fields, FPSOs, and specialized ports — offers a model that is transposable, at least partially, to seabed mining exploitation. The regional dimension presents an aspect that goes beyond the strictly logistical question. The relevant geography for critical minerals is not limited to resource location or export corridors: it also includes the market scale necessary for certain processing stages to be economically viable. Brazil has a significant domestic market in sectors linked to the energy transition, including nascent but growing demand for electric vehicles, as well as a complementary mineral resource endowment that positions it as a potential node in the development of regional productive chains. From this point of view, regional integration ceases to be an option to become a condition of a certain model of insertion into the critical minerals supply chain.

10. CONCLUSION: FOR AN ATLANTIC ARCHITECTURE OF SOVEREIGNTY

Blue Guyana and the Brazilian Blue Amazon together form a unique strategic window in the 21st century. Their geographical convergence, the complementarity of French and Brazilian scientific and industrial capacities, and the urgency of European diversification in critical minerals create the objective conditions for a structuring Atlantic partnership — an architecture of sovereignty that could transform Europe's current strategic vulnerability into a durable competitive advantage. As the analytical approach developed for producer countries of critical minerals

underscores, resource availability is only a starting point. The strategic value of a geological asset is realized only to the extent that it is integrated into coherent strategies, articulating diplomacy, investment, technology, and governance. For France and Brazil, the time is no longer for fragmented exploration of Atlantic possibilities, but for the deliberate construction of an integrated architecture. This architecture should rest on five pillars:

1. A Franco-Brazilian program for exploration and evaluation of mineral resources of the equatorial Atlantic seabed, associating the capacities of Ifremer, CPRM, and the Brazilian Navy, and benefiting from European financing within the framework of the CRMA.
2. An industrial and technological partnership in the domain of offshore energy, integrating the complementary expertise of TotalEnergies, Petrobras, and European actors in marine renewable energies.
3. Strengthening of Franco-Brazilian diplomatic cooperation within the ISA, to influence the elaboration of the Mining Code and defend equitable governance of international seabed resources.
4. A reinforced maritime security architecture in the South Atlantic, articulating the French National Navy and the Brazilian Navy in joint exercises and common operations against illegal fishing and transnational crime.
5. An "Atlantic Hub of Sovereignty", based in French Guyana, which serves as a physical and institutional platform for coordination of all these axes: Franco-Brazilian oceanographic research center, specialized offshore industrial zone, and training center for maritime and submarine resource professions.

The South Atlantic is not the periphery of the world. It is, on the contrary, one of its advanced fronts — a space where, in the decades to come, a decisive part of global competition for resources, energy, and maritime power will be played out. France and Brazil, with Blue Guyana and Blue Amazon, have the cards in hand to be sovereign actors therein, and not dependent spectators. The moment has come to transform this strategic window into an architecture of power.

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