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Defense Studies and Military Academic Production in Brazil

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The imbricated relationship between research, development and the Armed Forces, or rather, between scientific knowledge and war, has been known for centuries, inside and outside the strategic environment and military planning. However, this relationship became even more visible, and with deeper consequences, from the Second World War and the period that followed, marked by disruptive innovations that would change the course of development and global industrial production. In Brazil, this perception accompanied formulations of development strategies and was present in national geopolitical thought, in such a way that the Brazilian Armed Forces had a strong scientific-technological apparatus, such as the Army's, Navy's and the Aeronautics Research and Development (R&D) laboratories, engineering schools such as engineering schools such as the Military Engineering Institute (IME) and the Technological Institute of Aeronautics (ITA), and partnerships with universities and research centers.

On the other hand, if scientific research in the field of engineering and technology were rooted in military education and training, areas of knowledge linked to the human and social sciences received less attention from the Brazilian Armed Forces throughout the 20th century. Although the participation of the military in geopolitics and the contributions of the Escola Superior de Guerra are highlighted, it is only from the second decade of the 21st century that interest in the development of scientific research situated in the broader spectrum of political science, strategic studies, and international relations begins to emerge within the institutions of higher education of the Armed Forces. Even if these disciplines were somehow included in military training courses, they would not have become an object or theoretical basis for formulating hypotheses, solving problems or new doctrinal propositions involving the actions of the military. Military training, due to its peculiarities, was also restricted to the barracks environment and independent, legally and formally, from the National Education System (SNE).

The creation of *stricto sensu* postgraduate programs by higher education organizations linked to the Ministry of Defense in military sciences, maritime studies and aerospace sciences, in the sphere of human sciences, reflected this moment of transition in which defense studies were incorporated into the National Postgraduate System (SNPG), enabling greater sharing of knowledge produced between military schools and universities. Military education institutions

started to offer master's and doctoral courses in areas of concentration until then reserved for officers and, at the same time, received professors and researchers with excellent academic training, which has generated, on the one hand, an increase in the national critical mass in defense and, on the other, enrichment in military theoretical training in disciplines that are fundamental to strategic thinking, in addition to the practice of the scientific method as an element for decision-making.

It is interesting to note that this moment presents two paths: the greater openness of military institutions to the academy and vice versa, and the closer approach of the civil academic community to the issue of defense. Its bases can be found in the creation of the Ministry of Defense in 1999, in the launch of the Pro-Defense Program, six years later, which expanded cooperation networks between military institutions and universities, and also in the creation of the Brazilian Association for Defense Studies (ABED) in the same year, which brought together academics and researchers of national defense, at that time few in number in the country.

Since then, Brazilian scientific production in the field has been gaining body and quality, which can be observed, among other things, by the greater volume of publications in high-impact journals. Defense studies, characteristically and desirably interdisciplinary, are still unfolding in other areas of the applied human and social sciences, such as international politics, defense economics, military history, military anthropology, military education, among others. It is also clear the increase in the number of Brazilian researchers who have national defense as their object of study, and the maturation and professionalization of scientific journals from military schools.

It is in this scenario that the Meira Mattos Collection is inscribed, a vehicle that has traditionally contributed to the dissemination of military sciences and defense studies in Brazil. This issue explains this maturation and the interdisciplinarity mentioned when contemplating international politics in the articles "*Studies about the ground military presence: the Indian case as a challenge for Brazil*", "*The role of ZOPACAS in Brazil's foreign and defense policies in the 21st century*" and "*The Two Dimensions of Financial Warfare*" the latter in interface with the defense economy. This, in turn, was addressed in the articles "*The Brazilian defense industry in the era of irregular warfare: the main contributions and its technological challenges*" and "*Challenges of innovation as a strategy for generating land-based military capabilities*". The issue also brings the theme of military education in the article "*Epistemology of practice in continuous teacher training of Agulhas Negras Military Academy*".

With great enthusiasm, we, members of the academic defense community, celebrate the important steps already taken, although we are aware that there is still a long way to go for the consolidation of defense studies in Brazil. And this path is related, without turning back, to the proximity between civil and military academics and to the recognition of the importance of the human and social sciences for the formulation of national strategic thinking.

The Two Dimensions of Financial Warfare

Las dos dimensiones de la guerra financiera

Abstract: The 20th and 21st centuries saw many cases of coercion by financial means both in war and peace. Throughout history, these financial sanctions have been weaponized by States to coerce countries that hurt their international interests. The deployment of these financial sanctions in a process structured for political purposes will be referred to in this text as financial warfare. There are several strategies that states can use in financial warfare. These different strategies can be used alone or together. The possibility of using such strategies is related to the capacities of each country. Therefore, it is relevant to classify and order the strategies of financial warfare. Thus, this article proposes an organization of these different coercion strategies of the use of money and the financial system in a typology that separates the practice of financial warfare in two different dimensions, bilateral and systemic. Such typology will be presented through several historic examples of the use of financial warfare.

Keywords: Financial Warfare. Financial Sanctions. Monetary Coercion. Dollar Bomb.

Resumen: Los siglos XX y XXI reservaron para la humanidad numerosos casos históricos de coerción por medios financieros, tanto en períodos de guerra como en períodos de paz. A lo largo de la historia, estas sanciones financieras han sido instrumentos utilizados por los Estados para imponer coerción contra países que perjudican sus intereses en el escenario mundial. La instrumentalización de estas sanciones financieras en procesos estructurados con objetivos políticos se denominará en este texto como guerra financiera. Hay varias estrategias que los Estados pueden utilizar en la práctica de la guerra financiera. Estas diferentes estrategias se pueden usar solas o juntas. La posibilidad de utilizar esas estrategias está relacionada con las capacidades de cada país. Luego, es relevante clasificar y ordenar estrategias de guerra financiera. Por lo tanto, este artículo propone una organización de estas diferentes estrategias de coerción con el uso de la moneda y el sistema financiero en una tipología que separa la práctica de la guerra financiera en dos dimensiones distintas, bilateral y sistémica. Esta tipología se presentará a través de varios ejemplos históricos donde se utilizó la práctica de la guerra financiera.

Palabras-clave: Guerra financiera. Sanciones Económicas. Coerción Monetaria. Bomba dólar.

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1 Introduction

In capitalist system, money¹ plays a fundamental role in human relations, despite the fact that the financial system is an “invisible” structure for the vast majority of human beings. It is an essential social technology for life in modern society. History has shown that shocks in the monetary system tend to cause strong shocks in society as a whole. Currency is much more than just a commodity created for trade. It has a fundamental role in social relations.

This important function is most evident in extreme situations, such as a significant economic or financial crisis, situations of social disruption or in times of war. Even in the latter case, the currency plays an essential role in the process of making the conflict itself viable. In other words, a war cannot be fought without funding. And, in the modern capitalist world, this funding is ensured using currency. Therefore, the monetary sector is indispensable for production and mobilization of resources. There is no war effort carried out without the use of money.

However, money in war has a greater function than simply providing funding. It can be a powerful tool for direct or indirect coercion between societies. In addition, due to its importance for social relations, currency can also be a target and suffer from attacks by an enemy. In Brazil, the coercive capacity of money is a topic that is still not very explored in social sciences. In Strategic Studies and International Relations, this issue is practically ignored. On the other hand, Economics offers important contributions on currency, power, coercion and international relations as mentioned by Tavares (1997), Metri (2015, 2020) and Torres Filho (2018, 2019).

The non-neutral nature of the money and the power relationship represented by it are at the basis of the financial coercion capacity (AZEVEDO, 2020). Not coincidentally, together with the ability to impose taxes, issue currency and define the unit of account are acts of sovereignty of a given authority. In this sense, an attack against a nation's monetary structure is an attack on its authority. Thus, we can claim that, regardless of the form, the financial warfare is an attack on the sovereignty of a country (FENAROLI, 2016).

Not coincidentally, in 1999, Qiao Liang and Wang Xiangsui, two Chinese Army colonels wrote the book *Unrestricted Warfare* arguing that modern warfare is the employment of all possible means and, therefore, the battlefield is everywhere. In this paper, economics, commerce and finance are treated as dimensions of modern war, which has become unrestricted. In the words of Xiangsui and Liang (1999, p. 7):

The new principles of war no longer prescribe “the use of armed force to compel an enemy to submit to our will”, but, “the use of all means, military and non-military, lethal and non-lethal, to compel an enemy to submit to our interests”.

¹ Terms money and currency are used as synonyms in this paper.

The financial sector is identified as a weak point that can be exploited by an opponent. Xiangsui and Liang (1999) write that “the battlefield is an omnipresent entity, that is, it is possible to start a war, which will destroy an enemy, from a data processing center, or from the premises of a stock exchange”(p. 49).

Despite being drafted before the 2001 attacks and the respective financial counterattack undertaken by the US Treasury Department, the book addresses the damage done by predatory financial speculation activities against Asian countries in the 90s. For the purpose of this paper, the work of Qiao Liang and Wang Xiangsui addresses the possibility of a war taking place via economic or financial means. For the authors, financial warfare is defined as a “[...] form of non-military war, as destructive as a bloody combat, without the actual bloodshed” (XIANGSUI; LIANG, 1999, p. 51).

Despite the idea of Xiangsui and Liang (1999) that modern war has become unrestricted, the 20th century has presented several examples of financial warfare. This paper will present some of them. Under no circumstances this paper intends to advocate the idea that financial warfare is a perfect substitute for conventional warfare. Financial warfare offers a possibility of coercion and not of revolutionary conflict that replaces traditional military deployment.

From our part, financial warfare is a form of non-military warfare that uses financial and monetary tools to attack a society with political objectives, foreign to the logic of the market. It has the potential to disorganize social relations ranging from production to consumption in a society, generating a significant degree of political and social destruction. Financial warfare is an “invisible” war, an event distant from the population, but with an impact on it. Under this form of war there is no media effect on the population due to the return of the bodies of soldiers killed in combat. In addition, the operation is cheap, since there is no need to mobilize large contingents of soldiers and equipment.

The purpose of this paper is to explore the possibility of coercion of an enemy society by financial and monetary means. A typology of the financial warfare will be presented. Therefore, this paper intends to contribute to the debate on monetary coercion, financial warfare and sanctions, especially financial ones, and to present to the public two dimensions of financial warfare, one bilateral and the other systemic. To this end, this paper will be divided into three parts in addition to this introduction. The bilateral dimension will be presented in the first part. The second part will address the possibility of systemic financial warfare and its main weapon, the dollar bomb. The third part of the text will be reserved for final considerations.

2 Bilateral financial warfare

The first dimension of the financial warfare to be analyzed will be bilateral. Bilateral financial warfare consists of a strategy of coercion that uses money in a direct relationship between the agent who exercises coercion and the agent who is the target of it. Coercion does not occur through third parties. In this dimension, there are four forms of coercion as follows: freezing the enemy’s assets under local jurisdiction, currency manipulation, disrupt-

tion of the monetary regime and, finally, denial of direct credit. These four forms are direct attacks and are represented in the table below:

Table 1 - Bilateral financial warfare

Bilateral financial warfare
Freezing enemy assets under local jurisdiction
Currency manipulation
Disruption of monetary regime
Denial of direct credit

Source: Author (2021).

In all four forms, the State that exerts financial violence uses its direct relationship with the target to stifle it financially and / or destabilize its productive, financial, commercial, social and political structures. These actions have political and geopolitical objectives rather than profits or market competition. Such attacks can cause significant social damage, change the behavior of the target or even make conventional warfare unviable.

2.1 Freezing of assets

The asset freezing always happens when the aggressor State seeks to pressure the adversary by denying its access to its financial assets that are under the aggressor's jurisdiction. Therefore, everything that the target State has that is under the legal and financial aegis of the aggressor State may fall victim to this freezing process. Therefore, if the target State has international reserves held in custody abroad, in precious metals or in sovereign bond, it may have such assets frozen by the custodian State, if the latter is also the aggressor. In addition, assets belonging to nationals of the target State, their families and companies, may also suffer from the same type of coercion.

However, such an act is neither simple nor disconnected from the political context of the aggressor State. Often, the freezing of assets has negative consequences within the State that practices such coercion. In many cases, when this type of process occurs, interests within the aggressor State are hurt as well. Therefore, the aggressor State must carry out a mapping of the negative consequences in order to mitigate any internal problems generated by this coercive action.

A well-known example of this form of financial warfare occurred between the United States of America (US) and Iran. In 1979, as the Iranian revolution unfolded, the US applied a series of sanctions, including banning all Iranian oil imports. In November 1979, through Executive Order (OE) 12170, the US froze all Iranian government properties within its territory (KATZMAN, 2019). At

the time, the value of frozen Iranian assets in the U.S. reached 12 billion dollars (RIVLIN, 2018; ZARATE, 2013).

Asset freezing is not limited to financial assets. Properties of other nature, such as real estate, can also be the target of this type of coercion. However, to be operational, this type of action requires a financial dimension, since modern capitalism is, as Keynes (1937) indicated, a monetary economy, where money plays a central role in social relations.

2.2 Direct currency manipulation²

Currency manipulation is perhaps the most direct and simple way to practice monetary coercion at the international level. This form of financial warfare seeks to affect the stability of the target State's currency through different mechanisms and strategies as money is extremely important in human relations which makes money both a weapon and a target for financial warfare.

Currency is one of the most fundamental elements of national sovereignty. We can say that the currency is a socially constructed element, a true command and control mechanism, both internally and internationally. It is essential to understand that “[...] currency has a disciplinary characteristic over all economic agents” (TORRES FILHO, 2019, p. 23). In the contemporary world, there is no production and resource mobilization, whether in war or in peace, without monetary and financial dimensions. Hostile currency manipulation that aims to destabilize the target State's currency can have powerful consequences on it.

Jonathan Kirshner (1995) argues that monetary coercion can be carried out in two ways in relation to those who suffer it, one positive and the other negative. From the author's point of view, positive monetary coercion is related to defensive actions. Similarly, negative monetary coercion is associated with offensive actions. The author presents several historical cases where such actions were used by the States with the clear intention of carrying out monetary coercion.

“Positive” manipulation is a protective strategy and is used when currency manipulation is employed to protect a country's currency. Such a strategy is an action undertaken by the coercing State. It acts deliberately to protect another country's currency. This strategy is often used in times of open hostility or near war situations. The coercing State may also abstain from carrying out certain actions beneficial to its interests, but which, if carried out, would be detrimental to the target country. Therefore, the coercing State protects the currency and the economy of the latter (KIRSHNER, 1995).

“Negative” manipulation is just the opposite from the “positive” one and includes two strategies, the predatory and the passive ones. Predatory currency manipulation aims to undermine the stability of the target country's currency and, therefore, its value

² This nomenclature was inspired by the typology proposed by Jonathan Kirshner in *Currency and Coercion* (1995).

and position in the international monetary system. Predatory strategy is diametrically opposite to the protective strategy and, they are often deployed by the opposing sides of the same historical case. Finally, passive currency manipulation is essentially the withdrawal of some previously existing protection from the currency of the target country by the issuer. This strategy can lead to the financial and, consequently, social, political and economic collapse of countries highly dependent on the strongest and wealthiest nations.

There are many examples of currency manipulation. Currency battle that occurred during the Sino-Japanese war³ is an example of currency manipulation during bilateral financial war. The Japanese action to destabilize the Chinese currency was part of the predatory strategy while the American attempt to support an ally was part of the protective strategy. This paper will address in more detail two cases of predatory manipulation, the monetary offensive that occurred during the civil war in Nigeria and the American attack on the pound sterling during the Suez Canal crisis.

Between 1967 and 1970, Nigeria was split in two due to the attempt at independence by Biafra province. Part of the financing mechanism of the war for Biafra was meant to use the Nigerian national currency reserves to gradually acquire hard currency, essential for the acquisition of war supplies in the international market (KIRSHNER, 1995).

However, as seen, Biafra's monetary reserves were in bills of Nigerian national currency, that is, money issued by its enemy, the central government. To smother a source of funding from its enemy, in January of 1968, Nigeria's central government simply exchanged its currency in an operation that lasted less than a month. With the success of the process of introducing the new currency, the Nigerian government caused the money in the hands of its enemy (Biafra) to lose its value, which significantly affected Biafra's ability to finance the conflict (KIRSHNER, 1995).

In practice, what the government of Nigeria did was to change the unit of account that paid off tax debts with the government. This forced the private agents who held the old currency to change it immediately. However, for obvious reasons, Biafra's leadership could not exchange its reserves directly with the central government and, as the operation was carried out in a matter of a few days, there was no time for a "black market" to be efficiently formed that would allow Biafra to circumvent this restriction.

In this manner, almost overnight, Biafra's government came to hold a huge pile of worthless painted paper. As a result, an important source of war funding for Biafra suddenly ceased to exist. This movement made it difficult for Biafra secessionists to acquire international currency (KIRSHNER, 1995), a fundamental element in any war. Therefore, the change in the unit of account significantly affected Biafra's ability to continue the conflict and helped accelerate its defeat (KIRSHNER, 1995).

The second case analyzed is the financial attack that England suffered during the conflict over the control of the Suez Canal in 1956. After the nationalization of the Suez Canal by then Egyptian President Gamal Abdel Nasser, a coalition formed by troops from England, France and Israel invaded the territory of the African country to retake possession of the chan-

3 For more information see: Azevedo (2020) and Kirshner (1995).

nel. However, the American reaction to the event was not positive and Washington condemned the attitude of its traditional allies, including taking the issue for discussion at the United Nations (UN). The US demanded a withdrawal of troops from the canal.

Less explicitly than the action at the UN, the US Treasury Department ordered the US monetary authority (Fed) to begin systematically selling sterling on international financial markets (KIRSHNER, 1995). This move was intended to weaken the English currency by lowering its market value. Such an attack affected English monetary reserve levels, which fell by 15% in the month of November alone. In turn, such a fall helped to further weaken the pound, amplifying the effects of the American attack. In addition to this direct attack on the English currency, the United States threatened to carry out a financial blockade against England, preventing this country from accessing the resources of the International Monetary Fund (IMF). This combination of strategies put pressure on England to retreat from its actions in Suez (KIRSHNER, 1995).

This attack was of a bilateral nature, since Washington sought to attack the English currency in international financial markets directly through sales operations. In this case the predatory threat of financial blockade at the IMF had systemic characteristics, even though it was not the main tactic. The case of Suez reveals an interesting feature of financial warfare: because it is “invisible”, it can be used against a traditional ally at any given time.

2.3 Disruption of a monetary regime⁴

The third form of bilateral financial warfare is coercion by breaking down the monetary system. This form seeks to affect the institutional, financial, productive, commercial and political structures that maintain a given regional or global monetary regime. It is the form of monetary power that seeks to change a previously established status quo. Such a disruption has the objective of obtaining benefits and not necessarily a complete destruction of the monetary regime (KIRSHNER, 1995). The attack on the structure of a monetary system is considered bilateral, since the State that promotes it uses its own tools in a direct attack on the monetary arrangement in question.

France’s Bretton Woods challenge is an example of this strategy. At the time, Paris complained that the monetary structure in force at Bretton Woods attributed an “exorbitant privilege” to the United States. The French went as far as to request that part of their reserves, denominated in dollars, be exchanged for gold, including transporting part of that gold to Paris (TORRES FILHO, 2018; WHEATLEY, 2013).

The French attempt to challenge the Bretton Woods regime was possible due to the characteristics of the monetary regime itself, under which the dollar held a fixed parity with gold. Unlike Bretton Woods, in the current flexible system, the international currency is entirely fiduciary. This means that the issuer does not have an external gold restriction.

⁴ This nomenclature was inspired by the typology described by Jonathan Kirshner in *Currency and Coercion* (1995).

This means that a dollar is worth as much as a dollar (SERRANO; MEDEIROS, 1999). This change was not a mere detail, the difference between the regimes is significant. Identifying whether or not this type of strategy can be used in the flexible regime is outside of the scope of this paper. However, it is essential to explain the difference between these two regimes.

The State that exercises this form of bilateral financial warfare must have sufficient strength within the monetary arrangement in question to threaten its structure. Likewise, that State must be in a position to take advantage of such a change. Therefore, small State that are deeply dependent on a given monetary regime do not have the necessary conditions to engage in this type of financial warfare. The State that is most likely to suffer from this strategy is the main State of a given regime as it is at the heart of the regime and has the most to lose from a change in the status quo.

However, as history itself has already demonstrated with the end of Bretton Woods, the main State can also be the source of the system's rupture, if it is in its interest. In opposition to the Hegemonic Stability Theory defended by Kindleberg (1973), Fiori (2004) argues that the hegemon may be the source of the system's destabilization. It is the hegemonic nation that builds and destroys the system itself in order to continue the process of accumulating power and wealth. For the author, the decline of the Bretton Woods regime is an example of this aspect of hegemonic power, since it was the USA that obliterated the system that they themselves built decades before.

2.4 Denial of direct credit

The last form of bilateral financial warfare is the denial of direct credit. The country that applies this type of coercion cuts the credit lines to the target State that is within its monetary system. A country that is indebted in foreign currency and that needs foreign capital to finance itself or to develop, is a potential target for this type of coercion. Therefore, if country A uses loans from country's B banking system, the latter can use this tactic.

In the 1920s, as a consequence of the end of the First World War occurred the case of financial warfare using the denial of credit. During the Genoa Conference in 1922, which dealt with the reconstruction of the international monetary order, Germany, when feeling strongly under pressure due to the obligations related to the reparations of the First World War, accepted a proposal to establish closer relations with the Soviet Union (METRI, 2015). The winning powers, mainly England, retaliated by blocking Berlin from accessing external financing channels. Arbitrarily, the British claimed that German credit was not sufficient to justify the borrowing (KINDLEBERGER, 1984). In practice, external financing channels were blocked, which in turn strangled German investment capacity and efficient participation in the international trade environment. In fact, as Metri (2015) argues, this episode disorganized the markets and monetary structures in such way that it contributed to the hyperinflation process observed in Germany in the following years.

3 Systemic financial warfare

The country that employs systemic financial warfare does not act unilaterally and directly against the target State, as in the case of the bilateral one. Whether they wish or not, other countries, their private markets and international institutions are involved in the process of coercion. As this process uses the asymmetries of power within a given system, whether local or global, the involvement of third parties is inevitable, since it is through them that coercion is exercised. Systemic financial warfare utilizes the following strategies: regional currency dependency, freezing assets in the global financial system, denial of access to international currency and denial of credit in the global system.

Table 2 – Systemic financial warfare

Systemic financial warfare
Regional currency dependency
Freezing enemy assets within the system
Denial of access to international currency
Denial of credit in the global system

Source: Author (2021).

3.1 Regional currency dependency⁵

Monetary dependency was a form of monetary coercion that Kirshner (1995) described in his book. This form of monetary power is related to the high asymmetry of power and wealth among the States. Such asymmetry is present in the monetary zones, where the currency of the dominant State is used both in exchange and in the composition of the international reserves of the other members. Within such monetary zones, there is an evident vulnerability of the member States in relation to the dominant State, which is the issuer of the currency used.

Coercion using this form of monetary power can be applied by manipulating the existing monetary arrangement. The leading State, which issues the currency, can manage the monetary and trade arrangement that exists within a region in a manner favorable to its political and/or economic interests. This means that, within this microsystem, coercion is exercised through the exploitation of existing asymmetries. However, despite a systemic logic, the scale in this case is restricted and does not affect the international monetary system as a whole.

A State has at its disposal four strategies for coercion in terms of monetary dependency, namely: enforcement, expulsion, extraction and entrapment. Such strategies can be used individually or in association with others (KIRSHNER, 1995). The first strategy, enforcement, is charac-

⁵ The nomenclature was inspired by the typology described by Jonathan Kirshner in *Currency and Coercion* (1995).

terized by the manipulation of the rules of the monetary zone to coerce a specific target State to act in accordance with the interests of the dominant State. This concept comes close to the concept of structural power elaborated by Susan Strange (1998), since the rules of the monetary arrangement of a bloc are established by the most powerful State. Such rules naturally benefit the State issuing the bloc's currency as they generate a currency dependency that can be exploited by the dominant State.

Expulsion is when the main State removes the target state from the monetary zone by imposing a significant economic and political cost on it. This practice is directly related to the asymmetries in the productive, financial and political capacity of the States in a bloc. The cost of leaving a bloc can be too high for the most dependent units and for their economic elites who, in general, have deep ties to the current order. Furthermore, only the threat of withdrawal alone can have real effects on the economies of the most fragile States.

The third strategy is extraction. This occurs when the dominant State of the monetary zone extracts wealth from a specific target. The leading State uses the existing asymmetries to create excellent mechanisms for extracting wealth from the most fragile units, either through formal agreements or through market operations.

Finally, entrapment is when interests in the society of the target State are co-opted. Such interests can be private or related to state institutions. They are related to the functioning of the entire monetary structure of a bloc, which in turn is centered on the currency of the main country. The specific arrangements of the monetary zone force part of the society of the target to align its interests with those of the dominant State (STRANGE, 1998).

For our part, the same systemic logic can be used on a global scale by the country issuing the international currency in spite of significant differences. In the case of North American hegemony, systemic financial warfare was deployed at several points in recent history. Washington was able to instrumentalize the dollar, the international currency, as a vital national security instrument (AZEVEDO, 2020, p. 88). The following three strategies are systemic and global. They can only be employed by the hegemonic currency-issuing power of the global system and under particular circumstances.

3.2 Freezing of assets in the global financial system

As we saw in the first part of this paper, asset freezing occurs when the State that is the target of the financial warfare has its financial and non-financial assets frozen by the aggressor country. This freezing means that the target State will not be able to move or sell such assets. In the previous case, the assets should be under the jurisdiction of the offending country. In the case of systemic financial warfare, the aggressor country has the power to carry out a freeze regardless of the jurisdiction. This occurs through a process of pressure against all agents of the international system.

Asset freezing at a planetary scale was used by Washington as a financial counterattack strategy against the terrorists shortly after the 2001 attacks⁶. Using all the tools that the Department of

⁶ US investigations indicated that al-Qaeda's actions in Washington and New York were financed from within the U.S. financial system and using dollars (ROTH, GREENBURG, WILLE, 2004).

Treasury was granted under the PATRIOT ACT⁷ and the access to the SWIFT⁸ system data, the US was able to fight its enemies using an ‘invisible’ weapon (ZARATE, 2013). Section 311 of the PATRIOT ACT could be applied to any bank. Financial institutions around the globe started to use a Specially Designated Nationals list (SDN list) prepared by the Department of the Treasury where it indicated which institutions and individuals might have links with illegal activities, such as the financing of terrorism (NEPHEW, 2018). International banks that have relationships or do business with people, institutions or countries that are on the SDN list should immediately cease them, freezing assets and banning transactions. If they didn't, they could face sanctions from the US Treasury, such as being banned from accessing the US financial system.

These sanctions also had a “radioactive” effect on these banks. Once identified as potential targets of the Department of Treasury for not complying with the rules established by Washington, other banks in the global financial system, seeking self-protection, would isolate this bank by avoiding operations with it.

3.3 Denial of access to international currency (external restriction)

Under this strategy, the aggressor country seeks to completely prevent the target country's access to the international banking system and, thus, hinder or impede the enemy's ability to pay for imports and receive payments for exports (CARTER; FARHA, 2013). This imposes extraordinary monetary discipline on external constraints of the target country.

All countries in the international system, with the exception of the USA, have an external constraint that is denominated in dollars. In order to be able to operate in the international financial system, any country needs to access the North American financial system. Failing to access this system places the countries outside the dollar system and globalized commercial and financial structures. The losses for the target country caused by this strategy are significant, since the process of financial asphyxiation of the international currency affects its internal conditions. The impacts include exchange rates, inflation and the level of economic activity.

As was the case of the previous strategy, the denial of access to international currency can only be used by the country that issues the currency of the system, that is, the country that issues and controls the dollar. The dominance of the dollar in the international system is almost absolute. The American national currency is of paramount importance in the position of the USA in both the commercial and financial sectors (GOLDMAN; ROSENBERG, 2015). The centrality of the dollar is such that 87% of foreign exchange transactions have the dollar on one side of the operation, with no viable alternative to it in the short term (CAYTAS, 2017).

7 *USA PATRIOT ACT* was a law designed by the US Congress that, in addition to dealing with various issues related to terrorism, has a specific section on money laundering. Section 311 grants the Department of Treasury the power to identify a country or a financial institution as responsible for a money laundering act or as a sponsor of terrorism.

8 Society for Worldwide Interbank Financial Telecommunication (SWIFT) is a company that provides an interbank messaging system that connects more than 11,000 financial institutions in more than 200 countries. With a financial volume that exceeds 6 trillion dollars daily, SWIFT is the heart of the financial architecture of a globalized world (DUBOWITZ; FIXLER, 2015).

In spite of this centrality of the American financial system due to the power of the dollar in the international system, until the attacks of September 11, 2001 the American government operated under some level of political limit because of the resistance of the international financial system to fulfill the role of "military regiment" of Washington's national security interests (AZEVEDO, 2020). Using finance as an element of coercion requires banks to provide confidential information about their customers, which has historically been seen as a "heretical" act for the banking system. This barrier of business secrecy could only be broken by the "War on Terror".

Soon after the shock caused by the attacks, President George W. Bush ordered all levels of US national power to be directed towards combating the terrorists (ZARATE, 2013). The power and centrality of the dollar in the global financial system are examples of this national power. The then American president announced Executive Order (EO) 13224 that sought to hold banks responsible for financing terrorists that might have used them.

Subsequently, the same logic was used in EO 13382, which deals with financing the weapons of mass destruction programs. Both executive orders were deployed against Iran in an offensive that took place in two stages. The first occurred between 2006 and 2012 ending with the *Joint Comprehensive Plan of Action* (JCPOA)⁹ nuclear deal. The second began with the unilateral withdrawal of the US from the JCPOA under the Trump's administration.

The coercion campaign against the Islamic Republic of Iran was the most dramatic case of denial of access to the international currency to be analyzed. In this offensive, the US sought to prevent access to strategic assets that were fundamental to the progress of the nuclear technology development program (UNITED STATES, 2007; ZARATE, 2013).

Iran, like any other country, has a banking system that, in one way or another, is connected to the structure of the international financial system (AZEVEDO, 2020). As demonstrated by Zarate (2013), Iranian banks, such as Banco Sederat, Banco Sepah and Banco Mellat, had ties with major international financial centers like, London, Frankfurt, Tokyo and Dubai.

In January 2007, the US Treasury's offensive against the Iranian banking system began. Banco Sepah had been designated by the Treasury Department as a supporter and financier of the nuclear development program. The Treasury resumed the financial offensive in October 2007, when eleven banking institutions were charged under the EO 13224, on terrorist financing, and under the EO 13382, on financing of weapons of mass destruction program. One of these institutions was Banco Sederat, which was classified under the auspices of the EO 13224, as a financier and sponsor of terrorism (DUBOWITZ, FIXLER, 2015; KATZENSTEIN, 2015).

According to the Treasury Department, Banco Sederat was a facilitator of the financial structure of the Hezbollah group (ZARATE, 2013). The EO had an effect on the behavior of other agents in the international financial system due to the reputational risk. Through this type of risk, the global banking structure would amplify the effects on Iran through the mass

⁹ Joint Comprehensive Plan of Action (JCPOA) is an agreement on the development of nuclear technology by Iran. The agreement was signed in 2015 among the US, European Union, China, Russia and Iran.

behavior of banks that sought to distance themselves from these institutions. Such a move would block the Iranian banking system's access to the global banking system, thereby preventing the use of the dollar in its transactions.

Even if the governments of other countries were not comfortable with the fact that the US authorities were coercively co-opting their respective private banking sectors to isolate Iran without prior authorization, there was nothing they could do. Such banks should follow the guidelines of the Treasury Department if they wish to continue carrying out operations in New York (ZARATE, 2013).

The final step, and perhaps the most important, of this offensive against the Persian state, was the attack on the Central Bank of Iran. In 2012, the escalation of coercion into systemic financial warfare reached its peak. The US Congress, through the National Defense Authorization Act (NDAA), prohibited US banks from transacting with any banking agent that had ties to the Central Bank of Iran (KATZENSTEIN, 2015).

By automatically isolating a state's central bank from the international financial system, the entire banking sector is automatically isolated, since the central bank is the heart of a nation's banking system (ZARATE, 2013). An attack on a sovereign nation's central bank is a financial stranglehold on the entire nation.

The productive, financial and commercial impacts that financial sanctions produced in the Persian country were significant. It impacted GDP, exchange rate, inflation and production. During the gradual process of using the monetary weapon over Tehran, the GDP of the Persian country was about 15% to 20% lower than its potential (KATZMAN, 2019). According to the International Monetary Fund (IMF) data, between 2012 and 2013, Iran's GDP retracted by 6% and the fiscal situation of the government deteriorated. In addition, inflation accelerated from 12% in 2010 to 45% in July 2013 (INTERNATIONAL MONETARY FUND, 2014). The exchange rate was also impacted. The Iranian currency, the rial, depreciated 60% in the parallel market between 2012 and 2013. Iran's productive sector was also affected, deeply dependent on imports, vehicle production dropped 60% between 2011 and 2013 (KATZMAN, 2019).

Monetary discipline applied to Iran was strong enough to bring the country to the negotiating table on issues related to the development of its nuclear program. The JCPOA, celebrated in 2015, was directly influenced by the financial sanctions.

3.4 Denial of credit in the global system

The denial of credit within the global financial system is a direct consequence of the denial of access to the international currency. If an international bank cannot operate with agents in a particular country, it cannot carry out credit operations with this agent either. This is even more dramatic in the case of the dollar system. Credit operations are an important mechanism in easing the external restriction of a country and its economic agents.

Furthermore, the blocking of credit channels offered by international institutions such as the IMF and the World Bank is also part of this strategy. Within the IMF, only the United States

has veto power. However, even if there was no veto capacity within the institution, Washington can act by blocking credit by threatening to ban the use of international currency by the institution in question.

From our point of view, the denial of the use of the international currency is a separate strategy, different from the previous one. This systemic power was used in the financial warfare employed by the US against England in the case of the Suez Crisis. Washington put pressure on the pound at that time by merely threatening to block IMF credit lines.

3.5 The Dollar Bomb

The monetary power of the USA is not a new element in the international arena. An example of this was what Tavares (1997) called “strong dollar diplomacy”. The USA, through the Fed, has regained control of the International Financial System with an abrupt increase in its domestic interest rates¹⁰. In addition to the declaration that the dollar would remain an international standard, the hegemony of the American currency was restored (TAVARES, 1997). According to Metri (2020), Tavares argues that such a strategy had two objectives, namely: to defend the monetary hierarchy favorable to Washington, with the dollar at the top, and to encourage the countries in the center to implement a global liberalization and financial deregulation agenda.

The “strong dollar diplomacy” is an example of the systemic power of the American currency to bring different players into the international arena. However, in our view, this American action helps to highlight the power of the international currency, but is insufficient to classify it as a weapon. In the case of “strong dollar diplomacy” there was no specific target. Nor does it make sense to argue that the United States sought to engage in a financial warfare, by raising interest rates, against all central countries in order to achieve its geopolitical and economic objectives. In addition, since then, the dollar has undergone a warlike instrumentalization process that culminated in the construction of the dollar bomb, a more sophisticated tool than all those discussed so far.

According to Torres Filho (2019), the dollar bomb is the denial by the USA of the use of its currency, the dollar, to carry out financial transactions with any entity directly or indirectly linked to a specific country. The dollar bomb is a weapon with high destructive power, which does not directly generate physical damage or loss of human life to the enemy. This weapon has the capacity to disorganize the affected country’s internal markets and society and its mobilization and operation costs are minimal for the aggressor.

From our perspective, the dollar bomb was a combination of three strategies: denying the use of international currency, blocking assets and denying credit. These three strategies are used jointly and inseparably in the application of the dollar bomb. The dollar bomb, when “exploding”, constrained Iran to the maximum monetary discipline within the international financial regime. Its systemic character is evident, since the impositions that defined the dollar-bomb pro-

¹⁰ The increase in interest rates became known as the “Volcker Shock”.

cess were unilateral and applied by the country at the top of the international monetary hierarchy. The US national financial system is the international financial system, both of which operate along the same lines. US domestic laws governing its financial system have global effects. No other country in the world could use the power of its national currency to direct the private sector to practice coercion over a sovereign state in line with its plans (ZARATE, 2013).

A central element in the dollar bomb was the use of the SWIFT's database. In modern capitalism, in a world with a high degree of globalization, banks are fundamental to any activity between societies, whether it is legal or illegal. Every business transaction needs to be settled using the banking system. The functioning of human activities in the modern world needs, to some extent, banks. In the complex global financial network, a key component for international banking transactions is SWIFT.

Even though SWIFT played a central role in the international system, it was not directly under American law. The company is established in Belgium and falls under the European Union legislation (TORRES FILHO, 2019). There was a need for coercive co-optation of the SWIFT system. SWIFT's coercive co-optation process was essential for the Department of Treasury to develop the necessary tools for the use of the dollar bomb. In this way, Washington was able to practice an exclusive and powerful modality of financial warfare.

It is worth mentioning that this artifact is of unilateral use by the USA. In the Iranian case, the actions taken by the UN Security Council and its European allies conferred greater legitimacy (KITTRIE, 2009), but it is not a fundamental element in the operation of this form of financial warfare.

The dollar bomb is related to two important concepts: the concept of structural power, elaborated by Susan Strange (1998) and the concept of armed interdependence (weaponized interdependence) in international relations present in the works of Farrell and Newman (2019), McDowell (2020) and Drezner (2021).

The first concept, structural power, is the ability to shape the structures of the global political economy (STRANGE, 1987). In other words, the idea is that the functioning of the global economic-financial structure can limit the scope of action of States that do not have structural power as well as that of other private agents. The US has structural power in the International Financial System, since that structure is anchored in the dollar.

In turn, the second concept, armed interdependence, focuses on an actor exploring his privileged position in a structure to obtain a bargain advantage over others (DREZNER, 2021, p. 1). For Farrell and Newman (2019, our translation) "asymmetric network structures create the potential for armed interdependence, in which some states are able to leverage interdependent relationships to coerce others". The difference between these two concepts is that armed interdependence admits the possibility that its abuse can undermine the ability to implement it. According to Drezner (2021), the actor who abuses his centrality as a weapon may end up losing this ability. That is, a careless use could undermine the strength of this tool. Such erratic use can be the trigger for other countries in the system to seek alternatives to the dollar (DREZNER, 2015). According to McDowell (2020), this limitation is linked to the understanding within the

field of International Political Economics that the attractiveness of the dollar as a currency of the system is based on economic and political factors. However, it is beyond the scope of this paper to analyze the possible limits of an abusive use of the dollar bomb tool. The most important thing is to understand the dollar as an exclusive tool of coercion that has been used by Washington to constrain specific targets for geopolitical and geoeconomic purposes.

4 Final considerations

Money is an element of command and control in the international arena. Both the monetary coercion present in the bilateral financial warfare, and the dollar bomb of the systemic financial warfare are examples of the power that this object has in relations between States. Both are activities with little visibility to the public, but with real potential for destruction. Disorganizing production and distribution chains for goods and services, destroying jobs and reducing a society's income and wealth levels is as destructive as a bloody battle. These consequences can generate social disruptions that are even more damaging to the target country.

We demonstrated that bilateral financial warfare has several strategies that can be explored by States in general. This form of financial warfare is not exclusive to any specific country. Any state, according to its capabilities, can use financial warfare against certain targets. In addition, the freezing of assets under local jurisdiction, direct currency manipulation, regime breakdown and denial of direct credit can be combined in a process of direct monetary coercion, whether in times of war or peace.

On the other hand, the practice of systemic financial warfare is exclusive to a select group of countries, in the case of Regional Currency Dependency, and exclusive to the USA, in the case of global asset freezes, the denial of access to the international currency and the denial of credit in the international system. The combination of these last three strategies comprises the dollar bomb, an even more exclusive tool.

The Dollar Bomb exploits the structural asymmetry of the international monetary system to attack agents to be enemies by Washington. The US, as the issuer of the system's currency, has the capacity of monetary control over all other countries. As everyone uses the US national currency as an international currency, Washington was able to use an exclusive weapon that could be surpassed or matched by a technological race, as in the case of nuclear weapons. The dollar bomb is a weapon linked to the functioning of the modern international financial system itself. The loss or replacement of the exclusivity of this weapon is associated with long-term structural changes.

In the short term, there is no viable alternative to the dollar. The process of financial globalization was built on the structure of the dollar. Derivatives markets contracts (swaps, options, futures), which are essential for risk mitigation by international public and private agents, as well as strategic commodities (iron ore, steel, copper, gold and oil) are mostly traded in dollars.

The use of the dollar bomb has made several countries realize that the international currency is not a common good for humanity, but rather, a tool for command of the hegemonic coun-

try. However, time is the master of reason. There is no set context that cannot be changed. Even though still timid, there are attempts to create alternative arrangements to the dollar. However, given the complexity of the financial and productive structures of the current phase of capitalism, the world that allowed the creation of the dollar bomb tends to exist for some time.

The establishment of bilateral financial warfare, systemic financial warfare and the use of the dollar bomb show an inseparable relationship between money and power. In war, where the clash of wills between nations is constant, the projection of national power occurs through different means, including currency. The hegemon, issuer of the international currency, will use this monetary hierarchy to seek the maintenance of its power if necessary.

We have seen that the use of financial warfare is a more common activity than the field of international relations usually admits. Attacking the stability of a currency or disconnecting the banking system of the target country from the global financial system has the potential to dismantle its entire social structure. If this occurs at a time when a State needs its national capabilities the most, such as in times of war, the consequences can be disastrous for the State that suffers such an attack. Therefore, neglecting the financial dimension of war can be very costly for a given society.

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Challenges of innovation as a strategy for generating land-based military capabilities

Desafíos de la innovación como estrategia para la generación de capacidades militares terrestres

Abstract: The generation of military capabilities is a permanent goal for the Armed Forces. In this attempt, innovation emerges as a promising strategy. However, there are challenges to be overcome for innovation to be an effective tool for generating superior and dynamic combat capabilities. This paper aims to identify the challenges for the effective adoption of innovation aimed at generating land-based military capabilities. In this regard, real examples of innovation and innovation management in the Armed Forces of different countries were addressed, allowing the verification of the main actions undertaken, mainly in the organizational, scientific, and technological fields. As a consequence, it was found that the *innovation theater* must be avoided, by implementing a culture and management of innovation based on objective and clear actions, aiming for tangible results, and considering a systemic approach that synchronizes the cycles of technological innovation, the life cycle of PRODE, and the factors that generate capabilities.

Keywords: Transformation. Life cycles. Military capabilities. Military innovation.


Resumen: La generación de capacidades militares es un objetivo permanente para las Fuerzas Armadas. En este intento, la innovación surge como una estrategia prometedora. Sin embargo, hay desafíos que superar para que la innovación sea una herramienta eficaz para generar capacidades de combate superiores y dinámicas. Este trabajo tiene como objetivo identificar los desafíos para la adopción efectiva de la innovación, con el objetivo de la generación de capacidades militares terrestres. En este mister se abordaron ejemplos reales de innovación y gestión de la innovación en Fuerzas Armadas de diferentes países, permitiendo la verificación de las principales acciones emprendidas, principalmente, en el ámbito organizativo, científico y tecnológico. Como consecuencia se verificó que hay que evitar el *innovation theater*, implementando una cultura y gestión de innovación plasmada en acciones objetivas y claras, buscando resultados tangibles y considerando un enfoque sistémico que sincronice los ciclos de la innovación tecnológica, la vida del PRODE y los factores generadores de capacidad.

Palabras-clave: Transformación. Ciclos de vida. Capacidades militares. Innovación militar.

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1 Introduction

1.1 Military innovation in the transformation of the Armed Forces

Just as the characteristics and conduct of military operations transform in space and time, the Armed Forces must adapt, modernize, or transform themselves to better perform their functions, both in times of peace and war (TEIXEIRA JUNIOR; GAMA NETO, 2018).

History shows that the most fertile periods for military innovation occur on the verge of the country becoming involved in conflicts of abnormal intensity (TELO, 2005). In times of peace, however, it is appropriate that the innovation process gains the status of an end-activity within the Armed Forces, promoting superior military capabilities and making combat power versatile, capable of stopping even unknown threats and in diverse environments. However, the Armed Forces need to adapt to the rapid changes in their environment, which is essentially made up of complex systems and products, influenced by technological advances, the demand for prompt responses, or the evolution of competitors. To adapt to different demands, dynamic capabilities are needed (TEECE; PISANO; SHUEN, 1997).

To achieve dynamic capabilities, it is necessary to develop a systemic vision of the products, processes, and systems that make up the organization itself. In the context of engineering and management, Systems Engineering is used, aiming at a broad understanding of current scenarios and the possibilities of adapting to future scenarios, through effective transformation or innovation (BRICK; SANCHES; GOMES, 2017).

Military innovation is characterized by the development or invention of new ways to fight, or to integrate technologies, materials, concepts, organizational structures, services, and systems (ANDRADE, 2011; ISAACSON, LANE, ARQUILLA, 1999), which result in the improvement of existing military capabilities or the acquisition of new ones and, consequently, the effective transformation of the Armed Forces in response to the Knowledge Age. Military innovation, therefore, encompasses all the factors that generate military capabilities — Doctrine, Organization, Training, Material, Leadership and Education, Personnel and Facilities (DOTMLPF) — and is not restricted to the scientific-technological domain.

Military innovation also exhibits strong dependence with the geopolitical context and national political-strategic drive (FERREIRA, 2015). In the 1970s and 1980s, Brazil began its insertion in the group of countries that can develop and manufacture their defense products (CUNHA; AMARANTE, 2011). However, these promoted innovations were practically annulled by the globalizing events of the following years.

Combined with the geopolitical context, the national culture can also make it difficult to implement a culture of innovation for better warfighting capabilities. The national culture presents some naiveties that should be avoided, such as the belief in the inexistence of threats and that the nation does not need to be prepared to defend itself; the thought that negotiations and the skills of diplomats and rulers are enough for the defense of the country; the belief that the Brazilian Armed Forces will be able to maintain combat with means ceded or acquired abroad;

and the assumption that an adequate Defense Industrial Base (Base Industrial de Defesa – BID) can be built even on a weakened national base (CUNHA; AMARANTE, 2011).

Dobni (2008) points out that in an organizational environment innovation is often expressed through behaviors and activities that are associated with a tangible action or result. It must be avoided that innovation is seen without commitment, as a simple metric of quality and success of organizations that aim to be innovative, investing in activities or resources considered innovative, without planning and implementing a culture of innovation. This behavior has been called *innovation theater*, through which organizations convey a superficial image, from unstructured initiatives, without continuity and without a mindset of transforming organizational culture (MJV Technology and Innovation, 2016, apud, Dutra e Almeida, 2018).

1.2 Objective

The importance and peculiarities of military innovation, compared to other innovation processes, reveal the need for constant investigation of the obstacles and challenges to be overcome, since the transformation of the Armed Forces and the art of war is a dynamic process that increasingly aggregates different aspects of all expressions of national power. In this context, the objective of this paper is to identify the challenges to effective innovation adoption, aiming at the generation of land military capabilities.

2 Theoretical background

2.1 Military innovation management in the Brazilian Army

Innovation has always been present in Armed Forces all over the world throughout Human History, both in the evolution of the art of war and in the technological progress of military employment materials. However, a systematic and institutional approach to the subject has grown in importance, which is related to the need for military insertion in the Knowledge Age.

The Brazilian Army established the guidelines for its transformation process through Ordinance No. 075-EME, June 10, 2010 (Portaria nº 075-EME, 10 de junho de 2010). This document points as objectives to "Promote the Army's transformation from an industrial to a knowledge era" and "Implement an innovation mindset", indicating the direction to be taken in order to "Enhance the ability to develop and incorporate advanced technologies in support of operational capabilities". In this way, this ordinance shows the relationship between military innovation, especially technological innovation, and the generation of military capabilities as tools to promote the Army's transformation from the industrial age to the Knowledge Age.

The first actions with relevant organizational impact, within the Land Force, regarding the management of technological innovation, occurred from 2015. In this year, the Agency for Management and Technological Innovation (Agência de Gestão e Inovação Tecnológica – AGITEC) was created through Ordinance No. 548 (Portaria nº 548, de 27 de maio de 2015). This agency began its activities as a military organization in 2018, having its purpose established by Executive Order No. 1,218 (Portaria nº 1.218, de 9 de agosto de 2019).

Art. 1 The Agency for Management and Technological Innovation (AGITEC), a support agency in science, technology and innovation directly subordinated to the Department of Science and Technology (Departamento de Ciência e Tecnologia – DCT), has the purpose of carrying out the Management of Technological Innovation, creating a favorable environment for the increase of scientific-technological capabilities and the development of new Defense Products (PRODE) and Defense Systems for the Land Force (BRASIL, 2019b, p. 30).

In this sense, AGITEC has been operating with emphasis on the finalistic processes of Technological Informations and Prospecting, Intellectual Property Management, Knowledge Management, and Promotion of Innovative Culture.

Additionally, the Army created, through Ordinance No. 1701, (Portaria nº 1.701, de 21 de dezembro de 2016), the Defense, Industry and Academy Innovation System (Sistema Defesa, Indústria e Academia de Inovação – SisDIA).

Art. 6 The Innovation SisDIA, based on the precepts of the Triple Helix, aims to enhance the efforts of the governmental, productive, and academic areas in order to, through technological innovation, contribute to national development, aiming at the search for Brazilian productive capacities of Defense and dual Products and Systems (BRASIL, 2016, p. 14).

SisDIA was recreated by Ordinance No. 893 (Portaria nº 893, de 19 de junho de 2019), establishing in its Art 1 the connection of the Army's transformation process with the generation of land military capabilities.

Art. 1 The Army Transformation process requires the adoption of measures that create, stimulate, and enhance national technological and productive capabilities, in such a way that these will endow the Land Force with operational capabilities compatible with the evolution of Brazil's political and strategic statures (BRASIL, 2019a, p. 36).

These actions of the Brazilian Army, whose main objective is the generation of superior and dynamic terrestrial military capabilities, use innovation as a strategy for this intent, assuming the Triple Helix and Open Innovation as pillars.

Thus, according to the Army Capabilities Catalog 2015-2035 the definition of land military capability is:

The land military capability consists of a group of operational capabilities with functional links, brought together so that their developments enhance the abilities of a force to accomplish a given task within an established mission (BRASIL, 2015a, p. 29).

Also presented in Brasil (2015) is the concept of operational capacity:

It is the aptitude required of a military force or organization so that they can achieve a strategic, operational, or tactical effect. It is obtained from a set of seven determining, interrelated, and inseparable factors: Doctrine, Organization (and/or processes), Training, Material, Leadership and Education, Personnel, and Facilities — which form the acronym DOTMLPF (BRASIL, 2015a, p. 29).

Therefore, we can see a link between the DOTMLPF factors and the generation of land-based military capabilities.

In the context of open innovation, connections and interactions are as important as the production and improvement of knowledge (TIDD; BESSANT, PAVIRR, 2005). Thus, it is understood that actions to identify promising ideas coming from the internal and external environment and to create effective mechanisms for the formation of partnerships aimed at obtaining technologies and PRODE, relevant to the generation of military capabilities, are paramount. However, it is essential that the collaboration with the outside world is done with the security of information sharing and protection of intellectual property, guaranteeing the national interests.

In addition, the change in the strategic environment and the limitations imposed on the defense and national public security budget, added to a very restrictive legislation, are factors that demand sustainable innovations in the business model. It is estimated, then, that the acronym DOTMLPF must be updated to DOTMLPF-RB, in which the restrictions (restrictions - R) and the business model (business model - B) are added to the universe of factors that generate military capabilities (FERREIRA, 2015).

3 Methodology

This work was based on a literature search, drawing on primary and secondary sources, collecting real examples of innovation and innovation management in different Armed Forces. The Google Scholar and Portal de Periódicos CAPES databases were consulted.

The present study will be restricted to military innovation, with a focus on ground forces, with some countries such as the United States, Germany, France, Israel, Russia, China and India being selected, which were chosen in view of their military relevance on the world stage. In other words, there was also a restriction as to the spectrum of countries investigated.

The research is classified as qualitative, since examples of management and innovation are investigated in terms of their qualitative aspects (NEVES; DOMINGUES, 2007).

Furthermore, the research developed can also be classified as exploratory, descriptive, and applied (NEVES, DOMINGUES, 2007, VERGARA, 2008). Thus, the exploratory feature is established by the literature review conducted that intends to identify examples of military innovation and military innovation management in Armed Forces in evidence in the global military landscape.

The research is descriptive because it seeks to make the object of study intelligible, that is, to identify examples of military innovations, describing their aspects, whether technological, organizational, or managerial, and their potential, especially with regard to the generation of military capabilities.

Furthermore, the research is applied, because it addresses issues present in the daily life of military institutions, providing subsidies for future studies and actions.

The theoretical framework addresses the current situation in military innovation, especially technological innovation in the Brazilian Army. In this way, the examples of innovation and management discussed in the research can be analyzed and adapted in such a way as to be implemented in the national context.

4 Challenges of military innovation

In military innovation, since it occurs in a strongly hierarchical, bureaucratized, and risk-averse environment related to doctrinal and technological changes, the *innovation theater* can be the tragic equilibrium point, where the necessary transformations do not occur and, consequently, superiority in combat conditions is not achieved, but it is believed that changes are being made within the Armed Forces in a gradual and controlled way. In summary, the *innovation theater* occurs when actions supposedly promoting innovation are implemented in a superficial way, without being inserted in the institutional innovation plan, without an established innovation strategy. In other words, the actions on screen are unstructured initiatives, lacking continuity and a mindset of transforming organizational culture (MJV *Technology and Innovation*, 2016). As a consequence, the desired innovation is not achieved, not generating the intended military capabilities.

Another trap to be avoided in the military lies in the origin of innovation. Innovation often does not follow the internal structure of the chain of command and requires less vertical relationships. Innovation can arise from relationships with the civilian environment, with government agencies, and with other Forces (GRISSOM, 2006). There is also the issue of innovation usually manifesting itself in two dimensions: *top-down* and *bottom-up* (DOUGHERTY, 2018). In the military environment, *top-down* innovation does not encounter resistance in its implementation, because it is in line with the hierarchical structure of the institutions and with the strategic planning of the Armed Forces. This is the case, for example, with the technological development or acquisition of new aircraft and new armaments. On the other hand, *bottom-up* innovation still needs to be better accepted in the organizational culture. This arises from the tacit knowledge of the combatant, the opportunity for improvement verified by the subordinate, or the need experienced by the human component directly linked to the tactical levels. It can be exemplified by

the U.S. *Marines' Army Expeditionary Warrior Experiment (AEWE)* — a *bottom-up* innovation hosting program, with processes designed to accept a prototype or concept from a non-traditional source to provide a military demonstration and a path to improved combat capabilities (DOUGHERTY, 2018).

Defense Products (PRODE), in general, are inserted in the context of technological innovation and have long life cycles. In addition, the PRODEs are often of a multidisciplinary nature, of sporadic demand, or needed in only a few units, and are often not attractive for production in partnership with civil industries, which require larger and permanent demands to make them viable. In other words, the model for obtaining PRODE faces the challenge of also considering a sustainable business model. The design of a new military capability must take into consideration the entire life cycle of a PRODE, as well as the determining, interrelated and inseparable factors for obtaining or maintaining the capabilities (DOTMLPF-RB) (FERREIRA, 2015).

The greatest difficulty in managing military innovation, therefore, results in integrating the innovation cycles of these factors with the technological innovation cycle, in accordance with the restrictions in the environment in which they are inserted. Its peculiarities such as uncertainties, gradualness, comprehensiveness to all the factors that generate military capability and, in general, the long term to materialize, added to the fact that it is inserted in a traditional and risk-averse environment (FERREIRA, 2015), make innovation management a very complex issue, but essential to the transformation of the Armed Forces during the Knowledge Era.

Chart 1 lists the challenges of military innovation presented in this section in summary form.

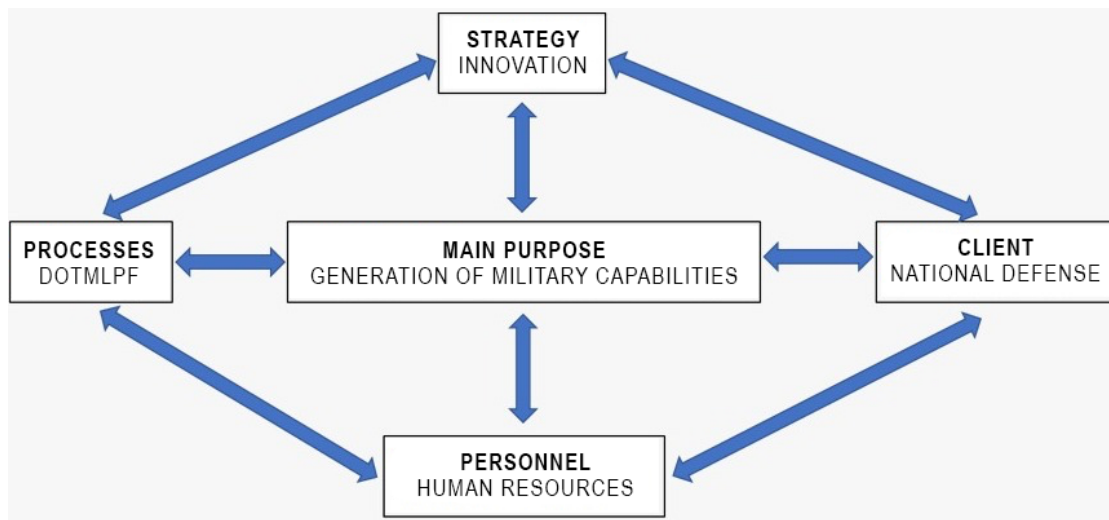
Chart 1 – Challenges of military innovation.

Challenges	Problem overview
<i>Innovation theater</i>	Lack of coordinated, integrated, systemic, and synchronized organizational planning and strategies for innovation.
Top-down hierarchy of the innovation process	Resistance or infeasibility of the bottom-up flow of ideas and innovations.
Excessive bureaucracy	Loss of focus on innovation by draining human, material, and financial resources to bureaucratic demands.
Aversion to risk	Low acceptance of mistakes, discouraging innovation.
Inter-institutional partnerships	Resistance to establishing inter-institutional partnerships for innovation.
Sustainable business model	Difficulties in establishing business profitable for all partners and with effective results for the end user.
Integrate the innovation and life cycles of PRODE with the factors advocated in DOTMLPF	Lack of integration between the innovation and life cycles of PRODE to the factors advocated in DOTMLPF.

Source: Authors.

Figure 1 intends to illustrate the relationship of innovation, as a strategy, to achieve the essential purpose of generating military capabilities, supported by the processes advocated in DOTMLPF, in order to serve National Defense. This figure is inspired by the strategic alignment model of Labovitz and Rosansky (1997 *apud* SENFF; COMPAGNONI; BENDLIN, 2014), which points to strategy, processes, customers, and people as elements that direct an organization to its essential purpose.

Figure 1 – Strategic alignment focused on generating military capabilities.



Source: Adapted from Labovitz and Rosansky (1997, *apud* SENFF; COMPAGNONI; BENDLIN, 2014).

5 Innovation and innovative management in transforming the nations armed forces – examples of implementation

In the search for elements to support a proposal for integrated and efficient military innovation management, capable of producing superior military capabilities, some examples of innovation management actions implemented in the Armed Forces of other nations were listed.

5.1 United States of America (USA)

Always seen as a benchmark that generates asymmetrical comparisons, the United States Armed Forces do not always show their supremacy based on their robust budget and technological exponents.

After the euphoria of the quick victory in Operation Desert Storm, the leaders of the U.S. Army knew that not everything had gone according to plan. There was also a sense that,

with the end of the Cold War and in light of the many combat experiences, they were entering an operating environment with an ambiguous threat that was difficult to predict, where the latest technologies were widely available (BELL, 2003). The U.S. Army needed a mechanism to quickly address the change of scenery. The response was achieved through innovations in doctrine, organizational structure, and training, with the creation of *Battle Labs*.

Battle Labs are integrated, brigade-level environments that are designed to facilitate observation of innovations in strategy, policy, resource application, doctrine, or methods of warfare (BELL, 2003). The proposal is to bring soldiers and tactical leaders from the Army and the acquisition corps into an integrated environment where innovations would be tested and evaluated right away, as in a laboratory, giving them the tools and resources to turn timely experiences and analysis into combat requirements.

The consolidated performance of the *Defense Advanced Research Projects Agency* (DARPA), which was created in 1958 as a Research and Development (R&D) agency, plays an important role in the U.S. Defense Culture of Innovation, and it is relevant to note the articulation with academia and business. DARPA is characterized by its autonomy and by being free from bureaucratic impediments, that is, without excessive bureaucracy, acting as an agency for the promotion and execution of innovation policy. DARPA supports innovative mission-oriented, high-risk, but high-reward research and promotes the development and deployment of these technologies, achieving true innovation. One of the innovation models adopted by DARPA is the *extended pipeline*, which consists of supporting all stages of the innovation cycle, starting from basic research to market creation with product acquisition (BONVILLIAN, 2018). The innovative technologies made possible by DARPA spread across many branches, such as space, aviation, internet, microelectronics, robotics, and nuclear, with tangible benefits for civil society.

5.2 Germany

Facing the constant economic crises of the beginning of the 21st century, Germany adopted new positions in the area of Defense, such as: the restructuring of its Ministry, centralizing activities, removing the Forces' commands from the central administration of the Ministry of Defense and seeking alignment with the strategic conception of the North Atlantic Treaty Organization (NATO); voluntary military service, as of 2012, replacing the mandatory one, which contributed to the budget, but created difficulties in obtaining the necessary manpower; and the rationalization of combat capabilities; and in relation to Military Employment Material (MEM), it is worth highlighting the reduction in the number of armored cars, artillery shells, helicopters and fighter planes (FERREIRA et al., 2016)

The binational integration with France and Holland, through the constitution of mixed brigades, fruit of the European Union integration project, is a relevant aspect. Terrorism is a matter for the Ministry of the Interior and has a strong political component.

Possibly, Germany's position on the terrorist threat should be expressed en bloc, confirming NATO's stance (FERREIRA et al., 2016).

5.3 France

The French Army is undergoing a transformation process, driven by three factors: the reality of new operations and threats, limited defense resources, and the already worn-out existing model. In this context, a new family of vehicles – *Scorpion* – is under development. Also noteworthy is the reactivation of the divisional level, which did not exist in the old structure, but without the structures corresponding to what we know as a Divisionary Base, providing a light and flexible Command structure. The transformation that has as its motto the term "*Au Contact*", making mention of the greater closeness to the population and the resumption of recruitment as a strategy to obtain skills and cultural assimilation. The ongoing process aims to structure the French Army for the next 40 years through innovations and more efficient management of the Institution (FERREIRA et al., 2016).

In France, the protocol for managing innovations within the Ministry of the Armed Forces – the Defense Innovation Roadmap – was presented last March by Florence Parly, Minister of Armies. This document summarizes the conclusions of the work of the "Innovation Task Force" – composed of representatives from the General Staff, government agencies, the Schools of Arms, the *Direction Générale de l'Armement* (DGA), and civilian industry – launched after the October 2017 Strategic Review. It is the development of an integrated approach by the Ministry to introduce the transformations enabled by external innovations, in which the main objectives are: harnessing the short technological cycles of the civilian world for the benefit of military capabilities; rapid maturation of new capabilities by prototyping; real-time synchronization of the short and long cycles of operational innovation (MELO, 2015).

5.4 Israel

Unlike countries like Brazil or the United States, in Israel, the Israeli Defense Forces – IDF – is known as an environment of little hierarchical intervention, where creative capacity and intelligence are constantly put to the test, being the core of the Israeli model of innovation. Attributes like this, added to the acceptance of error as part of the process, the scarcity of natural resources, and the risk of imminent attacks, create an environment highly conducive to innovation (SENOR; SINGER, 2011), even favoring disruptive innovation.

In the book "*Start-up Nation: The Story of Israel's Economic Miracle*", the authors, Singer and Senor, analyze what lies behind Israel's innovative profile and conclude that its underpinnings lie in strong investment in Research & Development – R&D (4.8% of GDP) and education (almost 11%), the role of the FDI, and immigration.

The Armed Forces play a central role in Israel's embryonic enterprises, through military R&D and various IDF *high-tech* units. In the IDF, Israelis, through compulsory service for

men and women, learn leadership and management techniques and develop proactive behavior for innovation and entrepreneurship. The Israeli Army has a strong impact on the culture of entrepreneurship in the country. On the one hand, the army reinforces focus and persistence in the execution of actions from start to finish, and on the other hand, it identifies the best heads through its special 8200 unit. In addition, the Israeli government proves to be instrumental in the development of the industry, acting in absorbing the risk involved and thus driving innovative attitudes (JUNQUEIRA, 2018).

5.5 Russia

Russia's military reform, which began in 2008, is part of a large-scale military emulation process that has the United States and North Atlantic Treaty Organization as the model to be emulated (DALL'AGNOL, 2019). The Russian Armed Forces suffered major deterioration in combat readiness, training, and equipment, evidenced in the performance of Russian troops in combat against the Georgian Army during the Russo-Georgian War (CHEVTCHENKO, 2016).

In earlier discussions attempts at reform already addressed both technological transformation and the shift from a division-based to a brigade-based organization. They focused on the technological progress of foreign militaries, especially the United States, in terms of redefining warfare in the information age (KIPP, 2010).

Since then, the Russian Ministry of Defense has focused on partnering with the civilian scientific sector and organizing international military-technical forums to find innovative ideas, technologies, and solutions to raise performance in innovation cycles and strengthen the country's military industry. The fruits of the Russian authorities' financial and administrative efforts can be seen in the 2016 results. That year, new equipment such as robots, unmanned aerial vehicles, hypersonic systems, nuclear-powered systems, command and control and other innovations were presented and tested in real combat conditions (DALL'AGNOL, SECCHI, 2018; SYSOEV, 2016).

The organization of the International technical-military Forums allows Russia to increase its power to protect its political and economic interests. The implementation of this plan has had good results. In the scientific-technological area, ten major Science and Research Institutes have been established to pursue the in-house development of sensitive technologies that are currently significant gaps in the Russian defense industry—such as microelectronics. In addition, potential buyers for their military-use products have emerged. It can be said that the sanctions imposed by the United States were part of the motivation for innovation in this regard (DALL'AGNOL, 2019; SYSOEV, 2016).

The Soviet practice of creating military departments in civilian universities, following the example of what the United States did and maintains, has been reclaimed and the Ministry of Defense still intends to create a branch of its Central Scientific Research Institute, composed of research centers dedicated to studying and improving the information and communication infrastructure management systems of Russia's Armed Forces, to implement network-centric warfare capabilities—the *New Look* (DALL'AGNOL, 2019).

5.6 China

According to World Bank data (SILVA, 2019), China represents the second largest Gross Domestic Product (GDP) on the planet, exceeding \$12 trillion, second only to the United States of America (USA), with its more than \$19 trillion. The country has been investing approximately 1.9% of its GDP in defense and, beginning with the 2015 reforms, appears to have embraced a commitment to develop top-tier armed forces by 2050 (SILVA, 2019). A country with a widely developed nuclear energy matrix since the 1960s and a permanent member of the United Nations Security Council since 1971, Beijing invested in a new phase of military modernization after the Fall of the Berlin Wall and after the technological performance obtained by the US in the First Gulf War (1990-1991). During Jiang Zemin's presidency (1993-2003), and in the face of episodes such as US pressure during the Taiwan Strait crisis in the mid-1990s, there was governmental effort to institute stricter controls over military organizations, to bring the Armed Forces closer to the Chinese Communist Party (CCP), as well as to address corruption and the privileges that military held within the regime (MALAFAIA, 2015). However, this picture followed with virtually no major changes under Hu Jintao, although stimuli were made toward modernizing the armed forces during the 2000s (PAGE, 2016). The Chinese government has invested heavily in new equipment, joint operations, and Information and Communications Technology (ICT). Major military projects include, for example, the development of different versions of aircraft with radar-stealth technologies based on the Chengdu J-20 (DOMINGUEZ; JOHNSON, 2018); the continued improvement of missiles, especially anti-satellite and anti-ship missiles, as part of what the Americans call the anti-access and area denial (A2/AD) strategy (MYERS, 2018); Aircraft ship investments (including plans involving the incorporation of nuclear propulsion) (YUSHA, 2018); and the high pace of domestic production of dozens of submarines and warships (YEO, 2018).

Thus, in addition to technological innovations, materialized in modern defense products, such as nuclear-powered submarines, combat aircraft, and naval means, the Chinese armed forces are also having their organizational structures renewed, replacing traditional bureaucratic comfort zones with joint commands, fostering new organizational cultures, reducing administrative staff, optimizing chains of command and control, extinguishing military units, reducing contingents, pooling common activities, and paving the way for greater civil-military integration, especially in the field of science and technology.

5.7 India

India has been adopting a Hybrid Model of military innovation, with priority given to Space Command and Battleship Aircraft in the Indian Ocean (NEVES

JÚNIOR, 2015). This Hybrid Model emerged as a result of the experiences of the Kargil War (1999), emphasizes technological modernization in space, air and naval means, combined with the structural maintenance of the country's Armed Forces and their fundamentally important social role in easing the rigidly caste-divided society.

Regarding the first aspect emphasized, its objective is to project force over the Indian Ocean, in order to deny its access to other Asian powers and to guarantee the so-called Vital Area, for the maintenance of its international communication lines and its economic expansion, and called Operational Area, where Advanced Defense would take place. In this way, we observe a geopolitical shift of India away from its historical interest: the land border with Pakistan (NEVES JÚNIOR, 2015).

The second aspect shows the limitations of the country, with delays arising from the history of rapprochement with the Union of Soviet Socialist Republics (USSR), budgetary difficulties, and the caste-divided society. Thus, many seek entry into the Armed Forces as a form of social ascension, besides these being a path for the increase of international relations that generate public-private partnerships for the development of the Defense Industrial Base and for technology transfer (NEVES JÚNIOR, 2015).

After the collapse of the USSR, India was driven to adopt a more integrated industrial policy, diversifying the Defense Industrial Base and strengthening domestic R&D, to achieve "self-sufficiency" in production of high-tech dual-use goods.

The biggest problem for the Indian government is to stimulate an entrepreneurial activity around the talent and technologies emerging from the defense industries. In India, although the *software* industry has benefited from dual-use technologies and *spin-offs* from the aerospace industry, there have been no clear policies to develop products for the civilian sector (SILVA, 2010).

6 Summary of the main innovation strategies adopted

Chart 2 reports the central ideas of the innovation strategies adopted by each of the countries listed in the previous item.

Chart 2 – Countries x Innovation Strategies adopted.

Country	Innovation Strategy	Key ideas
<i>USA</i>	Great investment in technological apparatus associated with innovations in doctrine, organizational structure, and training, with the creation of <i>Battle Labs</i> . Innovation culture built since 1958 with the creation of DARPA and free from excessive bureaucracy.	Synchronization of innovation cycles, reduction of bureaucracy, consolidated innovation culture, triple helix.
<i>Germany</i>	Renewal of its Defense Ministry, strategic alignment with NATO, and insertion in the European Union's integrated defense project.	International integration, organizational optimization, and rationalization of resources.

Country	Innovation Strategy	Key ideas
<i>France</i>	Transformation <i>Au Contact</i> , harnessing the short technology cycles of the civilian world to the benefit of military capabilities, and synchronizing innovation cycles.	Organizational optimization, rationalization of resources, open innovation, and synchronization of innovation cycles.
<i>Israel</i>	Innovation is rooted in the national culture and the role of the IDF in society, industry, R&D, and entrepreneurship.	Consolidated innovation culture and triple helix.
<i>Russia</i>	Military emulation of the U.S. and NATO models, creation of research institutes, organization of international military-technical forums, and maintenance of the national practice of inserting military departments in civilian universities.	Open innovation and strengthening the S&T base.
<i>China</i>	Technological and structural innovations, phasing out military units and reducing contingents, and greater civil-military integration, especially in S&T.	Rationalization of resources, reduction of bureaucracy, and triple helix.
<i>India</i>	Hybrid Model, focused on Space Command and Indian Ocean Battleship, establishment of public-private partnerships for the development of the Defense Industrial Base and for technology transfer.	Open innovation and triple helix.

Source: the authors

7 Conclusions

For the efficient implementation and management of innovation and, consequently, the generation of superior military capabilities, in the context of the transformation of the Brazilian Army in response to the Knowledge Era, different challenges must be overcome. In this sense, in order to meet the objective of this work, which is to identify the challenges for the effective adoption of innovation, aiming at the generation of land military capabilities, the following challenges are identified:

- a. avoid *innovation theater*;
- b. encourage and create mechanisms to exploit *bottom-up* innovations;
- c. combat excessive bureaucracy;
- d. accept and understand that mistakes and risks are present in the innovation process;
- e. encourage the establishment of inter-institutional partnerships, according to the principles of open innovation;
- f. develop sustainable business models; and
- g. implement a culture and management of innovation with a synchronous, systemic, and integrated vision of the innovation and life cycles of PRODE, using Systems Engineering, aiming at the generation of superior and dynamic military capabilities; and therefore, implement mechanisms of integration and development of the generating factors of military capabilities, observing the restrictions and the business model (DOTMLPF-RB).

Furthermore, based on the innovation strategies adopted by different countries and discussed in this paper, it is crucial to strengthen:

- a. the triple helix, aiming at scientific and technological development and innovation in partnership with universities, institutes, and research centers, observing the sustainability of the defense products and services business model;
- b. the agencies and structures for innovation management within the Armed Forces and the Ministry of Defense;
- c. the relationship of the Armed Forces and the Ministry of Defense with civilian Science, Technology, and Innovation promotion agencies, constantly keeping issues of interest to National Defense on the agenda;
- d. the acquisition models, observing intellectual property, knowledge management, and the sustainability of the business model;
- e. the incentives for research in technologies critical to the development of military capabilities;
- f. the qualification of human resources capable of absorbing and developing critical technologies; and
- g. optimize the organizational structures and the application of material, human and financial resources, prioritizing the most relevant projects for the development and maintenance of military capabilities.

Regarding the integration of technological innovation and military capability-generating factor innovation cycles, it is about developing mechanisms to generate superior land-based military capabilities for the benefit of the Army. These cycles should also be integrated with the life cycle of the PRODEs.

The life cycle of a PRODE, considering from conception to discarding, is a long-term life cycle, as, in general, is the cycle of technological innovation. Thus, one way to make the life cycle of a PRODE more compatible with the doctrinal and conceptual cycles is by phasing its evolution with partial deliveries of new technologies or intermediate products, through small projects, or sub-projects, that, successively, will converge to a complex product. Rapid prototyping and evaluation, as occurs in *battle labs*, is also of great value, avoiding rework and indicating the possibility of less demanding requirements.

To realize the integration between the cycles of technological innovation and that of innovation of military capability-generating factors, one approach is to choose to develop strategic technologies in a judicious manner, as a substitute for full product development. The choice of technologies to be developed can be guided through studies that point out which ones are priorities for obtaining the desired capability, or those that allow the development of a greater number of capabilities, such as artificial intelligence and compact energy sources (CALDEIRA, 2018), indispensable to the development of military mechatronic systems, which are already present in several complex products adopted by the Armed Forces and will be even more sophisticated, disruptive, and relevant in the Future War.

Therefore, from the above and revisiting the concepts established in the Army Capabilities Catalog 2015-2035 (BRASIL, 2015a), it is concluded that the generation of land military capabilities is achieved through the synchronous, systemic and efficient implementation of DOTMLPF, observing sustainable business models. In this way, innovation emerges as an effective strategy, acting in all factors that generate military capabilities: Doctrine, Organization, Training, Material, Leadership and Education, Personnel and Facilities. However, the challenges pointed out here must be faced, especially the innovation theater, which drains resources and discredits the efforts towards innovation, providing innocuous or unsuccessful results.

Finally, it can be seen that innovation is a fundamental strategy for the generation of dynamic and superior land military capabilities, contributing greatly to national scientific-technological and military development, and resulting in benefits for society as a whole.

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Epistemology of practice in continuous teacher training of Agulhas Negras Military Academy


Epistemología de la práctica en la formación continuada de profesores de la Academia Militar das Agulhas Negras

Abstract: The aim of this article is to discuss the epistemology of practice in continuous teacher training in a military institution of higher education. An exploratory applied research with a qualitative approach was intended, as it is a bibliographic and documentary research. Its objective lies in the possibility of presenting concepts and actions taken by the institution that focuses on the professional development of teachers within the Brazilian Army (EB). We attempted to emphasize the in-service training, its specificities, concepts and conditions that involve education in a military environment, more precisely, at the Agulhas Negras Military Academy (AMAN), locus of the research. The continuous training of higher education teachers, within this context, is analyzed from the perspective of his/her experience as a training process. This article is the result of research that was carried out by graduates of the Master's in Education Program accredited by the University of Taubaté (UNITAU).

Keywords: Continuous Training. Brazilian Army. Agulhas Negras Military Academy.

Resumen: Este artículo busca discutir cuestiones sobre la epistemología de la práctica en la formación continua de profesores en una institución militar de educación superior. Se trata de una investigación exploratoria con enfoque cualitativo y de carácter bibliográfico y documental. Su objetivo es presentar los conceptos y las acciones adoptados por la institución, voltados al desarrollo del profesional docente en el Ejército Brasileño (EB). Se buscó dar énfasis a la formación en servicio, sus especificidades, conceptos y condicionantes que involucran la formación en un ambiente militar, más precisamente en la Academia Militar de Agulhas Negras (AMAN), el *locus* de la investigación. La formación continua de los profesores universitarios, en este contexto, se analiza desde el punto de vista de su experiencia como proceso formativo. El artículo es resultado de investigaciones desarrolladas por egresados de la Maestría Profesional en Educación de la Universidad de Taubaté (UNITAU).

Palabras-clave: Formación Continua. Ejército Brasileño. Academia Militar de Agulhas Negras.

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1 Introduction

It is a well-known fact that society and its representative entities, including the educational system, have been going through a series of changes. In the Armed Forces, particularly in the Brazilian Army (EB), this framework goes beyond the mere acquisition of new equipment and weapons, or the reformulation of its rules, and is developed with an emphasis on training its personnel for the exercise of their professional activities. The entire training process aims to reach more qualified staff in an increasingly plural, demanding and selective society.

Professional development is a long and continuous process that lasts throughout a person's (professional) adult life. The main objective of this training is the socialization of the individual as a citizen, which makes the educational process dynamic, since the social system is constantly changing and demanding changes in the social, political, economic and ideological models that influence the student. In the Army, in particular, the training process of its staff is found in the affective, psychomotor and cognitive domains and is consolidated through the acquisition of certain professional skills linked to their development.

By analyzing the elements that constitute continuous teacher education, as well as those that help us to understand this professional as a subject in constant development, it is possible to understand their training in a teaching institution with characteristics worthy of investigation, as it operates in a context which differs from the usual academic realm. The subject brings with him/her experiences that will add to both media, that is, the civil and the military. For the construction of knowledge in this context it is important that the teacher constantly seeks to achieve the objectives defined in the teaching policies in force in the Forces¹.

Military education aims to provide the training of professional staff, as well as to ensure their improvement and specialization throughout their career (WORTMEYER, 2017). The EB command realized that the education of the individual is a unique problem and its aim is to value, through education, the citizen (BRASIL, 2010). It should be clarified that the expression "military education" here applies to educational processes that take place in military organizations belonging to the Armed Forces (Navy, Army and Air Force), as well as in the Auxiliary Forces (Military Police and Military Fire Department).

The speed with which changes are processed in the age of knowledge cannot be neglected, as it contributes to the "transformation" and modernization of the institution continuously. This process, in addition to being time-consuming, broad and profound, should not neglect the institution's traditional principles and values.

Based on the understanding that globalization redefines markets, modifies geographic space and people's way of thinking, the members of the EB professional staff are encouraged to keep up-to-date and prepared to operate the various weapons, communications and information technology systems (IT) among others.

1 The term 'Forces' here means Brazilian Army as part of the broader term "Armed Forces".

In relation to what was said in the previous paragraph, it is necessary to emphasize Mercado (2002) argument that teachers need a new attitude since it opens up a new range of possibilities in the teaching and learning process, giving the opportunity for the teachers to develop the knowledge of their students. In this context, the profile of the “weapons professional” must be consonant with the progressive changes that occur in the area of knowledge and with the ideas disseminated in different sectors of society (BRASIL, 1996).

In terms of education and culture, the Armed Forces investments were directed towards academic and professional training. The direction of the process is to ensure that education is capable of producing permanent effects on its human resources; and that they become able to carry out their professional activities carrying out their tasks effectively (BRASIL, 2010).

Given the above arguments, this article intends to carry out an analysis of aspects related to continuous education in a military higher education institution², more precisely at the Agulhas Negras Military Academy (AMAN), as a way of providing inputs to the construction of the epistemology of the teaching praxis in the academic community. Notably, this article is limited to the study of teaching activity in a classroom of a military higher education institution where pedagogical interactions take place.

2 Methodology

Based on a qualitative approach, we sought to carry out a bibliographic review and a documental analysis on laws, regiments and plans for exclusive use of the Army. This study is understood as an exploratory research.

The research relies on data collected by the authors under the Professional Master’s in Education of the University of Taubaté (UNITAU) and authorized by its Ethics and Research Committee (CEP), under the Opinion nº. 7,619,064 and Research Authorization Term, issued by the Agulhas Negras Military Academy (AMAN).

3 Considerations on Continuous Teacher Education

Continuous education can be understood as one of the processes of valuing the teacher that results in both the molding of their identity and the gradual understanding of the processes concerning the educational activity. In higher education, this practice has been the theme and object of analysis and discussion, due to its transformation.

The terms used to define teacher training over the years have been many. The expression “recycling” was used, in line with the thought of transforming materials, training, repetition of tasks; “improvement”, referring to the sense of completing, bringing to perfection; and, cur-

² Decree No. 613, of November 13, 2000, recognizes and accredits the Agulhas Negras Military Academy as a Higher Education Institution.

rently, the expressions “capacitation”, “development” are used to allude to becoming capable and/or qualified for something in the performance of their professional functions during the course of their career.

As stated, it is necessary to consider that the constitution of teaching knowledge is based on praxis and also on a knowledge that is objectified as it is built, in other words, a process of reconstruction and reconstitution of experience (obtained until that moment) and continuous improvement of individual and collective development of teachers. The teacher has acquired experiences and, as he questions himself in the profession and in his work environment, he reorients his actions and practices (SCHÖN, 1995).

Such practical and reflective action requires from this professional the ability to interpret, understand and question. It is evident that reflection implies “the conscious immersion of man in the world and his experience, a world full of connotations, values, symbolic exchanges, affective correspondences, social interests and political scenarios” (PÉREZ GÓMEZ, 1992, p. 103). Teacher training demands from its conductors (managers, teachers and instructors) a posture focused on critical thinking and, at the same time, reflective on their praxis.

In military educational institutions where training takes place and where one learns; incorporating what was learned into its portfolio of practices and actions. For the teacher, the environment becomes the place of permanent learning for all actors in a “continuum” of productive interaction.

As in any other University, its teachers (professors and instructors) go through a process of construction of their teaching identity. Their practices, narratives and the adopted language directly reverberate in the attitudes and behaviors of their students.

The excerpt of the Army Bulletin (BE) No. 49, of December 5, 2014, defines the duties of these professors and instructors, including the following:

I –to actively participate in the cadet’s intellectual and moral training; II –to plan, prepare, guide and control the class or instruction session corresponding to the discipline under his/her responsibility; III –to evaluate the performance of the cadets; [...] VI –to contribute to the development of cognitive, attitudinal and evaluative preparation necessary for the officer[...] (BRASIL, 2014, p. 11).

While thinking and reflecting on his teaching action, the teacher creates knowledge. Thus, the training needs to find similarity in “desires, problems, needs and deficiencies perceived in the development of teaching” (MARCELO GARCÍA, 1992, p. 66). Here, the theorist clarifies that the teacher thinks about teaching which influences his way of teaching, adopting new strategies and concepts if assisted by specialists.

This same author understands that “any strategy that intends to provide reflection includes developing teachers competences [...] that allow them to know, analyze, question their own teaching practice” (MARCELO GARCÍA, 1992, p. 64), highlighting that there is an

urgent need for the institution and the educational public policy makers to “look” at the teachers as agents contributing to the academic success of students.

In this regard, this type of continuing education provides teachers with the ability to reflect on their actions and the possibility to expand senses and meanings of their practice, since they are able to look at their teaching practice as a spectator.

Here, it is up to us to reinforce that the School (full sense) is the most appropriate place to carry out this type of reflection, as it is the context of professional teaching activity. The proposal to place teacher training in the school environment is supported by Silva, Bussolotti and Leão (2018, p. 19) argument, that school is the “privileged ‘locus’ for the management of curricular dialectics and the generator of new educational cultures”.

Furthermore, teacher training must be conducted by a professional/team from the school itself, understanding that the commitment of teachers, in discussing the practical problems they face, is the best way to foster professional development, i.e., a movement towards teacher self-understanding of their roles and tasks (ELLIOT, 1990, p. 244-245).

We understand that the described situation leads teacher training towards professional preparation, with a strong presence of the school (University), which dedicates specific space/time for teacher learning. Therefore, Marcelo García and Vaillant (2001) argue that “learning in the organization presupposes social processing of information, socialization of culture and the development of new goals, structures, strategies and environments” (p. 29).

Regarding the institutional role in this process, the pedagogical models applied should seek, whenever possible, the best performance of the teachers’ attributions. No less importantly, the intrinsic issues of individuals, that is, professional identity, must be considered. Marcelo (2009) argues that it is up to the institution:

[...] to understand the professional development of teachers shaping it só as to encourage the search for professional identity [...]. It is a construction of the professional self, which evolves throughout their careers. The school can influence [...] knowledge about the subjects they teach and how they are taught, past experiences, as well as their own professional vulnerability (p. 7).

The issues surrounding professional development as something continuous are reinforced here, highlighting the need to contextualize knowledge from multiple known sources, useful for the constructive process of this professional identity, promoting reflection and re-elaboration of their practices.

Silva, Bussolotti and Leão (2018, p. 16) argue that knowledge can quickly and abruptly fall into disuse, with the teacher no longer reproducing content, but able to create knowledge, to produce knowledge.

Furthermore, it is worth emphasizing the idea that the teacher is an essential protagonist in social directions, since the classroom is the place where students, under the guidance of the teacher, have one more opportunity to debate and discuss issues of their professional interest in addition to social, family and ethical issues.

On these issues, it is important to the argument by Hargreaves (2003), a specialist in knowledge society issues, who states that today's teachers need to teach in a way they never learned. This reinforces the "synapses" that present-day professors have the capacity to build a differentiated type of professionalism, often discarding what they learned in their initial training.

Analyzing the aspects of a relational order, we agree with the assertions of Day (2001) who argues that teachers not only revive and renew their commitment when reflecting on the ethical and moral purposes of teaching, but also expand this commitment when considering that their experiences and sharing have beneficial consequences. The theorist emphasizes that it is an individual and institutional need that presupposes a commitment to continuous learning.

The issue at hand is the need to invest (in the institution and among professors) in creating a structure that provides opportunities for the teacher to describe and analyze the challenges related to their training, thus allowing them to create a "community of learners", that is, allowing them to learn and develop in different communities and contexts.

Assuming that education must be a continuous, systematic and organized process, we understand that it permeates the entire professional career. This development provides the institution and students with quality education, in its various dimensions. It should be noted that this training should be work-oriented, in view of the significant changes in education (GATTI; BARRETO; ANDRÉ, 2011, p. 185).

In the next topic, some aspects of teacher education will be presented, understood as necessary for a greater elucidation of the facts presented so far.

4 Teacher Training from an Epistemological Perspective

Regarding teacher knowledge (and praxis), Roldão (2007, p. 99) deals with the nature of this knowledge and states that there are two essential sources of interpretation on the subject: the first has an interpretive focus on the analysis of its components, while the second is focused on "valuing professional practice reflected as its primary source". The author emphasizes that, although there is a certain divergence in the interpretation of each source, they end up converging in the interpretation and analysis of the praxis in line with the knowledge that sustains them, considering that one focuses on "necessary prior knowledge" and the other on knowledge that is generated from the practice itself. The author explains the importance of "clarifying" the nature of professional knowledge, requiring its epistemological unveiling.

Based on this understanding of the importance of practice and its "epistemological unveiling", borrowing the term from Roldão (2007), it can be argued that the continuing education of teachers is linked to the meanings and resignifications of professional dyna-

mics, that the teacher needs to reflect and explain to himself, how he develops and underpins his practices.

The epistemological concept of teacher training is polysemic, permitting different interpretations, but all harmonized in the dialectical sense of the act of training. It can be said that the epistemological issues in this context do not end with the way the professional teacher thinks and learns, as they are validated both by the analysis of current training practices and by the theory and practice dichotomy (axiom of teaching activity).

Based on the thought of Marin (1995), the design of continuing education presents education in an evolutionary process, that is, one that runs throughout the entire personal and professional activity. This construction, if we can call it that, takes place in the work environment as a “social practice of education that mobilizes all possibilities and all knowledge” (MARIN, 1995, p. 18).

In Santos (2010), an analysis of the theoretical perspectives in continuing teacher education is presented. In our country, two active epistemologies are highlighted: the technical rationality and the epistemology of practice. Among the authors who deal with the subject at hand, we highlight Curado Silva and Limonta (2014), who analyze the concepts that involve the reflective teacher and the praxis. The authors explain that the appreciation of practical knowledge defines a pragmatic character in the educational issue and is consolidated through educational policies (hegemonic bias).

Furthermore, it is essential to understand that the knowledge that is built from the interaction with school agents (not excluding students) and the school context should not be limited to their own activity. The practice through the theoretical explanation of reality, the lived experience, its interpretation and construction of meaning and sense are really important.

It should be noted that the progression of the teacher as a professional is forged by practice, by reflection on the reality that surrounds him, fostering the dimension of “transformation” of students as a function of the school and its agents. It is a “Metamorphosis”³.

It is understood that the process of formation of an individual is consolidated through the assimilation and exchange of knowledge in a continuous process of “seeking to know”. Taking the epistemology of praxis as a presupposition, “knowing” is found in the social practice of these teachers based on the understanding of reality. Thus, it is necessary considering the reality of teaching work focused on what is intended to be achieved in the educational field.

Professional training, in this manner, can bring valuable benefits to the School and to the teacher (individual and professional subject). In this position, the key focus of this training process should be dialogue, the exchange of ideas and information, feedback provided by the most experienced, among other activities. Continuing education should focus on training the historical subject based on the cohesive relationships between theory and practice, offering inputs so that teachers are able to guide and transform the conditions imposed on them.

This enables the construction of a solid foundation regarding the episteme of teaching praxis, which enables the professional to understand and be able to understand the technical, aesthetic, political and didactic dimensions in delivering an education aimed at emancipation and

3 The terminology was coined based on the work of Franz Kafka “Metamorphosis”, written in 1912. According to the author, the work makes us understand that we are in a constant process of transformation and that we are influenced by the environment, systems and people.

autonomy of the human being. The key idea here is to go beyond the technicist model and utilize practice, that is, to enable “knowing how to do” in the technical, ethical and political dimensions of teaching work, in line with the formative principle of their work.

According to Silva (2018, p. 37-42), it is possible identify some necessary prerequisites for this training, such as: it must be an exercise in historicity in the production of knowledge, that is, training becomes a process of reflection and analysis of issues, based on the individual and interaction with their institution; training should involve teaching work (teacher's work and life); a formative proposal in which knowledge takes place in action and in the subject-object relationship, allowing the teacher (agent of action) to reflect properly on daily school life, their pedagogical practice and the reality in which it takes place; it must think about the social function of education and the school, starting from the problematization of its role and the articulation of the segments that make up the school in the achievement of its projects as a social agent.

The role of education is paramount. The teachers are required to obtain adequate preparation and broad knowledge. Likewise, these professionals are expected to understand, among other things, their training contexts; and, last but not least, that, in the course of experiences and practices, they develop teaching strategies that can enable solid learning by students.

In the next section, some considerations about continuing education at AMAN will be made, in line with what has been presented so far.

5 Continuing Teacher Training at AMAN

The Army Education Policy was established by Ordinance No. 715, of December 6, 2002. It is the responsibility of the Army Chief of Staff (EME) and the Department of Education and Culture of the Army (DCEX) to conduct and disseminate education based on regulations following three main lines.

The first of these lines defines teaching activity as a priority, as the training of its staff depends on it; the second defines that teaching should strive to use pedagogical techniques, as tools for transmitting information, which contribute to self-improvement; and finally, the third places the student at the center of learning process (LUCHETTI, 2006, p. 119).

It is imperative that the activities of military schools - which does not exclude AMAN, the institution that is the focus of this research - are guided by the basic principles of the military profession, which consist of historical and cultural values (norms, discipline and hierarchy), attitudes and inherent perspectives to the performance of the function.

The professors of that Higher Education Institution (HEI) are adequately qualified for their functions and are selected through a public competition (examination) and are evaluated annually, in view of the need to update their teaching practices. Ratifying what we have just described, Sarkis and Machado (2019, p. 27) write:

[...] in the Army's military schools, the appreciation of the teacher and the encouragement of professional improvement as well as the modernization of educational management are recognized, without forgetting the traditions and the practice of perpetual values [...], pillars that support all Military Organizations.

The professional training of the individual is a unique problem, whether civil or military, because what matters is that the citizen is valued without distinction throughout the educational process. In this sense the Armed Forces are one of the important segments of the same great social whole, because the soldier is not distinguished from the citizen, except for the limitations imposed by the career he chose.

Therefore, the continuing education of the teacher is focused on the realization of human existence based on the reality of the subject. This practice is active and produced in a reflexive, relational and transformational manner in the subject and in the environment that surrounds him. Consequently, the pedagogical models applied at the AMAN institution should, whenever possible, be reassessed, aiming at improving the performance of its professors.

As a result, teaching improvement is understood, by all involved, as a constant and ever-evolving process. In the institution, the identification of the necessary competences for professional performance represents the interface between education and work, dimensions with distinct specificities, but which complement each other.

In order to provide quality education, educational policy aims to offer teachers and instructors adequate and accessible training. At the institution, the Pedagogical Coordination Section (SCP)⁴ is responsible for coordinating and supervising all in-service training initiatives. The Internal Regulations of AMAN define that the institution must “encourage and guide professors in carrying out training courses, postgraduate courses, specialization and extension” (BRASIL, 2015, p. 23). In other words, the teacher is in constant training aimed at improving their knowledge.

Important point to consider, given the specificities of the training product (the Cadet⁵), is that continuing education takes place through training opportunities, mentioned in the previous paragraph, and through the exchange of experiences in the institution between the more “experienced” and recent graduates. Thus, the meetings, symposia and congresses in which they participate aim to demystify concepts, practices and the use of new methodologies to be introduced in the classroom, whether technological or not.

This search for improvement can be supported by Imbernón (2005), who argues that “innovation requires new and old pedagogical concepts and a new professional culture forged in the values of collaboration and social progress” (IMBERNÓN, 2005, p. 19). The author also draws attention to the fact that these methodological innovations, if we can call them so, must be directly related to “Educational Research in Practice”, i.e., the teacher acti-

4 The Section is part of the Teaching Division at AMAN and includes Planning Subsection, Learning Assessment Subsection, Research Subsection and Pedagogical Monitoring Subsection.

5 Term historically used to identify a student in a Military Academy.

vely participates in this process of change, making adaptations and creations according to their educational context.

On the issue of pedagogical innovation (practical or theoretical), however, Moran (1995) argues that technological innovations (purely) cannot replace a good teacher, therefore, there is a real need for the professional to find a new way to function, as he/she is expected to be an agent that “Transforms information into knowledge and knowledge into knowledge, into life, into wisdom - knowledge with ethics” (MORAN, 1995, p. 25).

That said, it is necessary to reflect on the relevance of this professional. Gatti (2016, p. 39), argues:

To ensure the quality of this professional one requires training courses that offer teachers an understanding of the cognitive, socio-affective, cultural development and understanding of what can motivate children and adolescents in their learning [...] to establish relationships of these contents with the world that surrounds us all.

According to Santos (2018) the essential competencies for the exercise of teaching go beyond the teaching knowledge and even reach the competence of the teacher, which is improved by their professional development. The theorist also states that teacher development follows a training path that can be followed individually or collectively, with the institution exercising a relevant contributing role in carrying out this training.

Based on what Zabala (1998, p. 9) says, it seems clear that this formative process “is so rich, so complex and so dynamic, that it provokes discussion and debate between positions that are sometimes coincident, sometimes conflicting”, encouraging us to understand that it is a practice that demands articulation, reflection and adequate practice, contextualized in the present day.

In short, the policy of teacher training at the Academia Militar das Agulhas Negras makes it clear that the exercise of the profession demands training based on values and traditions, which constitute the pillars of that institution. It is not limited to the formal transmission of scientific content characteristic of each discipline and involves aspects related to didactics and the multiple variables that characterize teaching (BRASIL, 2010).

It is correct to conclude that AMAN professors and instructors follow well-established standards and knowledge of all members. However, the respect for the norms and the ethical and moral values of the Army institution do not limit the search for innovation of the teaching professional, nor their creativity. This is how the “Mission” of the AMAN military person is described: “Create with ethics” (BRASIL, 2019, p. 6).

6 Final Considerations

This study aimed to analyze specific questions regarding teacher education and their development in a military education institution, presenting a part of the philosophical founda-

tions of the studies carried out for the construction of a Master's dissertation presented to the Professional Master's Program in Education at the University of Taubaté.

The proposal is to place training in the contexts of teaching practice and personal issues. Also, in providing teachers with spaces to “re-think” and “re-build” their activities as education professionals.

Throughout the pages of this article, the importance of analyzing the in-service training process and its specificities, scope and objectives was noted, under an epistemological view at the practice in a military education institution (AMAN).

In the course of this research, we considered it appropriate to present concepts and assumptions that involve continuing education and its characteristics, as well as to reflect on the importance of structuring in the institution, training based on the joint construction of this process.

In sequence, we present how, in the light of the authors who deal with the subject in question, the continuing education in a Military Academy of the Brazilian Army and its policies for teacher education are developed.

Finally, we identified that continuing education is consolidated in the work environment, i.e. in the School itself, and that it represents the appropriate environment for the construction of this process. It is at the School where the interpretation and transformation of reality and the exchange of experiences take place, and where the teaching professional will consolidate their professional identity.

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The role of ZOPACAS in Brazil's foreign and defense policies in the 21st century (2005-present)


El papel de las ZOPACAS en la política exterior y de defensa de Brasil en el siglo XXI (2005-presente)

Abstract: The 21st century has been characterized by complexity with the rise/consolidation of regional power centers, in line with the characteristics of a multipolar order. Global attention was once again directed to the Southern hemisphere due to the intensification of South-South relations in the geostrategic calculations, including the South Atlantic. In this context, Brazil reinforced its foreign policy on the South, intensifying relations with the countries in its strategic surroundings, coordinating defense affairs there. This article aims to analyze the role of ZOPACAS in Brazilian foreign and defense policies, especially from 2005 onwards after the first review of the National Defense Policy (PND). As a hypothesis, we suggest that the Zone is part of the Brazilian strategic environment concept, having been a priority of its foreign and defense policies since 1986, with periods of greater or lesser intensity of its external agenda. Methodologically, we opted for a qualitative approach research, applying the hypothetical-deductive method.

Keywords: ZOPACAS; Brazilian Foreign Policy; Brazil's defense policy.

Resumen: El siglo XXI se ha caracterizado por la complejidad con el surgimiento/consolidación de polos regionales de poder, configurando características de un orden multipolar. La atención mundial se dirigió nuevamente al hemisferio sur debido a la intensificación de las relaciones Sur-Sur, incluido el Atlántico Sur, en los cálculos geoestratégicos. En este contexto, Brasil consolidó el eje de su política exterior hacia el Sur, intensificando las relaciones con los países de su entorno estratégico, articulando temas de defensa allí. Así, este artículo tiene como objetivo analizar el papel de las ZOPACAS en la política exterior y de defensa de Brasil, especialmente desde 2005 con la primera revisión de la Política de Defensa Nacional (PND). Como hipótesis, es evidente que la zona forma parte del concepto de entorno estratégico de Brasil, siendo una prioridad de su política exterior y de defensa desde 1986, incluso con períodos de mayor o menor intensidad en su agenda externa. Metodológicamente, optamos por una investigación de enfoque cualitativo, aplicando el método hipotético-deductivo.

Palabras-clave: ZOPACAS. Política exterior brasileña. Política de defensa de Brasil.

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1 Introduction: the complexity of the global system in the 21st century

The exhaustion of the Union of Soviet Socialist Republics (USSR) and the consequent end of the bipolar order led the global system to an order of conjunctural complexity beginning in early 1990s, when the rise of new centers of power and the realization of economic blocs limited the scope of action of the United States (USA). In the diplomatic-military and strategic sector, only one center of power dominated, with Washington in a dominant position, especially in the absence of any opponent of the same level, representing a unipolar order in the immediate post-Cold War period. However, according to Visentini (2013), when considering new trends and economic-technological advances, the order that was designed after 2001 has multipolar characteristics. It is considered, in this analysis, that the global system is in full transition, in a post-hegemonic phase. Despite its relative decline, Washington maintained an edge over its rival allies due to its military and economic advantage and dominance over international organizations¹.

The rise of new power centers and the expansion of economic blocs gave the global system of the 21st century complex features. In this context, East Asia emerged as a new economic frontier, especially China, which is linked to the dynamism of the scientific-technological revolution in its current stage, adaptation to the capitalist system as a socialist market economy, which has allowed it to enjoy expressive economic development and preserve its political structure of non-hegemonic content and shared leadership. Another center is Russia, which, since the rise of Vladimir Putin (2000), has shown internal socioeconomic improvements, allowing a policy of bargaining and cooperation with the West, as well as the recovery of its concept of national interest (VISENTINI, 2013).

The last decade of the 20th century was marked by two profound changes in Latin America. The old developmental paradigm, which went through increased inflation, economic stagnation and the exhaustion of the State as a driver of the national economy, ended in its exhaustion and opened up space for the neoliberal State paradigm. Latin American countries plunged into the 21st century looking for another option (CERVO, 2016), with expressive economic growth at the beginning of the century, as a result of the increase in world trade and commodity prices. However, these external stimuli ceased to have a favorable impact and the region began to decline over the course of the last seven years.

In turn, the evolution of the Brazilian model of international insertion was determined by the governments of Presidents Fernando Henrique Cardoso (1995-2000) and Luiz Inácio Lula da Silva (2003-2010) that represented the passage from the Normal State paradigm to the Logistics State². The first supported its ideas and decisions from a neoliberal perspective, the

1 Since the 1970s, the US has been slowly losing its international prominence and through its ascendancy within international organizations, the country has tried to maintain its international position. However, the aforementioned decline is in internal terms, as the role of the superpower in the external and internal spheres no longer converge. In this sense, Todd (2003) states that the relative decline seems to be irreversible in a world too vast, diverse and dynamic to accept a unipolar system.

2 The use of Paradigms in Human and Social Sciences is important due to empirical observation and historical analysis. For Cervo (2003), Brazilian foreign policy gave rise to four paradigms: the Liberal-Conservative (1810-1930), the Developmental State (1930-1989), the Normal State (1990-2002) and the Logistic State (2003-2018). From 2018 to the present, characteristics of the Logistic State are combined with the accentuated Normal

second, with a center-left trade union bias. Thus, the Logistic State initiated by Cardoso, consolidated by Lula and maintained by Dilma Rousseff (2011-2016), was emptied (with neoliberal undertones) by Michel Temer (2016-2018) and Jair Bolsonaro (2019-present), has been the model that defines, with greater or lesser intensity of priorities and pragmatism, the Brazilian position vis-a-vis the changes in the global system in the 21st century.

In this context, this article aims to analyze the role of ZOPACAS in Brazilian foreign and defense policies, especially after 2005, the year when the first review of the National Defense Policy (NDP) was promulgated and consequently incorporated the concept of strategic environment. The research hypothesis states that ZOPACAS is part of the Brazilian strategic environment, a priority of its foreign and defense policy since its creation in 1986, emphasized from 1995 onwards with the first revision of the NDP, with periods of greater or lesser intensity of external agenda. Methodologically, we opted for a qualitative research, in which the interpretation developed by the researcher regarding the case study predominates, since such approach is concerned “with aspects of reality that cannot be quantified, focusing on understanding and explanation of the dynamics of social relations” (SILVEIRA; CÓRDOVA, 2009, p. 32).

The hypothetical-deductive method is adopted, allowing, through an initial problem, to elaborate certain hypotheses that can be refuted or proven by the research. In which the “[...] replacement of the traditional basic epistemological principles of induction and verifiability, proposed testability and falsifiability” (NEVADO, 2008, p. 20). Furthermore, according to Nevado (2008), this approach includes elaborating deductive causal explanations and evaluating them through predictions, based on a logical relationship between propositions, since knowledge is the consequence of propositions that refute initial hypotheses and theories.

1.1 Brazil getting closer to the South Atlantic and Africa

After the Afro-pessimism of the 1980s and 1990s, the first decade of the 21st century witnessed an expressive economic growth in African countries, which resulted in a more active and pragmatic international positioning of Africa. It is argued that “Africa never existed isolated from world politics, but was inevitably imbricated in the dynamics and flow of events and changes in the configuration of global power” (WAPMUK; AKINKWOTU, 2017, p. 11). In this sense, the changes that took place on the African continent stemmed, according to Saraiva (2015), from a) gradual advance of the democratization processes of political regimes and the end of armed conflicts; b) economic growth associated with macroeconomic policies and, c) the increase of elite self-confidence through new forms of cultural and political renaissance. Thus, the rise of a new consumer middle class and the increase in social gains in certain African countries, made the pessimistic analysis of the African continent convert to an optimistic narrative, an “Africa’s Emergence”.

Economic growth in African countries resulted from foreign direct investment flows after 1999, which were concentrated in five countries (Nigeria, Sudan, Angola, Equatorial Guinea and South Africa), whose main attraction is energy resources. In part, investment flows came from emerging powers in the South - Brazil, India and China, which sought to engage Africa for political-strategic and economic reasons. However, the US, UK, France, Russia and Germany continued to articulate their role on the continent to secure their interests (access to natural and energy resources, markets and shipping routes, as well as military-strategic considerations).

In this systemic context, with the strengthening of South-South cooperation in its external agenda, Brazilian relations with Africa were encouraged by the Lula da Silva government (2003-2010)³. Abdenur and Souza Neto (2014b) emphasize that the South-South relations developed by Brazil in this period were instrumental in projecting the country's image internationally, ensuring its national interests “[...] with the purpose of projecting the influence of Brazil abroad, create new economic opportunities and political partnerships, and strengthen national security through cooperation with less developed countries, including in the area of defense” (ABDENUR and SOUZA NETO, 2014b, p. 217).

This research begins with the conceptual discussion based on Cervo (2008) and Milani and Pinheiro (2013), considering foreign policy as a public policy, which has its results in the external environment, however, taking into account that the elaboration process, in which it gathers the demands and conflicts of various domestic groups, makes it an instrument of the State. Beginning with the transition of the 1980s/1990s, the Ministry of Foreign Affairs lost its relative autonomy in conducting the country's foreign policy, as it incorporated the role of the Treasury in international financial negotiations, as well as the presence of several ministries as well as subnational entities that are part of the definition of the international agenda of the Brazilian State. According to Milani and Pinheiro (2013), “[...] if before it was possible to talk about a concentration of these issues on the Itamaraty agenda, today the foreign policy issues, being more diversified, populate the activities of other ministries and government agencies, in a new institutional arrangement” (p. 27).

In turn, according to Figueiredo (2015), Defense policy can be seen in two aspects in narrow and broad terms. The first aspect encompasses the term defense regarding the use of force of a military nature and, on the other hand, the use of diplomatic instruments, which lead States, in a state of tension, to negotiate the interests and objectives of the parties involved, with the aim of maintaining peace. In the second aspect, the term defense refers to the stage of economic and technical-scientific development, the social structure, the efficiency of political institutions, the history of defense culture, its geopolitics (geographical position, territorial size, natural resources). Thus, the concept of defense policy is a perception of the complexity of international relations, that is, how the State perceives threats and conflicts of interest.

3 It meant a return to the principles laid down in the Independent Foreign Policy, which was designed during the government of Jânio Quadros (1961-1964), as well as the resumption of elements that make up the accumulated history of Brazilian diplomacy: cooperative action, normative multilateralism, realism and pragmatism (CERVO, 2008).

It is essential to link foreign and defense policies with the development model, as “a national defense strategy is inseparable from a national development strategy. The latter motivates the former, while the former shields the latter. Each reinforces the other’s reasons. In both, nationality is awakened and the Nation is built” (BRASIL, 2012b, p. 1). It is noted that the link is important, as it ensures national security, understood as “[...] a condition that allows the country to preserve its sovereignty and territorial integrity, promote its national interests, free from pressure and threats [...]” (BRASIL, 2012d, p. 12.), the country is able to promote its development. Therefore, the development model would be the “[...] political project to overcome underdevelopment aiming at technological modernization, increasing industrial productive capacities and economic support for the country’s foreign policy and defense policy in the International System” (MARTINS; NUNES, 2017, p. 191).

In this sense, it is observed that foreign and defense policies a) must be understood as complementary public policies, b) the process of formulating Brazilian foreign policy carried out internally responds to internal and external variables, highlighting a “pluralization of policy actors in Brazilian foreign policy”, and c) this plurality of actors and interests is a reflection of the new international and domestic order, in which a complexity and a new vision of foreign policy, its practice and study emerge (MILANI; PINHEIRO, 2013). Furthermore, this resumption of defense and security affairs in Brazil is the result of the creation of the Ministry of Defense in 1999 and the first review of the National Defense Policy in 2005, the National Defense Strategy in 2008 and the White Paper on National Defense in 2012. Thus, Brazil gradually sought to converge its security capacity (institutional and action) with the formation of a robust national economy (MARTINS; NUNES, 2017, p 204).

1.2 ZOPACAS: from origin to sunset in 2013

During the Cold War, the climate of insecurity and mistrust generated by the great powers led South Africa to promote the formation of a defense organization along the lines of the North Atlantic Treaty Organization (NATO). From its perspective, ensuring the security of the South Atlantic region against the communist threat would be possible through the creation of the South Atlantic Treaty Organization (OTAS) in the 1970s. However this proposition was not implemented due to the lack of interest from the countries in the region.

According to Brazilian understanding, the design of military cooperation mechanisms could intensify the negative impacts and aggravate international tensions in the South Atlantic region (VIEGAS FILHO, 2016). In this sense, Brazil launched the proposal for the Zone of Peace and Cooperation of the South Atlantic (ZOPACAS) as opposed to OTAS, in 1986, aiming to preserve the peaceful nature of the South Atlantic. At the 50th General Assembly of the United Nations, the Brazilian initiative for the creation of ZOPACAS was implemented through Resolution A/RES/41/11. In addition to mentioning the objective of ensuring peace and cooperation between the countries that border it, the resolution highlighted the denucleari-

zation and demilitarization of the South Atlantic⁴. After its creation, the meetings took place in Rio de Janeiro, Brazil, in 1988; Abuja, Nigeria, in 1990; Brasilia, Brazil, in 1994; West Somerset, South Africa, in 1996; Buenos Aires, Argentina, in 1998; Luanda, Angola, in 2007; and the last meeting that took place in Montevideo, Uruguay, in 2013.

In the literature on Brazilian foreign and defense policy and security and defense within the scope of ZOPACAS, a broad agreement on the relevance of the Zone for the country and region since 1986 exists. The main positive arguments (ABDENUR and MARCONDES, 2014a; GONZALEZ, 2014; NEVES, 2015; PENHA, 2011; PEREIRA, 2016; VIEGAS FILHO, 2016; VISENTINI, 2013) presented analyze the geostrategic role⁵ of the South Atlantic region in the global system and the need for understanding between the riparian states, in terms of approximation, cooperation and political-institutional stability. To this end, they use the analysis that the Zone is a vital forum for permanent consultation for the maintenance of the region as such, although still in its infancy, but with clear potential. Other authors (AMORIM, 2013; PIMENTEL, 2015, 2018; RUCKS, 2014; SANTOS SOARES, 2020; VIEIRA, 2017) understand the importance of the Zone, but contradict this position, questioning its effectiveness, which, in spite of its thirty years of existence, failed to advance in its institutionalization, and this would be its main deficiency and problem of origin. The lack of concretely consolidated actions, the “low investment by countries [in] articulation and [...] [the] very diversities of countries in establishing a common agenda” (RUCKS, 2014, p. 156) and the “lethargic stage current” (SANTOS SOARES, 2020, p. 41) would be consequences of a non-existent institutional structure⁶.

In this article, we agree with the first group of authors, who, even with the deficiencies pointed out historically and the contemporary challenges, understand the positive role that ZOPACAS plays in maintaining regional stability and bi- and multilateral cooperation.

The South Atlantic region presents itself as a strategic platform for the economic and social development of countries on both sides, enabling the interoceanic connection with other regions, although these have different characteristics. Thus, in the African context, the Zone emerged as an instrument of cooperation and strengthening of relations between Member States, as well as a stage for dialogue for those countries that have limited influence capacities, thus allowing them to have a more forceful voice in the forums, according to Gonzalez (2014). Furthermore, regional integration represents a way of legitimizing the national sovereignty of African countries in the post-decolonization period, combining domestic and regional issues for stabilization.

4 In addition to Brazil, another twenty-three countries gradually became signatories: South Africa, Angola, Argentina, Benin, Cape Verde, Cameroon, Congo, Ivory Coast, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Liberia, Namibia, Nigeria, Democratic Republic of Congo, San Tome and Principe, Senegal, Sierra Leone, Togo and Uruguay.

5 We understand geostrategy, in addition to the theoretical-conceptual discussion existing in the specialized literature, as the study of “[...] constants and variables of space that, when aiming at the construction of evaluation models and the use of forms of coercion, projects geographic knowledge into strategic activity” (CORREIA, 2012, p. 238, our emphasis added).

6 Also according to Amorim (2013), it is unlikely that “[...] regional cooperation in the field of Intelligence will be established between the countries participating in the Zone of Peace and Cooperation, reinforcing the traditional mutual mistrust in this sector of international security” (p. 28).

Assessing the South American side, ZOPACAS notoriously plays a role as a defense mechanism to ensure Brazilian interests and is relevant to its other two South American members, Argentina and Uruguay. For the first country, the issue of the sovereignty of the Malvinas Islands positions the Zone as a forum to provide support for its national demand (GONZALEZ, 2014) in addition to territorial demands. Uruguay, in turn, seeks energy resources in the pursuit of its continental shelf and, through the Zone, obtains support from other States to expand its territorial sovereignty.

Differently from the others, Brazil took advantage of the opportunity for cooperation in the Zone, which allowed it to take action to bring it closer to the African continent and integrate Navy actions through instructions and teaching in the defense and technical areas. Furthermore, the country has demonstrated a new position in relation to the South Atlantic, taking into account that this region is of great importance for national interests, due to the following factors, according to Neves (2015): a) it is a reserve of large energy resources; b) it represents the main means of transport and commercial exchange; and c) it serves as influence and projection platform for Africa.

The most recent phase of action by ZOPACAS took place in a context of reevaluation of the South Atlantic, in the regional and global scope. The analysis of this historical stage, methodologically corroborates the research hypothesis, which states that the Zone is part of the Brazilian strategic environment, consolidating itself as a priority of its foreign and defense policy, as it is the moment of greatest intensity and presence in its external agenda. The discovery of new oil and natural gas reserves on both shores and the role of sea and air routes were aspects that fostered the strategic importance of this space, as pointed out by Penha (2011):

The same historical axes of Brazil-Africa relations, comprising the maritime zones from the Northeast to the Southeast of Brazil (Salvador-Rio de Janeiro) and Angola-Nigeria (Luanda-Lagos), on the African side, reappear as a new "resource frontier" for the industrialized world. This border is focused on the oil reserves of the Gulf of Guinea and the Brazilian continental shelf, estimated at 60 and 70 billion barrels on each side (PENHA, 2011, p. 216).

The internal context of the South Atlantic countries presents a discrepancy in terms of economic development and foreign and defense policies. In the context of Brazil-Africa relations, it is observed that the new basis of these relations comes from a strategic vision and a coherent perspective that, since the beginning of the Lula government, in 2003, Brazil began to develop an "active and affirmative" position, intensifying ties with the African continent, as well as reinforcing South-South relations (VISENTINI, 2013).

In Africa, Angola's leading role is the result of its new priorities, as well as its national defense policy, which currently rests on the development of the security and defense sector of the State, thus leveraging economic growth and regional affirmation strategy. The country has invested in military training and strategic guidelines so that its Armed Forces are part of the proactive mechanisms of regional cooperation, allowing them to contribute to the positioning of Angola in the region and in Africa. The interdependence between affirmative factors, such as

the control of cross-border sovereignty and the promotion of regional security, also contribute to reinforcing internal security and stability.

At Angolan initiative, the sixth Ministerial Meeting of the Zone was held in Luanda, on June 18 and 19, 2010⁷, aiming to revitalize the activities of the forum. This initiative took place at the moment when the South Atlantic acquired its strategic character once again due to the expansion of the potential for oil and natural gas exploration on both sides, which attracted the attention of extra-regional powers, as well as the increase in transnational organized crime mainly on the African coast.

Subsequently, the Ministerial Meeting held in Luanda was attended by twenty-four Member States. The final document, named the Declaration of Luanda, in addition to reiterating the previous objectives, sought to demand the reform of the United Nations Security Council for greater representation and the advancement of the Doha Round towards greater opportunities for developing countries. Furthermore, the Gulf of Guinea Commission (CGG)⁸ was established as a complement to achieving the goals of ZOPACAS. As a result of the meeting, the Luanda Plan was announced, including the agenda for three main themes, disarmament and non-proliferation, cooperation for development and economic issues (PEREIRA, 2016)⁹. Also in 2010, the Member States met to hold a Round Table, in Brasilia, when the promotion of regional cooperation at the technical level was discussed¹⁰.

The seventh ZOPACAS Ministerial Meeting took place in Montevideo, on the 15th and 16th of January 2013, in which twenty-one Member States were present, while Guinea-Bissau, San Tome and Principe and Sierra Leone did not participate. On the occasion, the Montevideo Declaration and the Montevideo Action Plan were adopted, in addition to the declarations referring to situations in the Democratic Republic of Congo and Guinea Bissau due to political instability (UNITED NATIONS, 2013)¹¹. The Montevideo Declaration reinforced the principles and purposes of ZOPACAS and presented issues that speak to the core objectives, strengthening global governance and reform, disarmament at the level of all weapons

7 In 2003, the Brazil-Africa Forum: Politics, Cooperation and Trade mentioned the importance of strengthening ZOPACAS as a means of cooperation between Brazil and African countries in matters of peace on the African continent. Also at the first Summit of South America-Africa (ASA), in 2006, with the Declaration of Abuja, States on both sides committed to strengthening regional integration through existing regional organizations, pointing to ZOPACAS as an example.

8 The CGG was conceived in 1999, but founded in 2001, in Libreville, arising from the need to develop a mechanism for cooperation, promote the management and resolution of regional conflicts, regulation and harmonization of the extraction of natural resources. The organization represents a framework for political and strategic consultation, comprising the Republic of Angola, Republic of Cameroon, Democratic Republic of Congo, Republic of Congo, Republic of Equatorial Guinea, Republic of Gabon, Federative Republic of Nigeria and Democratic Republic of San Tome and Principe (PEREIRA, 2016).

9 Working groups were also created in order to debate similar problems such as economic cooperation to eradicate poverty, fight transnational crimes, stability and security, prevention of armed conflicts, scientific research, environmental issues and the implementation of projects in these areas.

10 The United Nations Office on Drugs and Crime (UNODC), the International Seabed Authority (ISA) and the Intergovernmental Oceanographic Commission (IOC) participated and areas needing cooperation efforts were identified: mapping and exploration of seabeds, protection and preservation of marine resources, maritime and air transport, port security, cooperation in terms of defense, maritime security and combating transnational crimes (UNITED NATIONS OFFICE ON DRUGS AND CRIME, 2010).

11 The defense ministers of the member countries were present at this meeting, as for the first time they were invited to participate.

of mass destruction, peace and security, the Falklands issue , with the increase in the British military presence, defense and its strengthening, in economic and financial terms, sustainable development and climate change, oceans and marine resources and transnational crimes, as can be seen in the table below.:

Table 1 – Montevideo Action Plan (2013)

Topics	Objectives
Mapping and exploration of the seabed	Develop capacity to promote scientific research to assess the potential of mineral resources in the sea and to delimit continental margins.
Cooperation in the environmental area; protection and preservation of the marine environment and living marine resources and marine scientific research	Intensify cooperation in terms of marine scientific research and offshore fisheries; Cooperate, exchange information and increase capacities in scientific areas, data collection, follow-up, monitoring, control and surveillance of the coast.
Cooperation in the areas of maritime and air transport and port security	Strengthen the connection between member countries; Exchange information to enhance port efficiency.
Cooperation to safeguard maritime security	Intensify cooperation in the area of monitoring, control and surveillance of ships; Cooperate in search and rescue capabilities.
Defense cooperation	Intensify the interaction between the armed forces; Exchange information on defense policies; Promote joint military exercises among Member States; and, Create a working group, within the framework of United Nations peacekeeping operations, in order to explore future opportunities for cooperation.

Source: The authors, based on the Montevideo Action Plan (UNITED NATIONS, 2013) and Coutinho (2014).

As demonstrated, the Montevideo Plan presents clear and plausible medium and long-term goals, whose objectives involve most of the demands of the riparian states of the South Atlantic, with topics related to peacekeeping and proactive cooperation for development. After this meeting, in 2014, the Pro-Tempore Presidency belonged to Cape Verde, which should have hosted the new ministerial meeting in 2015, but it has not taken place since then. In Resolution 69/322 of September 2015, the United Nations General Assembly referred to the Zone's actions, citing the need for:

[...] biennial ministerial meetings, as well as annual meetings in parallel with the General Assembly, and for the establishment of a follow-up mechanism, as decided in the Declaration of Montevideo; [.and ..] decided to include in the provisional agenda of its seventieth session the item entitled “South Atlantic Zone of Peace and Cooperation” (UNITED NATIONS, 2015, p. 2).

Brazil, in turn, has progressively incorporated actions in line with the objectives of the Montevideo Action Plan, bilaterally and multilaterally. Since 2003, defense cooperation agreements have been signed with seven African countries (Angola, Mozambique, South Africa, Namibia, Equatorial Guinea, Nigeria and Senegal) and it is noted that, except for Mozambique, all countries are members of the ZOPACAS. Furthermore, Brazil signed four international legal instruments and negotiated an agreement with Cape Verde.

It also increased the role of the Armed Forces, public and private companies in the defense industry - such as Embraer, Naval Projects Management Enterprise (EMGEPRON) and Taurus, which carry manufacture and export armaments and equipment; as well as the direct and indirect participation of associations such as the Brazilian Export and Investment Promotion Agency (Apex) and the Brazilian Association of Defense and Security Materials Industries (ABIMDE) and the Federation of Industries of the State of São Paulo (FIESP), which represents groups that support the interests of the defense industry (ABDENUR and SOUZA NETO, 2014b, p. 217).

Thus, the Ministry of Defense and the Armed Forces, especially the Brazilian Navy, have been collaborating with Angola and Namibia in the survey of their continental platforms, offering the know-how acquired through the Survey of the Brazilian Continental Platform (LEPLAC)¹². Also foreseen in this cooperation is the training of human resources in Brazilian universities that, within the scope of the UNCLOS, whose riparian states seek to legitimize the potential wealth existing in the subsoil, in addition to the 200 nautical miles. In security and defense sectors, the Brazilian Navy has carried out joint training with the Navies of several countries on the West African coast, notably the 2013 exercises by the Ocean Patrol Vessels (NaPaOc).

Brazil-Angola relations are historically linked to a shared past with Portugal. The existence of common ties between the countries has facilitated bilateral and multilateral relations in terms of cooperation, especially in the Community of Portuguese Language Countries (CPLP) and additionally in the ZOPACAS forum, as mechanisms that open new opportunities for positioning for both countries.

Security and Defense Cooperation in the CPLP became part of the Community's actions, due to the demands of the Member States themselves, especially after the creation of the Center for Strategic Analysis for Defense Affairs (CAE/CPLP), in 1998, for the institutionalization of the interoperability that took place in the joint "FELINO" Exercises from 2000 onwards and for the revision of the CPLP statute in 2002 (RIZZI; SILVA, 2017). It is important to emphasize that the topics of the 2013 Montevideo Plan converge with the program and actions of defense cooperation in the Community, that is, they are profoundly complemen-

12 LEPLAC is the Government program established by Decree No. 98,145 of 1989, with the aim of establishing the outer limit of the Brazilian Continental Shelf in legal terms, that is, determining the maritime area, beyond 200 miles, in which Brazil will exercise sovereign rights to extract and exploit resources existing in the marine subsoil. On June 11, 2019, the Commission on the Limits of the Continental Shelf (CLCS) published, on its UN website, a recommendation in which it legitimized Brazilian incorporation of 170,000 km² of the Continental Shelf area, in the Southern region, in addition to the Exclusive Economic Zone. The process of establishing the outer limit of the Brazilian Continental Shelf began in 1987, through the work of data surveys. In 2007, as a result of the first claims, filed in 2004, Brazil received, from CLCS, the Recommendations Report in which that Committee endorsed approximately 80% of the Brazilian proposal. On August 25, 2015, at the UN plenary in New York, the Brazilian Delegation presented the revised partial claim covering the southern region of the Brazilian margin (DEFESANET, 2019).

tary instruments, a fact that legitimizes the inter-institutional proposals. Furthermore, it is worth noting that, although it is classified as a permanent forum with low institutionalization (and this is perhaps its main challenge), several actions and programs proposed by ZOPACAS since 1986 have had relative continuity, either bilaterally or multilaterally.

According to Abdenur and Souza Neto (2014b), Brazil, by placing marine resources within its defense strategy and its naval cooperation efforts, strives to build a South Atlantic regional identity. However, despite the discourse of horizontality and multilateral initiatives, Brazil seeks to expand its influence to ensure its economic and political interests. To avoid the perception of asymmetries in economic terms and military capacity, Brazil adopted a position that combines distance and cooperation in relation to its partners.

1.3 Expansion and strengthening of the Brazilian strategic environment

Although coexistence with its neighbors is relatively peaceful, Brazil is aware of the volatility and unpredictability that permeate the relations between the States, moreover, the country understands that the natural resources existing in the region permanently arouse extra-regional interests. Still in 1996, according to Martins and Nunes,

[...] with the publication of the National Defense Policy (NDP), the Brazilian State recognized the need to "set the objectives for the defense of the Nation, as well as guide the preparation and use of national capacity, at all levels and spheres of power, and with the involvement of the civil and military sectors" (BRASIL, 1996 apud MARTINS; NUNES, 2017, p. 205).

To ensure its sovereignty, the security of its population, reorganize defense sector, identifying "an 'undefined and unstable multipolar international environment' due to the 'lack of correspondence between the strategic-military, political and economic power centers'" (BRASIL, 1996 apud MARTINS, NUNES, 2017, p. 205), in 1996 the country formulated and approved the National Defense Policy¹³. In the review of the document in 2005, the strategic environment was mentioned for the first time. Brazil visualizes its strategic environment extrapolating the mass of the subcontinent (South America), including the country's positioning across the South Atlantic border and the countries of the West African coast (BRASIL, 2005). For Fiori, the strategic environment is the "[...] region where Brazil wants to radiate – preferably – its influence and its diplomatic, economic and military leadership" (FIORI, 2014, n.p.).

ZOPACAS regained geostrategic relevance to protect Brazilian interests in the 21st century, as the maturing of defense policy, together with foreign policy, provided a new political-strategic vision that permeated the formulation of both. From the Lula administrations (2003-2010) to the governments of Dilma Rousseff (2011-2016), there was a reorientation of the country's

¹³ In the 2012 review, the National Defense Policy was renamed, as opposed to the previous National Defense Policy.

external conduct, giving political-economic density to the multilateral relationship based on the priority of South-South relations. The system's multipolarity provided the conditions for the country to rise as an emerging power. In the Michel Temer (2016-2018) and Jair Bolsonaro (2019-today) governments, a decrease, but not a rupture, in priority in relation to Africa in the Brazilian external agenda, visible changes in the State Paradigm, with a return of characteristics of the Normal State, affecting the synergy between foreign policy and defense policy, but with relative continuity, occurred.

The Brazilian Armed Forces underwent a process of progressive devaluation after the period of national transition to democracy in 1985, as it was believed that the gains achieved by society and by the civil government could be threatened. Thus, the defense sector faced a period of simultaneous disinvestment and reorganization, due to greater participation of Brazil in world forums, seeking to project its influence and form new alliances, starting in the late 1990s. Achieving its objectives and Brazilian foreign policy interests dampened relations between civilians and the Armed Forces (SEABRA, 2014). Noteworthy is the creation of the Ministry of Defense, em 1999¹⁴, which represents a milestone in the country's democratic transition. Internationally, it allowed for equal dialogue on defense and, later, the elaboration of a National Defense Policy.

Thus, a new phase in terms of defense policy began, based on official documents that guide the new policy, based on a more assertive stance towards national interests and concern for the security and sovereignty of the country, with emphasis on the defense of natural resources in the Amazon and the South Atlantic (National Defense Policy, 1996 and especially 2005, National Defense Strategy in 2008 and White Paper on National Defense in 2012)¹⁵. These documents linked foreign and defense policies, enabling not only the convergence of elements in diplomatic and military narratives, but also the recognition of the joint process.

Brazilian strategic interest in the South Atlantic exceeds the jurisdictional waters of its territory and the 200 miles of its Exclusive Economic Zone (EEZ), as Brazilian maritime trade takes place primarily through the waters of this ocean, representing 90% of trade of the country (DIMENSIONS..., 2013). Pre-salt exploration emerged as a priority target for the government, especially as doubts surfaced about the economic and technological feasibility of extracting oil. Thus, this sector was driven by internal and external efforts, in parallel with the efforts to protect these reserves, through adequate action in terms of security and defense. In this sense, the geopolitical perception of the South Atlantic was expanded and consolidated, re-launching the necessary strengthening of Brazilian maritimacy.

14 Complementary Law No. 97 provided for the organization, preparation and employment of the Armed Forces and one of its main achievements was the creation of the Ministry of Defense, with authority of the Minister of Defense as part of the Executive Branch, included in the Federal Constitution by Amendment Constitutional No. 23, of 1999.

15 1996, 2005, 2012, 2016: National Defense Policy (provides for the restructuring of the Armed Forces; synergy between defense and development policy; South America and South Atlantic as priority regions. 2008, 2012, 2016: National Defense Strategy (regulates the NDP, with restructuring of the industry of defense, use of dual-use technologies, integration of South America through UNASUR and Plans for Articulation and Equipment of the three Forces. 2012, 2016: White Paper on National Defense (regulates the Plans) In July 2020, the drafts of update of the three documents were sent by the Ministry of Defense to the National Congress, for evaluation and approval.

The term “*Amazônia Azul*” (Blue Amazon) refers to the Brazilian maritime territory, comprising, as defined by the United Nations Convention on the Law of the Sea (UNCLOS), the territorial sea, contiguous zone, exclusive economic zone and continental shelf. The concept emerged in 2004, when Roberto de Guimarães Carvalho, then Commander of the Brazilian Navy, published the article “The other Amazon”, in which, through an analogy to the continental Amazon, he sought to highlight the importance of the country's maritime space – which, like the territorial Amazon, holds wealth and needs to be defended (CARVALHO, 2004)¹⁶.

The National Defense Policy (NDP), promulgated by the Decree No. 5.484 in 2005¹⁷ was innovative in terms of seeking to promote the development and re-equipment of the Armed Forces, based on technological independence and overcoming obstacles to scientific and technological development (VISENTINI; PEREIRA, 2014). In general terms, the NDP was based on three main points: a) the need to restructure the Armed Forces; b) the desire for convergence between the defense policy and the socioeconomic development project in Brazil; c) South America and the South Atlantic as priority areas for the country's security. The document became essential to the consolidation of the Defense Policy in accordance with the country's political-strategic position in order to preserve sovereignty and national interests. In this sense, the document recognizes the importance of South America and the South Atlantic as priority regions under Brazilian Foreign and Defense Policy:

[...] Among the factors that contribute to reducing the possibility of conflicts in the strategic environment, the following stand out: the strengthening of the integration process, based on Mercosur and the Union of South American Nations; the close relationship between the Amazon countries, within the scope of the Amazon Cooperation Treaty Organization; the intensification of cooperation and trade with countries in Africa, Central America and the Caribbean, including the Community of Latin American and Caribbean States (CELAC), facilitated by ethnic and cultural ties; the development of regional bodies; the integration of defense industrial bases; the consolidation of the South Atlantic Zone of Peace and Cooperation and the continued dialogue at inter-regional interaction tables, such as the South America-Africa (ASA) summit and the India-Brazil-South Africa (Ibas) Dialogue Forum. The expansion, modernization and interconnection of infrastructure in South America, with due attention to the environment and local communities, can establish the connection between its productive centers and the two oceans, facilitating development and integration (BRASIL, 2005, p. 21-22).

In addition, the document highlighted that the country's security would be threatened by the instability of the region where it is located. In this manner, the convergence of poli-

16 Most of the Brazilian oil and natural gas reserves are found in *Amazônia Azul*. According to Andrade and Franco (2018), currently, 89.04% of the oil and 76.12% of the natural gas in Brazil are prospected in offshore fields, with 92.86% of the oil extracted in the country coming from the Campos and Santos basins. In *Amazônia Azul*, mineral provinces are also found, containing diamonds, gold and heavy metals, as well as gravel and sand, which are widely used in civil construction (LIMA et al., 2017). Also, more than 45% of the fish produced in the country is extracted from the sea.

17 In 2012, the previously adopted Policy of National Defense was renamed as National Defense Policy.

tical actions, dialogue and closer ties with neighbors is essential to reduce transnational crimes and achieve better conditions for social and economic development.

The National Defense Strategy (END), created by Decree No. 6703, in 2008, aims to modernize the national defense structure. It also addresses the political-institutional issues that allow the government and society to engage decisively in the nation's grand security strategy. Its launch was driven by the discovery of the pre-salt oil layer in 2007. In general, the Brazilian government desires to promote the development of a proactive defense of the Brazilian coast, based on independent technological development, as well as the dual functionality of the navy - defense of the coast and power projection (VISENTINI; PEREIRA, 2014).

In turn, the National Defense White Book (LBDN), constituted by Decree No. 7,438 of 2012, clarifies the policies and actions that guide the security procedures and protection of the country's sovereignty. The document makes explicit the Blue Amazon Management System (SisGAAZ), which seeks to monitor and control Brazilian jurisdictional waters and strategic areas for Brazil in the South Atlantic.

According to the Navy's Strategic Plan (PEM 2040), "technological independence should be seen as a challenge that must be overcome, aiming to reduce dependence on the outside in terms of Defense means, systems and equipment" (BRASIL, 2020a, p. 59). And three technological sectors are cited as essential for National Defense in the END 2020 draft: nuclear, cybernetic and space. To implement the sovereignty of the Blue Amazon, in addition to SisGAAZ, Brazil has been investing since 2008 in projects such as the strategically important Naval Power Nucleus Construction Program, which aims to modernize and expand the operational capacity of the Navy. This nucleus is integrated with the Submarine Development Program (Prosub), with the proposal to develop conventional and nuclear propulsion submarines as well as the planned naval base shipyard¹⁸. In matters of scientific research in the South Atlantic region, Brazil has adopted two programs, Protrindade and Proantar, the first of which aims to create the necessary conditions for the development of the Trindade archipelago and the second refers to initiatives related to research over Antarctica, such as the survey and exploration of the frozen waters, close to the South Atlantic¹⁹.

With the definition of the concept of strategic environment, it was realized that Brazilian security interests go beyond national borders. In 2012, in the LBDN, this concept was updated, expanding the strategic defense area to South America, South Atlantic and the West African coast and Antarctica, with these territories named as extended surroundings. Mention is also made of the proximity of the sea of the Caribbean.

18 According to the Brazilian Navy, the Naval Power Nucleus Construction Program is of "strategic nature and includes subprograms and projects related to obtaining resources, such as the Submarine Program (PROSUB), the Program for Obtaining the Tamandaré Class Frigates (PCT), the Program for Obtaining Hydroceanographic Means (PROHIDRO) and subprograms related to the maintenance and consolidation of the CFN's combat power, such as PROADSUMUS" (p.83). These programs are able to leverage the development of the national industry and related segments, offering direct and indirect jobs.

19 Similar to them, the Proarquipélago is a policy for research in all of the South Atlantic islands of Brazil and was implemented by the Brazilian Navy, aiming to populate all islands permanently (GUIMARÃES, 2016).

Pragmatically, ZOPACAS has been characterized as part of the process of building a regional identity, in which extra-regional conflicts should not be projected under the region, as the White Paper on National Defense includes:

[...] Brazil also pays, together with its West African neighbors, special attention to the construction of a cooperative environment in the South Atlantic, under the aegis of the Zone of Peace and Cooperation of the South Atlantic (ZOPACAS). [...] The South has its own historical identity and strategic characteristics. United Nations General Assembly Resolution 41/11 urges militarily significant states in other regions not to introduce nuclear or other weapons of mass destruction into the South Atlantic. Their military presence in that ocean must be reduced and eventually eliminated [...] (BRASIL, 2012c, p. 39).

Thus, it is noted that Brazil gradually drew greater autonomy in the region, as

[...] Brazilian civil and military policies for the South Atlantic do not indicate a willingness to obtain general command of the ocean. Mapping, research and development programs, along with the acquisition of submarines and the implementation of monitoring systems, point to the fact that Brazil has been trying to guarantee permanent command of the location of its jurisdictional waters. This means that Brazil wants to ensure that no country can interfere with its civil and military activities at sea. (GUIMARÃES, 2016, p. 286-287, grifo nosso).

However, as a consequence of the impeachment of Dilma Rousseff, in May 2016 Vice President Michel Temer temporarily assumed the presidency of the country. Given the context of the political and economic crisis, Temer sought to change the main focus of the Brazilian foreign agenda, which previously focused on relations with the South, by shifting towards traditional partners – USA and Western Europe. This shift deepened under the Jair Bolsonaro administration (2019-today), with the political-strategic and ideological perspective influencing the foreign agenda, which culminated in the reduction of relations that had been built in previous governments in the scope of foreign policy. The bias of South-South relations was replaced by the North-South discourse with a closer relationship with the US and Western Europe.

At the same time, starting in 2011, the Strategic Defense Planning System (SISPED) was formulated, aiming to systematize the updating of defense documents. The 2016/2017 version of the documents brought elements of continuity in Brazil's Defense Policy, such as the prioritization of the strategic environment (South America, South Atlantic, West African coast and Antarctica), the importance of the relationship between defense and economic development, particularly through dual-use technologies, the desire to dominate the aerospace and cyber environment, the expansion of the energy matrix and participation in UN peacekeeping operations. On the other hand, they present some changes and exclusions, due to the diag-

nosis of the current global systemic situation and the failure to mention the budget forecast directed to the major strategic projects of the END, which is linked to the internal economic recession and the lack of stability of defense investments on the part of the Executive Branch (MARTINS; NUNES, 2017).

It is important to emphasize that after reaffirming the prioritization of South American integration and the strategic environment, the NDP mentions North America and Europe as traditional partners that represent areas of interest for the country. The “New Foreign Policy” of the Michel Temer government came from the attempted political change in the regional context to isolate Venezuela and the abandonment of multilateralism. The Jair Bolsonaro government's foreign policy has reformulated the Brazilian foreign agenda since 2019, with a deep realignment with the US at the expense of South-South relations and a relative distancing from South America (including the emptying of UNASUR and MERCOSUR), exhibiting clear characteristics of the paradigm of the Neoliberal State. Thus, currently, the NDP and foreign policy have sought to maintain earlier efforts but to a lesser degree, with a higher priority focus on the USA and Western Europe, whose technological development can provide synergies for national projects, but with smaller budgetary impacts and positive results for the national economy, e.g. through exports.

2 Final considerations

Considering the above, through bibliographic and documentary analysis as methodological procedures, we confirmed the research hypothesis that ZOPACAS is a vital part of Brazilian strategic environment, as a priority of its foreign and defense policies, since its creation in 1986, but with periods of greater or lesser intensity in its external agenda, hence the the reference to year 2005 as an important element due to the first revision of the NDP. The Zone was created to keep the South Atlantic region free from weapons of mass destruction, in addition to bringing countries closer together in matters of security, geopolitical and socio-economic development. Despite the slowdown in the actions of this group of States in the 1990s, from the beginning of the 21st century, there was a new impulse towards fulfilling the initially conceived purpose, but with a new decline as of 2013. On the one hand, the broad concept of ZOPACAS raises questions on the part of some Member States and the lack of institutionality causes their disinterest, it also allows the freedom for the initiative to actively face new challenges, thus gaining a timeless content.

We concluded, *a priori*, that the process of institutional recovery of ZOPACAS is urgent, in order to maintain the South Atlantic as an area of peace and cooperation, in view of extra-regional interests. Therefore, foreign and defense policies are understood as complementary public policies, together with the development model, and this is evidenced in Brazilian actions and intentions for the area that encompasses the Zone. It was also evident in the discussion that the process of formulating Brazilian foreign and defense policy has been linked to the combination of internal and external issues, where plurality of actors and interests reflects the complexity of the domestic, regional and global order and its demands and some permanent priorities. In the sense of permanence, the drafts of the NDP and END 2020 provide that

[...] the strengthening of the Zone of Peace and Cooperation of the South Atlantic – Zopacas will contribute to the consolidation of Brazil as a relevant regional player, increasing its influence in the strategic environment and minimizing the possibility of military interference by extra-regional powers in the South Atlantic (BRASIL, 2020b, p. 33).

It is also worth noting that, in September 2020, President Jair Bolsonaro emphasized at the UN General Assembly in 2020 that: “Brazil has been working to, in coordination with its South Atlantic partners, revitalize the Zone of Peace and Cooperation of the Atlântico Sul” (BOLSONARO, 2020, np) and in October, in a virtual seminar promoted by the Ministry of Defense, Brazilian Navy and the Ministry of Foreign Affairs, the resumption of ZOPACAS was a recurrent theme among the participants²⁰. Therefore, since there is a demand for revitalization of the Zone in Brazilian institutions (and this is evident in the Armed Forces), this must be accompanied by foreign policy actions that complement the current defense policy, attributing special meaning to the construction of Brazilian maritime position.

The South Atlantic region was reevaluated economically and geopolitically in the 21st century. The expansion of oil and natural gas exploration has been fundamental to the development of the riparian countries in the region, which demands the strengthening of defense and security policies in the area. In this sense, Almeida and Bernardino (2013) emphasize that:

[...] Maritime security, allied to energy security, together with sustainable development is the central element that united these countries and these regions, which are united by an Ocean and strategically linked by common interests in safeguarding their sovereignty (ALMEIDA; BERNARDINO, 2013, n.p.).

Given the operational characteristics of some Armed Forces in the region, as well as the deficient military strategy related to regional maritime security, these countries become vulnerable to the penetration of external forces and the increase in illegal activities. The US has acted more proactively towards Africa, revealing the increasing strategic importance of that continent for its interests. With the creation of the U.S Africa Command (AFRICOM) in 2008, the North American foreign policy took on an increasingly security bias, with the justification of fighting terrorism in the region and ensuring the security of production and marketing of oil. In turn, the United Kingdom, since the colonial period, has operated in the region through its colonies, which allow it to expand power and maritime communication, e.g. the use of Ascension Island by AFRICOM and NATO.

NATO's Atlantic Basin Initiative, starting in 2010, represented the end of the historical imaginary line between the North and the South Atlantic, as all countries should unite in the face of opportunities and challenges arising from changes in the global system. Furthermore, it is understood that security is the key element that connects most of the South Atlantic States.

²⁰ For more information: <https://www.marinha.mil.br/simposiozopacas/pt-br/inicio>. Accessed on: March 18, 2021.

These powers also share the region with the strategic interests of China and India (ALMEIDA; BERNARDINO, 2013).

The Gulf of Guinea is economically attractive due to its oil reserves and geographic location, and its security represents the most significant current regional challenge. According to Pimentel (2018), the increase in international trade has reorganized the geopolitics of international logistics, which plays a fundamental role in reorganizing the concepts of space, limits and borders in the maritime environment, combining maritime safety with energy issues (especially related to oil extraction and natural gas).

In light of these assumptions, ZOPACAS, CPLP and CGG stand out at the regional level, as the sum of efforts would lead to the development of mechanisms for political-strategic consultation, enhancing a global reach. Even though they were created at different times, the motivations and objectives of these organizations are similar, as all initiatives are linked to the way in which the states in the region perceive changes in the distribution of power in the global system. Although the countries in the region face difficulties in implementing their projects on more solid bases, which is, to a certain extent, a result of the lack of institutionality and bureaucracy of ZOPACAS itself, the revitalization of the forum would help in the projection of power regionally with the progressive construction of a South Atlantic identity, in addition to ensuring the prevention of extra-regional interference in the integration process between the States of the South Atlantic region. An immediate possibility refers to the possible joint construction, and thus endogenous, of a Strategy for the stability of the Gulf of Guinea, between the three institutions.

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Studies about the ground military presence: the Indian case as a challenge for Brazil

Estudios sobre la presencia militar en tierra: el caso indio como desafío para Brasil


Abstract: This study aimed to analyze the Indian case of force design and the military presence on the ground, as a challenge for the permanence of the strategy of the presence of the Brazilian Army. The article looks at the dynamics of Indian military reorganization in the face of its threats and the integrity of its territory. Regarding methodological procedures, the research relied on the documents of the India Ministry of Defense Annual Reports, The Official Home Page of the Indian Army, GlobalSecurity.org repository, British forum Intelligence Fusion/ Indian geopolitics, and Army and Nation: the military and Indian democracy since independence. With the study of the Indian case, it is possible to perceive a model of land military organization strongly focused on the occupation of the North-Northeast part of the country, a densely populated region neighboring the main external threats (China and Pakistan), which are priority in defense planning that are considered the most significant threats to national interests and the integrity of the territory.

Keywords: Military Presence. Land Force. War. India. Borders.

Resumen: Esta investigación tuvo como objetivo analizar el caso indio del diseño de la fuerza y la presencia militar en tierra, como un desafío a la permanencia de la estrategia de la presencia del Ejército Brasileño. El artículo señala la dinámica de la reorganización militar india frente a sus amenazas y la integridad de su territorio. En cuanto a los procedimientos metodológicos, la investigación se basó en el uso de documentos ubicados en los Informes Anuales del India Ministry of Defence Annual Reports, The Official Home Page of the Indian Army, repositorio GlobalSecurity.org, British Intelligence Fusion / Indian geopolitics forum, and Army and Nation: the military and indian democracy since independence. El estudio del caso indio muestra un modelo de organización militar terrestre fuertemente centrado en la ocupación de la parte Norte-Noreste, una región densamente poblada, donde se encuentran las principales amenazas externas (China y Pakistán), prioritarias en la planificación de la defensa, y porque se consideran las amenazas más significativas para los intereses nacionales y la integridad del territorio.

Palabras-clave: Presencia militar. Fuerza Terrestre. Guerra. India. Fronteras.

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1 Introduction

Considering the investigative context of the adequacy analysis of the Strategy of Presence in Brazil, and based on diverse sources, our objective was to study the emblematic Indian case as a challenge for the Brazilian Army, particularly with regard to the capacity of force and the deployment of the ground troops in India, an Asian country with which Brazil has sought to establish a diplomatic and strategic relationship. Methodologically, the research was based on the analysis of several documents. Among the sources already mapped and preliminarily analyzed, the following stand out: India Ministry of Defense Annual Reports, The Official Home Page of the Indian Army, GlobalSecurity.org repository, British Intelligence Fusion/Indian geopolitics forum, 'Army and Nation: the military and Indian democracy since independence', among others.

The documents received qualitative treatment. The intratextual analysis was used to investigate the bibliography and documents produced by the Indian and Brazilian Armies, whose written records were considered as part of the discourse to be understood and questioned regarding the intentions of the historical subjects, the role of the military and the evolution of the organization of the force. It is necessary to consider that every document carries a discourse, a construction, and cannot be seen only as a record that reproduces the truth. A text is not dissociated from its production context, and they can either talk about the past or bring information behind the words.

India is an extensive country that integrates most of the Indian subcontinent of Central Asia. With an area of 3.28 million km², the country has an estimated population of 1.353 billion people (UNITED NATIONS, 2015) making it the second largest in the world, surpassed only by China. Due to its size, territory and population, since its independence in August 1947, India has turned into a regional power, geopolitically antagonized with Pakistan, a neighboring country created in the same process by dismembering a portion of Indian territory from mostly Muslim population. This antagonism has resulted, in the last 70 years, in four Indo-Pakistani wars, without resolution of the fundamental disputes. Both countries have nuclear weapons.

Brazil and India have, simultaneously, similarities and differences, which directly impact the structuring of their armies and territorial distribution of their respective military units. Among common aspects between the two countries, exploratory colonization; large population; territorial extension and climate stand out. Other characteristics differentiate the two countries, such as India's alignment with the USSR in the Cold War, religion, form of government and nuclear capability.

2 India: between threats and the ocean

In 1947, the British recognized the independence of British India, which was divided into two independent dominion states: the Indian Union, with a Hindu population, and Pakistani dominated by Muslim population (KHAN, 2007). The Partition, as the process

became known, was marred by extremely violent urban conflicts and disturbances, particularly in the state of Punjab, resulting in hundreds of thousands of deaths and forced migration of millions of people (TALBOT, 2009). The conflict that resulted in the formation of the two countries began when the Muslim League of India, under the leadership of Mohammed Ali Jinnah, demanded autonomy for predominantly Muslim population areas, which later evolved into the claim for an independent Muslim country, Pakistan (JINNAH, 2020).

The Partition's violent nature created an atmosphere of hostility, resentment and mistrust between the two countries, which hampered their diplomatic relations and sparked four armed conflicts.

In 1947, the two countries contested the ownership of the state of Jammu and Kashmir (also known simply as Kashmir, or by the acronym J&K), originally a Muslim-majority kingdom but which, since before the Partition, had been ruled by a Hindu Maharaja. The dispute resulted in the outbreak of the first war between the two countries, which would end in 1948, after the intermediation of the United Nations (UN). A ceasefire was established and India gained control of approximately two-thirds of the territory, including the Kashmir valley, Jammu and Ladakh, while Pakistan gained control of Free Kashmir (Azad Kashmir) and Baltistan (RAJU, 1992).

Despite diplomatic efforts to try to resolve the question of Kashmir and reduce tensions in the region, the two neighbors faced each other again in 1965. The brief conflict ended after diplomatic intervention by the world powers. While the US and Britain cut off all military supplies to both countries, the Soviet Union offered military aid to both India and Pakistan. Considering the pressures, the two neighbors submitted to a new ceasefire, and their troops returned to their original positions (LYON, 2008).

In 1971, India and Pakistan waged their third and biggest war, this time due to the dispute over East Pakistan, a region separated from Pakistan by about 1,600 km of Indian territory as well as cultural, linguistic and economic differences. The Indian victory resulted in the independence of East Pakistan, which became Bangladesh. Under the Simla Agreement, signed in 1972 after the Pakistani surrender, a Line of Control was defined in Kashmir, and the two parties agreed to settle their disputes through diplomatic channels (INDIA, 1972).

A factor that aggravated the latent antagonism and caused more instability in the regional geopolitics was the acquisition of the capacity to produce and operate nuclear weapons by the two countries. Having started their nuclear programs and tests in the 1970s, in 1998, India and Pakistan carried out detonations of nuclear devices in a space of a few days, joining the select group of countries that possess nuclear weapons.

The two neighbors, now nuclear powers, faced each other again in 1999 in yet another dispute over the Kashmir region, when Pakistani militia infiltrated through the Line of Control and occupied Indian territory in the Kargil district. India responded quickly, expelling Pakistani militants, while accusing the Pakistani government of supporting the invasion. In addition to a new Pakistani defeat, the Kargil War, as the conflict became known, represented a diplomatic break between the two countries (MACDONALD, 2017).

In addition to the problems with Pakistan, a brief border conflict between India and China in 1962 also demonstrated the fragility of the geopolitical balance in the region. The main cause of the war was the dispute over a border territory between the two countries in the high mountains of Aksai Chin, in the Himalayas. After repeated border skirmishes, on 20 October the Chinese launched an attack and two days later they had taken over all contested territory. Despite fears of a widespread Chinese invasion of India, this threat did not materialize, and after two months, Beijing decided to end the conflict and maintained effective control of the mountainous region. The war had, as a consequence, significant changes in the Indian armed forces, in order to prepare it for similar conflicts in the future (MAXWELL, 1970).

As we can see, the security challenges facing India are varied and complex. India has two unstable borders. The country has gone through four conventional border wars in addition to the undeclared war in Kargil. In recent years, particularly in Kashmir, Indian military forces have been fighting insurgency and terrorism perpetrated by militant groups and terrorists, possibly sponsored by neighboring Pakistan. At the same time, various insurgencies, fueled by tribal and ethnic aspirations, are being fought in various parts of the country. It is in this volatile environment that the Indian Army is forced to fulfill its roles in diverse operational conditions and across the spectrum of conflicts, and to do so, it seeks to organize the capacity of military ground forces to meet these demands.

3 Organization and employment of ground force

Although military activities and institutions have been present in the Indian subcontinent since antiquity, the origins of the country's modern army date back to the military component of the East India Company, created in 1776 to provide security for English merchant enterprise. Later, with the deepening of colonization, this force became the British Indian Army and small armies from different principalities with greater autonomy, which, after independence in 1947, merged (SINGH, 1993).

The British Indian Army was essential for maintaining the hegemony of the British Empire, both in its territory and in other parts of the Orient. In the course of the 19th century, its troops fought and provided security in the Anglo-Burmese, Anglo-Sikh, Anglo-Afghan and Opium wars, the latter in China (RAUGH, 2004).

In the first half of the 20th century, before independence, the Indians played an important role in the success of British forces in both world wars. During the first conflict (1914-1918), around 1.3 million Indian soldiers fought on different fronts, accounting for around 64,449 dead or missing in combat (GREAT BRITAIN, 1922). In exchange for Indian support in the war, the United Kingdom signaled to the National Congress of India a self-governing status, but, after the conflict, the commitment was not fulfilled, resulting in the strengthening of a pro-independence movement in British India.

In spite of the unfulfilled promises, during World War II (1939-1945) Indian contribution to the Allied war effort was even greater. Altogether, some 2.5 million Indian soldiers have strengthened British combat power in Europe, the Mediterranean, North Africa, the Pacific, China and Southeast Asia (KAUSHIK, 2010,).

With the independence of British India in 1947, the British Indian Army was divided between the two newly created nations, India and Pakistan. The Punjab Frontier Force, a military organization organized to patrol the state during the violent Partition process, was dissolved. Four of the ten Nepalese Gurkha regiments, originally belonging to the British Indian Army, were transferred to the British Army, and the others were absorbed by the new Indian Army (MARSTON, 2009, p. 469-505).

From a legal point of view, the Constitution of India, enacted in 1950, unlike the Brazilian one, does not define the structure or mission of the country's armed forces or ground forces. The only reference to the armed forces appears in Part XI, which regulates the relations between the Union and the States, by establishing, through constitutional amendment No. 257-A, of 1978, the assistance to States through the deployment of the armed forces or other forces of the Union (INDIA, 2007).

The Ministry of Defense of India has, in its organizational structure, the Department of Military Affairs, responsible for the Armed Forces of the Union (Army, Navy and Air Force), the headquarters of the Ministry of Defense and is responsible for integration and coordination work between the three forces (INDIA, [200-]).

The structure and mission of the Indian Army are defined by the Indian Army Doctrine published in October 2004 (INDIA, 2004). According to the document, the Indian Army consists of the ground component of the Armed Forces of India, which “exist to maintain the ideals present in the Constitution” of the country (INDIA, 2004, p. 9).

The mission of the Indian Army is thus defined:

Primary Role. Preserve national interests and safeguard sovereignty, territorial integrity and unity of India against any external threats by deterrence or by waging war.

Secondary Role. Assist Government agencies to cope with ‘proxy war’ and other internal threats and provide aid to civil authority when requisitioned for the purpose. (INDIA, 2004, p. 9).

From this perspective, the Indian Army doctrine defines as its mission the defense against external and internal enemies as well as cooperation in civil affairs. To fulfill its mission, doctrine mandates that the Indian ground force develop and incorporate the capabilities to:

- Effectively project deterrence and dissuasion through the medium of strong, well-structured combat capability.

- Be prepared to engage in and conduct all types of military operations, singly or jointly, in the entire spectrum of conflict.
- Provide the requisite land forces component of the Strategic Forces Command.
- Provide aid to civil authority when called upon to do so for maintenance of law and order, humanitarian aid and assistance during disasters and calamities or any other circumstances including maintenance of essential services.
- Participate in United Nations peacekeeping operations in consonance with India's commitment to the United Nations Charter.
- Be prepared to render military assistance to friendly countries when required to do so. (INDIA, 2004, p. 10).

The range of responsibilities assigned to the Indian Army bears several similarities with the constitutional missions of the Brazilian Army, including the defense of the homeland and acting to guarantee law and order. Furthermore, same as in Brazil, the Indian Army is doctrinally prepared to cooperate with civilian authorities in emergency cases and participate in the UN peacekeeping operations.

To carry out the tasks established by the current legislation in India, the army chief of staff, effectively the ground force commander, is seconded by a deputy chief and advised by two deputy chiefs of staff, one of whom is responsible for training and for information systems, and the other responsible for planning and other systems. The command structure of the Indian Army is relatively small, having on the staff as high-level advisors, the Adjutant General, the Military Secretary, the Master General of War Supplies, the Chief Engineer and the Lieutenant General, all at the rank of lieutenant general.

In the operational plan up to the brigade level, the Indian Army is structured in the following levels:

- Commands: The Indian Army has six operational commands and one training command, each headed by a lieutenant general.

- Corps: A command usually consists of two or more corps. The Indian Army has fourteen corps, also commanded by Lieutenant Generals, each composed of three or four divisions. There are three types of corps in the Indian Army: attack (strike), containment (holding) and mixed.

- Divisions: Each division is led by a major general, and consists of three or four brigades. The Indian Army currently has forty divisions, including four RAPID Divisions (Reorganized Army Plains Infantry Division) capable of night combat, eighteen Infantry Divisions, twelve Mountain Divisions, three Armored Divisions and three Artillery Divisions.

- Brigades: The brigade is composed of about 3,000 soldiers and commanded by a brigadier. An Infantry Brigade, for example, has three infantry battalions, in addition to several support units. In addition to the brigades of the different divisions, the Indian

Army also has five Independent Armored Brigades, fifteen Independent Artillery Brigades, seven Independent Infantry Brigades, one Independent Parachute Brigade, three Independent Anti-Aircraft Defense Brigades, two Independent Air Defense Brigades, and four Independent Engineering Brigades. These independent formations operate directly under corps commanders (INDIA 2020b).

Its headquarters are located in the Indian capital, New Delhi, under the orders of the army chief of staff.

The Indian Army defines its military doctrine as

[...] a particular policy taught or advocated; a set of principles by which military forces guide their actions in support of national objectives. Military doctrine can be defined as 'a formal expression of military knowledge and thought that an army accepts as being relevant at a given time, which covers the nature of current and future conflicts, the preparation of the army for such conflicts and the methods of engaging in them to achieve success' (INDIA, 2004, p. 3).

According to Christopher Clary, throughout history Indian military doctrine can be divided into five phases, each with specific characteristics: from 1947 to the 1962 war (defence in depth without mechanized forces); after the 1962 war to the 1971 war (defence supplemented by counterattack); from 1971 to the involvement of the army in counterinsurgency operations until the end of the 1980s (war of maneuvers with the increase of mechanized units); the acceptance of counterinsurgency roles in India's war with Pakistan in 1999 (unconventional light infantry-based counterinsurgency missions with conventional mechanized warfare); and from the Kargil War to the present era (limited war under the nuclear spectrum, known as Cold Start) (CLARY, 2018).

Cold Start doctrine (CSD) was formulated after the failure of the Indian Army to mobilize quickly in response to the December 2001 attack on the Indian Parliament. India's mobilization along the Line of Control in Kashmir took place at too slow a pace, which allowed the Pakistan Army to mobilize and deploy 300,000 troops in the contested region. Having missed the strategic surprise, Indian forces withdrew after a 10-month stalemate.

As a result, the CSD was formulated in 2004 to facilitate rapid and decisive smaller-scale conventional offensive operations on Pakistani territory in the event of a Pakistan-sponsored asymmetric attack on Indian soil, before the international community can actively intervene and before the attack. Pakistan feels compelled to launch nuclear retaliation attacks to repel an Indian invasion (GADY, 2019).

The most recent doctrinal evolution of the Indian Army was published in 2018 under the name Land Warfare Doctrine (LWD) (INDIA, 2018), following the release of the first Joint Doctrine of the Armed Forces of India, effective in last year.

Based on Indian Army capabilities, doctrine for the first time discusses emerging technologies in the context of future wars. It also aims to institute deterrence through punitive attacks at the tactical level. Its value lies in the clarity with which it identifies the spectrum of combined threats, particularly from China and Pakistan, indicating that the Indian ground force's posture has been planned with the assumption of the worst-case scenario, and marking a clear shift in threat planning, previously centered on a single front, for a strategy that brings the perception of a double front.

LWD lays the groundwork for the acquisition of new and modern means, responding to the changing nature of warfare, introducing, for the first time, the search for resources for the use of artificial intelligence and directed energy weapons. The new doctrine prioritizes, among other capabilities, cyber warfare, electronic warfare, psychological warfare, special forces, the ability to project power and operational readiness (INDIA, 2018).

In addition to employment in conventional warfare, India has a stated policy of not using nuclear weapons, and has developed a nuclear doctrine based on minimal credibility of deterrence. In August 1999, the Indian government released a draft doctrine that stated that nuclear weapons would be for deterrence only and that India would pursue a policy of retaliation only. The document also maintained that India would not be the first to launch a nuclear attack, but would respond with punitive retaliation if deterrence failed (FEDERATION OF AMERICAN SCIENTISTS, 2002). In January 2003, New Delhi released its official nuclear doctrine, which was based on the 1999 draft, albeit with some differences. Among them, the suggestion that India could use nuclear weapons to retaliate against attacks using chemical and biological weapons, and that Indian retaliation for any nuclear attack would be massive (RAJAGOPALAN, 2016). Importantly, India has not signed the Complete Test Ban Treaty or the Nuclear Non-Proliferation Treaty, although it is a member of the International Atomic Energy Agency.

Faced with a troubled North-Northeast border, full of threats and jealous of the nuclear capacity and its military forces, the Indian Army was deployed throughout the territory in order to respond to the country's defense needs.

4 The Ground Military Presence in India

India with a diverse geography, ranging from the peaks of the Himalayas to the coast of the Indian Ocean, and a history stretching back five millennia, is a constitutional republic, made up of 29 states, each with a substantial degree of control over its own matters; six territories with less autonomy; and the territory of the national capital of Delhi.

Its vast population, the second largest in the world, corresponds to approximately one-sixth of the global population. In spite of this immense population, the demographic density of the country is extremely variable, with population concentrated in the North-Northeast regions, particularly along the Ganges River. In South-Central India, population density is low, reaching, in the states of Madhya Pradesh, Maharashtra, Andhra Pradesh and Karnataka less than 250 inhabitants/km².

With such a large population and territory, and due to its own nuclear capacity and its main antagonists, Pakistani and China, the Indian Army has 1.2 million active members and 990 thousand reservists, totaling a force of about 2.1 million men and women (GLOBAL FIREPOWER, 2021), whose main task is to protect the borders with Pakistan and China, as well as to provide domestic security, often threatened in Jammu and Kashmir, and in the North-Northeast from the country. With its immense strength, the Indian Army is the second largest in the world, surpassed only by the Chinese military (THE WORLD'S..., 2019).

Conceptually, the Indian armed forces do not have any document that defines a Strategy of the Presence as defined in Brazil, although its employment doctrines, with emphasis on the LWD, guide the coordination of ground military forces.

Faced with threats to the North-Northeast of the country and the need to develop counterterrorism operations, the Indian Army does not deploy its combat power and its military units according to the concept of the Strategy of Presence¹, but concentrates its forces geographically in the upper third of the country's territory, coincidentally the area with the greatest population density and in contact with its antagonists: Pakistan and China.

With the concentration of military forces present predominantly in the North-Northeast of the country, the Indian Army deploys in this region four of the six operational Commands (five, if considered the Central Command, responsible for the logistical support of the land force). In the Center-South, a region with a lower population density and with a reduced threat level, there is only one operational command (the Southern Command), one of which has less combat power, consisting of two bodies and five divisions. Such territorial distribution clearly privileges the real threats on the country's northern borders, to the detriment of carrying out an equitable occupation throughout the entire national territory.

Among the operational commands, similar to the Brazilian Military Area Commands, the Central Command, headquartered in Lucknow, does not have subordinate first-line units, and concentrates the logistical activities of the Indian Army.

The Eastern Command, based in Calcutta, is prepared for internal defense actions and patrolling the eastern border. Geographically deployed in a region of high mountains, it is composed of three corps with nine subordinate mountain divisions and an independent infantry division, responsible for counterinsurgency operations in the Assam valley (GLOBAL SECURITY, 2021a). The short border war with China in 1962 determined that, regardless of the advance of electronic communications, greater command and control should be exercised from geographical proximity. The Eastern Command, which was installed in Lucknow, about 1,100 kilometers from Walong, after the experience of the conflict, was moved to Calcutta, and Lucknow became the headquarters of the Central Command.

1 Conceptually, we use the Brazilian definition, defined in the Manual C 124-1 Strategy: "Presence strategy - characterized by the military presence, in the national territory and its extensions, in order to fulfill the constitutional purpose and subsidiary attributions, effected not only by the careful articulation of military organizations in the territory, but also, mainly by the capacity of rapid displacement to any region of the country, when necessary (strategic mobility)" (BRASIL, 2001, p. 3-11).

The prestigious Western Command is the most important large unit of the Indian Army, responsible for defending an area considered "hot", between the borders with China and Pakistan, which includes the regions of Punjab, Rajasthan, Delhi and part of the Jammu Valley (INDIA, c2021). Headquartered in Chandimandir, its combat power comprises three corps, to which six infantry divisions, an armored division, a RAPID division, three armored brigades, a mechanized infantry brigade, an engineering brigade, and an anti-aircraft defense brigade are subordinated. An artillery division also reports directly to Western Command.

The experience of the 1965 and 1971 wars against Pakistan demonstrated that the area under the responsibility of the Western Command was too vast for effective command. As a result, in 1971, the large unit was disbanded, and Northern Command was created, based in Udhampur, which took over one of the most volatile areas in India, encompassing Kashmir and Ladakh. The Northern Command is responsible for the defense and security of India's main area of conflict, the J&K region, mountainous and historically conflicted with Pakistan since the 1947 partition. Based in Udhampur, the Command has three corps under it, five infantry divisions, two mountain divisions and an artillery brigade. Due to regional instability, its main mission involves counterinsurgency and counterterrorism (INDIA, 2020b).

A considerable area of the border with Pakistan is under the responsibility of the Southwestern Command, created in 2005 after restructuring of the Indian Army. Headquartered in the historic city of Jaipur, capital of Rajasthan, and focused on conventional combat, the Southwest Command is strongly structured, with two corps, two infantry divisions, two RAPID divisions, two mountain divisions, one armored division and an artillery division. It also includes large units such as an armored brigade, an engineering brigade and an air defense brigade (GLOBAL SECURITY, 2021d).

The Southern Command is the only one of the Indian Army not territorially articulated with the North-Northeast borders under threat from Pakistan and China. It is a large command focused on the less densely populated and less vulnerable area of India. Based in Pune, in terms of territory/combat power, it is the weakest command in the Indian Army, comprising two corps, to which two infantry divisions are subordinate, one armored division, two RAPID divisions, one armored brigade, one brigade of mechanized infantry and an engineering brigade. It also includes an artillery division directly subordinate to the Southern Command (GLOBAL SECURITY, 2020).

A peculiarity of the organization of the Indian Army seems to refer to questions of social organization. Indian caste system is among the world's oldest forms of stratified social organization. The system that divides Hindus into rigid hierarchical groups based on their karma (work) and dharma (hindi word for religion, but here it means duty), it has generally been accepted for more than 3,000 years, mitigating disputes and claims for social improvement (WHATS..., 2019).

The concept of "single caste" or "pure" regiments emerged during the British era, which was based on its own categorization: the warrior class. However, after indepen-

dence, India continued with these regiments based on class and regions of origin, due to the history and ethos of the units. Despite this, it is not possible to say that the Indian Army is based on caste. There are "mixed" and "fixed" units, such as the Grenadiers or the Mahar Regiment. The four grenadier regiments have subunits of Jats, Muslims and Dogras. Likewise, the Rajputana Marines have an equal mix of Rajputs and Jats, while the Rajput Regiment is mainly composed of Rajputs and Gujars, in addition to Muslims and Bengalis. The other combat units, such as Armored Corps and Artillery, also have several examples of "pure" units. However, supporting units such as Engineering, Ordnance and Communications are units composed of soldiers of "all castes".

The Indian Army has several regiments and units named after castes, communities and regions, full of traditions gained in battle, such as Jat, Sikh, Rajput, Dogra, Mahar, Gurkha and others. It is important to emphasize, however, that regiments based on castes or regions are not predominant throughout the army, but are located in a combat zone and some specialized units (MANDAL, 2019).

Despite this rigid millenary system, the Indian Army acts as a factor of social cohesion, as it makes no distinction between castes to recruit its members. India does not resort to conscription or compulsory military service, and citizens interested in joining the Indian Army do so voluntarily. Recruitment in the Army is broad, and every male citizen, "regardless of caste, class, religion and domicile, is eligible to serve in the Army, as long as he meets age, education, physical and medical standards" (INDIA, 2020a). Recruitment is carried out year-round through an open volunteer system, published in local newspapers two weeks prior to enlistment date.

Another factor present in the Indian Army that contributes to national cohesion was the incorporation of women into its ranks. Inspired by Indian Army nurses who fought in World Wars I and II, where 350 of them were killed, imprisoned or declared missing in action, in 1988 the army organized the Indian Military Nursing Service. In 1992, the Indian Army began inducing female officers into non-healthcare roles (INDIA, 2019a). Despite the incorporation of women into the Indian Army, on a date close to the date the Brazilian Army inaugurated its selection of the female military corps, they occupy until now only administrative or support positions, staying far from the combat ranks. This policy has been the result of campaigns and public discussions (KARAT, 2014) on expanding the inclusion of women in combat roles, as it already occurs in other armies in the world as well as the Indian Air Force, where women are already qualified as air force fighter pilots.

As the Indian Army Doctrine states, the Indian Army's secondary mission is "To assist government agencies in dealing with "proxy wars" and other internal threats, as well as to provide assistance to the civilian authority when requested." In this perspective, the Indian ground force has, throughout its history, cooperated with the country's civil authorities, becoming in addition to its dissuasive and operational capacity, a "Political

Army". According to Fernando Rodrigues, this occurs when, due to the deficiencies of other government agencies and institutions:

The army ends up assuming a role that belongs to other national actors, with responsibility for conducting public policies, which, in a way, provokes an accommodation of the political class, represented by the convenience and connivance of the State with this type of action (RODRIGUES, 2020, p. 51-64).

On different occasions, the Indian Army led or participated in subsidiary activities in response to the demands of society and at the request of civil authorities, assisting in public disaster relief, road construction, rescue of people in areas of difficult access (often in the mountains of the Himalayas) (INDIA, 2019b, p. 179-180). A classic example occurred in September 2014, with the operations Megh Rahat and Sadbhauna, when Northern Command troops rescued more than 20,000 people stranded and displaced by a heavy flood caused by monsoon rain in the state of J&K (DUTTA, 2014).

In the first few months of 2020, the Indian Army was also asked to cooperate with measures taken by the government to combat the Covid-19 pandemic. India's social isolation and lockdown, affecting some 1.3 billion people, is the largest national policy response of its kind to the ongoing pandemic in the world. The Indian Army deployed its troops across the country to collaborate with law enforcement authorities and ensure that blockade rules were followed, in addition to establishing field hospitals to help the population (PANDA, 2020).

5 North-Northeast Border Security and Counterinsurgency

Although there has been nominally no conflict with Pakistan since 1999 and with China since the brief war in 1962, India's North-Northeast border, shared with these two countries, remains a priority in defense planning, considering they are the most significant threats to Indian national interests and territorial integrity. With greater intensity in Jammu and Kashmir, actions by Pakistani-sponsored terrorist groups have been recurrent, prompting the Indian Army to strengthen its combat power and border surveillance in the region.

The Kargil war, in 1999, coincides with the acquisition of nuclear capacity by India and Pakistan, which may offer an explanation for Pakistan's option to, after the conflict, no longer confront India with its military forces at the J&K, but to encourage the activities of militias and terrorist groups, including within the Indian territory.

On December 13, 2001, a terrorist attack was launched against the heart of power, the Parliament of India in New Delhi. The perpetrators belonged to Lashkar-e-Tayyiba and Jaish-e-Mohammed, two Pakistani terrorist organizations, and left a toll of nine dead, most of them

Indian security agents, in addition to the five terrorists. The attack heightened tensions between India and Pakistan (TERRORISTS..., 2021). The Pakistanis, however, denied involvement and condemned the attack.

Around midnight on February 18, 2007, two bombs detonated on the Samjhauta Express, a train service linking Delhi, India, to Lahore, Pakistan. The explosions took place near Diwana, 80 kilometers north of New Delhi, and left 70 people dead and dozens injured (DOZENS..., 2007). The governments of India and Pakistan condemned the attack, and officials on both sides speculated that the perpetrators intended to halt improving relations between the two nations, as the attack came just a day before Pakistan's foreign minister, Khurshid Mahmud Kasuri was to arrive in New Delhi to resume peace negotiations with the Indian leadership (NAQVI, 2007).

Between 26 and 29 November 2008, the biggest terrorist attack in the history of India was launched against Mumbai (Bombay), the country's financial capital. Ten Pakistanis associated with the terrorist group Lashkar-e-Tayyiba stormed different buildings in Mumbai, killing 164 people, including many foreigners (TERROR..., 2008). Nine of the terrorists were killed during the security forces' crackdown on the attacks. The attacks only ended three days later, on November 29, when Indian security forces managed to take control of all the locations attacked. Pakistan once again denied involvement and condemned the attack, which did little to improve relations with India.

On February 14, 2019, Pakistani terrorist group Jaish-e-Mohammed carried out a suicide car bomb attack in Pulwama, J&K, which resulted in the death of more than 40 Indian police officers (PULWAMA..., 2019). India retaliated with air strikes behind the Line of Control (PAKISTAN..., 2019), and Pakistan shot down an Indian aircraft and captured the pilot. These actions significantly increased tensions between the two regional nuclear powers, but days later the Indian pilot was released, reducing tensions (ABHINANDAN..., 2019).

The spread of terrorism and insurgency actions in the Jammu and Kashmir region, to the detriment of conventional warfare and under the latent nuclear threat, is a focus of constant concern for the Ministry of Defense and the Indian Army. In its 2018-19 annual report, the ministry shared the analysis of the situation of the most conflicted area in India:

The situation at J&K remained volatile. Our work throughout the LoC and inland, along with additional forces, has made it easy for security forces to maintain the momentum of operations against terrorists. Inland, Pulwama, Shopian, Anantnag and Kulgam districts continued to be the center of terror-related activities. Throughout LoC, areas south of the Pir Panjal ranges remained violent due to frequent ceasefire violations, while infiltration attempts north of the Pir Panjal ranges continued (INDIA, 2019b, p. 18).

In order to neutralize this 21st century threat, defined in the India Army Doctrine as the “war by proxy” [of the Pakistanis, through terrorist groups and insurgency], the Indian

Army continues to concentrate its forces in the northern portion of its territory (INDIA, 2004.).

The Indian Army has been involved in counterinsurgency/counterterrorism operations almost continuously since the country's independence. Their training has been active in operations of this nature in the Northeast since the 1950s, and in Jammu and Kashmir since 1990. To address such threats, the Ministry of Defense issued in 2006 the Doctrine for Sub Conventional Operations, dedicated specifically to counterinsurgency, counterterrorism and the so-called "proxy wars" (INDIA, 2006).

The doctrine follows three principles: a) limitation of the use of force; b) isolation of the guerrilla/ terrorist force from the population; and c) obtaining control of the area (INDIA, 2006). Army doctrine is also quite clear on the limited role of restoring normalcy and then letting the political establishment find a solution to the issue or issues underlying the insurgency.

Since the 1990s, the Indian Army has undertaken several counterinsurgency operations in the J&K region, and despite the difficulties inherent in this type of combat, it has been successful in maintaining the Line of Control and order in an extremely unstable territory. With the spread of terrorist actions since the end of the Kargil War, new challenges are presented to the Indian Army, which, aware of the lessons learned, dedicates a considerable portion of the training of its troops for this type of activity.

6 Final reflections

Brazil and India are developing countries that integrate international cooperation organizations, notably the BRICS (Brazil, Russia, India, China and South Africa) and the IBSA (India, Brazil and South Africa Dialogue Forum), which encompass agreements of cooperation and alliances of different natures, including in the field of Defense.

Brazil and India have some similarities, such as the vast continuous territory (sub-continent), large population, significant social inequality, internal security problems from the perspective of guaranteeing law and order, the existence of large demographic gaps and the fact that both are regional powers. However, it seems that, unlike in Brazil, subsidiary actions and the recurrent use of the Indian Army as a "Political Army" do not divert the focus of the institution from the two main threats to the country in contemporary times: the monitoring of the North-Northeast border and the increasingly frequent counterinsurgency actions.

The study of the Indian case reveals a model of land military organization strongly focused on the occupation of the North-Northeast part of the territory, a densely populated region, where the main external threats are found (China and Pakistan), which are a priority in defense planning, because they are considered the most significant threats to national interests and the integrity of the territory. In addition to external threats, in the 21st century internal tensions have increased with the emergence of new threats, represented by the increase in

terrorism and insurgency in the Jammu and Kashmir region, with actions by terrorist groups sponsored by Pakistan, leading the Indian Army to strengthen its power of counterinsurgency operations and border surveillance in the region.

In Brazil, with a different trajectory of land force organization and threats different from the Indian ones, the Army reorganizations carried out between the 1960s and 1990s, in terms of troop deployment, prioritized the transfer of units and personnel to the Northern region (Amazon), the territory with existing demographic gaps and absence of federal government, far from the densely occupied and developed urbanized coast. These actions represented a continuation of the process of interiorization of the military forces, articulated with the interiorization of human occupation and the development of the State.

By studying the strategy of the Brazilian Army's military presence and comparing it with the Indian doctrinal evolution, we understand that the concern with the role of territorial presence is still valid, but the current model must be gradually revised in conjunction with technological advances in the field of communications and transport, and with the perception of new threats, planned on top of new capabilities. This advance should allow the presence combined with other military forces and permanent state security agencies, provided with great mobility, despite the lack of budget allocation. The Presence Strategy, within the national defense and security sector, must be effectively thought of as a system of interagency operations, with a joint operations command, with the capacity to act on the borders, and in the Guarantee of Law and Order.

At this point, it is important to highlight the importance of questioning the place of the Strategy of Presence in Brazil in the context of implementing Capacity-Based Planning (PBC), which requires joint planning. In this case, we must highlight the importance of thinking about "Joint Operational Commands", suggesting the Amazon as a laboratory for this proposal. When it comes to the Amazon, the military presence is considered an effective strategy to stimulate revival, maintain strength against non-state actions and guarantee regional public order (MARQUES, 2007).

However, it should be clear that the subject is quite complex, and that the current moment is favorable for maintaining the strategy in the Army planning, as long as there is a review of the concept of presence, articulating the idea of "being present", mainly, with the development of fast-moving capabilities. Moreover, the presence of the Brazilian Army at the borders must be ensured through the articulation of the elements of monitoring/control (SISFROM – SIPAM) and mobility, in the context of transformation of the Army. The strategy should effectively enter the industry 4.0 phase, using satellite and UAV technology.

Currently, the Special Border Platoons should be thought of as "intelligence sensors", and no longer as promoters of human occupation as they used to be in the past. In theory, we can say that the Amazon is already populated, but there are many places with low population density that need to develop.

From this debate, we realize that the definition of the strategy of presence is quite complex, because in a way, when talking about PRESENCE in Brazil, we have to consider diffe-

rent dimensions: one focused on Military expression and the other on the Political dimension. Moreover, the ground military presence is a strategy or state policy.

The first dimension concerns the need to be present as part of the defense of the territory, and especially because in Brazil there is no intermediary force capable of playing the role of "national order force", which results in the Army constantly called to exercise this function in the border area. In this type of presence, we cannot forget the Brazilian Army contribution to the Amazon population processes throughout our history, e.g. the construction of fortifications during the 17th and 18th centuries, the implementation of the military colonization system in the 19th century, the adoption of FT 90.

The second dimension of presence concerns the historic role that the institution has assumed as a bastion of Brazilian nationality. In this sense, the maintenance of military units spread throughout the territory, the maintenance of the *Tiros de Guerras*, the formation of reserves, among others, also function as "schools of civility and citizenship". This context makes the Army strategic planning difficult, when considering the maintenance of the strategy of presence in regions with a considerable degree of development.

Despite the differences related to external threats (much greater for India than for Brazil) and the Indian nuclear capacity, the case study addressing the country's army and its strategies contributed to the reflection on the future organization and deployment of the Brazilian army.

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The Brazilian defense industry in the era of irregular warfare: the main contributions and its technological challenges


La industria de defensa brasileña en la era de la guerra irregular: las principales contribuciones y sus desafíos tecnológicos

Abstract: The objective of this article was to understand the main contributions and technological challenges of Irregular Warfare in Brazil. Taking into account that this type of belligerence presents States with the rebirth of a way of fighting a war, it is necessary to understand what are the implications of asymmetric wars in a State. As irregular wars make effective use of technology in their combat, it is important to discuss the impacts and challenges of this for the Defense Industrial Base for the Brazilian Defense Industry. Thus, through documentary research and qualitative analysis, in order to conceptualize, describe and understand the Irregular Warfare, Brazilian Defense Industrial Base and its relationship with the State. After understanding the challenges for the State when fighting an Asymmetric War, it can be concluded that Brazil initially needs to recognize the presence of this threat in its territory, in addition to investing in effective technologies in combating this type of conflict.

Keywords: Irregular Warfare. Defense Industrial Base. Technology. Innovation. Sovereignty.

Resumen: El objetivo de este artículo fue comprender los principales aportes y desafíos tecnológicos de la guerra irregular en Brasil. Teniendo en cuenta que este tipo de beligerancia presenta a los Estados con el resurgimiento de una forma de combatir la guerra, se hace necesario comprender cuáles son las implicaciones de las guerras asimétricas en un estado. Como las guerras irregulares hacen un uso efectivo de la tecnología en su combate, es importante discutir los impactos y desafíos de esto para la Base industrial de defensa para la Industria de Defensa brasileña. Así, a través de una investigación documental y análisis cualitativo, con el fin de conceptualizar, describir y comprender la guerra irregular, la Base Industrial de defensa brasileña y su relación con el Estado. Después de comprender los desafíos para el Estado al librar una guerra asimétrica, se puede concluir que Brasil inicialmente necesita reconocer la presencia de esta amenaza en su territorio, además de invertir en tecnologías efectivas para combatir este tipo de conflicto.

Palabras-clave: Guerra Irregular. Base Industrial de Defensa. Tecnología. Innovación. Soberanía.

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1 Introduction

War, understood as a violent confrontation between politically organized groups, is an intrinsically political phenomenon and, like every historical-social phenomenon, its understanding is subject to the perspective of the observer (SAINT-PIERRE; VITELLI, 2018).

Modern Warfare has gained distinct contours and motivations over time. Currently, the conflict is characterized by the loss of the State's monopoly, whose dispute is decentralized and groups can even act against their own country. Thus, "it won't be the big changes in how the enemy fights, but who will be fighting and what for", says Lind (2005, p. 17) when dealing with Irregular Warfare. The author further states that unlike the previously mentioned concept of war, "many different entities – not just the governments of countries – will wage war and do it for many different reasons, not just as 'a promotion of policy by other means' (LIND, 2005, p. 17).

Nations must always seek to maintain their survival and their physical and political integrity. The State must always invest in the binomial defense and security. Defense, according to the National Defense Policy (NDP), is a "[...] set of attitudes, measures and actions of the State, with emphasis on military expression, for the defense of the National Territory, sovereignty and national interests against preponderantly external threats, potential or manifest" (BRASIL, 2012b, p. 77). National Security, on the other hand, is "[...] the condition that allows the preservation of sovereignty and territorial integrity, the realization of national interests, despite pressures and threats of any kind, and the guarantee to citizens of the exercise of rights and constitutional duties" (BRASIL, 2012b, p. 79).

In order for the State to maintain its sovereignty, it is necessary to ensure that its Armed Forces (AF) are always prepared for any external threat, so that citizens can exercise their rights and duties in a safe and peaceful manner.

According to Visacro (2019), despite being a very efficient method of combat, irregular warfare has established itself as the alternative fight of the weak because it is the last resort to be used by fighters. Lind (2005, p. 14) states that "[a]ll over the world, the military finds itself fighting non-state opponents such as al-Qaeda, Hamas, Hezbollah and the Revolutionary Armed Forces of Colombia."

In Brazil, this type of belligerence is present in the intense combat between the State and organized crime, this type of activity manifests itself in communities, where the action of the State is not always really effective. The lack of quality basic services forms the perfect scenario for the installation of both criminal factions and militias.

Given the above, the Defense Industry is now facing an enormous challenge, because, due to the characteristics of its structure, a monopsony market, it needs to modernize in order to provide, in a more efficient way, its only client, the State. In view of this, this study is justified by the need to discuss both the concept of Irregular Warfare and the existence of this type of belligerence in Brazil, in addition to the contribution of the Brazilian Defense Industry in the fight against organized crime. It is understood that it is necessary to modernize the Defense Industry for the purpose of assisting the State with regard to internal security.

2 The evolution of war

The structure of war has undergone quite a lot of changes over the years. Before the Treaty of Westphalia, many institutions (religions, families, tribes and cities, for example) used different means and had different motivations to participate in conflicts actively (LIND, 2005).

War as it is known today is a product of the Treaty of Westphalia¹. After the Westphalian pact, the State had a monopoly on war and only the armed forces capable of fighting. From there, the military culture of order was developed, which includes the use of uniform, salutes and hierarchical degrees; then the so-called Modern War is born, which has four generations (LIND, 2005; VISACRO, 2019).

Lind (2005), Pimentel and Neto (2014) and Sardinha Monteiro (2018) describe the generations of war from the following perspective:

- 1st Generation (Line and Column Wars) - the apex of the first generation wars happened during the Napoleonic expeditions. Ranging from 1648 to 1860, the battlefield is extremely formal and orderly. In this period, most of the elements that today distinguish the military from the civilian environment were created.
- 2nd Generation – it covers conflicts between 1860 and 1918. It was developed by the French army and aimed at friction. Its apex occurred during the First World War. Obedience was the most important aspect, to the detriment of initiative and the conduct of battles.
- 3rd Generation – it became known as *Blitzkrieg* or Maneuver War. Developed by the German Army, it is characterized by non-linear combat and based on speed, surprise and mental and physical displacement. Initiative became more important than obedience.
- 4th Generation – the current generation had its milestone after the terrorist attacks that occurred on September 11, 2001, which brought a new form of conflict. It is characterized as the most radical change since the Peace of Westphalia.

Irregular Warfare consists of “a primitive form of conducting war” (VISACRO, 2019, p. 13). Characterized mainly by the lack of knowledge on the battlefield, Irregular Warfare establishes a universal crisis of State legitimacy and presents one of the greatest challenges for the State Armed Forces as the military cannot deal as well with its enemies as for years, they got used to fighting in an orderly and precise manner (VISACRO, 2019).

In Brazil, the Irregular Warfare began to be recognized from the actions initiated by the organized crime. Conflicts are manifested in communities, where State action is not always really effective and whose lack of quality basic services reveals the perfect scenario

¹ Signed in 1648, the Treaty of Westphalia aimed to end the Thirty Years' War and established the principles that characterize the modern State as sovereignty, legal equality between States, territoriality and the principle of non-intervention (LIND, 2005).

for the installation of both criminal factions and militias. The peripheries unassisted by the State open up space for the action of criminal groups that come to control the local economy (VISACRO, 2019).

The offer of public services by criminal organizations is a prerequisite for the construction of a kind of parallel State, being “one that operates with the function of the official State in a collateral way, taking upon itself certain attributions that should be a State monopoly, outside the legality and government tutelage in a given territory” (MANESCO, 2014, p. 1). When this analogous structure is not effectively contained, it becomes a direct threat to state sovereignty, and the State has its power reduced in the areas commanded by such factions.

From the 1970s, organized crime intensified in Brazil with the creation of groups such as Comando Vermelho (CV) (Red Command), in 1979, in the penitentiary of Ilha Grande: “Initially, an organization called the “Falange Vermelha (Red Phalange)” emerged. As a result of that first faction, the faction called “Comando Vermelho” (CV) developed within this prison” (SHELAVIN, 2011, p. 59). Later, the group unfolded into other criminal organizations.

There are also other organized crime groups in the country, the militias, which are made up of police officers, firefighters, prison officers, community leaders and politicians, in an “attempt” to ensure the safety of their communities in exchange of monthly payments². For Shelavin (2011), the militias settle in the communities under the facade of combating drug trafficking and ensuring security, but soon begin to control the local economy.

And in the country with the largest number of slums in the world, Irregular Warfare creates a universal crisis of State legitimacy and draws one of the greatest challenges for the Armed Forces, which is to fight without knowing its enemy and its real war power (LEITÃO; DE LENNOY, 2020).

In order to illustrate the similarities between Irregular Warfare and organized crime, Table 1 presents the main characteristics observed.

Table 1 – Irregular Warfare vs. Organized Crime

	Irregular Warfare	Organized Crime
Type of combat	Decentralise	Decentralise
Type of armament	Handguns, grenades, assault weapons and specialized weapons, car bombs, UAVs, among others	Handguns, assault weapons and specialized weapons
Type of combatants	Non-State combatants	Non-State combatants
Combat tactics	Return to old practices of war such as guerrillas	Resembles drug trafficking
Motivations	There are distinct reasons E.g.: Financial issues, belief, struggle for land, political reasons, among others.	There are financial reasons

² Such an organization configures crime, according to art. 288-A of the Brazilian penal code, inserted by Law No 12.720/12.

	Irregular Warfare	Organized Crime
Relationship with the State	Creates a universal crisis of State legitimacy	Creates a crisis of sovereignty by controlling parts of the national territory
Uniformization of troops	No	No
Defined battlefield	No	No
Main difficulty for the Armed Forces	Difficulty differentiating enemy from friend	Difficulty differentiating enemy from friend
Main examples	Guerrilla, terrorism, drug trafficking, among others	PCC, Comando Vermelho, Militias
Role of technology	Main strategic element	It is combined with criminal activities. Specialists from various fields are used
Relationship with the population	Integration with civil society entities so that they are protected	Cultivate fear and need

Source: The author, based on Vissacro (2019), Lind (2005) and Shelavin (2011).

It can then be concluded, through the above table that irregular warfare and organized crime have some similar characteristics, one of the main ones being the wide variety of motivations beyond politics, as already previously mentioned throughout this article.

3 Defense industry: a market in monopsony

The “White Paper on National Defense” defines the Defense Industrial Base (DIB) as: “a group of state and private organizations, civil and military, that carry out or conduct research, projects, development, industrialization, production, repair, conservation, review, conversion, modernization or maintenance of a defense product” (BRASIL, 2012, p. 131).

To address the relationship of the Defense Industry with the State, it is necessary to understand the existing competition in this type of structure. A market structure can be “perfect”, in the presence of a large number of bidders and claimants. In imperfect competition, there is no balance between sellers and buyers, with price manipulation power. With regard to demand, the presence of monopsonies stands out, which comprise a market with several producers and only one buyer. The term was introduced into economics by the British Joan Robinson (PINDYCK; RUBINFELD, 2013).

The defense industry falls within this market structure: “it is an area whose main actor is the State, [...]. Thus, the famous market structure in pure and perfect competition does not apply, even because it is a clear case of monopsony” (SANTOS, 2017, p. 68). A monopsony

structure has its prices directly influenced by its sole plaintiff, which in the case of the Defense Industry is the State (PINDYCK; RUBINFELD, 2013).

The defense sector, traditionally, stimulates the technological innovation process by firms through government purchases (ROHENKOHL; SANTOS; SILVA, 2020). With regard to government purchasing power, Edquist, Hommen, and Tsipouri (2000 apud SQUEFF, 2014, p. 10) states that

purchases could be additionally used to increase demand, stimulate economic activity and employment, protect domestic firms from external competition, increase competitiveness among firms by attracting domestic champions to perform R&D activities [...].

According to Rohenkohl, Santos and Silva (2020), dependence on State demand makes the production of security articles and services intermittent. Companies in the sector tend to diversify their production by meeting the market for military and civilian goods and services. That is, to escape from a limiting structure, firms make use of dual technology.

According to the list of the 100 largest revenues at the international level with sales of military products and services carried out by the *Stockholm International Peace Research Institute* (SIPRI, 2014 apud FIPE, 2015), firms in the sector have only 32% of their budget linked to products or services destined for the defense sector and 68% of sales destined for civilians (ROHENKOHL; SANTOS; SILVA, 2020, p. 78-79, emphasis added).

However, for different reasons firms encounter barriers, because the innovations that occur in the military sector end up not overflowing into the civilian sector (SANTOS, 2017, p. 70). Technological overflow (*spin-off*), does not always occur satisfactorily on account of gap existing in the military and civilian environment, as well as among developed and underdeveloped countries (CAMARGO, 2018, p. 7).

“[The] strategic use of government demand can improve the government’s performance in the actions under its responsibility and ensure faster achievement of certain projects” (SANTOS, 2017, p. 73-74). Through government demand the DIB could consolidate, as it happened during the period of military governments.

Government procurement is regulated by Law No. 8.666/93, which establishes general rules on bidding and administrative contracts. Law 12.349, of December 15, 2010, amended Law No. 8.666/93 with the intention of promoting sustainable national development, whose “objective is translated mainly by the establishment of a margin of preference of up to 25% of the price for goods and services produced in Brazil” (SQUEFF, 2014, p. 22), and this preference “may be extended, totally or partially, to goods and services originating in the States Parties to the Southern Common Market – Mercosur” (BRASIL, 2010).

The Differentiated Contracting Regime (DCR) also presented some advances (FIUZA, 2012, p.18), which are: “the inversion of phases, integrated hiring, supplier registration and variable remuneration”. The DCR establishes, as a tiebreaker criterion, that the preference is for companies that invest in R&D in the country. The laws and regiments created seek to elevate the DIB to the category of an industrial complex of relevance to the national scenario. However, due to the worrying budget constraint, there are “other demands and urgencies regarding social spending” (SANTOS, 2017, p. 72).

The set of public policies aimed at the sector includes the creation of specialized documents such as the NDP, the National Defense Strategy (NDS), the National Defense Industry Policy (NDIP) and the National Defense White Paper (NDWP). The Brazilian government has also invested resources aimed at promoting Science, Technology and Innovation (ST&I). The Defense Industrial Base Promotion Law (2012) allowed the establishment of “special rules for the purchase, contracting and development of defense products and systems” and “provides for incentive rules for the strategic area of defense” (BRASIL, 2012a). Another relevant aspect contained in the Law was “the implementation of the Special Tax Regime for the Defense Industry (Retid), which aims to stimulate companies in the sector through the exemption of various taxes” (ANDRADE; FRANCO, 2015, p. 34).

In this context, a need emerges to promote the training of the armaments and systems industry, in order to promote national production and intensify the generation of patents in the area, exceeding the limits of the defense industrial Base (DIB) by, “leaving the simplistic debate of the need for demand forecasting, through monopsony, with the main action of the Brazilian State, enriching the discussion with a focus on competitiveness and the opening of external markets” (MORAES; TERNUS; PINTO, 2020, p. 9).

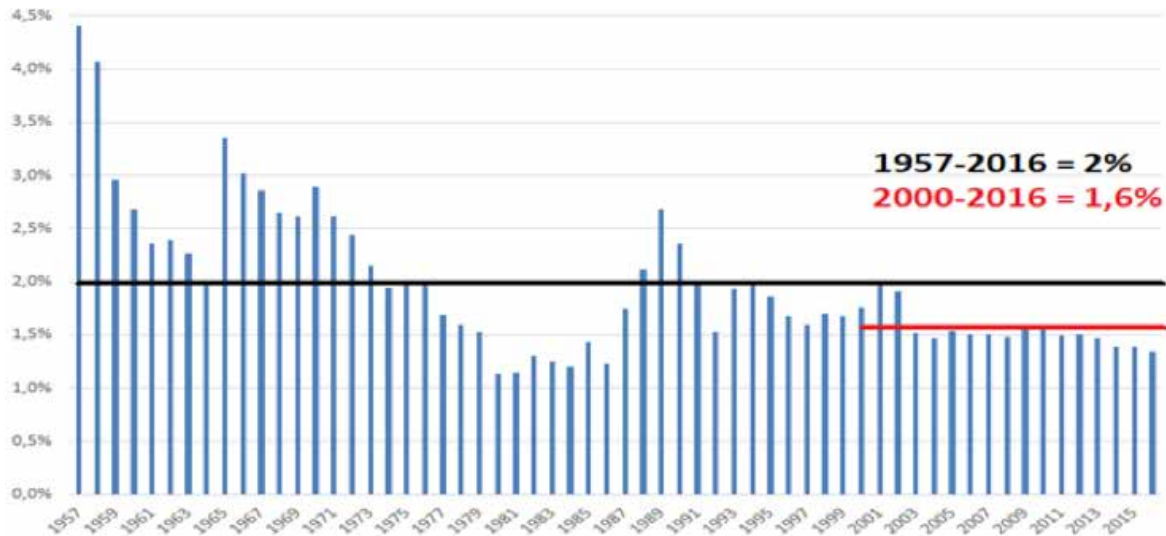
4 The defense industry and its contribution to the fight against irregular warfare

Organized crime has been progressively challenging the State and its institutions. And as already mentioned in the course of this article, the budgetary constraint faced by developing countries brings, more significantly, the *guns vs. butter dilemma*³ which basically means the “transfer of the allocation of resources from the social area to the defense area” (SANTOS, 2017, p. 70).

That is, unlike the developed countries, which can choose more freely to invest in their defense sector, the developing ones, as is the case of Brazil, “[d]ue to the *free-rider* behavior of the actors, there will be a charge for investment in other areas –health, education and leisure, for example– leading to a trade-off between investment in the defense area and the social area (*guns vs. butter dilemma*)” (SANTOS, 2017, p. 67).

3 Guns vs. Butter: Analogy for the choices between defense spending and civilian spending.

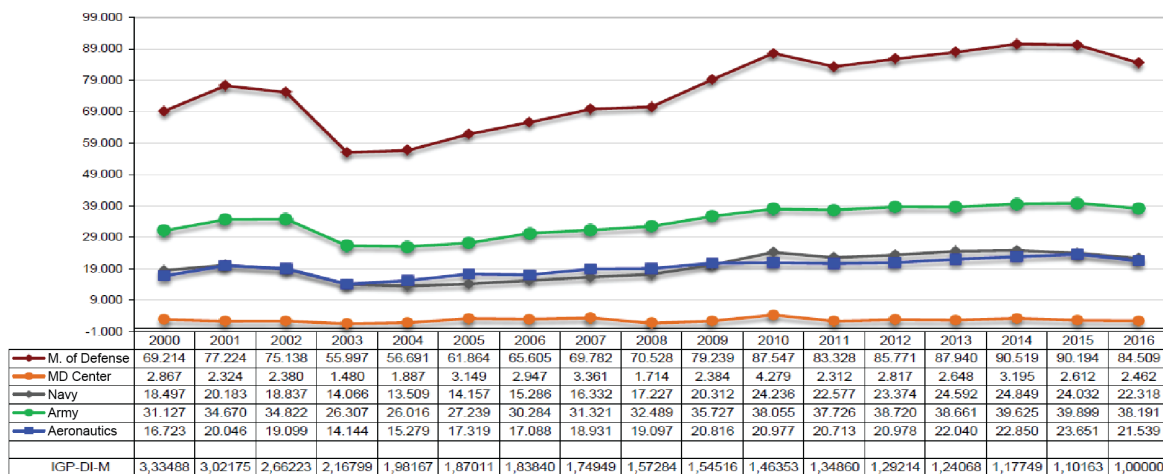
Graph 1 – Defense expenses as a percentage of GDP



Source: Silva (2017).

However, in a report made by SIPRI in 2017, it is possible to observe that the Brazilian budget aimed at the military has shown stability, when compared to the country's Gross Domestic Product (GDP) in recent years (Graph 1).

Gráfico 2 – Evolução Orçamentária do Ministério da Defesa (2000-2016)



Source: Silva (2017).

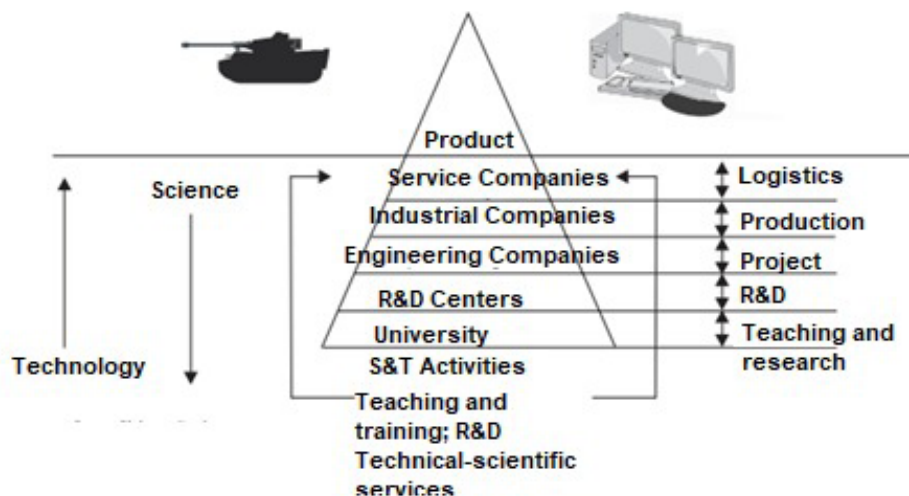
However, there is an evolution of the Ministry of Defense (MD) budget between 2000 and 2016 (Graph 2). In addition to the budget issue, technology is now taking a greater role in the fourth generation of Modern Warfare. From cutting-edge technologies, war strategies begin to expe-

riment “i) concentrated energy, lasers and electromagnetic pulses; ii) robotics, unmanned vehicles and artificial intelligence; and iii) information technology, network systems and virtual superviruses” (LIND et al., 1989, p. 24-25).

Countries that prioritize the defense industry have been investing in war technologies such as “complex anti-aircraft, anti-ship and cruise missile systems with ever-larger ranges, challenging the conventional parameters of distinction between notions of “short” and “medium” range” (SILVA, 2017, p. 30). The application of these technologies has modified the military planning of conventional and irregular forces.

This Revolution in Military Affairs (RMA) is characterized as complex and increasingly technological and “based on the evolution of military impact technology, man has maintained combat conditions, over time, by building a functioning and effective iceberg” (AMARANTE, 2012, p. 11, emphasis added). Figure 1 shows how this structure would be given, having above the “water line” the products and services, which configure the most visible elements and below is the DIB. “The closer to the base of the iceberg a particular participating institution is, the greater the scientific content of its work; and, the closer it is to the user, the greater the technological content of its activities will be” (AMARANTE, 2012, p. 12, emphasis added).

Figura 1 – Iceberg científico-tecnológico militar



Fonte: Amarante (2012, p. 12).

It becomes necessary, however, to understand that military technological advancement does not always represent an effective combat improvement. This is because the “increase or development of a more modern weapon or procedure does not always produce enough tactical effects to justify it” (DUARTE, 2012, p. 16).

Technological advancement produces a number of uncertainties about its usefulness and safety in combat. In strategic matters, technological evolution is considered useful when the new armament allows a greater concentration of forces in the theater of operations. “In an offensive campaign, for example, it matters not only the tactical capability of the armament, but also whether the quantities available confer the effect of superiority in the theater of operations” (AMARANTE, 2012, p. 19). According to Marcelino (2015), technological advances are not effectively decisive for the achievement of “tactical and strategic superiority in the war effort, where the way technology is undertaken also becomes a decisive factor that composes war tactics” (MARCELINO, 2015, p. 12).

Since the Armed Forces often operate in environments of constant insecurity, their tactical procedures are based on constant repetitions. Therefore, its innovation only becomes “possible in times of peace and with the generational alternation of officers” (DUARTE, 2012, p. 17). The Brazilian territory presents conflicts of an asymmetric nature and the adaptation to such conditions makes it even more difficult, which leads the AF to opt for simpler armaments and easy to handle, even if they are less effective.

Therefore, an armament that can be made available in greater abundance may be more important than an armament that performs better than the opponent's equivalent. Similarly, a more resilient or easier to repair/replace armament is more important than a high-performance armament that, due to its high complexity, is more susceptible to wear, damage or that is difficult to repair/replace (DUARTE, 2012, p. 17).

“The current revolution in military affairs, the epicenter of which is located in the United States, is grounded in the so-called ‘system of all systems’ [...]” (AMARANTE, 2012, p. 8). The author states that there is a worldwide trend towards automation, that is, security problems, if the AF begin to use this system in their operations, they would return to systems security. Cyber defense is another point to be considered by the AF. Cyberspace also became the scene of a kind of asymmetric warfare. Knowledge of this new extent of war is important for any State. Their lack of knowledge leads to significant losses in the “communication and surveillance capacity, and it is extremely important that the DIB turns to such dimensions” (MARCELINO, 2015, p. 13).

The current problem, however, lies in the negligence of the State in recognizing the existence of irregular warfare in national territory. From the moment that national institutions see the presence of organized crime in the country as an asymmetric initiative of war, the development of war material specific to their reality could be beneficial to their combat. Accordingly, Marcelino (2015, p. 14) states that

[the] problem in question would be to establish the central objective of the Armed Forces and the strategy that should guide them, whether it is merely to defend itself,

or a possible projection of power – being its objectives and strategies well defined, one should trace the production planning for the DIB, that is, the type of war material that should be produced and for what purpose.

In the case of the “typical threats of so-called complex irregular wars are, fundamentally, between state actors and non-state actors” (REZENDE, 2015, p. 8), the State needs not only armaments, but also patrol materials, like Unmanned Aerial Vehicles (UAV's), with the aim of preparing for any possible attack.

Also considering cyber defense as a tool to neutralize irregular forces, according to data from the *National Cyber Security Index* (NCSI), Brazil is the 61st place in the list of countries that invest the most in this aspect. President Jair Bolsonaro in early February 2020 instituted Brazil's First National Cyber Strategy (E-Cyber), that “aims to make the country a nation of excellence in cybersecurity” (STRONELL, 2020, n.p., translated by the author).

Marcelino (2015, p. 17) argues that the structure of ST&I “is much broader than the defense industry itself, therefore being the defense industrial base”. So this is the area that should be well structured for the purpose of being the producer of military technology in the country, even more so when it comes to fighting the fourth-generation modern war. However, due to the complexity of the innovation process it is necessary to master techniques and procedures (*know-how*), as well as the science behind (*know-why*). The technological domain directly contributes to greater national autonomy and helps to reduce the vulnerability of the AF, considering that “in the event of conflict or war, one of the parties can obtain specific information about the armaments used by the enemy, and thus prepare against this type of war material” (MARCELINO, 2015, p. 19).

Amarante (2013) argues that there is a technological curtailment, which “is a set of judicial measures normally taken by developed States against developing or emerging States, in order to prevent access to sensitive technologies” (AMARANTE, 2013, p. 80), by countries that have technological knowledge and have no interest in their division, preventing the development of certain military technologies.

Given this, States should seek strategic partnerships, aiming at cooperation and technology transfer. In the last decade, Brazil has signed agreements with several countries, such as the one signed with Mozambique. In 2009, the first bilateral defense cooperation agreement was signed between the two countries. In 2014, a specific agreement was instituted on “training for peacekeeping, joint military exercises, training of military pilots in Brazil, participation of Brazilian instructors at the Higher Institute of Defense ‘Lieutenant-General Armando Guebuza’. [...]” (BUSSOTTI; MACAMO, 2018, p. 128).

The creation of the Surface Means Obtainment Program (PROSUPER - Programa de Obtenção de Meios de Superfície) also contributed to the transfer of technologies between nations, whose objective was to renew the Brazilian Navy's surface fleet and the protection of the Blue Amazon. In view of this project, “[s]everal companies from seven countries – Germany,

South Korea, Spain, France, Italy, the Netherlands and the United Kingdom – showed interest in participating in PROSUPER, accepting the requirements of technology transfer and construction of equipment in Brazil” (WIESEBRON, 2013, p. 119). Although having made important agreements, Brazil has been denied access to sensitive knowledge because of technological curtailment.

Although cooperation and technology transfer agreements are the most common choices for States in the search for combating irregular forces, some countries and blocs have sought other alternatives, which can serve as *benchmarking*. Colombia, to combat the Revolutionary Armed Forces of Colombia (RAFC), instituted the “Plan Colombia, through which billions of dollars were sent from the United States to Colombia, with the aim of financing operations against drug trafficking and against insurgent groups present in the Andean territory” (LANGE, 2020, n.p.). For the U.S., the greatest interest in fighting the RAFC was in the hope of reducing the influx of drugs into the country.

In 2012, an agreement was signed between the Colombian government and the revolutionary group on agrarian development. The following year, the group, in turn, recognized that it left several victims in the country, in addition to the political participation of the RAFC, as of October 2013, “the guerrilla group would not only have its political representation legitimized, but also in the next two national electoral processes (2018 and 2022)” (LANGE, 2020, n.p.).

Europe, in turn, faces another kind of asymmetric war on its territory: terrorism. According to the European Council website “The fight against terrorism is one of the main priorities of the EU and its Member States, as well as its international partners” (CONSELHO EUROPEU; CONSELHO DA UNIÃO EUROPEIA, 2020, n.p.). In 2019 there were 119 terrorist attacks, counting those that failed, were aborted or perpetrated, and 1004 people were detained for terrorist offenses. In the quest to contain these advances, the European bloc has adopted some measures, among them: strengthened rules to prevent new forms of terrorism, the intensification of controls at external borders, better control of firearms and the creation of a specific body to combat terrorist propaganda online (CONSELHO EUROPEU; CONSELHO DA UNIÃO EUROPEIA, 2020).

The USA, after the attacks on the Twin Towers, assumed an even more aggressive posture in the fight against terrorism in its territory. The country acts “with the curtailment of privacy and, more generally, of the rights of suspects, through massive discrimination against foreigners of Arab and Muslim origin, repressive legal actions and interventions in the guarantee of *habeas corpus*” (CHEVIGNY, 2004, p.151-152). Still according to the author (CHEVIGNY, 2004), the American posture of creating preventive attacks is constantly seen as a danger. This is because asymmetric conflicts present themselves in a unique way and, therefore, it is up to each country to understand, within its defense strategy, such a reality. Brazil must draw inspiration from other nations to combat this type of belligerence on its territory, but must always take into account its social, military and financial situation.

5 Final considerations

This research sought to understand the concept of Irregular Warfare and its high incidence in different States, including Brazil, through organized crime, in addition to understanding irregular warfare and its similarities with organized crime, the role of the State in dealing with irregular conflicts and the relationship between the DIB and the Brazilian State. Because it is a monopsony, the prices of the companies that comprise the DIB are directly influenced by the single consumer. The State, the only client of the defense industry, assumes the role of its greatest supporter and influencer.

Government purchases, in this context, have the power to increase demand, stimulate economic activity, protect national businesses, stimulate employment, and minimize regional disparities. However, in the case of the defense industry, the State must provide purchase guarantees to encourage investments in the sector. In the absence of State support, DIB companies seek alternatives to its operation. The opportunities to escape this obstacle is the use of dual technology and the development of products used in civil and military means.

The budget issue is a limiting factor, especially in developing countries, since there are other pressing needs, such as health and education. Although there are limitations, the implementation of technologies is an important and determining factor for combating irregular warfare. Technological advancement initially generates uncertainties about security in combat, although its appropriation (learning process) allows substantial gains.

Cyber defense was another point of extreme importance in Irregular Warfare. The cyber world today represents yet another battleground, creating a need for the development of sensitive technologies to generate better communication and surveillance. Brazil has E-cyber, but such an initiative, when compared to the other nations of the world, is delayed. To try to reduce the technological gap and, considering the “technological curtailment”, Brazil has been establishing technology transfer partnerships with several nations.

Finally, this research brought some examples of what has been done by other countries in an attempt to overcome the different threats of Irregular Warfare, such as Colombia, the European Union and the United States. Brazilian institutions should be dedicated to recognizing organized crime as an Irregular Warfare initiative and promoting an investment environment in ST&I for DIB. It is necessary to discuss national security, the development of the DIB and the fight against irregular threats, in order to minimize the impacts of this type of conflict in Brazil.

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REVIEW: Defense Diplomacy: Strategic Engagement and Interstate Conflict.


KATZ, Daniel H. **Defence Diplomacy**: Strategic Engagement and Interstate Conflict. London, UK; New York: Routledge/Taylor & Francis, 2020. ISBN - 978-0367135966.

Abstract: The book studies strategic engagement, one of the streams of Defense Diplomacy, undertaken by rival states in the international arena. The author analyzes the relationship between the United Kingdom and Germany before the First World War, between the US and the USSR during the Cold War and the current Sino-American tensions.

Keywords: Defense Diplomacy. Cold War. China. USA.

Resumen: El libro estudia el compromiso estratégico, una de las vertientes de la Diplomacia de Defensa, llevado a cabo por Estados rivales en la arena internacional. Para ello, profundiza en las relaciones entre Reino Unido y Alemania antes de la Primera Guerra Mundial, entre Estados Unidos y la URSS durante la Guerra Fría y en las actuales tensiones chino-estadounidenses.

Palabras Clave: Diplomacia de Defensa. Guerra Fría. China. Estados Unidos de América.

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The book “Defence Diplomacy: Strategic Engagement and Interstate Conflict” is written by Daniel H. Katz. This is the most recent study by the author, published in 2020 by the Routledge publishing house, according to Katz, aimed for “students of Defense, Diplomacy, Foreign Policy and International Relations”.

The book begins with the assumption that diplomatic and military affairs are intrinsically connected. Although the diplomatic field is led by foreign ministers and the military by defense counterparts, Katz repeatedly brings up the argument by the German theorist Carl von Clausewitz (1984) that politics and war are umbilically linked.

The second chapter begins with the author’s assertion that very little has been written, so far, about strategic engagement. This becomes, according to him, the “diplomatic defense interaction between potential adversaries”. In this field, the work “Defense And Diplomacy: The Soldier And The Conduct Of Foreign Relations” is seminal (Vagts; Fox, 2011). Katz says that several theses were written by US military personnel dealing with the system of defense attaches or bilateral relations in the field of defense. Only portions of military journals debate the role of military diplomacy and strategic engagement.

The chapter ends with the author discussing how strategic engagement is approached in three major paradigms of International Relations: defensive realism, neoliberal institutionalism and constructivism. In the case of the first, Katz indicates that strategic engagement may or may not contribute to conflict reduction, as defensive realists see it as one more way to gain an advantage over the opponent. Neoliberal institutionalists believe that strategic engagement is a regime that can promote mutual cooperation within the context of the “prisoner’s dilemma”. Finally in the case of the third paradigm, Katz believes that constructivists envision strategic engagement as a way to alter the preferences of rival states through the transmission of norms, turning enemies into friends through socialization and mutual learning.

From the third chapter onwards, the author begins the case studies on the relations between the United Kingdom and Germany prior to World War I. The author argues that diplomacy between the UK and Germany has exacerbated rather than lessened tensions between them. The Germans discouraged the practice of conversations through official diplomatic channels due to the influence of Admiral Alfred von Tirpitz, Minister of the German Navy, who feared the constraints that could be imposed by the British to the exponential growth of the power of the German armada. Katz also reports that the position of the United Kingdom regarding the expansionist movements of Germany was not clear, especially regarding France, which came to be interpreted, mistakenly, as a supposed British neutrality.

The political impact, according to Katz, also affected strategic engagement. He bases the argument on the failed Haldane Mission headed by Lord Richard Burdon Haldane, UK Secretary of State for War. Haldane was sent to Berlin in 1912 to avoid further escalation of tensions between British and Germans. This failure, as well as Churchill’s speeches affronting the Germans, demonstrated the lack of British political unity. In Germany this was even more evident, as Chancellor Bethmann-Hollweg was ignored in his pacifist advisements, in contrast to the attention paid by Kaiser Wilhelm II to the bellicose

speech of Tirpitz and General Alfred von Schlieffen, Chief of Staff of the German Army, who adopted a “cult of the offensive” mentality. Even an international naval exhibition, Kiel Week, to which the British King George V was invited in an ostensibly conciliatory gesture from Germany, ended up being misinterpreted by the British as a show of force, evidencing all the animosity that permeated the two nations.

The fourth chapter analyzes defense diplomacy between the United States and the Soviet Union. This was a case of successful strategic engagement between the two great Cold War powers. The huge differences in regimes and ideologies made any attempt at reconciliation at the political level unlikely. The Incidents at Sea Agreement (INCSEA) and the Standing Advisory Commission (SCC) contributed to the deterrence of hostilities by bringing together common goals that bridged the differences between the Americans and the Soviets. These instruments were not put into effect in the form of treaties, but in the agreement between the two countries' military concerned with possible unintentional accidents at sea and with the proliferation of nuclear weapons. The military diplomatic channel, facilitated by the universal institutional culture of the Armed Forces, supported the approximation of the US and the USSR, showing the effectiveness of strategic engagement.

Chapter five focuses on the current relationship between the US and China. The author notes a series of obstacles to strategic engagement between these nations. The Chinese rise, in the economic and military fields, has become a concern and a threat to the interests of Americans and their allies in the Asia-Pacific region. Katz talks about the existing strategic mistrust, with the Chinese being accused by the Americans of not being transparent and of having, in the People's Liberation Army (PLA, in English), an armed wing serving the interests of the Chinese Communist Party (PCC) dictatorship. The Chinese, likewise, do not believe the Americans will renounce their hegemonic status to accommodate China's rise. The Chinese expansion into its Southern Sea and its use of the A2/AD (Anti-Access/Area Denial) concept are seen as its own version of the Monroe Doctrine. The American stance of support for Taiwan, seen as a priority objective for China, only aggravates the conflict. The scholar sees an urgent need to intensify strategic dialogue to keep Sino-American dialogue channels open.

In the penultimate chapter of the book, Katz compares and contrasts strategic engagement in the three case studies. Civil-military relations were a positive point in the US-USSR relationship during the Cold War, which was characterized by the success achieved with the INCSEA and the SCC. This was not the case between the United Kingdom and Germany, with governments, bureaucracies and military in disagreement, and between the United States and China, which have divergent interests and actions involving the use of the South China Sea and the status of Taiwan. The good quality of American-Soviet diplomatic-military relations contrasts with the deficiencies of the Haldane Mission, sent from London to Berlin, and the strategic mistrust generated by the domination of the Chinese PLA by the CCP Politburo.

In its conclusion, the book takes up the main objective of strategic engagement, the reduction of the propensity for conflict among potential adversaries. Katz mentions

Graham Allison's pessimistic view (2020) and John Mearsheimer's (2014) offensive realism regarding the inevitability of the Thucydides Trap and the security dilemma in current Sino-US relations, two economic, military and nuclear powers. For him, the examples of the Anglo-German conflict and the Cold War provide important lessons on how different factors can hinder or foster strategic engagement. Good communication and mutual trust measures, as noted in the case of INCSEA and the SCC, are valuable tools for defusing tensions and preserving constructive dialogue between China and the United States of America.

The renowned French realist theorist Raymond Aron (2018), in his classic "Peace and War between Nations", examines international relations bringing the idea of diplomacy and the military as two sides of the same coin. Both represent the State in its essence, with a leading role in the execution of a country's foreign policy, whether through negotiation, cooperation, conflict prevention and, if it reaches an extreme, war. Defense diplomacy is placed in this context, exercising part of these actions using military resources and personnel in a non-violent way, as a foreign policy tool (Cottey; Forster, 2004).

Daniel H. Katz's book represents an important contribution to the Military Sciences, as it approaches defense diplomacy from the perspective of one of its subfields, strategic engagement. This one, when dealing with the rapprochement between rival nations, brings embedded the very meaning and relevance of using military means as facilitators of a process of acquiring mutual trust.

Katz brings solid arguments against the inevitability of a conflict between the United States of America and China. To that end, he made an accurate analysis of the two cases where strategic engagement was applied with different results, extracting the causes of success and failure, in a logical and coherent manner, seeking to extract premises and lessons that can be applied by North Americans and Chinese, in order to foster stability and avoid the bellicose escalation of this interaction. The author achieves his goal of demonstrating the validity and viability of defense diplomacy as a channel of interstate relations that helps achieve mutual understanding.

The relevance of the work is another aspect that positively qualifies it. Because it was published in 2020, Katz managed not only to address past strategic engagements, but also to outline an overview of the challenges and obstacles faced by the United States and China, with their rise as an economic and military power posing a threat to the hegemonic status quo American. Katz concludes that defense diplomacy can help escape the Thucydides Trap.

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