CURRENT OVERVIEW AND FUTURE PERSPECTIVES ON INTEGRATED DEFENSE LOGISTICS IN SOUTH AMERICA: OPPORTUNITIES FOR THE REGIONAL DEFENCE INDUSTRY

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Introduction

This paper aims to analyze the current overview and future prospects for an integrated defense logistics in South America, emphasizing the South American countries’ defense industries, seeking to formulate considerations on the perspectives for the creation of a regional defense industry base.

South America can be defined as a strategical region, for besides being surrounded by both the Atlantic and Pacific Ocean, it possesses the world’s largest rainforest, an immense amount of productive land, huge potential

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for natural, energetic and mineral resources, among which the abundance of water, the diverse biodiversity and the oil and natural gas production can be highlighted, attributes that always attract international attention. History, however, teaches that only those who can defend their riches can enjoy them, and the only countries that have effective means for the defense of its own interests are those that dominate its technology and production (Amaral, 2014).

According to Herz (2010), South America is seen as the second most pacific region in the world, following Europe, but that doesn’t mean it can afford to be defenseless. The relative political stability, the economic development perspectives and the increase of the commercial relationships make South America a region with potential for integration, in such a way that a greater cooperation regarding the defense sector could present an alternative to the strengthening of South America’s defense industry base, allowing the development of the defense and security systems the region needs. This would be eased, as stated by Pecequilo (2008), because the 21st century brought about a demand for the update of the global and multilateral tradition, causing an evolution through the convergence of the bi and multilateral levels of foreign policies, aiming to expand and combine the horizontal and vertical dimensions of the strategic partnerships, offering a favorable environment to new cooperation models.

In order to ensure a peace and security zone and greater cooperation among the South American countries, in May 2008 the Union of South American Nations (UNASUL) was created, with very ambitious aims4, comprised of 12 countries in South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela. Among the objectives, those that directly impact on the subject of this paper are highlighted, with very clear directives such as “industrial and productive integration” and “implementation of common or complementary policies and projects on research, innovation, technological production and transference in order to increase the local scientific and technological capability, sustainability and development” (Brazil 2012a). In line with this scope, in the end of the same year, through a Brazilian initiative, the South American Defense Council (SADC) was created, and among its general aims the building of a regional defense identity and the integration of the defense industry bases can be found (SADC/UNASUR 2008).

UNASUL and SADC are tangible aspirations, for we must take into account that its member states have similar socioeconomic realities and challenges to their development, and common historic experiences. Besides, the

4 See Article 3 of the Decree No. 7,667, of Jan 11th, 2012 – Constitutive Treaty of the UNASUL (Brazil 2012a)
political leaderships of these countries have long had a tradition of proximity, easing the mutual comprehension and allowing for a pacific accommodation of a number of national interests. This is vital, for according to Serrano (2008, 109), in a regional integration process “it is fundamental that the decision makers have the political will to integrate”.

Furthermore, the similarities of the cultural aspects can’t be forgotten, as well as those related to the languages and the socioeconomic realities. It also must be said that much of the region share geographical characteristics. In the north, for instance eight countries have the Amazon biome, while the south cone share extensive grasslands and the same exit to the Atlantic Ocean, which if in the past was reason for disagreement, today is of common access, bringing development above all to Brazil, Argentina, Paraguay and Uruguay.

In this way, the affinities, allied with the newly created SADC, create conditions to the implementation of common projects in the defense area, among which the development of materials, weapons and military equipment, reinforcing a Defense Industry Base (DIB) in the subcontinent and a Defense Logistics scaled to developing countries sharing most of the same strategical surroundings.

To achieve this study’s objectives, the paper is divided in three section, besides this introduction and the final considerations. The first one is dedicated to the theoretical references regarding defense logistics and the relevant aspects of a DIB. The current conjuncture is then approached in relation to an integrated defense logistic in South America. In the third section the future prospects regarding said logistic and the creation of an integrated industrial base regarding defense are presented.

Theoretical References

According to Kress (2002, 8), defense logistics can be understood as a discipline that includes the resources necessary to keep the means necessary to the military process functional, in order to achieve its desired results. To him, “logistics are one of the most tangible components of a combat” and is composed of “creative and non-formal” attributes, revealing a certain artistic facet, needing for its good management, of “common sense, experience, imagination and the ability to improvise”.

According to other authors, logistics includes a significantly wider scope of challenges involving the purchase, support and the removal of constraints, besides the storage and physical movement of materials. They highlight, furthermore, that the activities related to logistics usually rely on
the good will of the involved states, commonly hindering the process (Yoho, Rietjens and Tatham 2013). In the same sense, Kress (2002) stresses that the decisions related to defense and its logistics are usually designed in the political level or, exceptionally, in the strategical level. The decisions taken, be them right or not, good or bad, have impacts in the long term, especially those that affect the research and development (R&D) and the purchases, and those impacts are usually followed by economic implications, reverberating in the society.

In this wider scope of defense logistics, reaching not only the purchase, but the development of assets and related products, it is fundamental the concept of defense industry or DIB. According to the National Policy of the Defense Industry, DIB is:

The group of state and private companies, as well as civilian and military organizations, that participate in one or more of the stages of research, development, production, distribution and maintenance of strategic defense products (Defesa 2005).

Furthering this definition, DIB can also be described as a group of industries in a country or region that specifically produce military assets such as missiles, warships and artillery, and could also include those industrial sectors that produce goods destined for civilian use, if most of its products are destined to the defense market (Markowski, Hall and Wylie, 2010).

To facilitate the understanding, Dunne (1995) present a classification of the materials produced by the DIB: large lethal weapons or systems of small weapons; non-lethal weapons, but strategic products, such as vehicles and fuels; and other products consumed by the military such as food and uniforms. The weapons may have a high technological value added, creating very expensive systems, such as a war ship or plane, or even smaller weapons, including less technology and much smaller prices, such as a revolver or a pistol. Much of the equipment produced by the defense industry, bearing both a lot and little technology, can still be of dual use, in other words, depending on how they are produced, can be employed both to military and civilian uses.

The defense industry is an area that demands heavy investment and high technology. That is the reason why we must take into account that the economy, defense logistics and politics are directly related to the defense capabilities of a country, reflecting both in their deterrent potential, as the operationality of their Armed Forces. In this sense, inputs much inferior to the needs may bring negative consequences to the sector and, consequently, to the operationality of the troops. The preparing and employment actions of
the military power are, therefore, intrinsically interdependent and cannot be
dissociated of the capabilities of the industry of defense materials and services
(Da Silva and Musetti 2003).

A preponderant factor, in regards to the purchase of defense prod-
ucts (DEPRO) is that the expenses come much before the effectivity of the
investments is known, something only confirmed during moments of crisis
(Markowski, Hall and Wylie 2010). From that comes the difficulties many
governments face when justifying to the public their budgets and expens-
es with this kind of product. This difficulty is even greater in countries not
directly involved in military conflicts or where the perception of a foreign
threat is significantly removed from the population’s daily lives, as is the case
of many South American countries. For it is exactly in this context that the
cooperation through the sharing of the investments seem to better maximize
the available resources, showing to be a viable option, especially in an area of
elevated costs such as defense.

Dunne (1995) highlights that the development of a Defense Industry
tends to usually be beneficial, for it leads to the technological development
of a number of sector, to the creation of jobs and the hiring of qualified pro-
fessionals. Hartley (2006), however, stresses that the costs to the upkeep of
a purely national DIB are too high, demanding a high commitment from the
government, opposing the need for the same government to invest in the
social welfare. This observation imposes to the decision makers the need for
new ways to obtain DEPRO. According to him, a good alternative would be
the cooperation among countries, in a way that offers benefits to the creation
of an efficient industrial defense policy. He also stresses that the free market
between the partner states would lead to specialization gains (countries spe-
cialized in the production of certain assets) and competition gains. The joint
development of DEPRO avoid the duplicity of expenses with R&D, while the
greater amount of goods to be produced reduces its production costs, leading
to economy of scale and knowledge.

In fact, if we look at it in a wider way, after the end of the cold war and
the decrease in the demand for weapons and war platforms that followed, the
global defense market and industry had to restructure themselves. According
to Reppy (2000), in 1998, with the wave of merges and downsizings, the
world was limited to only four big companies in the sector, with the fourth
producing double what the fifth did. In this context, Reppy begins to demon-
strate the current importance of the small and medium companies in the
defense sector, especially since the tendency towards electronic uses began
to show. He states that, in a context of electronic systems, the association
between small and medium companies that dominate part of the necessary
technologies is eased, overall in the most basic levels of these systems, where there is also a greater possibility for their dual use.

Analyzing the transformations of the United States Armed Forces, Drombowsky and Gholz (2006) highlight the need of interoperability among the different systems, especially the electronic and communication ones. Yoho, Rietjens and Tatham (2013) draw attention to the same interoperability, that according to them must guide any initiative towards logistical and industrial integration, particularly in a context where military operations tend not only to be carried out in a joint way, but often combined.

Da Silva and Musetti (2003) report that, from the National Meeting of Military Logistics, in 2002, it was concluded that the actions of preparation and employment of military power must be closely associated to the national capacitation of the defense industry and that the development and maintenance of a national industrial base, technologically developed and able to minimize external dependency, are strategic and priority objectives of the military logistics. However, it is a fact that less developed countries are able to produce only a small fraction of its defense needs (Markowski, Hall and Wylie 2010). In this sense, developing countries, such as the South American ones, without exception do not have all the conditions needed to increase the strategic capability of its arms industry in all the necessary fields. As stated by Matthews and Yan (2010, 268), it would be often necessary to share the “burden of defense”, being cooperation an opportunity to overcome such a limitation and develop the sector. This is especially true for a region such as South America, that, relatively to other regions in the world, is practically free of important intraregional conflicts.

De Negri (2005), highlights that the international commerce slows the process of technological development of less developed countries, or of those that enter the international commerce with a technological disadvantage. Thus, Amaral (2014), stresses that regional integration is the available option for us to start a process of overcoming of the limitations imposed to us by the great powers, particularly in regards to access to cutting-edge technology. In this sense, Markowski, Hall and Wylie (2010), even before suggesting scientific cooperation, are more modest, highlighting that a solution to the purchase of defense products for less developed countries would be the joint purchase, in other words, the union of two or more countries to this end. To

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5 Amaral explains that the US and the countries that hold the technology have been embarking initiatives such as the commercialization of the Tucano and the AMX with Venezuela, as the planes have originally North American components. He also mentions other examples, such as the US having pressed FIAT AVIO not to join a joint venture with Infraero and the Chinese Yuzhnoye with the objective of launching rockets from Brazil (Amaral 2014).
the defense production, the authors stress the effectiveness of the joint venture process.

In terms of cooperation involving less technologically or military developed countries, examples such as that of Singapore, that joined Australia, New Zealand, Thailand, Taiwan and Malaysia to overcome some limitations in its defense area, especially regarding the land and air space necessary to trainings and reformulation of its defense industrial base are mentioned (Matthews and Yan 2010). In the same way, the Dutch government have been stimulating agreements regarding the sharing of the workload with neighboring countries. They have been coordinating their purchases aiming to prevent the fragmentation of the industry and improving sustainability in the long term for its defense related industries (Dirksen 2010).

Because of this, it seems that it would be ideal to seek integration, for in terms of cost-benefit the cooperation and development of a regional defense industry are advantageous. Beyond this, “the integration is a kind of regionalism that provides the region with the opportunity to become a relevant actor of the international system. It includes commercial trades and cooperation in both the economic and sociopolitical spheres, surpassing the exclusively intergovernmental model” (Serrano, 2008, 109). Exactly because of this, this integration must be sought not only in the political level, but also directly in the industrial and scientific level, involving the production and development of defense inputs. For that, increasing mutual trust among all countries would be the main aspect necessary to the creation of a regional cooperation in the defense sphere (Saint-Pierre and Palacios Junior 2014).

Current overview on integrated defense logistics in South America

To begin approaching specifically the integration of the defense logistics in South America, we resort to Abdul-Hak (2013), who states that there is a repressed demand for military products in South America, that could be partially met through South American industrial cooperation in matters of defense. However, the same author, when studying regional industrial cooperation regarding defense, makes an analysis, followed by a diagnosis, leading her to conclude that the sector is in a modest situation and that, under these circumstances, there is only a limited capacity for integration.

In relation to the South American armored vehicles industry, for instance, only three companies have managed to produce and sell to the Armed
Forces in the region. These are the ENGESA\textsuperscript{6} - Grupo de Engenheiros Especializados S/A (Brazilian), the TAMSE\textsuperscript{7} - Tanque Argentino Meridiano Sociedad del Estado (Argentinean), and the FAMAE\textsuperscript{8} - Fábricas Maestranzas del Ejército (Chilean). The first two declared bankruptcy and the last one was reduced to the condition of service provider of maintenance of armored vehicles, without greater production capabilities (Abdul-Hak 2013).

The following table represents the sales of armored vehicles, of Brazilian making, made to South America, not only showing Brazil’s past strength in the sector, but also a South-American interest for regional products with quality.

Table 1 – Brazilian made armored vehicles sold to South American countries

<table>
<thead>
<tr>
<th>Country</th>
<th>EE-9 Cascavel</th>
<th>EE-11 Urutu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>123</td>
<td>56</td>
</tr>
<tr>
<td>Paraguay</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Uruguay</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Ecuador</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Bolivia</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Brazil</td>
<td>408</td>
<td>223</td>
</tr>
</tbody>
</table>

Source: Da Silva, 2010

Since August 2007, the Fiat/Iveco company was hired to work in the project of the Guarani (armored wheeled medium reconnaissance vehicle), developed by the Brazilian Army, and installed a factory dedicated to the project in Sete Lagoas, in Minas Gerais. Besides specifying all the requisites necessary to the vehicle and choosing the manufacturer, the Brazilian Army participated in all the stages of the project and holds its intellectual property and royalty rights in the event of exportation. It is important to point out that Argentina, as an emergency, purchased 16 of the vehicles, to be used in the Joint Combined Peace Force “Cruz del Sur”\textsuperscript{9} (During 2012). Because of this, it can be observed that the South American armored vehicles industry, formerly

\textsuperscript{6} ENGESA was a Brazilian company created in 1963. It even became the biggest global producer of armored vehicles, such as the EE-9 Cascavel and the EE-11 Urutu. Before going bankrupt, in 1993, sold its products to 18 countries. Available in https://pt.wikipedia.org/wiki/Engesa. Access in Mar 13th, 2016.

\textsuperscript{7} Founded in 1979, stopping production in 2001 (Abdul-Hak 2013).

\textsuperscript{8} Created in 1811 and still functioning (Ibidem).

\textsuperscript{9} Standby force available to the UN, since 2011, comprised by troops from the Armed Forces of Argentina and Chile (Ruz 2008).
below desirable levels, begins to gain new impulse with the Brazilian project, with strong possibilities of exports to the South American countries, as happened to the Urutu and Cascavel in the close past.

In terms of campaign artillery, Brazil and Argentina are the ones that stand out. AVIBRAS, Brazilian company in the artillery segment, is the biggest in South America (Abdul-Hak 2013). The company is responsible for the production of the 70mm rocket artillery system Astros Hawk, with a 12-km range, and the multiple platform saturation rocket system Astros II, with a range from 9 to 90 km. Currently, it is working on the Astros 2020 project, consisting in the development and construction of a tactical missile with a range of 300 km and the adaptation of a launcher for said missile. The same company also develops the unmanned aerial vehicle “Falcão”, a totally national tactical reconnaissance and surveillance vehicle, that will work together with the Astros system (Avibras, 2015). In Argentina, through an agreement signed by the country’s Defense Ministry and the Dirección General de Fabricaciones Militares (DGFM), in 2008, the rocket system Lanza VC CP-30 was developed, able to launch the “Pampero” rocket, with 105 mm, and the SABOT, with 127 mm, and a range from 30 to 35 km (Argentina, 2012).

The regional naval industry, according to Vilela (2009), has been showing itself to be more consistent, with a majority of state companies. In the Brazilian case, there is a capability to build, modernize and repair conventional submarines. The technological content of the sector in Brazil also benefits from the country’s knowledge of the enriched uranium production technology, fundamental to the project of a nuclear propelled submarine. The Navy’s Arsenal in the Rio de Janeiro has the biggest repair docks in South America. In this area, it is important to highlight that Brazil also has about 50 shipyards along its coast, some of them with a large size, which contributes to the resurgence of the Brazilian naval industry, especially stimulated by Petrobras’ demands for platforms, crafts and similar (Rosa 2014). Although it is currently turned to civilian uses, a prospective regional demand could justify a “spin-on”\(^\text{10}\) to the uses of this capabilities.

In Argentina, the Tandanor shipyard have capacity to the construction, modernization and repairs not only of war-ships, but also tugboats and merchant ships, and counts with modern ship elevation system of up to 55,000 tons (Tandanor 2016). The Astilleros Rio Santiago company, another state company, stands out in the construction, modernization and repairs of warships

\(^{10}\) The most traditional term of the industrial and defense areas is the “spin-off”, when a research destined to military ends yields technologies and capabilities to the civilian production. The “spin-on” would be the opposite, when the civilian know-how would be used in the military production.
of the Argentinean Navy. This shipyard was responsible for the construction of the 6 Meko corvettes and is able to build destroyers, besides building merchant ships of up to 60,000 tons. In Chile, the ASMAR (Astilleros y Maestranzas de la Armada) shipyard is the one responsible for building and repairing military ships for the national security. Recently landing crafts, ocean patrol ships and high-speed pneumatic boats were built, and the destroyers and frigates of the Chilean Navy were modernized (Asmar, 2016). In Peru, the SIMA company provides the Peruvian Navy with construction and repair services and is able to repair type 209 submarines (Vilela, 2009).

Colombia, through the COTECMAR (Corporación de Ciencia y Tecnología para el Desarrollo de la Industria Naval Marítima y Fluvial), has already developed an ocean patrol ship. The company has a contract to deliver six more to the Armed Forces, and, according to analysts, is able to build strategic fleets and frigates. The corporation also developed and built river patrol-motorboats (LPR-40 MKII), having exported four to Brazil. Besides, both countries work together in the development and project of patrol-motorboats to be used in the Amazon River (Pelcastre 2014).

In relation to the aeronautics industry, stand out in the studied region the Empresa Brasileira de Aeronáutica (EMBRAER), the Helicópteros do Brasil (Helifbras), the Empresa Nacional de Aeronáutica (ENAER), in Chile, and the Fábrica Argentina de Aviones (Fadea). Among these, EMBRAER is the one with the greatest exporting potential, being South America already an important market for military planes. It is important to stress that the company produces the light training and attack aircrafts Super Tucano that, besides being purchased by the Brazilian Airforce (FAB) and the Colombian Airforce (FAC)\(^1\), were recently selected by Chile and Ecuador to integrate their forces. Currently, the company also develops commercial aircrafts, for the air forces’ demand is insufficient to guarantee the company’s operations (Vilela 2009).

Fadea recently began development and fabrication of the IA-63 Pampa III, a plane designed to the capacitation of the Argentinean Armed Forces and other aerial missions, such as light attacks. The company also demonstrated ability to provide weapons systems, landing gear and communication equipment, including partnerships with Brazil and Chile (Argentina, 2016; Comenzó, 2015). Fadea also provides maintenance to the FAC’s C-130 aircrafts and the Brazil Navy’s (MB) AF-1/1A (Ibidem).

Helifbras is the largest helicopter manufacturer in South America, responsible for the production and sale in Brazil of aircrafts from the Air-

\(^1\) The Super Tucano was successfully used in the attack against FARC guerrillas in Ecuadorian territory. Said action increased the value of the use of the aircraft in low heights bombardment operations.
bus Helicopters, world’s largest provider in the sector. Develops cutting edge technology and is able to produce a number of helicopter models answering to civilian, government and military demands, having delivered, up to 2014, more than 750 helicopters to the national market. The company produces 8 different models of military helicopters to the Brazilian Armed Forces (Heli-bras 2015).

ENAER is a Chilean state company founded in 1984, internationally recognized for the production of aircrafts and air structures in operation around the world, particularly in South America. Its participation in joint projects with important companies, such as EMBRAER, is joined by the production of the training aircraft T-35 Pillan, in operation in countries such as Spain, Ecuador, Paraguay, and Chile itself. Besides, it also produces the attack aircraft T-36 Halcón, provides maintenance and modernization services to the aircrafts’ systems of the Chilean Air Force (FACH) (Enaer 2016). It is important to stress that this company performs maintenance in Boing 707, 737 and MD 80 aircrafts, besides producing parts of fuselage and empennage, standing out the empennage set of the aircraft ERJ-145, to EMBRAER (Vilela 2009).

Still in relation to the aeronautics industry, a good example of integration is the development program of the KC-390, of EMBRAER, that involves industries from Argentina, Portugal, and Czech Republic that, besides providing specific components, already ordered aircrafts. In the Argentinean case, Fadea provides the frontal landing gear doors, right frontal door, part of the rear access ramp, flaps and tail cone (Argentina, 2016). The participation of Fadea in the KC-390 Program, strengthens the cooperation between the technological and industrial bases of defense of both countries (Embraer 2011).

Another example is related to the modernization contract of 14 EMB-312 Tucano aircrafts of the FAC. The contract is a result of the offset obligations of EMBRAER, resulting of the sale of 25 Super Tucano aircrafts in 2005 and comprises the transfer of technology and know-how to the Corporación de la Industria Aeronáutica Colombiana (CIAC) (Defesa/Fiesp, 2012). CIAC is also building the T-90 Calima aircraft, that will be used to strengthen the capabilities of the FAC’s Grupo de Vuelos (GRUEV) and performs maintenance, modernization and repairs in high complexity aircraft (Pelcastre 2014).

The Colombian defense industry has been increasing its production throughout the years, with the impulse of new projects and modernization and development efforts of the business sector and the Defense Sector So-
cial and Business Group (GSED). GSED is part of the Colombian Defense Ministry and is responsible for leading and orienting the corporative policies of 19 defense sector companies. The Colombian industry has specialized in developing and producing technical and tactical weapons to be used in asymmetrical combat, particularly against criminal organizations. Among the Colombian companies working with the defense sector, besides those previously mentioned, stands out INDUMIL (Industria Militar Colombiana), responsible for the production of the Galil SAR and Galil AR assault rifles, the Córdova pistol, guided missiles to the FAC and the maintenance of vehicles of the Infantry of that Army (Pelcastre 2014; Resdal 2014).

In regards to other branches of the Brazilian defense industry, we can mention the Indústria de Material Bélico do Brasil (IMBEL), responsible for the production of assault rifles and carbines 5,56 IA2; different calibers and characteristics pistols; knives; Temporary Shelter Systems of high performance; radio-equipment; computerized system for the guiding and coordination of artillery fire; large caliber munitions for mortars, cannons and howitzers; diverse emulsions and explosives (Imbel 2015). The IA2 rifle was first purchased by the Brazilian Army to replace its Light Automatic Rifles (FAL) and have good export potential (Plavetz 2016).

The Chilean defense industry, through the FAMAE, has conditions to produce and repair light weapons, such as assault and instruction rifles, submachineguns, munition to 5,56 mm and 7,62 mm rifles and 60 mm, 81 mm and 120 mm mortars, besides rockets of different calibers and purposes. FAMAE has strategic partnerships of commerce and joint production with Brazil, Ecuador and Colombia (Guevara 2013).

Brazil has been, for the last year, going through a process of renovation and retrofitting process. More than that, with the aim to accomplish the National Defense Policy (PND) and the National Strategy Defense Directives (END), and effort has been made with the main objective of capacitating the Defense Industrial Base so that it can obtain autonomy in technologies indispensable to defense. In this context, the Armed Forced articulated projects of technological modernization and update. Among this projects, many are being developed nationally and other with technology transfer (Brazil 2012b)\textsuperscript{13}. Among them, stands out the Sistema Integrado de Monitoramento de

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\textsuperscript{13} Among the projects including technology transfer stands out the Programa de Desenvolvimento de Submarinos (PROSUB), that comprises an industrial base responsible for the construction of the base of the hull of the nuclear submarine and conventional submarines, besides the building of a reactor prototype to the first nuclear propelled submarine, and the Gripen project, consisting in the acquisition of supersonic fighters from the Swede company Saab.
Fronteiras (SISFRON). Project led by the Army and with national reach, with installation of mobile bases, radars, sensors, integrated and cryptographed communication, development of software and infrastructure to monitor and watch 16,886 kilometers in the regions bordering other countries, involving 588 cities in Brazil, in 11 states (Defesa, 2015). Furthermore, it stimulates the capability of the national industry in the search for autonomy in technologies indispensable to defense.

In all this context, the Centro Tecnológico do Exército (CTEx) has been standing out. Although its roots are in 1946, the CTEx has been gaining importance since the promulgation of the END, in 2008, and the Brazilian DEPRO law, of 2012\(^4\) (DCT, 2016). These activities are developed through the nationalization, modernization and procurement of technologies with dual uses, through partnerships with companies and universities (Nogueira et al, 2014), currently working on about 14 projects, among them radars and automated repairs to machine guns. Highlight to the Air-transported General Use Light Vehicle (VLEGA) Gaúcho\(^5\), which is being developed through scientific-technologic exchange with Argentina (DCT, 2016). In a general way, the CTEx is working with a number of public financing sources, in accord to ideas defended by Mazzucato (2014), with state responsibility for the financing of innovations, in all opportunities that private initiative does not wish to participate, seeking to recover these investments through patenting, royalty payments and the creation of a specific R&D fund.

An aspect that already contributes to an integrated defense industry is that South America present as one of the richest regions in the planet in regards to natural resources considered strategic for having direct application in the defense industry, being as such hardly replaceable, in accordance to the following table:


\(^5\) The Air-transported General Use Light Vehicle named Gaúcho is the Scientific-Technologic Exchange project between the Brazilian and Argentinean armies, being a vehicle for use of air-transported troops. The project began in April 2004. In Brazil, the project is being led by the Centro Tecnológico do Exército (CTEx) and, in Argentina, by the Dirección de Investigación Desarrollo y Producción of the Army (Moraes 2010).
Table 2: Strategic mineral reserves available in South America

<table>
<thead>
<tr>
<th>Material</th>
<th>Use</th>
<th>% of the regional production in relation to the world, in 2012</th>
<th>Main producers in the region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Metallic structures and alloys</td>
<td>4%</td>
<td>Argentina, Brazil, Venezuela</td>
</tr>
<tr>
<td>Antimony</td>
<td>Batteries, glasses</td>
<td>3%</td>
<td>Bolivia</td>
</tr>
<tr>
<td>Copper</td>
<td>Ammunition, ballistic material, engine components</td>
<td>45%</td>
<td>Argentina, Bolivia, Brazil, Chile, Colombia, Peru</td>
</tr>
<tr>
<td>Chrome</td>
<td>Aircraft components</td>
<td>1,5%</td>
<td>Brazil</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>Ammunition, ballistic material, engine components, aircrafts</td>
<td>25%</td>
<td>Argentina, Chile, Peru</td>
</tr>
<tr>
<td>Niobium</td>
<td>Magnetic materials, radars e communication systems</td>
<td>93%</td>
<td>Brazil</td>
</tr>
<tr>
<td>Platinum</td>
<td>Electronic components</td>
<td>0,8%</td>
<td>Colombia</td>
</tr>
<tr>
<td>Lead</td>
<td>Ammunition</td>
<td>12%</td>
<td>Argentina, Brazil</td>
</tr>
<tr>
<td>Renius</td>
<td>Electronic components</td>
<td>52%</td>
<td>Chile</td>
</tr>
<tr>
<td>Tantalum</td>
<td>Electronic components</td>
<td>14%</td>
<td>Brazil</td>
</tr>
<tr>
<td>Titanium</td>
<td>Ship structures, aircrafts e missiles</td>
<td>0,5%</td>
<td>Brazil</td>
</tr>
<tr>
<td>Tungsten</td>
<td>Ammunition, ballistic material, engine components</td>
<td>2%</td>
<td>Bolivia, Brazil</td>
</tr>
<tr>
<td>Uranium</td>
<td>Nuclear fuel</td>
<td>0,4%</td>
<td>Brazil</td>
</tr>
</tbody>
</table>

Source: Atlas 2014 [Resdal 2014, 85]

On the other hand, a considerable challenge to the strengthening of the South American defense industry has been the technologic intensity that characterizes the area’s regional production. There is a lack of specialized personnel (doctors, scientists, technicians) and techniques that allow the increment in value of the regional DEPRO. At the same time, the imports are not always an advantageous option in light of the clauses imposed by the main exporting countries – particularly the US – to the sale of cutting edge military material to peripheral countries (Abdul-Hak 2013).

From what has been exposed so far, we can observe that, currently, the South American defense industry is in practice very little integrated. Argen-
tina, Brazil, Chile and Colombia centralize the sector’s industrial production, but there is still very few interaction among the countries, being limited to a few bilateral accords or deals between small groups. It can be noted, however, that there is a lot of room to the integration and the developing of a regional synergy, for which it becomes fundamental that the larger countries support the smaller ones, those less economically developed, but with great consuming potential and close geostrategic realities and threats.

Future perspectives on integrated defense logistics in South America

This section in the paper intends to analyze the future perspectives for the integrated defense logistics in the region. To that end, urges that the South American countries go from the mutual confidence building stage to the process of formation of a South American defense identity, considering the new cooperative politics reality in the region, its vulnerabilities and potentialities, projected scenarios, national and regional interests, the need for adequate means and preparation to face old latent threats and the convergence of new ones (Saint-Pierre and Palacios Junior 2014).

In this sense, the role of the SADC stands out. Although it is a reality, its effectiveness in the integration of the subcontinent’s defense logistics still relies on the consolidation of its practices and initiatives, placing it as an important ally of the future perspectives of the sector. The SADC has as one of its attributes the role of acting as an articulator of measures for the creation of strengthening of mutual trust and, with particular emphasis, the industrial integration in defense. In this point, it has been seeking to promote the exchange and cooperation in the scope of the defense industry (Abdul-Hak 2013).

In the same way, the SADC seeks to perfect the bilateral and multilateral experiences of the governments, including through the mapping of the expenses in defense of the member states of UNASUL. To this end, it was attempted to design a methodology to measure the defense expenses to South America, as an important element of the confidence building initiatives, improving the transparency and fiscal responsibility among the states of the South American region, and between them and their societies (Saint-Pierre and Palacios Junior 2014). In this context, to work together with the SADC, was created the South American Center on Strategic Defense Studies (CEED)\(^\text{16}\), in charge, in general lines, of the “generation of knowledge and

\(^{16}\) The main objective of the CEED is the consolidation of a South American thought in mat-
diffusion of a South American strategic thinking” (Unasul, 2010). Aiming to increase the transparency and allow the mapping of expenses, the CEED was responsible for the development of a Defense Expenses Common Measurement Methodology, used to generate the South American Register of Added Expenses in Defense (RSAGD). The first version of this document was presented to the SADC in 2014, with information from the years 2006 to 2010, and is available in the public webpage of the CEED (CEED 2014; Resdal 2014).

The activities carried out by the SADC are organized around four cooperation axes: defense policies; military cooperation, humanitarian actions and peace operations; defense industry and technology; and training and capacitation (Sanahuja and Escánez 2014). The Graph 1 presents the evolution of the number of activities of the SADC, by cooperation axes, between the years of 2009 and 2013.

Graph 1: Evolution of the number of SADC’ activities by cooperation axes

![Graph 1: Evolution of the number of SADC’ activities by cooperation axes]

Source: Sanahuja and Escánez (2014)

Already in the year 2014, of the 25 activities promoted by the SADC, 40% were related to the defense policies axis, 20% to the military cooperators of defense. To this end, the organ is responsible for the elaboration of strategic studies to advise the SADC, approaching among other topics regional approaches on the concept of security and defense, “identification of challenges, risk factors and threats (…) to the regional and global security”, besides “promoting the building of a shared vision that would allow a common approach in regards to regional defense and security” and, finally, “contributing to the identification of common conceptual focuses and basic alignments that allow the articulation of policies in regards to the regional defense and security” (Unasul 2010).
tion, 16% to the defense industry and technology, and 24% to the training and capacitiation (Resdal, 2014). Complying with this paper’s objective, the Table 3 details the Axis 3 (Defense Industry and Technology) proposals, since 2010 and up until 2016. In this way, there seems to be a concern and planning by the Council in relation to the integration of the defense industry in the long term, remaining the need of effective actions to its concretization to be taken by the member states.

Table 3: Activities of the Axis 3 – Defense Industry and Technology – proposed by the SADC between the years 2010 and 2016.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsible</th>
<th>Co-responsible</th>
<th>Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage the consolidation of the diagnosis of the defense industry and technology of the member states.</td>
<td>Ecuador</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Promote a sector panel on methodology, regulation and conformity evaluation, emphasizing the defense sector.</td>
<td>Brazil</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>To develop and implement an integrated information system on defense industry and technology.</td>
<td>Ecuador, Venezuela</td>
<td>-</td>
<td>2010-2011</td>
</tr>
<tr>
<td>To identify the possible common areas of strategic association in order to promote complementarity, research, technical cooperation and technology transference.</td>
<td>Argentina</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>To promote an International Basic Industrial Technology Seminar – Defense and Security, to encourage cooperation and the exchange of defense science, technology and industry in South America.</td>
<td>Brazil, Venezuela, Peru, Colombia</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>To develop and implement an integrated information system on defense industry and technology.</td>
<td>Ecuador, Venezuela</td>
<td>-</td>
<td>2012</td>
</tr>
<tr>
<td>To promote bilateral and multilateral cooperation in industry and technology among the nations integrating the South American Defense Council.</td>
<td>Venezuela, Ecuador, Colombia</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>To conform a Work Group to present a feasibility report on the development and regional production of a Basic Training Aircraft – Primary South American.</td>
<td>Argentina, Chile, Ecuador, Peru, Brazil, Venezuela</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
To promote a South American Basic Industrial Technology Seminar – Security and Defense, to encourage cooperation and exchange in the scope of UNASUL of mechanisms that promote and attribute to the regional industries greater priority and special regulations to the purchases, hiring and development of defense products and systems, as well as the development of an integrated information system on defense industry and technology.

| Brazil | Ecuador | Colombia | Venezuela | 2013 |

To create a Work Group aiming to present a project to the development and production of an unmanned aircraft system.

| Brazil | Argentina, Chile |
| Brazil | Venezuela |

To create a Work Group to verify the possibility of development of an industry of production of operational rations.

| Venezuela | Argentina, Ecuador, Colombia |

To formulate a strategic plan to the medicine production in the defense scope.

| Argentina | Brazil, Uruguay |

To present the project, development and production of a regional UAV.

| Brazil | Argentina, Colombia, Ecuador |

To present the project and development of an industry of rations, to the event of catastrophes or military exercises.

| Venezuela | - |

To promote a seminar to socialize the integrated information system on defense industry and technology and a cataloging seminar in the scope of the SADC.

| Argentina, Ecuador | Brazil, Peru |

To promote a seminar of encouragement on the South American defense industrial base and DEPRO cataloging.

| Brazil | Colombia, Ecuador |

To promote the III Cataloging Seminar and the Defense Industry Policies Seminar of the member states of the SADC, in a way that allows the synergy of the South American defense industry policies.

| Brazil, Chile | - |

Source: the authors, adapted from CEED (2016)

In a more practical field, it can be observed that the national companies involved in the refitting and modernization of the Brazilian Armed Forces, such as AVIBRAS, ATECH, MECTRON, ORBISAT, HELIBRAS, EMBRAER, among others, are developing systems and products that have no competitor of the same size in Latin America and have been shown to be very competitive in other continents. Projects of large figure such as the PRO-
The SIVAM/SIPAM, SISFRON and the Strategic Borders Plan projects have been drawing attention of the countries in the region, concerned with the surveillance of their territories, especially regarding the transnational crimes issues (Defesa/FIESP 2012). In the specific case of the SISFRON, that for being employed exactly at the border regions, that by nature is shared with the neighbor country, is a project with an essentially sharing nature. It is also to be stressed that, having no issues regarding borders demarcation, Brazilian’s concern with cross-border crimes is also shared with the neighbor states, being the integration of the means used to fight it one more vector to allow greater effectiveness of the actions in the region.

In this area, we can mention some embryos of industrial cooperation initiatives. Chile, for instance, intends to develop a Borders Plan inspired in the Strategic Borders Plan. Bolivia intends to install border watch radars, in a way to fight drug trafficking. Colombia, in its turn, showed interest in creating a bilateral borders plan to fight organized crime. While Peru received Brazilian technical support to the assembling of a real-time information gathering center via satellites to ease the surveillance of the common border (Ibidem).

Furthermore, the Argentinean government has recently shown interest in the Supersonic Fighter Gripen, an aircraft being produced through a partnership between the Brazilian company EMBRAER and the Swede SAAB. The intention of the neighbor country, besides purchasing the aircraft, would be to develop the Gripen in a joint way, with EMBRAER ceding to Fadea a part of the fabrication process of the product, particularly related to parts supply, as already happens with the KC 390 (Argentina 2016).

Thus, it seems that the modernization projects promoted by the Brazilian Armed Forces will reflect positively in South America, as the region will be able to participate actively, be it through the purchase of DEPRO, or partaking in the continued development of the products, or, even, the production. Many of the current concluded and ongoing projects were developed with active participation of the CTEx, that has been using self and public (through FINEP) financing. Besides the formation of human resources in the Military

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17 Project of the Brazilian state, led by the Brazilian Navy, aiming to build a national Nuclear Submarine.
18 Amazon Surveillance and Protection System.
19 Argentina provides the frontal landing gear doors, right frontal door, part of the rear access ramp, flaps and tail cone.
20 Development organ of the Science and Technology and Innovation Ministry (MCTI).
Engineering Institute (IME) in Rio de Janeiro, many engineers participate in exchange programs with research center, mainly in the north hemisphere, including as part of wider government programs, such as the Science Without Borders Program21. There is, thus, room to think about cooperation projects inside the continent, in areas related to defense R&D.

According to the Defense Industry Department of the São Paulo Industries Federation (Defesa/Fiesp, 2012), the development of DEPRO cooperation programs is becoming a reality. There is the intention to take advantage of the existing conditions and increase the industrial cooperation with Chile in the naval and armored vehicles maintenance areas. With Colombia, is sought to build a fluvial craft and also an Unmanned Aerial Vehicle (UAV). With Argentina, besides the existing projects, the demand is for the development of a South American satellite launcher. It is stressed that the projects aimed at cooperation in the defense area contribute to the sharing of R&D expenses and the increase of the volume of production because of the demand. In this way, better prices also benefit the Armed Forces, that will be able to rely on more accessible equipment. With the same view, the Brazilian and Chilean Defense Ministries have been debating agreements in the areas of cybernetic defense, cataloging, joint doctrines, space cooperation, environment and meteorological surveillance and defense technological and industrial development (Parceria 2014).

As was seen, UNASUL and SADC have been promoting efforts to create a greater integration among the defense industries. Based on discussions and projects in the scope of the SADC, the countries member of the UNASUL have decided to jointly produce a UAV model to be utilized in the region, as shown in table 3. The initiative has the objective of promoting greater integration of the scientific development of the DIB of the countries in the region. The new vehicle has as its main objective the monitoring of strategic region and those of difficult access, to do so, it will have to be able to act both in Amazon, a hot, humid region dominated by low altitudes, as in cold and high regions such as the Andes. However, it will not bear arms, not being characterized, thus, as an aerial combat vehicle (Plavetz 2014; Sanahuja and Escánez 2014).

Furthermore, the project to the development and production of a South American basic aircraft for the training of military pilots is ongoing, called IA-73 UNASUL I, a kind of Super-Tucano aircraft, to be utilized by all

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21 The Science Without Borders Program of the MCTI seeks the consolidation, expansion and internationalization of science and technology, of Brazilian innovation and competitiveness through exchanges and international mobility, which in practice is substantiated with the selection to the award of grants of scholarship in varied academic levels abroad.
countries in the region. This project, besides aiming to stimulate the integration of military, of intelligence and of technological industries requirements of each state, seeks to promote greater technological independence, seeing that a considerable fraction of the military technology originates in the central countries and has elevated costs (Dias et al. 2014).

According to these authors, to the development of the UNASUL-I, Brazil allocated 38 million dollars and Argentina 16 million, while Ecuador and Venezuela destined 3 million dollars each. They also inform that the project already has a demand of 92 aircrafts, with Argentina showing interest in the purchase of 50 products, Ecuador 18 and Venezuela 24. It is interesting that Brazil, despite contributing financially to the building of the aircraft, did not show interest in purchasing them, possibly for already having its own training aircrafts. So, to Brazil the project is an opportunity to consolidate its regional leadership in the military industry area, given its greater technological and financial resources, and to Argentina, Ecuador and Venezuela the program shall support the development of their defense industries, mainly through the exchange with Brazilian companies (Dias et al. 2014). The concretization of the above-mentioned projects has the potential to bring the region to a new, differentiated level in relation to its industrial cooperation.

It is indispensable to highlight the need for the creation of conditions so that the South American countries with more limited budgets have access to these and other projects, still restricted to a small group of states, be it in the development or in the purchase. This initiative would strengthen the rapprochement among the countries, ratifying the mutual trust discourse and the effective development of a truly regional defense strategy, further stimulating the region’s economy, reducing costs, among other advantages already mentioned. In this sense, Mazzucato (2014) points out the promotion and development banks as a solution, such as the BNDES, for they have greater flexibility and less immediate expectations related to yields and, according to her, have been having positive outcomes in a number of areas.

Abdul-Hak (2013) stresses that, in a general way, regional cooperation in matters of science and technology is an opportunity for countries with less resources, for it allows the collective insertion in a sector of high international competitiveness, induces the sharing of expenses and eases the access to products, installations, reciprocal experiences and knowledges. This cooperation would be the result of a negotiation process in which all parts attempt to maximize their benefits. It demands a commitment supported by investments and long schedules for research and technological maturation. In this way, the deepening of the military R&D in the scope of the SADC will demand the consolidation of a trust environment and of strong political commitment of
Vilela (2009), in his turn, positions himself even more incisively, stating that the fusion of companies of the defense sector in South America would be beneficial for, through the creation of a conglomerate of companies in the subcontinent, there would be an opportunity for these industries to increase its participation in the global market. Going even further, he points out that the creation of a regional conglomerate, joining companies in different sector, such as the aerial and naval, could allow South American companies to partake in joint ventures with cutting edge companies of developed countries \(^{22}\). In this way, this conglomerate could benefit of technology transfer that could provide it with new capabilities and a greater participation in the global market.

In a more immediate way, it is believed that the combined South American participation in peace missions is an excellent opportunity for logistical integration, able to generate dividends that would catalyze the integration of the regional DIB. The Haiti mission marked the beginning of this process, generating new room to the coordination among the highest decision-making politics spheres \(^{23}\). The cooperation in the military and logistical aspects towards the accomplishment of operations brought the region’s countries closer together. This constituted a new element in terms of political relations among the states and is another step forward in relation to the matters involving regional security (Llenderrozas 2007).

Seeking to draft a prospective vision of the South American integration, Medeiros Filho (2010), in his doctoral thesis, conducted interviews with military personnel from South American countries serving in the Command and General Staff School of the Army and with Brazilian personnel that served in South American countries. Some of the observations are interesting to this paper, as shown below.

The Chilean showed themselves favorable to the expansion of a possible regional arms industry, particularly involving Brazil and Argentina. The Paraguayans see in the cooperation process the possibility to access more modern war materials, as the country do not produce defense material, only ammunition and weapons pieces and clothing. The Bolivians believe it would be positive to receive military support and perceive that the integration of the

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22 It is to be observed that similar processes happened in developed countries with the end of the Cold War, as previously stated through Reppy (2000) and the description of the adaptation of the English scenery during that time.

23 It must be noted that, even though in Haiti there is not a presence of a Combined South American Battalion, with a unified command, there is the presence of military contingents of a number of countries of the region.
regional defense industry could offer improvements to their incipient military materials industry, detaching itself from foreign providers. Finally, the Peruvians show themselves to be favorable to the advance of the military cooperation, particularly in the scopes logistic support, aerial surveillance and interchange of intelligence in the fight against drug trafficking.

Regarding specifically R&D, Abdul-Hak (2013) states that the lack of specialized human resources and the opposing international pressures are the two challenges to be overcame by any military R&D project in the regional sphere. Furthermore, in order to be a definitive intensification of this area in the subcontinent, the assimilation of regional technology will be necessary in various countries, as well as the capability necessary to the management of this process. Thus, Brazil must cooperate to the sector, seeing that the country tends to be the main producer of South American military R&D.

So, it is observed that there is rhetoric and diverse perspectives of defense logistics integration in South America, particularly to the creation of a regional defense industry base. Such a process is slow and gradual and, when concretized, will be very positive to the whole region, with real political and economic gains to all states.

**Final considerations**

Defense, in its essence, demand an elevated investment by the state, at the same time as it demands a defense industrial base able to produce the tools that guarantee the security of a country or region.

Regarding the current situation of the DIB of the South American countries, Brazil seems to have the most consistent and diversified industrial park of the region. Although there are some partnerships, including in a multilateral perspective, these are not yet very numerous. Some bilateral initiatives stand out, especially between Brazil and Argentina. When searching for a perspective point of view, UNASUL, through the SADC, has been showing that it will have a protagonist role in the process of integration of the South American defense logistics, mainly in relation to the creation of a regional DIB. However, measures must be implemented in a way that overcomes the still pending political and economic barriers, besides increasing the mutual trust among the states.

In practical terms, it is observed that the regional industries currently with greater development, such as the Naval and Aeronautical industries, could seek a more effective integration, which would allow them to become even more embracing and have their technological potential expanded. Those
in deficit, or still developing, such as the armored vehicles industry, could receive incentives from the governments or a pull from private investors, so that they can rebuild and go back to producing in favor of the South American market.

The political will of the states and economic of the companies, be them state or private owned, are of paramount importance to the concretization of the DIB’s integration and strengthening process. To that end, the need for the creation of fiscal, legal and economic incentives in a regional level is stressed, as is the implementation of a solid and embracing patenting policy, with the collection of royalties to a regional fund, measures that, combined, would accelerate the process and turn feasible the materialization of the discourses, towards the consolidation of an integrated defense logistics to South America, with effective gains to all countries in the region.

The more economically developed states would need to be willing to invest resources in the less developed countries, contributing to reduce the existing asymmetries. Such an action, that could be carried out by state owned banks of development incentive, would facilitate the integration, besides generating a greater regional synergy. It must be stressed, however, that although some South American countries have less available capital to the investments in defense, they have needs in the area and present a great consuming potential.

The need for big investments to the defense productive sector and to the R&D in the area would be reduced through regional cooperation, combined with the integration of the entire South American market, for it would allow for the sharing of expenses, scale gains and the increase of the added value of the commercial products of other areas. The reduction of expenses would allow for more purchases of DEPRO, benefitting both the companies and the security and defense interests of the involved states. The integration would also allow the increase of the technological intensity of the DEPRO, with the potential to leverage commerce flows among the countries and abroad, besides reducing the need for extra-regional imports.

The increase of the commerce and circulation of DEPRO in the region would collaborate even further to the credibility of the product and, consequently, to its commerce outside of South America. The result would bring more rentability and a positive reflex to the trade balance, increasing the exports of products with greater added value. Furthermore, the increase in demand would allow the generation of greater needs of maintenance inputs, to guarantee the products life cycle, which could lead to the creation of subsidiaries or local partnerships to carry out maintenance and possible modernizations, contributing thus to the expansion of the DIB and the technological
development of the involved countries.

It is indispensable to stress, as presented by this paper, that the South American defense market has Brazil as a central actor, main technological and producing center. In this way, it seems to be the country’s responsibility the leadership of the process of development of a DIB able to increase the region’s technological autonomy, but that at the same time brings development to all countries, through a cooperation process, as opposed to a exploration or domination one.

Finally, the initiatives and current perspectives of the strengthening of an integrated defense logistics in South America, especially in regards to the regional defense industry, present great advantages to all members of the region, both in the strictly defense aspect, and the economic and political spheres. This integration will grant greater international projection and strategic autonomy, strengthening the countries deterrence, and bringing other tangible benefits to the economy and population as a whole.

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Current overview and future perspectives on integrated defense logistics in South America: opportunities for the regional defence industry


DEFESA/FIESP, DEPARTAMENTO DA INDÚSTRIA DE. 2012. INTEGRAÇÃO SUL-AMERICANA EM DEFESA: PERSPECTIVAS E DESAFIOS. SÃO PAULO, FIESP.

Dias, Anna; Carasek, Carolina; Siebuer, Jonathan; Merkle, Vanessa. 2014.


December, 2015.


Unasul. 2010. Estatuto del Centro de Estudios Estratégicos de Defensa del Conse-
This work aims to analyze the current situation and future prospects of an integrated defense logistics in South America, with emphasis on the defense industries of South American countries. To do so, it was made a wide bibliographical and documentary review on the subject in question. The South American Defense Council (SADC), established in 2008, has as one of its objectives the creation of an integrated defense industrial base in South America, in order to achieve greater regional autonomy and reduce the costs of R&D and production of defense products. However, while analyzing the literature, it is observed that currently there is still a shy interaction between countries, summing up to a few bilateral agreements or arrangements between small groups. On the other hand, when picturing the future scenario, it appears that the rhetoric is likely to be realized, which would benefit the entire region, with the possibility of real political and economic gains to the States. There seems to be room for integration and the development of a regional synergy, for which it becomes critical that the larger countries support smaller countries, disadvantaged economically, but still with great potential and consumer realities and close geostrategic threats.

Keywords
Defense industry; South American integration; Defense logistics.

Received on November 14, 2016.
Accepted on December 20, 2016.

Translated by Salvatore Gasparini Xerri