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Arms Transfer Policies and International Security: the Case of Brazilian-Swedish Co-operation

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Abstract: This article discusses arms trade policies from an international security perspective. Arms transfers are widely treated as political issues even when economic incentives exist. They affect bilateral and multilateral relations among suppliers, countries receiving the arms, non-state actors, taxpayers, and victims. Following the agreement to build Swedish SAAB Gripen NG fighter jets in Brazil, more may be produced for sale to third countries. This, in turn, calls for a review of Brazil's arms transfer policy. In this instance, Sweden's principled arms sales model could serve as a basis for a revised Brazilian arms transfer policy as well.
Keywords: Brazil; International Security; Arms Industry; Arms Transfer; Sweden.

> 'Arms sales are far more than an economic occurrence, a military relationship, or an arms control challenge; arms sales are foreign policy writ large.' — Andrew Pierre (1982: 3).

Introduction

In an international system constantly modified by security dynamics, such as the advent of new types of threats with unprecedented potential for conflict, states face the task of continually reformulating their defence strategies in order to defend their national sovereignty, independence and freedom. Given that self-defence is the first concern of any established political structure, states will seek to build minimal self-defence capabilities (David 2001).

Very few countries – notably Costa Rica, Panama and Iceland – have chosen not to arm themselves. Even traditionally neutral countries such as Sweden and Switzerland

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have their own armies, and although these two countries are formally 'neutral', they have major arms manufacturing industries, and also export arms.

Self-defence needs and the inherent challenges of co-operation and conflict among regionally hierarchical countries generate regional security and power balance dilemmas that are hard to resolve. The security dilemma associated with the acquisition of sophisticated modern weapons is central to this article.

When a country buys or develops arms to counter those of other countries in a given subsystem, the others may regard this as a threat to the regional balance of power, and acquire new weapons themselves. In other words, when countries develop new arms systems, they induce other nations to restore the balance of power by purchasing equivalent weapons as well. In this way, all the countries in a given region have to develop new arms in the context of an arms race until the balance of power is restored, or is regarded as more or less satisfactory by all relevant nations (Domínguez 1998; Guedes de Oliveira 2011).

Depending on their economic status and capabilities, some countries may consider manufacturing their own arms instead of purchasing them from powerful supplying countries (Silva and Proença Jr 2014). While costly, developing a national arms industry is widely regarded as an essential determinant of a country's sovereign and independent international presence. Amassing the knowledge and skills to develop an arms industry is seen as a paramount factor in self-determination – especially in times of crisis, when countries seek to reduce their dependence on foreign suppliers. Additionally, prestige, leadership, and perceptions of enhanced international security are linked to strong defence industries (Moraes 2011).

Domestic sales are usually insufficient to make an arms manufacturing industry economically viable. One possible solution is the development of platforms for arms and defence technology exports on the grounds that these can ensure continuity, and can increase the chances of arms manufacturing industries to survive and extend their benefits to other industrial sectors.

Some arms supplying countries transfer manufacturing technology to other countries, and even engage in collaborative multinational research and development. These co-production agreements lower individual research and manufacturing costs, thus benefiting both parties. Arms transfer policies – particularly involving conventional arms – are usually linked to their manufacture in other countries (Brzoska and Ohlson 1987; Brigagão 1984).

Both the development of defence industries as well as international arms transfers are areas of research within the broader field of international politics and security studies. In this regard, Pierre (1982: 275) notes that:

> Arms sales are a barometer of politics among nations [...]. Whenever arms are transferred, they affect the political relationship between suppliers and recipients [...]. It is also likely that this will cause an important impact on other states within the region of the recipient country [...]. Plus the transfer may well have consequences for relations among the principal suppliers.

Against this background, we argue that the Swedish-Brazilian conventional arms agreement – more specifically, the agreement to produce the SAAB Gripen NG fighter jet in Brazil – may turn out to be even more important if it leads to a general review of Brazilian arms export policies. The Swedish-Brazilian agreement is expected to prompt a general reassessment of Brazilian arms co-operation, sales and transfer initiatives, aimed at developing more responsible and transparent policies in line with the Arms Trade Treaty (ATT).

Sweden has been developing its arms transfer model since the end of World War Two (Bromlay and Wezeman 2013: 7), seeking to make it more transparent, more responsible, and better controlled than those of other major exporters. In some cases, the Swedish government and private companies work in partnership with other countries, such as Brazil, Turkey and India, within the framework of technology transfer and co-production agreements. In the case of Turkey, technology transfer agreements signed by SAAB foresee the provision of technical support for the development of the fighter jet TFX; in the case of India, Sweden has gone far beyond previous proposals for the development and building of fighter jets, ensuring technology transfer in the process (Bromley and Wezeman 2013: 30-31).

The dynamics of the international arms trade

Studies of the international arms trade, especially in major conventional weapons, often refer to research conducted by the Stockholm International Peace Research Institute (see www.sipri.org). Its work shows that arms transfers usually involve major conventional weapons, namely armoured vehicles, military aircraft, missiles, ships, radar systems, artillery, submarines, anti-aircraft defence systems, and sophisticated sensors. In what follows, the term 'arms transfer' refers to the export of major conventional weapons. Light weapons and weapons of mass destruction are therefore excluded.

According to a recent SIPRI study, 153 of nearly 200 countries purchased weapons from abroad in the period 2010 to 2014 (Wezeman and Wezeman 2015) at a total cost of more than U$50 billion in the first year, with a strong upward trend in the following three years. The top five suppliers were the US, Russia, China, Germany and France, which accounted for 74% of total arms transfers (see Table 1).

The major arms recipient countries in 2010-2014 were India, Saudi Arabia, China, the United Arabs Emirates and Pakistan, accounting for 33% of arms transferred in that period (see Table 2). Even superpowers who produce all their own arms, such as the USA, Russia, and to a lesser extent France and China, buy arms from other countries in order to strengthen their links with allies and strategic partners.

Table 1: Major arms suppliers and their main clients, 2010–2014

Supplier	Share of international arms exports (%)		Main Clients (share of supplier), 2010–2014		
	2010–2014	2005–2009	1st	2nd	3rd
US	31	29	South Korea (9%)	United Arab Emirates (8%)	Australia (8)
Russia	27	22	India (11%)	China (11%)	Algeria (8%)
China	5	3	Pakistan (39%)	Bangladesh (16%)	Myanmar (12%)
Germany	5	11	United States (11%)	Israel (9%)	Greece (7%)
France	5	8	Morocco (18%)	China (14%)	United Arab Emirates (8%)
United Kingdom	4	4	Saudi Arabia (41%)	United States (12%)	India (11%)
Spain	3	3	Australia (24%)	Norway (10%)	Saudi Arabia (10%)
Italy	3	2	United Arab Emirates (9%)	India (9%)	Turkey (8%)
Ukraine	3	2	China (22%)	Russia (10%)	Thailand (9%)
Israel	2	2	India 46%)	Colombia (7%)	Singapore (6%)

Source: Wezeman and Wezeman (2015), using data from SIPRI.

Table 2: Major arms recipients and their main suppliers, 2010–2014

Arms-recipient Country	Share of global arms imports (%)		Main buyers (share of recipient), 2010–2014		
	2010–2014	2005–2009	1st	2nd	3rd
India	15	7	Russia (70%)	United States (12%)	Israel (7%)
Saudi Arabia	5	1	United Kingdom (36%)	United States (35%)	France (6%)
China	5	9	Russia (61%)	France (16%)	Ukraine (13%)
United Arab Emirates	4	5	United States (58%)	France (9%)	Russia (9%)
Pakistan	4	3	China (51%)	United States (30%)	Sweden (5%)
Australia	4	3	United States (68%)	Spain (19%)	France (6%)
Turkey	3	3	United States (58%)	South Korea (13%)	Spain (8%)
United States	3	3	Germany (18%)	United Kingdom (15%)	Canada (13%)
South Korea	3	6	United States (89%)	Germany (5%)	Sweden (2%)
Singapore	3	3	United States (71%)	Germany (10%)	Sweden (6%)

Source: Wezeman and Wezeman (2015), using data from SIPRI.

In macro-regional terms, the major arms importing regions in 2010-2014 were Asia and Oceania (48%), Middle East (22%), Europe (12%), the Americas (10%), and Africa (9%). Drawing on SIPRI data, Rafael Villa and Juliana Viggiano (2012) pointed out that in the period 2003 to 2011, the main Latin American arms importers were Venezuela, Chile, Colombia and Brazil, supplied by the USA, Russia, Germany, Spain, China, Israel, the UK and France. Brazil was the leading Latin American arms exporter to other nations on the continent as well as the rest of the world (Muniz and Proença Jr 2013; Guedes de Oliveira 2011).

The arms industry and international arms market are made up of a wide range of players, including politicians, military personnel, corporations, labour unions, banks and other financial institutions, diplomats, criminal groupings, terrorist groups, insurgent forces, humanitarian agencies, and occasionally the victims of conflict and taxpayers in both buying and selling countries In this respect, Feinstein (2011: xxvii) notes:

> The arms industry and its powerful political friends have forged a parallel political universe that largely insulates itself against the influence or judgment of others by invoking national security. This is the shadow world.

This is why some researchers continue to speak out about the pressures, arrogance, insolence and abuses perpetrated by the military-industrial complex (Rosen 1973).

In April 2013, the United Nations General Assembly adopted the Arms Trade Treaty (ATT), which is aimed at improving the regulation of the conventional arms trade, and indirectly at reducing non-combatant casualties. It came into force in December 2014. The Treaty was initially proposed by a group of leaders and transnational civil organisations co-ordinated by the Costa Rican Nobel Peace Prize winner Oscar Árias, and the idea was later taken up by the UN. While it cannot be analysed in any detail here, it seeks to establish a minimal and effective set of binding and internationally recognised norms for regulating arms transfers, including the transfer of technology for joint arms production, which is the subject of this article. The Treaty was signed by 130 countries. Of these, 86 have ratified the Treaty, but 44 have not. Brazil's approach to the ATT negotiations was controversial. Bearing in mind that Brazil is a major exporter of light weapons and ammunition, Brazilian diplomats did not always side with the majority views. This generated opposition at home, particularly by the Instituto Sou da Paz and in academia. While the Brazilian government signed the Treaty, it had not been ratified by Parliament by mid-2016, which meant that it had not come into force. Some major arms exporters, including Russia and China, have not signed the AAT, typically on the grounds that it would compromise their national sovereignty. The USA has signed the Treaty, but, following strong opposition by the domestic arms industry, has not ratified it. However, Sweden has signed and ratified the treaty.

The political dimension of arms transfers

In his classic work on this topic, Andrew Pierre (1982) emphasises that arms transfers are international political and security issues. Indeed, any transfer of arms has political consequences for supplier and recipient countries, as well as other players in the international system. Usually, the transfers lead to a degree of influence and interdependence among the parties involved. They are regarded as symbols of support, friendship, elective kinship, and a convergence of interests and views, as the transfers help allies, friends and clients to meet their security requirements.

Governments of supplying countries tend to use arms transfers as political tools for bilateral or multilateral relations. They may sell arms to allies and established clients, or decline to sell to potential opponents, according to complex decision-making processes, foreign policy principles, or more or less explicit geopolitical ambitions. In certain cases, arms may even be donated, sold at cost price, funded by suppliers, or delivered by the exporting country, always with a broader geopolitical goal in mind (Moraes 2011).

Arms transfers also imply a degree of security co-operation between suppliers and recipients. This could include building advisory teams; providing technical support, including standardising processes and arms interoperability; harmonising military doctrine; access to political and military elites in recipient countries; access to military facilities in recipient countries; intelligence activities; and a general interdependence. Lastly, by providing arms to allies and clients, governments prevent them from procuring these arms from competitors or prospect opponents (Pierre 1982; Blechman 1990).

Such relationships become even more complex and lasting when the parties involved agree to engage in technology transfers for the co-production of arms in the recipient country – including possible joint projects for exporting to other potential markets. Nearly all major weapons and specific components require end-use certificates from recipient countries. These are formal commitments not to re-sell the arms to any other country without the supplier's authorisation, use them to suppress internal opposition, or use them aggressively against other nations (Moraes 2011).

In parallel, the governments of recipient countries try to limit the influence and pressures exerted by arms exporting powers. The scope for action and degree of freedom of recipient countries depend on their urgency and their domestic and regional circumstances, the bargaining capacity of agents, and whether or not alternative suppliers are available. In certain cases, recipient countries manage to manipulate the conduct of suppliers – in other words, to bind or commit them to the policies, interests, and strategic priorities of recipient countries, which can be a delicate issue, particularly when those countries have authoritarian regimes. Examples are the ousting of Soviet military aides from Egypt in 1972 and American military aides from Iran in 1979, after the rise to power of revolutionary forces opposing the policies and intentions of the supplying powers, thus leading to significant shifts in political and strategic alliances. As Pierre (1982: 18) has noted: 'It is not clear who really has influence over whom in times of ambiguous crisis.'

Recipient countries purchase arms for various reasons, including safeguarding state sovereignty against external or internal threats; using weapons as symbols of power, pres-

tige, influence, and regional/global ambitions; arresting discontent among and insubordination by the military; strengthening links with superpowers; implementing sovereign, independent, and equidistant foreign policies; and maintaining favourable regional power balances. Therefore, arms transfers have considerable political and security consequences, either in strictly bilateral terms (supplier-recipient interdependence), or in multilateral settings. In this respect, Andrew Pierre (1982: 18-19) has noted:

> In short, it is clear that the provision of arms may provide influence and leverage. Arms sales can be important tools of foreign policy. As such, they are attractive to policy makers who are in immediate need of instruments to help implement their strategies.

But experience suggests that the political value of arms sales in global politics can be overrated. Creating an arms supply relationship is not sufficient to cement relations between two countries, and entails certain risks. This sort of influence may also last for a surprisingly short time. The amount of leverage will depend upon the alternatives available to the recipient state. If there are others suppliers, the degree of leverage will be less than if the recipient has little or no choice. The supplier may find that there are incalculable political costs in applying leverage. The recipient may come to regret his dependence, and the implicit conditions attached to a sale. In short, the transfer of arms can often create an uncertain and symbiotic supplier-recipient relationship that limits the freedom of action of both.

In the current early 21st century setting, superpowers also make use of arms transfers to allies and clients as a way of replacing old defence treaties and agreements, and avoiding having to embark on direct military interventions in turbulent areas. Instead of entering into complex and binding bilateral or multilateral security treaties – including setting up military bases in foreign countries, and the risk of placing military personnel in other countries – it is easier and more viable to simply transfer arms to those countries, thereby allowing them to remain strong, in tune, and disciplined.[1] Suppliers do not normally transfer weapons in order to start conflicts, and expect them to be used mainly as tools of dissuasion. However, when hostilities do break out, the victims are not troops from the exporting country (Erickson 2015; Proença Jr 2011).

The economic dimension of arms transfers

As noted earlier, from 2010 to 2014, 153 countries imported arms from 60 arms exporting countries. Among these was the USA which, despite housing the largest military industrial complex in the world, was the eighth largest importer of arms systems in this period. Besides political and security issues, both supplier and recipient countries take economic considerations into account when taking decisions about specific arms transfers (Kapstein 1992). Arms suppliers often justify arms exports on the grounds that they create economies of scale; reduce unit prices, which also favour their own countries, especially in the case of armoured vehicles and aircraft; promote the export of high-value-added goods;

earn foreign revenue; encourage research and development; and help to keep the costs of the arms industry at reasonable levels (Peron 2011). These favourable economic effects are felt in countries where the state controls the production of arms, in countries relying on a strong private sector, and even in countries with a mixed (or quasi-public) arms industry. However, it should be borne in mind that sustaining a viable arms industry is seen as a key geostrategic and competitive goal (Moraes 2011).

In this context, a range of other economic players, besides governments and large corporations, also have direct interests in the development of an arms industry. These could include the military, labour unions, politicians, engineers, and business associations. All these players seek to expand outlays on defence, or stimulate exports. However, the prevailing pragmatism in the international arms market suggests that if a supplier declines to provide a certain client with arms, others will definitely supply them (Kapstein 1992).

Furthermore, supporters of national arms manufacturing industries claim that besides producing economies of scale, they help to advance science and technology beyond military applications, thereby stimulating economic development (Silva and Proença Jr 2014). The development of jet engines that can later be replicated in the civil aviation industry is a particularly good example. Other reasons given for arms exports include improving the balance of payments, preserving skills and skilled jobs, earning foreign currency, finding use for obsolete material, maintaining macroeconomic balance, and stimulating economic growth.

At the same time, there are some economic risks and disadvantages attached to an over-reliance on an arms procurement industry, including an excessively subsidised and protected industry; creating conditions for obscurantism and corruption (Feinstein 2011); a lack of transparency and inter-institutional accountability; overproduction; the weakening of domestic arms stocks; imbalances between economic benefits and political and security risks; the development of an arrogant and antidemocratic military industrial complex (Rosen 1973); and ethical dilemmas over the quest for profit at the expense of the death of others, particularly when using public funds that could be invested in more productive, constructive and humanitarian ways. Feinstein (2011: xxix), for one, reaches the following negative conclusion:

> The arms trade – an intricate web of networks between the formal and shadow worlds; between government, commerce and criminality – often makes us poorer, not richer, less not more safe, and governed not in our own interest but for the benefit of a small self-serving elite, seemingly above the law, protected by the secrecy of national security and accountable to no one.

From the viewpoint of arms recipients, there are also some economic dilemmas related to transfers, particularly in respect of weapons sales to less developed countries under despotic rule, or countries that are simultaneously buying expensive arms systems and receiving development aid. While seeking to avoid a paternalistic view, it seems evident that countries with lower levels of human development should give priority to social and economic development rather than incurring onerous and unproductive expenditure on

importing arms. In this context, it seems sensible to implement some joint initiatives between recipients and suppliers with a view to controlling and limiting the purchasing of sophisticated weapons within a specific macro-region. Only proposals for the multilateral restriction of arms transfers supported by recipients and suppliers alike could be effective.

Certain recipient countries justify their arms purchases on the grounds that they help to provide economic security, stimulate economic, human resources and regional development, and the modernisation of economic infrastructure; and safeguard populations and natural resources. All of these are seen as key conditions for achieving other social and state goals (Brzoska and Ohlson 1987).

In the case of Brazil, advanced military technology and co-production agreements are seen as benefiting the economy because of the possibility of applying military knowledge to civil industries, enabling a gradual incorporation of foreign military technology into the country's economy (Dagnino 2010). In such cases, countries receiving arms and cutting-edge production technology may become arms exporters to third markets (Brasil 2008; 2012).

Arms transfer policies in Brazil: conception and evolution

In the 1970s, Brazil stopped being an arms recipient only, and gradually moved to becoming an arms supplier as well (Conca 1993; Proença Jr 1993). Indeed, a decade later, SIPRI recognised Brazil as one of the ten most important suppliers of major conventional weapons, including armoured vehicles, aircraft, artillery, trucks and ships (Brzoska and Ohlson 1987). Brazilian exports benefited from a demand for medium-technology products which, in part, fed the Iran-Iraq war. It took advantage of the 'Iraq effect' by substantially increasing overseas sales from 1975 to 1988 (Dagnino 2010).

Arms manufactured in Brazil sold well due to their value-for-money, intermediary technology, as well as government-backed credit facilities and logistics (Kapstein 1991). As a result, a number of countries in the Americas and other world regions, and even non-state actors, began to buy weapons produced in Brazil. Libya and Iraq became particularly important clients. At that time, the Brazilian arms industry was made up of state-owned companies, such as Embraer and Imbel, as well as private companies, including Forjas Taurus and Engesa (Franko-Jones 1988).

In 1977, the then Brazilian president, General Ernesto Geisel, asked the Ministry of Foreign Relations to outline possible arms transfer policies for Brazil, considering the country's international security and political realities. The reply from Chancellor Antônio Francisco Azeredo da Silveira to the secretary of the National Security Board, General Hugo de Andrade Abreu, is of great interest to this study as it laid the foundation for the National Policy for the Export of Military Material, or PNEMEM, which was adopted in the early 1980s. Drafted by Chancellor Antônio Francisco Azeredo da Silveira, the reply comprised ten points set out in a document held in the Archives of the Ministry of Foreign Relations, which is cited below in full:

> I. By its very nature, exporting military material to torn countries implies an irrecusably political responsibility on the part of export-

ing country due to the possible consequences for the relationship between the opposing nations and the prospect of worsening conditions, support to armed hostility further disturbing international order and harmony;

II. These exports, like all similar ones by nature, might raise political issues but also a range of political advantages, other than those of economic, industrial and commercial nature [...];

III. In theory, as with the decision to supply, the decision not to supply certain equipment brings political implications. Refusing to supply can present disadvantages to bilateral relationships with the interested country and even in terms of a country's global policy;

IV. In one single operation there can co-exist negative political repercussions and positive political opportunities, where the former prevails while not excluding the latter. Occasionally, modest political advantages coupled with short-term economic rewards may supplant political discomforts that would otherwise lead to no exports;

V. Commercial advantages, in terms of intrinsic economic earnings or in terms of a sales boost in the same market or elsewhere, achieved by supplying may in the shorter-run also convert into political gains [...];

VI. The behavior of other suppliers should be taken into considerations when weighing political advantages and disadvantages in supplying weapon to a given country. Brazil's decision not to supply weapons may prevent undesirable political involvement that could bring discomfort, but it will not prevent others from doing so and providing arms to conflict areas;

VII. A situation may occur where it would be advisable that Brazil itself supplied weapons even if at first this seems politically disadvantageous (even commercially) but necessary in order to prevent other suppliers from becoming influential in a conflict scenario that may harm Brazil's interests;

VIII. It may well occur a situation in which supplying is recommended in order to prevent others from supplying equipment that may be inconvenient to political and security interests of importer country and its relationships with rival countries at present or in the future [...];

> IX. For the arms exporting nation the best client is by definition that which is found in hardship. The principle would call for a number of qualifications, but as a rule the market for military material grows in direct response to internal instability or through foreign links of buying country. It's a painful but inescapable reality which cannot be ignored or overlooked by a policy designed to stimulate exports of material used by Armed Forces;
>
> X. The principle may be fallacious and has been intentionally used in numerous occasions. However, there may occur, as it has happened once, a situation in which the provision of military material to torn countries contributes to the start of negotiations that would otherwise be improbable or to preserving an unsatisfactory but relatively orderly *status quo* (Silveira 1977; also see Pungs 1989; Domínguez 2011).

These points, plus the following criteria proposed by politicians, academics and other role players, amount to all the key concepts in vogue in the international debate about arms transfers in the 1980s and early 1990s, as embodied in PNEMEM. These criteria are:

i. listing all actors and processes that are directly linked to the decision-making on authorising the export of arms;
ii. analysis of authorisation requests on a case-by-case basis;
iii. selling mainly to other internationally recognised governments;
iv. the intent to avoid involuntary discriminations or adverse reactions towards suppliers from recipients' neighbouring countries;
v. the definition of arms according to the product nature rather than the quality of those buying or utilizing them;
vi. the non-export of weapons to aggressive government towards third countries or to shut down internal opposition; and
vii. the concern and self-imposed restriction to introducing technologically advanced weapons to regions where there is a more or less satisfactory balance (Pierre 1982; Blechmann 1990; Brzoska and Ohlson 1987).

PNEMEM stimulated the growth of this vital economic sector, and Brazil became a major arms supplier. But many critics argued against transfers to some trouble areas of the world – including the Middle East, Central America, Chile, and Meridional Africa – especially from a human rights perspective (Asano and Nascimento 2015; Domínguez 2009; Kapstein 1991).

The end of the Cold War and other regional conflicts, particularly the war between Iraq (a major purchaser of Brazilian arms) and Iran, triggered a crisis in Brazil's arms industry (Franko-Jones 1993) which persisted into the 1990s. The downward trend worsened in the 2000s, and the number of exporting companies was reduced to only three: Embraer, Avibras and Helibras (Dagnino 2010: 98).

It was only in a different political and security context under presidents Luiz Inácio Lula da Silva and Dilma Rousseff that the Brazilian arms industry began to restore some of its prestige, support and government funds (Brasil 2008; 2011; Dagnino 2011; Peron 2011; Moraes 2011; Lobo 2015).

Advancing a national defence policy structured around a framework of incentives to Brazilian arms companies opened new opportunities in the sector, particularly during Lula da Silva's second term. The goal was to make Brazilian manufacturers more competitive, and to increase sales to the country's own military forces. For this to happen, Brazilian products needed to be improved to the point where they could win bids against international companies for domestic contracts from the army, navy and air force (Souza 2015; Silva 2015).

Initiatives for revitalising Brazil's arms industry includes the 2008 National Defence Strategy, the Defence Industry Support Law of 2012, the Special Defence Tax System (RETID), and the Production Development Policy (PDP). These instruments succeeded in simulating arms production for the domestic as well as export markets towards the end of Lula's administration, and during Rousseff's first term (Souza 2015). The Defence Industry Support Law stipulated that any partnership or co-operation agreement aimed at procuring military equipment from international companies had to include Brazilian companies, as well as total technology transfer (Souza 2015: 56). The prioritisation of local products by the country's armed forces, the tax incentives granted to selected companies, and the incorporation of the arms industry into the national plan for production development reveal an effort on the part of the Brazilian government to restore and boost the industry (Souza 2015; Andrade 2016). As Mark Bromley and Siemon Wezeman (2013: 28) have noted:

> Arms importing countries often demand substantial involvement of their own industry in the production and maintenance of acquired weapons. Via such agreements importing states seek to use arms imports as a means of building up their arms industries, both for domestic procurement and exports. For example, Brazil is actively seeking to leverage advantages for its domestic arms industry via the inclusion of extensive technology transfer agreements in a series of large-scale arms import deals that it has signed in recent years. In many cases, such involvement is a *sine qua non* for any contract and the demand is in some cases a legal obligation for any large acquisition of foreign weapons.

In this context of the revitalisation of the Brazilian arms industry, discussions are under way about a thorough review of PNEMEM, which has been consistently criticised for its excessively flexible approach. Asano and Nascimento (2015), for example, have written about demands by Brazilian civil society organisations for greater control over arms exports by establishing more effective and transparent oversight mechanisms, and taking the promotion of the human rights seriously. We agree that Brazil needs a more transparent, responsive, ethical, and efficient arms transfer policy. Therefore, the recent agreement

between the Brazilian government and the Swedish company SAAB involving the local production of 30 Gripen NG jets from 2018 onwards may result not only in greater autonomy spurred by technology from abroad, or the export of this Swedish-Brazilian jet to third countries on the continent or elsewhere in the world (G1 2014; Silva and Proença Jr 2014). It may trigger far-reaching and positive changes in the formulation and implementation of arms transfer policies for weapons produced in Brazil.

Swedish arms transfer policies: some implications for Brazil

After being discontinued following the Fernando Henrique Cardoso administration, and temporarily addressed with the acquisition of the French Mirage 2000, the Brazilian FX Programme for purchasing multi-mission fighter jets was revived within the scope of the National Defence Strategy and the new stimuli for developing high-technology military equipment. The FX-2 project prioritised the restoration of the operational capacity of the Brazilian air force, while seeking to realise the scientific, technological and industrial benefits that a large joint production agreement would make possible (Souza 2015). Following this phase, the new autonomist guidelines for Brazil's arms industry played a significant role in the process for procuring new jet fighter for the Brazilian Air Force, and the final decision to choose the Swedish Gripen NG.

The revival in 2007 of this multi-billion dollar project attracted the interest of companies from all over the world. Sukhoi (Russia) offered the modern Su-35; France offered the Rafale, through the Dassault consortium; the American company Boeing offered the FA-18 SuperHornet; and the Swedish company SAAB the then untested Gripen NG. Moreover, the Eurofighter Typhoon and the US Lockheed Martin F-16 could still join the race. By the end of the first stage, the Brazilian Air Force had shortlisted the American SuperHornet, the French Rafale and the Swedish Gripen, upon which these companies offered various benefit packages as well as trade, industrial and technology advantages to Brazilian companies (Souza 2015).

Boeing demonstrated its jet fighter's technical attributes, such as advanced radar, electronic, avionic and combat systems, as well as cutting-edge computing. While not guaranteeing full technology transfer to Brazilian companies, Boeing argued that Brazil's arms industry would benefit from the joint production of SuperHornets and from trade advantages, including advanced research in the field (Souza 2015).

The Rafale consortium bet on integration with the national arms industry. It approached some 38 Brazilian companies, pledging to ensure the transfer of technology that would allow the local arms industry to produce and develop the jet, with the participation of Embraer, the Air Force Technology Centre, the Air Force Technology Institute, and the Federal University of Rio de Janeiro (Merialdo 2009). Another factor in favour of the French jet was the close diplomatic ties between Lula da Silva and the French president Nicolas Sarkozy, existing technology co-operation to manufacture and develop Scorpène class submarines, and French support for Brazil's ambition to gain a seat in the UN Security Council (Souza 2015).

SAAB bet on full technology transfer and a commitment that Brazilian companies would be actively involved in producing the aircraft on Brazilian soil, with a 40% share in development activities, and 80% in production (Janer 2009). One of its most significant commitments was the establishment of a Swedish-Brazilian Research and Innovation Centre (CISB), a high-level scientific and technological institution that would co-ordinate efforts towards joint initiatives and knowledge transfer among companies and universities in the two countries in the fields of nano-technology and collaborative engineering (Souza 2015).

Sensing it could lose, Boeing resorted to lobbying industry leaders, and intensified its commitment to technology transfer and integration with the national arms industry. It held meetings with industry players that would directly benefit from the partnership, and in a session with senators in 2011, presented a document that contained a commitment by US Senators to transfer the necessary technology, likening Brazil to other close allies such as Australia, Canada and the UK (Senado Federal 2011).

The announcement that the Dassault consortium had won the bid for restructuring India's fleet of fighter jets gave the French fresh hopes of winning the Brazilian bid as well, despite the higher cost of their jets. The Brazilian military feared that the Rafale production line would not be viable in the long term, as it has not been sold to any other country. However, Dassault hoped India's purchase of 126 units would reduce those fears among the military figures and policy-makers involved in adjudicating the bid. On the other hand, Rousseff's official visit to the USA in 2012 resulted in an agreement between Boeing and the Brazilian aircraft manufacturer Embraer to engage in industrial, research and joint development cooperation (Souza 2015). The American offer was further strengthened by other initiatives such as the agreement between Elbit Systems and its Brazilian subsidiary Ael Systems to make aircraft displays, and to set up a research and technology centre in São Paulo (Souza 2015). Following new partnership agreements between Embraer and Boeing – including projects for improving Embraer's Super Tucano and Cargueiro KC-390 aircraft – the SuperHornet became the most likely choice (Winter 2012).

The final choice was held up by a lack of funds (Souza 2015). Following the economic downturn from 2014 onwards, Dilma's administration decided to wait for the economy to pick up again before putting the project on the front burner (Fernandes 2012). In the meantime, the chances of Boeing winning the bid received a setback with revelations that the US National Security Agency was spying on heads of state, among them Dilma and her aides (Souza 2015).

The final decision in 2014 to award the contract to Sweden took into consideration the benefits of a joint production programme, in terms of which Brazilian companies would engage directly with scientific and technological advances in the civil and military sectors, and the prospect of exporting more aircraft to other countries (Souza 2015).

While political as well as economic factors were taken into account, Sweden's selection demonstrated a rational approach that ruled out less safe options such as the SuperHornet, the uncertainties regarding the requirements set out by the National Defence

Strategy and its autonomist mechanisms, and the high costs and uncertain continuity of the French Rafale (Souza 2015).

In the end, the Swedish-Brazilian agreement in respect of the Gripen NG conformed to the criteria of the National Defence Strategy, namely full participation in the project; full technology transfer; independent choice of weaponry; more than 70% of components to be produced in Brazil, and the necessary plants built; jets to be repaired in Brazil; and the training of Brazilian pilots.

This decision seems to provide a basis for a comprehensive review of PNEMEM, which has been in force since the 1970s (Domínguez 2009). Sweden and its arms industry have built a reputation for being reliable, demanding and cautious, in clear contrast with the permissiveness of other suppliers, particularly France and Russia (Feinstein 2011; Brzoska and Ohlson 1987; Moraes 2011).

While recognising the need to export arms and military technology, Sweden has sustained some principles and policies in respect of arms transfers that should be respected in the case of the Swedish-Brazilian project, and could contribute to a revised PNEMEM. These include: (i) arms exports to be aligned to Swedish foreign policy goals and intents; (ii) no exports of Swedish arms to countries or regions undergoing armed conflicts or under despotic rule; (iii) no exports of Swedish arms to countries presenting with medium or low scores on human development indices; (iv) tight control by Parliament over arms transfers, (v) growing transparency and inter-institutional accountability of activities in the arms industry, and regular reporting on arms exports; (vi) respect for multilateral embargoes and regional agreements about import controls and limits on sophisticated/destabilising arms systems; (vii) avoiding the export of arms that may affect reasonably satisfactory regional military balances; (viii) the strengthening of the military capacity of neutral, non-belligerent, constructive and peaceful regional powers; (ix) rigor in decision-making processes related to potential arms transfers; (x) drafting lists of previously-approved countries that are susceptible to disclosure and campaigns; and (xi) prioritising political aspects in arms transfers (Hagelin 1988; Moraes 2011).

These criteria could contribute to debates about revising PNEMEM, and Brazil's strategic and foreign policy objectives. For example, the agreement between Sweden and India concluded in November 2009 has led to a strategic dialogue that would go far beyond technological transfer, and include full Swedish support for India to join the UN Security Council and the Missile Technology Control Regime (MTCR).[2]

In the context of the revival of Brazil's arms industry, resuming the export of conventional weapons, including the Gripen NG, seems to be the natural and desirable course of action (Dagnino 2010; Mathias and Cruz 2009). In this event, Brazil could contribute its knowledge about markets that Swedish have failed to explore thus far. Thus, in the medium term, after having upgraded Brazil's own Air Force, Gripen NG jet fighters manufactured in Brazil could be sold to intermediary powers such as South Africa (which has already bought an older model), Argentina, Colombia (particularly after the signing of a potential peace agreement between the government of President Juan Manuel Santos and insurgent forces), Mexico, New Zealand, the Philippines, Malaysia, Thailand, Indonesia,

Portugal and Peru. In this scenario, besides the initial 36 Gripen NG jets purchased by the Brazilian government, 50 more could be produced for sale to other countries, up to about 2030. All this would have positive consequences for Brazil and Sweden.

In June 2015, the Brazilian Ambassador to Stockholm, Marcos Pinto Gama, declared:

> The joint production of the Gripen NG jets will have great power as a catalyst, as synergies, and even symbolic. A project of such nature which relates to the defence of both countries and involves complex technology and content can only be carried out by true partners who are willing to trust and to engage in solid and long-lasting cooperation (Silveira 2015).

In April 2016, the Swedish Ambassador in Brasilia, Per-Arne Hjelmborn, stated:

> With the Gripen collaboration, we've become partners for the next 30 or 40 years. The intention is to use the Gripen project and together make the most of its many effects both within and outside of the defence sector (Ministério da Defesa 2016).

Promoting good practices for the transfer of arms produced in Brazil may well extend to other types of weapons, including light weapons – that is, pistols, shotguns, rifles, machine guns, revolvers, grenade launchers, anti-tank guns, ammunition, and mortars – a segment Brazil has exploited in a dynamic and sometimes controversial way (Alessi 2015). On the one hand, Brazil is the fourth largest exporter of light weapons in the world, following the USA, Italy and Germany. On the other, light weapons manufactured in Brazil – which are theoretically exported but re-enter the country illegally in the so-called boomerang effect – are involved in a large proportion of the 50 000 murders a year in which firearms are used, and also feature in thorny issues around the use of such weapons for political and social repression (Waiselfisz 2015; Garcia 2011).

Final remarks

The revival of the Brazilian arms manufacturing industry, its arms export policy, and even its international security could benefit from the promotion of good practices implemented by a country like Sweden that, despite its own problems and dilemmas, is internationally recognised for its approach to international politics, security and economics.

Scenarios for the Sweden-Brazil partnership seem very positive. There have been few cases of bilateral or multilateral military technology transfers, especially between countries that are not part of a formal military alliance, or between developed and developing countries. The only known examples are projects between Russia and India, Russia and China, France and India, Sweden and India, and France and Brazil, the last-named involving submarines. Moreover, the Sweden-Brazil Gripen NG project is aimed at securing 'total and unrestricted' technology transfer from conception through research and

development to production, ensuring that most of the components are made by Swedish or Brazilian companies.[3]

In order for Swedish military technology transfers to Brazil to be even more beneficial, private aerospace companies should be encouraged to participate in the project. This should include Embraer's participation, research and innovation centres in aeronautical engineering as well as Brazilian universities. The transfer of knowledge from the military to civil industry is extremely complex, and needs to be closely monitored by Brazilian agencies and civil society at large, besides ongoing political-diplomatic and social dialogue between the people and governments of Brazil and Sweden. In other words, it seems necessary to monitor the 'tropicalisation' of the technology to be transferred to the aeronautical industry in particular and the Brazilian economy and society in general (Valduga 2015).

Moreover, the Swedish-Brazilian partnership will involve the harmonisation of transfer policies for the sale of Gripen NG fighters produced in Brazil to third countries. The Swedish arms transfer model is regarded as prudent and responsible. Therefore, it could strongly influence joint decision-making about future sales, as it could inspire a thorough review of Brazil's general arms transfer policies, including PNEMEM.

This is important, as a failure to harmonise policies for selling the Gripen NG to third countries may result in serious divergences between the parties. In this pessimistic scenario, the emergence of major disagreements between supplier and recipient, particularly when the latter attempts to impose its own export criteria, and disregards the former's global policy, would render the October 2014 agreement unworkable.

Another negative scenario for the Swedish and Brazilian partnership is linked to the quality of the technology transferred, and its application. Is SAAB really engaging in 'total and unrestricted' transfer of the latest technology, such as that used in fourth and fifth generation jets? Or will it transfer technology that is already known, or even outdated? As in an episode involving Russia and China, the original supplier could question the unauthorised use of technology – or even technology plagiarism – for similar projects developed by the government and/or companies in the recipient country (see Xingua News 2012; Russia Today 2012). In the Russian-Chinese case, the Kremlin became much more sensitive to the risks involved in co-production agreements in arms and military technology transfer, giving priority to exporting jets produced in Russia (Russia Today 2013).

In other words, there are risks and even ironies related to the transfer of military technologies that lead – whether intentional or not – to a growing supplier-recipient interdependence. In a way, both become committed to or 'bound' by their partner's global foreign policy priorities and interests. This creates the scope for various forms of manipulation, as well as threats to their sovereignty, independence, self-determination, and state autonomy. However, the Swedish-Brazilian partnership is still regarded as highly beneficial for both countries, and scenarios about how this will play out are essentially favorable and constructive.

Finally, the ethics of the future sales of arms produced in Brazil should be considered. Given the revitalisation of the Brazilian arms industry, it should clearly move away from

permissive sales that could lead to charges of profit-seeking at the cost of the lives of innocent people in other countries or on other continents. The conception of arms manufacturers as 'death merchants' or 'lords of weapons' is still current and dramatic (Feinstein 2011).

In this regard, it is vital for Brazil to formulate a prudent, responsible and transparent policy for the sale of arms made in Brazil, along the lines of the Swedish model. There is no doubt that Brazil needs a strong arms industry to help safeguard its independence, sovereignty, and territorial integrity (Muniz and Proença Jr 2013), and the future transfer of arms produced in Brazil – including the Gripen NG – to third countries is a natural consequence. However, all the role players should guard against possible arrogance on the part of corporations involved in arms manufacturing and sales, as well as the sale of arms to authoritarian governments.

Notes

1 In this regard, Barry Blechman (1990: 16) has noted: 'The primary engine behind arms sales is not economics, but politics – international politics … A decision to export weapons to a given country suggests implicit approval of the buyer's policies, or at least of its general stance in world affairs, and is understood in those terms by friends and foes alike. The selling of arms is a serious matter, different from other commodities [...] a sale of arms represents the taking of sides by providing the means for one nation to make war on another. [...] In this sense, a sale represents the tacit beginnings of an alliance and the first step toward the establishment of a defence commitment [...] these arms sales relationship are the modern-day equivalent of formal defence treaties.'

2 For further information about the Swedish-Indian agreement, see: http://www.swedenabroad.com/en-GB/Embassies/New-Delhi/Business/Memoranda-of-Understanding-between-Sweden-and-India--sys/; and http://www.tribuneindia.com/news/nation/india-sweden-to-restart-strategic-dialogue/88128.html [accessed on 26 April 2016].

3 Producing all or most of the components of the Gripen NG in Sweden and Brazil is important not only to avoid having to rely on products from other countries, but also to avoid having to secure the authorisation of other governments for possible sales to third countries. Washington previously vetoed the sale of aircraft built by Brazilian and Spanish companies to Venezuela on the grounds that they contained American components, thus enforcing the virtual embargo imposed on Venezuela as a means of opposing President Hugo Chávez's regime. As a result, the Venezuelan government decided to procure arms mainly from Russia and China (Villa and Viggiano 2012).

References

Alessi, Gil. 2015. 'Brasil, entre a diplomacia da paz e o destaque na exportação de armas'. *El País Brasil*. São Paulo. 1 June. Available at www.brasil.elpais.com [accessed on 9 June 2015].

Andrade, Israel et al (eds). 2016. 'O Fortalecimento da Indústria de Defesa do Brasil'. Texto para Discussão 2182. Rio de Janeiro: Ipea.

Asano, Camila and Jefferson Nascimento. 2015. 'Arms as foreign policy: the case of Brazil'. *Sur* 12 (22): 39-50.

Blechman, Barry. 1990. *The Politics of National Security*. New York: Oxford University Press.

Brasil. 2012. *Livro Branco da Defesa Nacional*. Brasilia: Governo Federal.

_____. 2008. *Estratégia Nacional de Defesa*. 2ª ed. Brasilia: Governo Federal.

Brigagão, Clovis. 1984. *O Mercado da Segurança: Ensaios sobre Economia Política da Defesa.* Rio de Janeiro: Editora Nova Fronteira.

Bromley, Mark and Siemon Wezeman. 2013. *Current Trends in the International Arms Trade and Implications for Sweden.* Stockholm: Sipri.

Brzoska, Michael and Thomas Ohlson. 1987. *Arms Transfers to the Third World, 1971-85*. Oxford: Oxford University Press and Sipri.

Conca, Ken. 1993. 'O Brasil na Economia Global de Armamentos'. In Domício Proença Jr (ed), *Uma Avaliação da Indústria Bélica Brasileira: Defesa, Indústria e Tecnologia.* Rio de Janeiro: Grupo de Estudos Estratégicos/Fórum de Ciência e Cultura/Universidade Federal do Rio de Janeiro. pp. 73-111.

Dagnino, Renato. 2010. *A Indústria de Defesa no Governo Lula*. São Paulo: Expressão Popular.

David, Charles-Philippe. 2001. *A Guerra e a Paz/ Abordagens Contemporâneas da Segurança e da Estratégia.* Lisbon: Piaget.

Domínguez, Carlos. 2011. 'O Brasil, a Política Nacional de Exportação de Material de Emprego Militar – PNEMEM – e o comércio internacional de armas: um estudo de caso', *Tempo* 15 (30): 221-241.

_____. 2009. 'Armas Brasileiras na América Central: Um estudo sob a perspectiva da Política Nacional de Exportação de Material de Emprego Militar – PNEMEM (1974-1991)'. *Varia História* 25 (41): 293-314.

Domínguez, Jorge. 1998. 'Seguridad, Paz y Democracia en América Latina y el Caribe: desafíos para la era de pos guerra fría'. In Jorge Domínguez (ed), *Seguridad Internacional, Paz y Democracia en el Cono Sur.* Santiago: Flacso/Chile pp. 13-48.

Erickson, Jennifer. 2015. *Dangerous Trade: Arms Exports, Human Rights, and International Reputation*. New York: Columbia University Press.

Feinstein, Andrew. 2011. *The Shadow World: Inside the Global Arms Trade.* New York: Farrar, Strausand and Gioux.

Fernandes, Daniela. 2012. 'Para Dilma, compra de caças depende de "retomada de crescimento"'. BBC Brasil. 12 December. Available at: http://www.bbc.com/portuguese/noticias/2012/12/121212_rafale_franca_brasil_dilma_df.html [accessed on 5 May 2016].

Franco-Jones, Patrice. 1993. 'A Industria Brasileira de Defesa em Crise'. In Domício Proença Jr (ed), *Uma Avaliação da Indústria Bélica Brasileira: Defesa, Indústria e Tecnologia.* Rio de Janeiro: Grupo de Estudos Estratégicos/Fórum de Ciência e Cultura/Universidade Federal do Rio de Janeiro. pp. 299-327.

_____. 1988. 'Public-private partnership: lessons from the Brazilian armaments industry'. *Journal of Interamerican Studies and World Affairs* 29 (4): 41-68.

Fukui, Yasuhito. 2015. 'The Arms Trade Treaty: pursuit for the effective control of arms transfer'. *Journal of Conflict & Security Law* 0: 1-21.

Garcia, Denise. 2011. 'Contestação de Normas e Ameaça à Paz e à Segurança Regional e Internacional: A Facilidade Excessiva de Acesso a Armas'. *Contexto Internacional* 33 (2): 455-483.

Green, Duncan and Anna Macdonald. 2015. *Power and Change: The Arms Trade Treaty* Oxford: Oxfam.

Guedes de Oliveira, Marcos A. 2011. *Comparando a Defesa Sul-Americana*. Recife: Editora UFPE.

G1. 2014. 'Saab conclui venda de 36 caças Gripen ao Brasil por US$5,4 bilhões'. São Paulo. 27 October. Available at http://g1.globo.com/economia/negocios/noticia/2014/10/saab-conclui-venda-de-36-cacas-gripen-ao-brasil-por-us-54-bilhoes.html [accessed on 11 June 2015].

Hagelin, Björn. 1988. 'Arms transfer limitation: the case of Sweden'. In Thomas Ohlsoned (ed), *Arms Transfer Limitations and Third World Security*. Oxford: Oxford University Press and Sipri. pp. 57-171.

Janer, Bengt. 2009. 'Lecture on Saab'. Câmara dos Deputados. Brasília: Brazil.

Kapstein, Ethan. 1992. *The Political Economy of National Security*. Columbia: University of South Carolina Press.

_____. 1991. 'La Industria de Defensa del Brasil y el Sistema Internacional', *Revista Occidental* 8 (2): 205-227.

Lobo, Carlos. 2015. 'Novas Parcerias na Área de Defesa entre o Brasil, Rússia, Cingapura e Suécia'. *Monções* 4 (7): 131-141.

Mathias, Suzeley and Eduardo Cruz. 2009. 'Defence and regional integration: the case of the Brazilian weapons industry', *Brazilian Review of Political Science* 4 (selected edition).

Merialdo, Jean-Marc. 2009. 'Esclarecimentos ao Congresso Nacional acerca da possibilidade de transferência de tecnologia no processo de aquisição de caças para a Força Aérea Brasileira'. Câmara dos Deputados, Brasília: Brazil.

Ministério da Defesa. 2016. 'Brasil e Suécia ampliam parceria estratégica'. Brasilia. 15 April. Available at http://www.defesa.gov.br/noticias/19903-brasil-e-suecia-ampliam-parceria-estrategica [accessed on 18 April 2016].

Moraes, Rodrigo. 2011. 'O Mercado Internacional de Equipamentos Militares: Negócios e Política Externa'. Texto para Discussão 1596. Brasilia: Ipea.

Muniz, Jacqueline and Domício Proença Jr. 2013. 'Armamento é Direitos Humanos: nossos fins, os meios e seus modos', *Sociedade e Estado* 28 (1): 119-141.

Peron, Alcides. 2011. *O Programa FX-2 da FAB: Um estudo acerca da possibilidade de ocorrências dos eventos visados.* Master's Dissertation, Universidade de Campinas.

Phythian, Mark. 2010. 'The politics of the contemporary trade in major conventional weapons'. In George Kassimeris and John Buckley (eds), *The Ashgate Research Companion to Modern Warefare*. New York: Routledge. pp. 165-82.

Pierre, Andrew. 1982. *The Global Politics of Arms Sales*. Princeton: Princeton University Press.

Proença Jr, Domício. 2011. 'Promessa tecnológica e vantagem combatente'. *Revista Brasileira de Política Internacional* 54 (2): 173-88.

_____. 1993. 'Perfil Histórico-Bibliográfico da Indústria Bélica Brasileira'. In Domício Proença Jr (ed), *Uma Avaliação da Indústria Bélica Brasileira: Defesa, Indústria e Tecnologia.* Rio de Janeiro: Grupo de Estudos Estratégicos/Fórum de Ciência e Cultura/Universidade Federal do Rio de Janeiro. pp. 7-54.

Pungs, Reiner. 1989. *A Indústria de Armamento e a Política Externa Brasileira*. Master's Dissertation, Universidade de Brasilia.

Rosen, Steven. 1973. *Testing the Theory of the Military-Industrial Complex*. Lexington: Lexington Books.

Russia Today (RT). 2012. 'China assegura que su caza embarcado J-15 no ES clon de SU-33'. Moscow. 7 December. Available at https://actualidad.rt.com/actualidad/view/80461-china-asegura-caza-embarcado-j-clono [accessed on 23 June 2015].

_____. 2013. 'Rúsia venderá a China 24 cazabombarderos SU-35 en 2014'. Moscow. 9 September. Available at https://actualidad.rt.com/actualidad/view/105108-rusia-vendera-china-cazabombarderos-su35 [accessed on 14 June 2015].

Senado Federal. 2011. 'Caças: EUA propõem transferência de tecnologia semelhante à oferecida a seus 'maiores aliados'. Portal de Notícias. Brasília. 18 November. Available at: http://www12.senado.gov.br/noticias/materias/2011/08/18/cacas-eua-propoem-transferencia-de-tecnologia-semelhante-a-oferecida-a-seus-maiores-aliados [accesserd on 6 May 2016].

Silva, Édison and Domício Proença Jr. 2014. 'An outline for military technological dynamics as restraints for acquisition, international cooperation and technological development'. *Revista Brasileira de Política Internacional* 57 (2): 99-114.

Silva, Marcelo. 2015. 'A Indústria de Defesa na Economia e Política Externa do Brasil Contemporâneo'. *Cadernos do Tempo Presente* 21: 31-45.

Silveira, Antônio Francisco Azeredo da. 1977. Secret Memorandum to Hugo de Andrade Abreu. Brasilia. Circa May. Archives of the Ministry of Foreign Relations, Special Folder PNEMEM-El Salvador.

Silveira, Virgínia. 2015. 'Saab e Embraer vão vender juntas o caça Gripen NG'. Valor Econômico, Rio de Janeiro. 5 June. Available at http://www.valor.com.br/empresas/3768302/saab-e-embraer-vao-vender-juntas-o-caca-gripen-ng [accessed on 25 June 2015].

Souza, Deywisson Ronaldo Oliveira de. 2015. *O Imperativo Tecnológico e os Projetos Estratégicos de Defesa: uma análise dos programas de reaparelhamento das forças armadas nos governos Lula da Silva e Dilma Rousseff*. Master's Dissertation, Federal University of Pernambuco.

Valduga, Fernando. 2015. 'Cooperação Brasil-Suécia confiança para uma relação sólida e douradoura no programa FX-2'. Cavoc, São Paulo. 11 November. Available at www.cavoc.com.br [accessed on 21 April 2016].

Villa, Rafael and Juliana Viggiano. 2012. 'Trends in South American weapons purchases at the beginning of the new millennium'. *Revista Brasileira de Política Internacional* 55 (2): 28-47.

Waiselfisz, Julio Jacobo. 2015. *O Mapa da Violência 2015: Mortes Matadas por Armas de Fogo.* São Paulo: Flacso Brasil.

Wezeman, Pieter and Siemon Wezeman. 2015. *Trends in International Arms Transfers, 2014.* Stockholm: Sipri.

Winter, Brian. 2012. 'Brasil adia decisão sobre caças para 2013; Boeing cresce'. Reuters. 24 September. Available at: http://br.reuters.com/article/topNews/idBRSPE88N06120120924 [accessed on 19 December 2014].

Xingua News. 2012. 'China diz que seu caça J-15 não é "cópia" de um jato de combate russo'. Beijing. 28 November. Available at http://www.cavok.com.br/blog/china-diz-que-seu-caca-j-15-nao-e-copia-de-um-jato-de-combate-russo/ [accessed on 14 June 2015].

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