Report

The Brazilian Export Control System

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In any country, the export control system is an integral part of a larger political and economic infrastructure—the economic, political, and security priorities set by the national government form the basis for export control policies and practices. The current export control mechanism in Brazil is no exception to this rule. Its main features derive from the political and economic environment of Brazil during the 1990s, when Fernando Henrique Cardoso was president of the country. It was during these years that Brazil signed the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and began to integrate into global nonproliferation regime efforts, including the multilateral nonproliferation export control regimes. And while the foundation of the current system was set during the last decade, the Brazilian regimen of export controls may change under the leadership of the current Brazilian president, Luiz Inacio "Lula" da Silva, who seems poised to reshape Brazil's politics and economics.

This report traces the development of the Brazilian export control system, outlines its major features, and evaluates its effectiveness. Because the development of the Brazilian export control system is so closely linked to the political and economic climate in the country, the report provides a quick overview of recent developments in Brazil before undertaking a detailed examination of its export controls. The subsequent sections of the report give brief overviews of Brazil's military and industrial complex, as well as the history of its nuclear and missile programs. These sections serve to illustrate Brazilian capabilities to export both conventional arms and dual-use goods and technologies that could be used to construct nuclear arms and ballistic missiles. Brazilian capabilities in this area are not widely appreciated, but they make effective export controls in Brazil critical. Moving ahead, the report analyzes elements of Brazil's current national export control system, including its legal basis, licensing process, enforcement capabilities, and participation in multilateral export control regimes. The report concludes with an overall assessment of the Brazilian export control system.

The Political and Economic Context of Brazilian Export Controls

Military rule in Brazil ended in 1985, when Tancredo Neves was elected as Brazil's first civilian president in 21 years. The following decade exhibited a degree of politi-

cal instability. The office of president changed hands several times—including once by impeachment—a new currency, the real, was introduced, and a new constitution was adopted. Relative political and economic stability came only after the 1994 election of Fernando Henrique Cardoso as president, who was reelected in 1998 for a second term. President Cardoso was the architect of the so-called Real Plan, a recovery strategy that sought to bail out the country's ailing economy and restore soundness to its unstable currency. Enormously successful, the plan slashed the runaway inflation rate from 50 percent per month to 1 percent per month.[2] The Cardosa era came to an end in October 2002, when Luiz Inacio da Silva, universally known as Lula, was elected to the presidency. Lula, who was born into extreme poverty and never finished elementary school, rose to become leader of a metalworkers' trade union and founder of the Workers' Party. He took office as president on January 1, 2003.

Blessed with large and well-developed agricultural, mining, manufacturing, and service sectors, the Brazilian economy is larger than that of all other South American countries combined and is expanding its presence in world markets. And yet, because almost 50 million of the 172 million Brazilians live below the poverty line, income inequality is considered a serious problem in Brazil. In the late 1980s and early 1990s, high inflation hindered economic activity and investment. In November 1998, after crafting a fiscal adjustment program and pledging to make progress on structural reform, Brazil received a $41.5 billion international support program led by the International Monetary Fund (IMF), which has produced moderate GDP growth in recent years. Economic growth slowed considerably in 2001—to less than 2 percent—because of a slowdown in major global markets and the hiking of interest rates by the Brazilian Central Bank aimed at combating inflationary pressures. The country's main industrial products are textiles, shoes, chemicals, cement, lumber, iron ore, tin, steel, aircraft, motor vehicles and parts, and a variety of other machinery and equipment. Brazil's major trading partners are the United States, Argentina, Germany, and Japan.[3]

Arms Production and Exports

Brazil's military industries expanded dramatically during the 1970s. In a single decade, a country that was traditionally heavily dependent on foreign military suppliers became a significant arms exporter and a third-world leader in military research and development (R&D). A substantial military-technological infrastructure emerged, anchored by separate R&D institutes for each branch of the armed forces. By the end of the 1970s, sizable industries in aeronautics, armored vehicles, and shipbuilding were supplying both Brazil's military and the international market with a range of medium-tech weapons systems. Nuclear and space programs straddling civilian and military applications also flourished. The international defense press concluded that the Brazilian arms industry was "on the move."

Ambitious new programs propelled the Brazilian defense sector to new heights in the early 1980s. From 1985 to 1989, Brazil was the world's 11th-largest exporter of arms. It exported arms to at least 42 countries in all regions of the world. Its largest market was the Middle East, where Brazil sold approximately 50 percent of its arms from 1977 through 1988. Interestingly, about 40 percent of all Brazilian arms transfers from 1985 to 1989 went to Iraq. In addition to the three largest arms firms — Avibras, Engesa, and Embraer—an estimated 350 firms were involved directly or indirectly in the production of armaments.[4] Plans were laid to make Brazil the first third-world producer of several advanced weapons systems, including a state-of-the-art battle tank, a NATO-standard ground-attack aircraft, a small nuclear submarine, and a satellite launch vehicle with ballistic missile capabilities. These programs deepened Brazil's ties with multinational defense contractors and stimulated a domestic network of high-tech supplier firms.

Fueled by the Iran-Iraq War, Brazilian defense exports increased through the mid-1980s. A few years later, the contrast could not have been more striking. Arms exports, after peaking at somewhat less than $1 billion annually in the mid-1980s, slowed to a trickle by the early 1990s. The three firms making up the core of Brazil's military-industrial base were effectively bankrupt, and the ambitious programs launched a decade earlier were nowhere near their production goals. Development of the battle tank stalled at the prototype stage; later, the program vanished altogether amid the financial collapse of the armored-vehicle industry. The ground-attack aircraft did enter series production before decade's end, but delays, technical difficulties, and enormous cost overruns staggered the aircraft industry and made the plane far too expensive to export. The nuclear submarine, stymied by the stagnation of naval shipbuilding and political controversy surrounding Brazil's nuclear program, remains a vision on a distant horizon. In 1994, the value of the country's arms exports came to only $3 million; it then increased to $12 million in 1995, fell to $9 million in 1996, and steadily

increased to $26 million in 1997, $70 million in 1998, and $98 million in 1999.[5] Data on Brazil's arms exports in 2000-2002 is unavailable from open sources, which suggests that the Brazilian government did not submit annual reports to the UN Register on Conventional Arms for that period. Even the defense sector's boosters openly acknowledge that today's defense exports are "a pale shadow of what [they were] a short time ago." Unable to adjust to changing domestic and international circumstances, the Brazilian defense sector experienced declining output, technological stagnation, and the collapse of the established roles and rules that had governed its previous growth.[6]

The beginning of the new millennium, however, has returned some optimism to the Brazilian arms industry. Military budgets around the world are rising as a result of the ongoing struggle against terrorism, while armed forces are seeking to replace arms and buy more up-to-date equipment. These twin developments are starting to benefit Brazilian arms producers. In mid-2001, for instance, Avibras sealed a $500 million contract—one of the largest it has ever concluded—to supply Astros II rocket launchers to the Malaysian government.[7] In addition, the Brazilian navy is currently in the process of building five patrol craft for Namibia.

Nuclear Sector

The history of Brazil's nuclear programs dates from the early 1930s, when Brazilian researchers began to experiment with nuclear fission.[8] Much of that early research was conducted at the University of Sao Paulo, some by scientists who had been hired from abroad. By the mid-1930s, Brazil had discovered vast deposits of uranium and monazite. During the 1940s, Brazil signed a series of agreements with the United States under which the United States supplied it with nuclear technology in exchange for Brazilian monazite.

In 1957, with U.S. assistance provided under the Atoms for Peace Program, Brazil built the first of two nuclear research reactors in Sao Paolo. The second reactor was constructed in Belo Horizonte in 1960. In 1965, Brazil built its first indigenous research reactor in Rio de Janeiro. The United States supplied the enriched uranium fuel for the reactor, and it maintained strict oversight over the construction of these reactors. The two countries also collaborated on the fuel cycle for these reactors. Brazil provided natural uranium to the United States and paid to have it processed. In turn, the United States supplied Brazil with fabricated reactor fuel. As envisioned by the Atoms for Peace Program, the United States retained control of both the technology it had supplied and the byproducts created by Brazilian reactors.

Encouraged by the success of these research reactors, Brazil launched plans to build a nuclear power reactor. In 1968 the government decided to site the power plant at Angra dos Reis, Rio de Janeiro State. Three years later the Westinghouse Electric Corporation agreed to supply the technology for the plant, and construction of Angra-I began. However, the Brazilian authorities were dissatisfied with the Westinghouse accord because it barred the transfer of U.S. nuclear technology to Brazil, made Brazil dependent on U.S.-supplied uranium for the reactor, and required that all Brazilian nuclear facilities be safeguarded by the International Atomic Energy Agency (IAEA). At the time, Brazil had not yet signed the NPT.

In the early 1970s, Brazil's military governments began to assert the autonomy of Brazilian nuclear programs. They were frustrated by the restrictions imposed by the United States on Brazilian projects, concerned with Argentina's rapid nuclear development, and fearful of pending power generation shortfalls. Reflecting these concerns, Brazil made a radical change in its nuclear program in 1975, when it opted to obtain nuclear technology from West Germany, despite strong protests from the United States. A Brazilian-West German agreement signed on June 27, 1975, called for West Germany to transfer to Brazil eight nuclear reactors, each of which could generate 1,300 megawatts; a commercial-scale uranium enrichment facility; a pilot-scale plutonium reprocessing plant; and Becker "jet nozzle" enrichment technology. Most importantly, the agreement called for the first-ever transfer of the technology for a complete nuclear fuel cycle, including enrichment and reprocessing. The United States government opposed the accord vigorously. Although it was unable to convince Bonn to revoke the agreement, the United States did persuade Germany to include some safeguards.

Today, as the result of this agreement, Brazil has two operational nuclear power plants and another one under construction. Whether nuclear power is a viable and cost-effective source of energy is an open question. The Angra I power plant cost $2 billion to build, and it began to operate commercially in 1983. Since then the plant has been shut down dozens of times because of technical problems and legal challenges. It is expected to be decommissioned in 2009 at a cost of $200 million. The Angra II plant, after more than 20 years of on-and-off construction, finally became operational in 2001. Built at a cost of

$10 billion, Angra II produces 1,300 megawatts, "the most expensive megawatts in the world," as one Brazilian official put it. The third plant, Angra III, has been sitting mothballed outside Rio de Janeiro for the past 15 years. The plant has already cost Brazil $1.3 billion, and it remains unclear whether it will ever be completed.[9]

The 1975 agreement with West Germany did not require IAEA safeguards. This defect allowed Brazil's military regimes to transfer technology from the nation's power-plant projects to a secret program to develop nuclear weapons. Even official German documents stated that the agreement did not guarantee against an unauthorized use of exported equipment and technologies. The accord also provided for the training of Brazilian nuclear specialists in Germany, which significantly contributed to Brazil's pool of expertise.[10] Code-named "Solimies" after a river in the Amazon, Brazil's secret nuclear weapons-development program commenced in 1975. Once it became public, the program was known as the Parallel Program. At the beginning of the 1980s, the Brazilian navy laid out plans to build nuclear-powered submarines. The navy's plans resulted in an expansion of the Parallel Program, while the civilian nuclear program lagged behind. Meanwhile, the successive governments stepped up parallel research in an effort to bolster Brazilian know-how relating to the nuclear fuel cycle. By 1987, President Jose Sarney announced that Brazil had successfully enriched uranium to 20 percent U-235 under laboratory conditions.

A year later, however, the new Brazilian constitution banned the military use of nuclear energy and required that all nuclear activities be subject to congressional approval. In 1990, Sarney's successor, Fernando Collor de Mello, restricted the Brazilian nuclear program even further by symbolically closing a test site at Cachimbo, in Para State, and by publicly disclosing that the military had covertly set out to develop nuclear weapons. This turn around was largely driven by a decline in tension between Brazil and its regional rival, Argentina, which had agreed to curb its own nuclear ambitions. On July 18, 1991, the Brazilian and Argentine presidents, Fernando Collor de Mello and Carlos Menem, signed the Agreement on the Exclusively Peaceful Use of Nuclear Energy, which created a Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials. (ABACC). The agency conducts on-site inspections of nuclear facilities in Argentina and Brazil and maintains an inventory of the nuclear materials in each country.[11]

The most important nuclear accord between Brazil and Argentina was signed on December 13, 1991, at a meeting attended by presidents Collor de Mello and Menem at the headquarters of the IAEA in Vienna. The agreement provides for full-scope IAEA safeguards at Argentine and Brazilian nuclear installations. It also allows the two countries to retain full rights over any "technological secrets" and to develop naval nuclear propulsion reactors for their submarine fleets. On May 30, 1994, Brazil ratified the Treaty of Tlatelolco, which bans nuclear weapons in Latin America and the Caribbean, without any reservations.[12] For decades Brazil had opposed the NPT, arguing that the treaty is discriminatory and infringes upon the sovereignty of the signatories. Under Collor de Mello, Brazil finally dropped these objections, ratifying the NPT and the Comprehensive Test Ban Treaty (CTBT) on July 13, 1998.

At one point during his 2002 election campaign, Lula made a couple of disturbing statements that appeared to call into question his commitment to nonproliferation. However, these statements turned out not to reflect his true intentions. During the campaign, for example, Lula announced that he planned to ignore Brazilian obligations under the NPT and order a resumption of efforts to develop nuclear weapons.[13] He also promised to reactivate plans to build a nuclear-powered submarine. "I want a strong Brazil, respected economically, technically and militarily," he said in September 2002. Fortunately, this campaign rhetoric has not become the basis of Lula's foreign policy.

In early January 2003, for example, shortly after Lula took office, the new Minister of Science and Technology, Roberto Amaral, declared that Brazil "reaffirms its commitment to the Nuclear Non-Proliferation Treaty," adding that "we want to acquire nuclear fission knowledge because of its application in medicine, food production, and in many other peaceful endeavors."[14] U.S. diplomats stationed in Brasilia have also concluded that the Lula government has no intention of withdrawing from the NPT or reviving the Brazilian nuclear-weapons program. Indeed, as these officials are quick to point out, Lula's government has strongly opposed the North Korean decision to withdraw from the NPT, arguing that this decision set an unfavorable precedent that could undermine the nuclear nonproliferation regime.[15]

Space and Missile Industries

Brazil's space-related activities began in 1965, when Brazilian engineers started developing a satellite launch vehicle. The nation's space program accelerated in 1979, and in 1994 the Brazil Space Agency was established. The agency

now possesses two launch bases, a ground satellite station, and a satellite control center, funded by an annual budget that ranges between $120 million and $170 million.[16] The Alcantara launch complex in Maranhao State is the nation's major space facility. More than 200 sub-orbital sounding rockets have been launched from the site since construction began in 1986. The Brazilian government has already invested about $300 million in the Alcantara base and spends an additional $5 million annually to fund its operations. However, Brazilian space officials say that another $80 million will be required to make the base fully operational.[17] The Brazil Space Agency has developed an indigenous launcher, the Veiculo Lancador de Satellites (VLS), which is capable of boosting small satellites into orbit. The VLS program, unfortunately, has experienced three consecutive failures, first in November 1997, second in December 1999, and third in August 2003. The second mishap also destroyed a domestically built satellite, and the third accident—a rocket engine explosion that caused the launch pad to collapse—destroyed another two satellites, and also claimed lives of 20 people, many of whom were highly skilled specialists.[18] Nevertheless, Brazilian space advocates have not been deterred from their quest to develop a domestic launch capability. The VLS program is run jointly by the Brazilian Air Force and the Brazil Space Agency. Air Force Brigadier General Tiago Ribeiro heads up the program.

At present Brazil is not pursuing a ballistic missile program. It had such a program in the early 1980s, both to counter the threat posed by Argentina's Condor II missile program and to generate revenue from missile sales abroad. Brazil has enjoyed considerable success marketing its missiles and rockets overseas. The Astros II, a multiple rocket launcher, was the most profitable weapon produced by the leading Brazilian missile-technology company, Avibras. The Astros II launched SS-30, SS-40, and SS-60 rockets, with the numbers boasting the range, measured in kilometers (km). Avibras sold an estimated 66 Astros II launchers to Iraq during the 1980s, as well as an unspecified number to Saudi Arabia, Bahrain, and Qatar. Sales of the launcher totaled $1 billion between 1982 and 1987, making Brazil the world's sixth-largest arms exporter.[19]

At the time, Avibras and its partner company, Orbita, were also developing ballistic missiles with ranges from 150 to 1,000 km. In the early 1990s, however, Brazil decided to scrap its ballistic missile program for several reasons. First, in the mid-1980s, civilian democratic governments came to power in both Argentina and Brazil, making confidence-building measures possible and increasing the emphasis both countries placed on civilian technology development projects. So the regional security threat that had motivated the ballistic missile programs was greatly reduced. Second, Brazilian engineers encountered severe difficulty surmounting the technical challenges associated with building longer-range rocket engines and guidance and control components. Third, Brazil began to consider joining the Missile Technology Control Regime (MTCR), in hopes of acquiring technology to support its civilian VLS program.[20] In 1993, the Clinton administration adopted new MTCR membership criteria, including one which required MTCR applicants to abandon their Category I ballistic missile programs. The new policy also declared that the United States would not "support the development or acquisition of space launch vehicles in countries outside the MTCR." For members of the MTCR regime, furthermore, the United States would not "encourage new space-launch vehicle programs, which raise questions on both nonproliferation and economic viability grounds. The United States will, however, consider exports of MTCR-controlled items to MTCR member countries for peaceful space-launch programs on a case-by-case basis." Brazil was the first such case. In 1995 the Clinton administration agreed to the entry of the Brazilian space program into the regime, where it will likely benefit from cooperation with other MTCR members. To persuade Washington not to deploy its veto, and thus to secure MTCR membership, Brazil had to forgo the development of missiles that exceeded the parameters for Category I, namely a range of 300 km and a payload of 500 kilograms (kg). That meant closing down its ballistic missile program.[21]

On the other hand, Brazil is planning to develop and market cruise missiles within the parameters set by the MTCR. In September 2001, Avibras officials announced that the company had started building South America's first indigenous cruise missile, the AV/MT 300. The missile will be able to deliver a 200-kg payload against targets up to 300 km away. Avibras intends to market the AV/MT 300 as a simpler and cheaper alternative to the U.S.-built Tomahawk, which has a price tag of $500,000.[22]

Although Brazil announced the end of its ballistic-missile program before joining the MTCR, it still experienced distrust from the existing members, notably the United States, even after it become a member of the regime. It entered the MTCR in 1995, a year that witnessed intense debate over alleged Russian sales of missile technology to Brazil. "Brazil says it wants that

technology for its civilian space program. But U.S. authorities…admit that the Brazilian VLS is capable of carrying a missile armed with warheads," wrote the *Washington Post*.[23] The "Brazilian-Russian deal" was also debated in the U.S. Congress. While Washington no longer worries that Brasilia will convert its space launch vehicles into ballistic missiles, it still harbors doubts about Brazil's ability to protect missile-related dual-use technologies.

CURRENT BRAZILIAN EXPORT CONTROLS

The development of nonproliferation export controls was part and parcel of the larger shift in Brazil away from the military government and associated ballistic missile and nuclear weapons programs. The cabinet of President Fernando Collor de Mello first introduced export control legislation in Congress in 1992. The rationale behind this move was to demonstrate that Brazil was a vigilant and responsible exporter and could protect sensitive technologies that it imported—technologies it needed for industrial development, especially in the space and nuclear industries. It took the Congress three years to finalize the legislation, and on October 10, 1995, President Fernando Henrique Cardoso approved Law 9112, entitled "Rules of the Export of Sensitive Goods and Services Directly Linked Thereto." This law on export controls, or, as most Brazilian officials refer to it, Law 9112, is the cornerstone of the legal foundation for the country's export control system. The presidential decrees under which Brazil entered the MTCR and the Nuclear Suppliers Group (NSG) essentially restate the language of Law 9112 as it applies to missile and nuclear exports, respectively.

The text of Law 9112 is rather short. It is only two pages long and consists of just ten articles. Article 1 provides definitions of military and dual-use goods and lists the services that are subject to export controls. Article 2 states that the controlled items are compiled in Lists of Sensitive Goods, which are published in the government's newspaper, *Federal Government Gazette* (*Diario Oficial da Uniao*). Article 3 spells out licensing procedures. Articles 4 and 5 establish an Interministerial Commission on Controlling Exports of Sensitive Goods, which falls under the Office of the President of Brazil, and outline the responsibilities of the commission. Articles 6 and 7 specify penalties for export control violations. Article 8 designates the Ministry of Defense as the supervisory authority for all transactions involving military goods. Article 9 empowers the government to regulate all transactions involving sensitive goods and services. Finally, Article 10 states that the law enters into effect on October 10, 1995, the day it was published. The law is rather vague. It does not provide details on important issues such as the powers of the president, the timetable for reviewing license applications, and the types of licenses that will be issued. Nonetheless, it contains all of the vital elements of a comprehensive export control system.

By adopting a law on export controls, the Brazilian government killed two birds with one stone. First, it was able to point to the new law as another proof of its actual commitment to making the world a safer place—giving substance to its statements at political fora involving disarmament and proliferation. Second, it generated considerable practical economic benefit. A country's ability to maintain control of its sensitive exports and an effective supporting legal infrastructure have always been the necessary preconditions for joining multilateral export control regimes such as the MTCR and the NSG. Adopting Law 9112 opened the door for Brazil to join these two regimes, viewed as gatekeepers that control access to modern nuclear and space technology. Once its export control law was adopted, Brazil joined the MTCR in October 1995 and the NSG in April 1996.[24] Law 9112 and the presidential decrees associated with joining the NSG and the MTCR together form the so-called National Policy of Exports of Military Goods (also known by its Portuguese acronym—PNEMEN).

Licensing

Law 9112 lays the foundation for Brazilian licensing procedures and designates two licensing bodies. It states in Article 8 that the Defense Ministry is responsible for licensing exports and imports of arms and military goods in accordance with presidential Decree No. 55,649 of January 28, 1965. The decree was issued by Gen. Castelo Branko, who came to power in 1964 and provided the military with enormous powers. The Defense Ministry has retained substantial control over military sales and purchases, even though civilian governments have ruled the country for almost 20 years. However, the law delegates the authority to license exports and imports of dual-use goods and technologies to a "competent federal entity." The law established an Interministerial Commission on Controlling Exports of Sensitive Goods under the aegis of the Office of the President of Brazil as this entity. The commission is composed of representatives from the Foreign Ministry; Ministry of Defense; Ministry of

Development, Industry, and Foreign Trade; Ministry of Science and Technology; and Ministry of Economy. Its major responsibilities are to draft regulations implementing Law 9112 and to decide how to punish export control violators.

The law has undergone certain changes and modifications in recent years. It originally assigned licensing authority for dual-use goods and technologies to the Strategic Affairs Bureau under the Office of the President, where these duties were discharged in concert with the Interministerial Commission. In 2000, however, the licensing functions, as well as the supervision of the commission, were delegated to the Department of Nuclear Affairs and Sensitive Assets at the Ministry of Science and Technology. Shifting the licensing responsibilities to an agency with a larger pool of technical expertise made the country's export controls more efficient and focused. According to Article 2 of Law No. 9112, controlled goods, materials, and services are defined in the so-called Lists of Sensitive Goods, which are updated on a regular basis and published in the *Federal Government Gazette*. The Interministerial Commission on Controlling Exports of Sensitive Goods, in cooperation with the Department of Nuclear Affairs and Sensitive Assets, develops and updates the Lists of Sensitive Goods, making sure that they are in conformity with the control lists agreed by the international regimes, such as the MTCR and NSG.

As of 2003, the Department of Nuclear Affairs and Sensitive Assets (DNASA) at the Ministry of Science and Technology licenses most exports of controlled dual-use goods and technologies. A staff of 10 people reviews about 1,500 license applications annually. In mid-2003 DNASA was headed by Dr. Roque Monteleone Neto, who also served as a commissioner in the United Nations Verification, Monitoring, and Inspection Commission (UNMOVIC) for Iraq. For most cases, the DNASA staff is sufficient to classify commodities and make the appropriate licensing decisions. Sometimes, however, outside expertise is requested. An expert review may be requested from the National Commission for Nuclear Energy for license applications involving nuclear materials, technologies and equipment, and from the Brazil Space Agency for exports involving space- or missile-related goods and technologies. About 80 percent of all license applications deal with controlled dual-use chemicals.[25] Brazil has the seventh-largest chemical industry in the world, although most companies are foreign owned or subsidiaries of major American or German chemical giants. DNASA officials acknowledge the importance of thorough control over exports of dual-use chemicals, as they may be used for manufacturing chemical warheads or for terrorist purposes.

The DNASA-coordinated Interministerial Commission on Controlling Exports of Sensitive Goods has established Technical Groups that assist DNASA in the technical aspects of licensing procedures. Industry representatives are members in these groups. Exporters send their license applications to DNASA electronically through the Sistema Integrado de Comercio Exterior, or Integrated System of Foreign Trade (SISCOMEX), which was established at the Ministry of Development, Industry, and Foreign Trade in 1993. The system contains comprehensive profiles of all Brazilian exporters and importers. Each company is assigned a code number. When an exporter of controlled goods enters a license application into the system, the system's software identifies the goods subject to export control by their codes and forwards the application to DNASA, which is part of the SISCOMEX network.[26] According to Etelvina Maria Soares Carl, the Coordinator for Commercial Operations at the Ministry of Development, Industry, and Foreign Trade, 23,000 Brazilian exporters are registered with SISCOMEX, of which about 100 trade in sensitive dual-use items.[27]

DNASA officials maintain that they pay special attention to the end-use and end-users' statements while reviewing license applications. An import certificate issued by an authorized government agency of the importing country is one of the key documents in any application to export goods to foreign private companies. The import certificate states that the importing private entity is legally qualified to import the stated goods, and that those goods will not be re-exported to a third country without the authorization of the importing country. With respect to sales to foreign governments, DNASA requires end-use certificates stating that the importing government will use the imported goods only within its national territory and will not re-export them to a third country without prior authorization of the Brazilian government.

In certain cases, before even applying for a license, companies may be required to obtain special permission from the Foreign Ministry to begin negotiation of the contract with a foreign partner. If the export operation involves nuclear- or missile-related dual-use items, an exporter must request permission from the Foreign Ministry to start contractual negotiations. In the Foreign Ministry, two key departments are involved in the decisionmaking: the

Department of Disarmament and Sensitive Technologies, which deals with nonproliferation issues, and the Department of Trade Promotion, which works closely with Brazilian industry. Depending on the recipient country, country desk officers may be involved in the decisionmaking.[28] Foreign Ministry authorization, once given, expires in two years. While permission to begin negotiations is not a common feature of national export control mechanisms, it is not limited to the Brazilian system. At least one other country—Ukraine—has a similar requirement as a part of its export control system. This extra layer of protection probably stems from Brazil's desire to show the world its commitment to protecting sensitive goods and services—and thus to alleviate the suspicions of key trading partners such as the United States.

Law 9112 introduced a "catch-all" provision into the Brazilian export control mechanism. Article 3 of the law states that "the competent federal entities may apply the provisions of this Article to other goods and services not covered by Items I and II [items on the Lists of Sensitive Goods and services related to them], provided that they are deemed to contribute either fully or partially to development, production or use of weapons of mass destruction—nuclear, chemical, or biological—or delivery systems, including missiles capable of carrying such weapons." If DNASA licensing officers doubt the credibility of an end user, they may request additional information from the Brazilian Intelligence Agency. There is reason to doubt, however, that Brazilian industry complies with this provision and that the government enforces it. Industry outreach is practically nonexistent in Brazil, if measured by Western standards. Government-industry liaison, which would allow the government to warn exporters about suspicious customers or would allow Brazilian companies to inform the licensing agency about their doubts, has not been established.

Inadequate regulation of intangible technology transfers, including scientific publications, technical documentation, blueprints, and other information that is militarily sensitive and can be transferred via the Internet and other electronic media, is another flaw in the Brazilian export control mechanism. Discussions with Brazilian government officials and industry representatives produce the impression that very few among them are aware of the importance of controlling this new Internet-age type of export.

Notwithstanding these challenges, Brazilian officials insist that their country's export control system prevents unauthorized sales. For instance, UN Security Council Resolution 1267 (1999) imposed rigorous measures against the former Taliban regime in Afghanistan. Under the resolution, countries were required to submit periodic reports detailing their efforts to prevent weapons and ammunition from falling into the hands of al Qaeda and the Taliban. The Brazilian National Report, dated April 17, 2003, which briefly describes the licensing mechanism outlined above, states that "Until the present date, there are no registers of commercial transactions of weapons and military equipment involving Brazilian citizens and enterprises and persons and organizations indicated in Resolutions of the Security Council."

Exporters of dual-use goods and technologies are not that numerous in Brazil and only a small number of license applications are reviewed annually. Nevertheless, exporters periodically complain about delays in the licensing process, which they attribute to the lack of a specific provision in Law 9112 setting a time limit on the review of export applications. Generally speaking, however, Brazilian industry appears to have lost little commercial business as a result of bureaucratic lethargy. Brazilian exporters by and large comply with export control regulations. Violations of export controls in Brazil are very rare. "There are dishonest people in every country. Theoretically, I can imagine a situation when a dishonest manager of a Brazilian company would forge a license application or try to bypass the licensing process. In real life, I am not aware of such cases," says Maurice Costin, director of the Department on International Affairs and Foreign Trade at the Federation of Industries of the State of Sao Paolo, the largest industry association in Brazil.[29]

Enforcement

Article 6 of the Law 9112 states:

> ...violators of this Law are subject to the following penalties:
> I. warning;
> II. fine of up to twice the value equivalent to that of the transaction;
> III. expropriation of the goods involved in the transaction;
> IV. suspension of the right to export for a period of six months to five years;
> V. cancellation of privileges to work in the area of foreign trade, in cases of repeated offenses.

The law directs the relevant officials to issue written warnings for less serious violations; the other sanctions listed above are intended to punish more serious offenses, and can be levied cumulatively. Article 7 states that not only companies but also individuals can be held liable for

infractions. Article 7 also prescribes jail terms ranging from one to four years for serious violations. Brazilian government officials, however, including law enforcement officers, say they are unaware of any actual cases in which criminal penalties, or serious civil penalties, had been imposed on individual businessmen for export control violations. Representatives from industry associations likewise were unaware of any instances in which irresponsible exporters had been punished on an individual basis.

Customs and Border Guards

Brazil is the largest country in South America and one of the largest countries in the world. Its land boundaries are 14,691 km long, and it boasts some 7,491 km of coastline. Brazil borders ten countries. It shares a 1,224 km border with Argentina, and also adjoins Bolivia (3,400 km), Colombia (1,643 km), French Guiana (673 km), Guyana (1,119 km), Paraguay (1,290 km), Peru (1,560 km), Suriname (597 km), Uruguay (985 km), and Venezuela (2,200 km).[30] Brazilian customs officials and border guards experience tremendous challenges controlling such extensive frontiers, in addition to a significant number of ports. From the perspective of law enforcement, the most troublesome part of the border is the so-called tri-border area, the spot where Brazil, Argentina, and Paraguay converge. The tri-border area is a haven for merchandise smugglers, counterfeiters, tax dodgers, and traffickers in illicit drugs and arms. Brazilian officials estimate that more than $6 billion worth of illegal funds are laundered in the tri-border area every year. Argentine authorities estimate that 1.5 metric tons of cocaine are smuggled through the region every month.[31]

Brazilian customs officers have the authority to search, detain, and seize cargoes, but lack the power to investigate suspicious events or arrest suspected offenders. If they doubt the legitimacy of a license-free export of inspected goods or the validity of an export license, customs officers may contact DNASA for additional information. When criminal activity is suspected, they call the police, who identify the questionable item, either by using their own experts or by requesting assistance from the relevant agencies. Brazilian customs inspectors are well trained in inspection techniques, but they are not trained to identify specific controlled items. Border checkpoints in Brazil also lack the equipment needed to detect nuclear materials. The government has made little effort to outfit its border facilities with radiation detectors because nuclear smuggling is considered a rare crime for Brazil. The major concern for Brazilian border guards is trafficking in illicit drugs and arms, not weapons of mass destruction (WMD) materials and technologies. Smugglers usually try to escape detection by traveling through or over sparsely populated regions and bypassing border checkpoints. In interviews with the author, police officials said that the only case of attempted smuggling of nuclear materials they were aware of had taken place in the early 1990s, when a man possessing a small amount of thorium was arrested. They were unaware of any smuggling cases involving missile technology or components.[32]

Brazilian customs and border services are both understaffed and underfunded. For instance, at Santos, Brazil's largest port, there are only four or five customs officers with the authority to check containers carried by large merchant vessels. As a result, only a minuscule percentage of shipping containers undergoes inspection at Brazilian ports. The same observation holds true for crossing points along Brazil's land borders.

Corruption

According to Transparency International, a nongovernmental organization that rates the level of corruption in various countries, Brazil generally falls in the middle of the pack in world corruption rankings. The Brazilian federal government has shown no systematic determination to clamp down on corruption. Fraud and corruption are pervasive in the social security system and in transfers of federal funds to specific projects. Corruptive practices are also common in judicial processes and contracting.[33] At the same time, Brazilian society is acutely sensitive to cases involving immorality by public servants. Corruption scandals typically shake whatever government is in power. As a rule, any cabinet ministers or other high-ranking officials implicated in a scandal are swiftly dismissed. But systematic reforms designed to prevent corruption are rare.[34]

Despite these instances of corruption in Brazilian government agencies, the ministries that make the decisions about export licenses have a reputation for being relatively free of graft. One can imagine a licensing officer at DNASA issuing an export license in exchange for a bribe; yet such a transaction would be rather implausible in real life. License applications are few in number; they undergo a two-stage review, since applicants have to secure the permission of the Foreign Ministry to begin negotiations over and above the routine approval of DNASA; and serious consequences would follow in the international arena were an illicit export uncovered. Furthermore, the oversight exercised by the security services over licensing activities helps hold down the risk of bribery.

Corruption is probably more common among customs officers and border guards, who do not the face this kind of close scrutiny. In all likelihood, however, these individuals are more tempted to take bribes from traffickers in drugs and small arms. There have been no known cases in which dual-use items were smuggled out of Brazil. If such a case did occur, it would have resulted more from the inability of poorly trained customs officers to identify these items than as a result of graft.

Pre-License Checks

DNASA lacks the funds and capabilities to perform pre-licensing checks and post-shipment verifications. Nor are Brazilian embassies abroad staffed for these purposes. DNASA has been known to request data from the Brazilian Intelligence Agency about "bad actors." This allows DNASA to tap into an information-sharing arrangement with the U.S. intelligence services, supplementing Brasilia's meager capabilities.

BRAZILIAN PARTICIPATION IN MULTILATERAL EFFORTS TO CONTROL WMD PROLIFERATION

The decision by Brazil and Argentina to curb their "near-nuclear" ambitions led to a bilateral Agreement on the Exclusively Peaceful Use of Nuclear Energy. Signed on July 18, 1991, the agreement created a Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials, which now conducts onsite inspections of nuclear facilities in Argentina and Brazil and maintains an inventory of the nuclear material in each country. In December 1991, Brazil and Argentina concurrently signed agreements with the IAEA authorizing full-scope safeguards at nuclear installations in both countries. IAEA inspections began in 1994.

On May 9, 1967, Brazil signed the Treaty of Tlatelolco, which bans nuclear weapons in Latin America and the Caribbean. Brazil ratified the treaty with reservations on January 29, 1968, withdrawing its reservations on May 30, 1994. Brazil opposed the NPT for decades, arguing that it discriminates against non-nuclear states and infringes on national sovereignty. Nevertheless, Brazil finally ratified the NPT on July 13, 1998, and the same day it ratified the CTBT.

Brazil joined the NSG as a full member on April 23, 1996, at the group's Buenos Aires Plenary Meeting. On April 12, 1996, just before the nation acceded to this arrangement, the Office of the President issued Decree No. 1861, clarifying the general provisions of Law 9112 relating to nuclear exports. Brazilian diplomats point out that membership in the NSG confers greater credibility on Brazil's commitment to the nonproliferation of nuclear weapons and provides access to foreign the nuclear-related goods and technologies the nation needs for nuclear research—especially for its efforts to develop a nuclear power reactors for its submarines.

Chemical and Biological Weapons

Brazil has never produced or possessed chemical or biological weapons (CBW). On September 5, 1991, Brazil, Argentina, and Chile signed the Mendoza Declaration, whereby the three countries pledged not to use, develop, produce, acquire, stock, or transfer chemical or biological weapons—directly or indirectly. The Brazilian government was also an active participant in the negotiations that produced the 1993 Convention for the Prohibition of Chemical Weapons (CWC), which it ratified on March 13, 1996.

The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons (BWC) was opened for signature in 1972, and although Brazil remains a member of the BWC, it is frustrated by the convention's lack of any verification and enforcement mechanism, as well as the inadequate attention it pays to promoting scientific and technological cooperation. Brazil is not a member of the Australia Group (AG). Brazilian diplomats disparage the AG, which they claim is not an effective tool to rein in the spread of chemical and biological weapons. They also argue that the Australia Group is a "club" of selective members, whereas the conventions are open for any country, and, therefore, could pave the way for universal CBW disarmament. Consequently, they prefer to focus on perfecting the other conventions that seek to clamp down on CBW.

Missiles

Brazilian authorities held their first formal meeting with the MTCR mission in 1992. However, it was not until October 1995 that Brazil became eligible to join the MTCR. The main obstacle was the lack of any comprehensive and enforceable legislation imposing controls on the export of missile components and technologies. As part of his August 18, 1995, address pledging to support the ideal of nonproliferation, President Fernando Henrique Cardoso vowed to ban the exportation of delivery vehicles for unconventional warheads. The president also declared that Brazil did not intend to produce, import, or

export long-range ballistic missiles.[35] And on October 10, 1995, the Congress passed Law 9112, which imposed comprehensive controls on the exportation of sensitive technologies—including missile technologies. On October 27, 1995, having cleared the hurdles to membership, Brazil joined the MTCR as a full-fledged member. Brazil was the first country with a space launch program to be admitted to the MTCR since 1993, when the Clinton administration began requiring that applicants for membership abandon their Category I capabilities,[36] even if those capabilities were part of a civilian space launch program. For instance, Argentina, which was admitted to the regime in 1993, had to forgo its Condor-II program to secure the backing of the United States for its candidacy.

Brazilian Foreign Ministry officials contend that both the NSG and the MTCR lack the mechanism necessary to combat the threat of terrorist attacks using WMD. To remedy the situation, Brazilian delegates have begun lobbying the regimes to enact procedures by which member governments could share intelligence about "bad actors"—governments or private firms that are likely to channel sensitive materials, technologies, and equipment to terrorists—more expeditiously. Brazilian officials feel that Western nations, particularly the United States, are reluctant to share certain information with their partners in the multilateral export control regimes. Brazilian diplomats have also voiced misgivings about the new missile nonproliferation arrangement, the International Code of Conduct against Ballistic Missile Proliferation (ICOC). They argue that the European Union countries dominated the drafting of and debate over the ICOC, leaving little opportunity for countries such as Brazil to help shape the document. In their view, the final draft does not adequately promote the idea of international space cooperation, a perennial Brazilian interest. For these reasons, Brazil was not among the 92 nations that convened at The Hague on November 25, 2002, to approve the new arrangement.[37]

By and large, Brazilian government officials and industry view their nation's membership in the MTCR as beneficial. However, frustrating disputes with other regime members sometimes crop up. The debate currently raging in Brazil about the Technology Safeguard Agreement with the United States is a case in point. Brazilian and U.S. officials signed the U.S.-Brazil Technology Safeguard Agreement (TSA) on April 18, 2000. The agreement authorized U.S. companies to launch communications and earth-observation satellites from Brazil's Alcantara launch facility, just 2.3 degrees south of the equator. Due to the rotation of the earth, it is easier to launch rockets at the equator than at any other latitude—hence launches from the Alcantara facility are more economically attractive. Brazilian supporters of the agreement claimed that deals with U.S. firms would generate some $30 million a year and attract other foreign customers. A heated debate ensued when the Brazilian Congress took up the agreement. Indeed, some opponents urged the government to call off the deal, describing certain provisions as "draconian" and "an abandonment of Brazil's national sovereignty." One clause of the agreement would prohibit Brazil from using funds generated by launch fees "for the acquisition, development, production, testing, deployment or use of rocket or unmanned air vehicle systems." The agreement also prohibited the transfer of sensitive technology to Brazil and restricted access to certain areas of the launch center only to persons designated by the U.S. government. It forbade Brazilian customs officials from inspecting sealed containers with satellites, launch vehicles, or related equipment entering or leaving the Alcantara base. Some Brazilian congressmen argue that "by agreeing to these conditions, we are essentially ceding a part of Brazil's national territory to be used as a restricted American base of operations."[38] From the standpoint of the U.S. government, the provisions of the agreement simply reflected the traditional U.S. policy of pressing Brazil to curb its space launch development efforts. One U.S. government official who was closely involved in negotiating the agreement says that "encouraging the development of Brazil's own rocket program…is against our policy. [The agreement] is allaying U.S. concerns about the potential transfer of sensitive and advanced missile technology to Brazil or any other nation that might operate at the base."[39]

In a nutshell, the policies of the United States and Brazil center around different provisions stated in the Preamble to the TSA: While the government of Brazil is anxious about "promoting the commercial use of the Alcantara Spaceport," the U.S. government focuses on the "objectives of nonproliferation and export control" and "protection of advanced technologies."[40] According to a U.S. diplomat based in Brasilia, Washington is concerned about the ability of the Brazilian government to prevent unauthorized transfers of foreign technologies. This individual suggested that some Brazilian politicians may also be playing an "anti-American card" in opposing the agreement. He observed that Brazil's Congress was poised to approve a similar agreement, with similar terms, with Ukraine—and that this event would likely come and

go with little attention from the public, their elected representatives, or the media.[41] The Brazilian government, concluding the agreement would not be ratified, withdrew it from Congress in May 2003. Agreements of this kind do not require legislative approval in Brazil. Brazil and the United States may review the signed agreement and could agree to changes, making it more palatable politically. Such a maneuver might not calm the furor over the deal, however, since the issue has already attracted public attention and is exploited by some political parties to fuel anti-American sentiment.

Conventional Arms

Brazil is not a party to the Wassenaar Arrangement (WA). The official explanation is that the country has no need to join this multilateral export control arrangement. Foreign Ministry officials contend that the Brazilian Ministry of Defense had been in charge of arms sales since 1937 and had developed an elaborate and effective national system to control exports of conventional arms. Consequently, they maintain that there is simply no need for Brazil to take on a superfluous commitment at the international level.[42] Arms exports and exports of dual-use goods and technologies generally rank low in the hierarchy of public and congressional concerns. Law 9112 mandates that the control lists and export-control-related government regulations be published in the *Federal Government Gazette*, and this requirement is routinely met. By and large, however, Brazil's Congress and the general public are apathetic about these matters.

CONCLUSION

All in all, Brazil's export control system appears to be adequate to the country's volume of exports of arms and dual-use goods and technologies. It is based on a law that has all the requisite elements, such as licensing procedures, control lists, and an enforcement mechanism. Although Brazil has fairly well-developed nuclear, chemical, and space industries, it exports only minimal quantities of controlled dual-use goods and technologies. No cases involving illegal transfers of sensitive goods and technologies of proliferation concern have come to light; nor have any unauthorized sales of conventional arms been reported. The SISCOMEX network has proved an effective system for registering the country's exporters and tracking their transactions. Indeed, countries such as Japan, France, and Italy have expressed interest in creating similar networks.

Long, porous borders represent the weakest element in Brazil's export control infrastructure. Luckily, this geographic disability appears to have had few negative implications for the government's efforts to monitor the flow of sensitive goods and technologies. The major challenge for Brazilian border guards is to squelch the smuggling of drugs, small arms, and consumer goods. Although the level of corruption in the country is fairly high, the probability of graft in the export control licensing process is low. Brazilian exporters have a reputation for being disciplined and compliant, and, so far, there has been no evidence that they have forged documents, deliberately misrepresented the facts in their license applications, or sought to bypass licensing procedures.

Many in the Brazilian political establishment feel that their country, like many in the third world, is the victim of unfair discrimination by Western nations where the transfer of advanced technology is concerned. They routinely condemn the nuclear powers for the slow pace of disarmament. Their desire to demonstrate their fealty to the ideal of nonproliferation, and to gain access to nuclear and space technology, were the two main motives impelling Brazil to join the NSG and MTCR. Brazil, in short, has a rather elaborate export control system for a developing country and has amassed an enviable nonproliferation record.

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[1] This report is a part of a project funded by the Carnegie Corporation of New York. An extended version of this report will be published by CITS/UGA later in 2003.

[2] For more details on political developments in Brazil since the end of military rule, see Microsoft, "Brazil/History," *Microsoft Encarta 97*, <http://www.emayzine.com/lectures/HISTOR~6.htm>.

[3] U.S. Central Intelligence Agency, "Brazil: Economy," in *CIA World Factbook 2003* (Washington, DC: U.S. Central Intelligence Agency, 2003), <http://www.cia.gov/cia/publications/factbook/geos/br.html#Econ>.

[4] John Pike, "Military Industry, Brazil" Global Security Online, July 15, 2002, <http://www.globalsecurity.org/military/world/brazil/industry.htm>.

[5] See Stockholm Peace Research Institute (SIPRI), "Government and Industry Data on National Arms Exports since 1995," Stockholm, Sweden, March 2003, <http://projects.sipri.se/armstrade/gov_data_excel_220503-1.xlc>.

[6] For a more detailed review of Brazil's military-industrial complex, see Ken Conca, *Manufacturing Insecurity: The Rise and Fall of Brazil's Military-Industrial Complex* (Boulder, CO: Lynne Reinner Publishers, 1997), <http://www.brazzil.com/blafeb98.htm>.

[7] "Brazil to Raise Arms Exports," Arms Trade Newswire, October 26, 2001, Arms Trade Oversight Project, <http://www.clw.org/atop/newswire/nw102601.html>.

[8] This section draws heavily on Federation of American Scientists, "Brazil: Nuclear Weapon Programs," October 2, 1999, <http://fas.org/nuke/guide/brazil/nuke/index.html>.

[9] Mathew Flynn, "Brazil: Nuclear to the Rescue?" *Bulletin of the Atomic Scientists* 57 (September/October 2001), pp. 15-18, <http://www.thebulletin.org/issues/2001/so01/so01flynn.html>.

[10] "Nuclear Connection with Brazil Assessed," *Nuclear Developments*, August 14, 1989, pp. 37-39, <http://www.nti.org/e_research/el_brazil_nuclear.html>.

[11] For more details on ABBAC, see "Brazil-Argentina Agency for Accounting for Nuclear Material," in *Inventory of International Nonproliferation Organizations and Regimes, 2002* (Monterey, CA: Monterey Institute of International Studies, 2002), pp. 138-140.

[12] For details about the Treaty of Tlatelolco, see the web site of the Organization for Prohibition of Nuclear Weapons in Latin America and the Caribbean, which is charged with implementing the treaty, <http://www.opanal.org>.

[13] "Brazilian President Calls for Revived Nuclear Program," *Weekly Defense Monitor* 6 (November 14, 2002), <http://www.cdi.org/weekly/2002/issue38.html#4>.

[14] "Brazil Wants to Master All Facets of Nuclear Technology," Yahoo!News, January 7, 2003.

[15] Larry Cohen, Deputy Political Counselor at the U.S. Embassy in Brazil, interview by author, Brasilia, Brazil, April 28, 2003.

[16] "Technology: Developing Countries Compete in Space Race," MyCNN, December 17, 1999.

[17] Frank Braun, "Brazilian Congress Criticizes Bilateral Agreement with U.S.," *Space News*, May 14, 2001, p. 28.

[18] "Fatal Blast Hits Brazil Space Hopes," BBC News, August 23, 2003, <http://newsvote.bbc.co.uk>.

[19] Center for Defense and International Security Studies, University of Lancaster, United Kingdom, "National Briefings: Brazil," <http://www.cdiss.org/brazil_b.htm>.

[20] Dinshaw Mistry, "Ballistic Missile Proliferation and the MTCR: A Ten-Year Review," *Contemporary Security Policy* 18 (December 1997), pp. 65, 79.

[21] Ibid.

[22] "Cruise Missiles 'Made in Brazil'," BBC News, September 4, 2001, <http://news.bbc.co.uk/hi/english/business/newsid_1525000/1525374.stm>.

[23] "Brazil Is Going into Space," Sao Paolo ISTOE, August 9, 1995, <http://fas.org/news/brazil/lat95188.htm>.

[24] Permanent Mission of Brazil to the United Nations, "Brazil and the United Nations: Export Controls," <http://www.un.int/brazil/position/pp-export-controls.htm>.

[25] Roque Monteleone Neto, DNASA Director, interview with author, Brasilia, Brazil, April 28, 2003.

[26] "Siscomex Exportacao Comemora 10 Anos," *Informativo Secex* 6 (January 2003), p. 2.

[27] Etelvina Maria Soares Carl, the Coordinator General for Commercial Operations at the Ministry of Development, Industry, and Foreign Trade, interview with author, Brasilia, Brazil, April 29, 2003.

[28] Everton Frask Lucero, Deputy Head, Department of Disarmament and Sensitive Technologies, Ministry of Foreign Affairs, interview with author, Brasilia, Brazil, April 28, 2003.

[29] Maurice Costin, director of the Department on International Affairs and Foreign Trade at the Federation of Industries of the State of Sao Paolo, interview by author, Sao Paolo, Brazil, April 30, 2003.

[30] U.S. CIA, "Brazil," in *CIA World Factbook 2003*.

[31] David Adams, "Narcoterrorism Needs Attention," *St. Petersburg Times*, March 10, 2003, <http://www.sptimes.com>.

[32] Officials from the Department of Federal Police at the Ministry of Justice (names withheld by request), interview with author, Brasilia, Brazil, April 29, 2003.

[33] In August 2000, for example, President Fernando Henrique Cardoso came under heavy criticism following allegations that senior officials and some of his closest advisors had been involved in one of the country's worst corruption scandals ever. In 1999 a congressional inquiry had revealed that a senior Sao Paolo judge, Nicolau dos Santos, had helped steal more than $90 million from a courthouse construction project. See "Brazil: Political Crisis Follows Corruption Scandal," *Latin News*, August 8, 2000, <http://www.transparency.org/newsletters/2000.3/reports.html>. In February 2001, moreover, the federal internal control secretary discovered that some $225 million of a total of about $900 million disbursed for one special federal project had disappeared. See Claudio Weber Abramo and Bruno Wilhelm Speck, "National Integrity System," in *Country Study Report: Brazil 2001* (Berlin: Transparency International, 2001), p. 5, <http://www.transparency.org/activities/nat_integ_systems/dnld/brazil.pdf>.

[34] See Abramo and Speck, "National Integrity System," p. 8.

[35] United Nations, "Brazil, Missile Technology Control Regime," <http://www.un.int/brazil/position/pp-missiletechcontrol.htm>.

[36] According to the MTCR Guidelines, a Category I system is capable of delivering a payload that weighs over 500 kg against a target more than 300 km distant.

[37] Brazilian Foreign Ministry officials (names withheld by request), interview by author, Brasilia, Brazil, April 28, 2003.

[38] See "Brazilian Congress Urges Scrapping of U.S. Satellite Launch Deal," *Florida Today*, September 10, 2001, <http://www.flatoday.com/news/space/stories/2001b/sep/spa091101a.htm>; Braun, "Brazilian Congress Criticizes Bilateral Agreement," pp. 1, 28.

[39] Braun, "Brazilian Congress Criticizes Bilateral Agreement," p. 28.

[40] "Agreement Between the Government of the Federative Republic of Brazil and the Government of the United States of America on Technology Safeguards Associated with U.S. Participation in Launches from the Alcantara Spaceport," April 18, 2000, Office for Outer Space Affairs, United Nations Office in Vienna, <http://www.oosa.unvienna.org>.

[41] Official at the U.S. Embassy in Brasilia, interview with author, Brasilia, Brazil, April 28, 2003.

[42] Brazilian Foreign Ministry officials (names withheld by request), interview by author, Brasilia, Brazil, April 28, 2003.