

ENVIRONMENT AND SECURITY IN THE AMAZON BASIN

Woodrow Wilson Center Reports on the Americas • #4

**Edited by
Joseph S. Tulchin and Heather A. Golding**

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PREFACE

This report and the conferences from which it was developed are the results of a collaborative project between the Woodrow Wilson International Center for Scholar's Latin American Program and the Environmental Change and Security Project. Ralph H. Espach, former Program Associate of the Latin American Program and Geoffrey D. Dabelko, Director of the Environmental Change and Security Project, through the generous support of Woodrow Wilson Center Conference Funds, hosted a series of three public conferences during Spring 2000: Environment and Security in the Amazon Basin; Environmental Policy in Amazonia; and, Brazil's SIVAM Project: Implications for Security and Environmental Policies in the Amazon Basin. The conferences brought together select groups of experts and policymakers to discuss issues such as: environmental and sustainable initiatives in the Amazon Basin; the roles of local, national and international actors; Brazil's national security agenda in relation to the Amazon Basin; and, the rising threat of international drug trafficking.

This volume is a compilation of papers presented at the conferences. Its aim is to provide new insights into the complex and politically delicate security and environmental questions at stake in the Amazon Basin.

A number of central themes on national security and the environment in the Amazon region run throughout the following chapters. For the purpose of a short introduction, it is worth highlighting in a general way some of the issues of prime concern to the authors. First, particular definitions of security play a central role in determining how the Brazilian, regional, and international actors approach the problem of environmental protection of the Amazon. The traditional security approach, which highlights national sovereignty and the military's role in protecting territorial integrity of the nation, is relatively less emphasized than in the past, given the emergence of more expansive notions of security. As Bitencourt points out, however, the security variable can never be ignored in considering the reaction of Brazil and its military to international initiatives. We also see the prominence of the concept of

ecological security—an “ecosystemic” approach—in the Brazilian policy debate. Likewise, drug trafficking and drug interdiction are increasingly viewed as interrelated national security and environmental issues, and events in Colombia and elsewhere ensure that such a focus will receive continued attention. These approaches broaden our understanding of Amazônia policy and promise to promote efforts at environmental protection.

Second, there appears to be considerable support in this volume for a stronger regional or multilateral approach to the preservation of the Amazon. Greater Brazilian leadership in international cooperation on the management of Amazônia would likely redound to Brazil’s benefit in various ways, as Espach explains. Regional cooperation is viewed as the best approach, albeit an unlikely one given nationalistic concerns, to address environmental problems related to drug trafficking and interdiction. We also see that part of the value of the System for the Protection of the Amazon (SIPAM)—or policies aimed at increasing cooperation in regional development—consists of potential joint actions and sharing of ideas among private, national, regional, and international entities.

Third, as we also see below, SIPAM and the System for the Surveillance of Amazônia (SIVAM) are central topics, yet the impact of the two instruments remains to be seen. SIVAM is a technologically advanced radar and satellite network for improving the collection of regional information and monitoring. On the one hand, the emergence of SIVAM indicates an extraordinary opportunity to take advantage of the most advanced technology available today. Among SIVAM’s benefits, Guedes da Costa notes, could be the generation of knowledge that challenges the perception of the security threat to the region. On the other hand, SIVAM’s magnitude and complexity raise questions of potential deficiencies in implementation and evaluation. As Brigagão explains, absent SIPAM, which has faced difficulties in getting established, SIVAM risks failing to become a fully developed Amazon management tool.

Finally, and perhaps most important, is environmental politics and policymaking concerning the Amazon. Politics is always critical to any major issue of governance and, as Keck emphasizes, some conservationists have ignored this advice to the detriment of their work in the region. The question of the depth and effectiveness of the commitment of the Brazilian state to preservation will surely remain open.

Preface

Taking a new look at the policymaking process will help avoid the perpetuation of wrong-headed policy based on misleading conceptions of Amazônia. It is hoped that this volume will to some degree aid in that reexamination.

CHAPTER SUMMARIES

This volume opens with a chapter by Ralph Espach, who examines the history of Brazilian national security and developmental policies in Amazônia from the 1950s to the present. He particularly addresses the rise in the 1970s of international interest in protection of the rainforest and the reconceptualization of the national interest with respect to the Amazon following Brazil's democratization and economic liberalization in 1985. Early on, Brazil was highly critical of international environmentalism, emphasizing a "protectionist concept of national security and sovereignty." Since the mid-1980s, that policy has greatly evolved, especially through increased support for the participation of multiple actors in creating regional policies. Espach adds, however, that the current weak political commitment to cooperative mechanisms for environmental management presents significant potential costs to Brazil.

Chapter two, by Margaret Keck, provides an historical review of the development of tropical deforestation as issue of international public policy. Her focus is on the efforts of Brazilian and international conservationists to promote preservation of the Amazon and on the reaction those efforts have received in Brazil. She concludes by detailing five consistent policy-making mistakes made by conservationists seeking to protect Amazônia over the past two decades. These are: essentialism, keeping politicians out of the loop, assuming state officials are free and supportive agents, failure to pay attention to the political context, and too often assuming money is the problem and capacity-building the solution.

In chapter three, Luis Bitencourt emphasizes the importance of understanding Brazil's traditional security agenda—the concepts associated with sovereignty and military force—in considering environmental protection in the Amazon. He provides an overview of historical events and perceptions of national security developments, including the *Calha Norte* Project and SIVAM, and demonstrates the sensitivity of the Amazon theme and its potential for forging a new military image. Bitencourt concludes that

from the Brazilian security perspective, particularly in the military's view, international interest in the Amazon continues to pose a large and growing threat to the sovereignty of the region.

Chapter four, which examines the relationship between drug trafficking and environmental degradation in the Amazon Basin, is coauthored by Astrid Arrasás and Eduardo Gamarra. The authors clearly describe the deleterious impact of the illicit drug industry on the environment. Interestingly, however, Arrasás and Gamarra emphasize that environmental degradation has also resulted—mostly unintentionally—from the efforts made to halt these illegal activities. Drug interdiction in one part of the Amazon, for example, can push drug producers deeper into other parts of the rainforest (the so-called “balloon effect”). According to the authors, since the evolution of the drug industry and its environmental impact affects the way countries deal with national security—and because it requires nontraditional thinking about security—the approach to the problem must be a coordinated regional or hemispheric effort aimed at avoiding further ecological damage.

In chapter five, Thomaz Guedes da Costa examines the justification for and creation of SIVAM, the system's implementation, and most important, the prospects for evaluating its effectiveness. Among various potential uses of SIVAM, Guedes da Costa explains, is the repression of illegal activities, such as unauthorized mining, small arms trade, and especially drug trafficking. All of these are increasingly issues of national security. SIVAM can ideally map areas of human presence—activities; movement by ground, air, or river; or settlements. Defining performance criteria for the evaluation of SIVAM is therefore critical so as to ensure its improvement and ultimate success, Guedes da Costa concludes.

Clóvis Brigagão, author of the final chapter, takes a close look at what he calls a new and expanded concept of security: “ecological security.” Ecological security, Brigagão writes, focuses on broader regional management and development of shared ecosystemic resources. Brazil's establishment of SIPAM and SIVAM comprise a “new paradigm for the strategic management of ecosystemic resources.” Examining the components and status of SIVAM, Brigagão views the highly sophisticated system as having “profound strategic value”—if the coordinated work of government agencies is coupled with greater participation from civil society, including universities, research centers, and the business community.

Preface

This volume and the project from which it developed would not have been possible without the help of many people. Special thanks to Shanda Leather and Clair Twigg, of the Environmental Change and Security Project, who assisted in the organization of the conferences that led to this publication. Thanks are due to Leah Florence for her thorough copyediting of the chapters and to Gary Bland and Jacqueline Lee, whose attention to detail was indispensable in preparing this volume for publication. Also, special thanks to Derek Lawlor and Kate Grumbacher for their excellent work on the design and layout of this volume.

Joseph S. Tulchin and Heather A. Golding

The Brazilian Amazon in Strategic Perspective

RALPH H. ESPACH¹

Brazil's policies in Amazônia have traditionally been shaped by concerns of national security, in particular the need to integrate and develop the region in order to protect its territorial sovereignty. This conceptual approach led to the developmentalist agenda of the 1950s to 1980s, which aimed to develop Amazônia economically and encourage migration into the region, showing little concern for the environmental effects of these policies. In the eyes of a government whose overriding goals were modernization and economic growth, the undeveloped rainforest, inhabited mostly by Indians and missionaries, was little more than an obstacle to national development. Until the late 1900s, the world outside Brazil paid scarce attention.

In the 1980s, however, the rise of the environmental movement in the United States and Europe created pressure on the Brazilian government to crack down on deforestation. The international community declared the Amazon forests, the world's largest contiguous tropical forest and home to over 20 percent of the world's biological diversity and fresh water resources, critical to the health of the global ecosystem. Brazil's aggressive developmental agenda received international condemnation. At first, Brazil responded to these pressures with a traditional nationalist argument that the international interest amounted to intervention and infringement on its sovereignty. In the late 1980s and 1990s, however, the shift in the nation's political and economic strategies toward international openness and cooperation raised the costs of its recalcitrance regarding environmental policy and forced it to accept the international community's interest and involvement in Amazônia.

Today Brazil continues to reform its political and economic institutions to make them more compatible with those of a global system dominated

by democratic, free-market nations. As a result, its economy has grown and become more competitive, and it has increased its importance in global and regional politics. Amazônian policy, however, remains a sensitive point in Brazil's international profile. Policies at the federal level that aim to protect areas of the forest and promote sustainable development are underfinanced, poorly integrated at the state and local levels, and engaged in a struggle against conservative political forces. These difficulties stem partly from the nation's brand of federalism, which gives significant power to state and local governments. More importantly, the problems reflect a lack of political commitment to—and of public interest in—the welfare of the Amazonian region.

This paper argues that this lack of political commitment to effective management of Amazônia not only promises further destruction of the rainforest, but also represents a failure to take advantage of an opportunity for international leadership. The implementation of SIVAM, a sophisticated satellite and radar system for improved surveillance of Amazônia, will increase knowledge of the region, but is unlikely to change the political situation. A national policy for the controlled management and development of Amazônia as a multi-use region, one that preserves its unique biological and human resources and mandates participatory local and state government action and that gains from cooperation with the international community, should be a central element of Brazil's strategic international agenda. By managing the discovery and development of the economic uses of the rainforest's unique biological properties, as well as by demonstrating the capacity to preserve an increasingly scarce and valuable resource, Brazil could become the world's leader in environmental affairs. An effective, participatory policy for environmental management in Amazônia—one supported by and enforced at the state and local levels—would improve Brazil's control over and understanding of the region, increase the long-term economic returns from its development, and contribute to Brazil's position as a regional and global power.

THE DEVELOPMENTALIST AGENDA OF THE 1950s TO 1980s

For most of Brazil's history, the government saw Amazônia as vast, exotic territory that should be opened for colonization and industry in order to make economic use of it and to protect it from invasion. Factual knowl-

edge of the region's geography, forests, and people was scarce. Few Brazilians were interested in inhabiting an environment so foreign and challenging to a European-styled life. Except for during local booms in the rubber industry in the late 1800s and early 1900s, the region received little migration. Though the government and especially the military worried about this uncontrolled area—which constitutes over half of national territory—there was little political support for an active national policy. The country's economic and political power resided along the sugar-producing coast in the north, or in the coffee growing regions and large cities in the south. The national security agenda focused mainly on scenarios of conflict with Argentina, Paraguay, or Chile.²

In the middle of the 20th century the nation embarked on an ambitious program of industrialization and modernization. The construction of Brasília and the Belém-Brasília highway, begun in 1958, attracted developers, ranchers, and farmers to Amazônia. Influenced by positivist ideals that science, development, and industry were the keys to progress, government planners viewed Brazil's vast forests in the Amazon and other regions either as materials for economic production or as obstacles to national development.³ In the late 1960s and 1970s, with lending from the World Bank and the Inter-American Development Bank, the government built roads and infrastructure, supported large-scale industrial projects, and offered incentives for the clearing of the forest for economic ventures. Under the military government, the fundamental motivation of this developmentalist agenda continued to be protecting national sovereignty and gaining international power by exploiting Brazil's enormous natural resources. "Intregar para não entregar," (Integrate in order not to lose) was the underlying geostrategic principle. As proclaimed by the father of Brazil's modern national security doctrine, General Golbery do Couta e Silva: "There was no middle ground for Brazil when it came to Amazônia; it could develop the region and secure *grandeza*, or it could lose the region and, with it, Brazil's grand destiny."⁴

In general, this series of regional development and colonization programs (which include the Polonoroeste Plan, begun in the 1950s, the Plan for National Integration of 1970, and the PolAmazônia of 1974) failed to meet its objectives and was pursued at tremendous cost to the environment. Instead of creating sustained economic growth, creating jobs, and serving as a safety valve for migration from other overpopulated regions,

these programs increased the rate of deforestation, worsened the concentration of land in the hands of speculators or wealthy investors, and exacerbated social conflict.⁵ Economic production did not support the region's rapid population growth, and social welfare levels remained dismal. By the mid-1980s it was widely recognized that these programs had failed to generate expected levels of economic development. Cattle ranching in particular, supported by government subsidies, had proven unproductive and ill-suited to the land. Also, lawlessness prevailed in many areas opened up by the government. Fraudulent land entitlements abounded, along with speculation that drove up land prices, all of which contributed to frustration and social conflicts which often turned violent.

The developmentalist agenda was also unsuccessful in its strategic objective of protecting national sovereignty and security in Amazônia. Even with a heightened military presence (through the *Calha Norte* program) the government was unable to monitor or control illegal activities in the region. The building of roads, airplane landing strips, and a system of scattered towns and settlements facilitated illegal mining, logging, and trafficking operations. Also, massive infrastructure projects in Amazônia and across the nation depended upon foreign lending and investment. This contributed significantly to the growth of Brazil's foreign debt in the 1970s and 1980s, which weakened the nation's negotiating position in the international community and made it vulnerable to the crippling economic crisis of the 1980s. Contrary to its nationalist security objectives, by opening the region to unregulated exploitation and increasing Brazil's dependence on foreign lending, the developmentalist agenda contributed to the internationalization of the Amazon.⁶

THE RISE OF INTERNATIONAL INTEREST IN THE RAINFOREST

Beginning in the 1970s, Amazônia became a focus of an increasingly organized international environmental movement. As concern grew over global trends of deforestation and climate change, environmental groups already powerful within industrialized nations began to expand their interests globally. Brazil was an easy target. In the 1970s and into the 1980s, the Brazilian Amazon had suffered deforestation at increasing rates of between 20-30,000 km² per year, reaching an estimated total of approximately 316,000 km² between 1978 and 1988.⁷ An international

group of scientists, media figures, and policy makers led a campaign for greater environmental awareness. This “epistemic community,”⁸ supported by a growing body of research on the local and global effects of industrial waste, overuse of resources, and pollution, pushed for change in the perceptions and policies of national governments and the international lending institutions.⁹

The increase of international environmentalism coincided with and contributed to increasing tensions between underdeveloped and developed nations. The Brazilian government’s emphasis on a protectionist concept of national security and sovereignty made it an outspoken critic of the internationalization of environmental policy. Brazil was a leader in criticizing the international environmental agenda, denouncing it as a new form of imperialism from the industrialized North. The world’s growing interest in *Amazônia* as an “international resource,” or “the lungs of the world,” was criticized as an open declaration of encroachment on Brazil’s national sovereignty.¹⁰

At the first major United Nations conference on the environment, held in Stockholm in 1972, Brazil championed the interests of the less developed nations, or the South. The Brazilian delegation argued that economic growth must be the foremost priority of developing nations and that pressure from Northern environmentalists was hypocritical since the North was responsible for most of the world’s pollution and degradation. Brazil argued that in the South environmental issues should principally concern problems of health and social well-being, in both rural and urban environments. Pressure for environmental conservation, the delegation argued, was part of a Northern strategy to preserve those resources for their own exploitation. Brazil and its partners formulated these positions within a context of North-South tensions over a range of issues, including trade and investment patterns, attempts to control the spread of nuclear technology and weapons, and external interference in domestic affairs driven by a Cold War rationale. Though the Brazilian position was widely criticized by the environmental movement and many Northern governments, the arguments it raised did, over years, help to alter significantly the international community’s perceptions of responsibility for environmental destruction as well as its policy prescriptions for improving the global environment. The Kyoto Treaty of 1996 reflects this shift in approach, so much so that it is criticized by many in the U.S. Congress for placing dis-

proportionate burden on industrialized nations and letting off developing nations too easily.

During the 1980s Brazil's refusal to accept international pressure regarding its policies in *Amazônia*, even as deforestation continued at historical rates, became seriously detrimental to its international relations. Brazil was singled out by leaders of the environmental community as a chief actor in the deterioration of the global ecosystem. The Brazilian government refused to meet with these groups and denounced the movement as a tool of imperialist governments of the North. Unable to open a serious dialogue with the government, activists, and international non-governmental organizations (INGOs) pressed their case on global and regional lending institutions and the United States Congress. In 1987, the National Wildlife Fund and the Environmental Defense Fund attracted global attention to the plight of the Amazon forests and their people by hosting Chico Mendes, the charismatic leader of the Brazilian Rubber Tappers Union, on celebrated trips to Washington and to Europe.

Within Brazil, this international activity coincided with and fomented an increase in domestic public awareness of environmental issues and an emergence of a network of socioenvironmental NGOs. Although democratization in 1985 had opened up the political sphere to a variety of actors and political parties, a domestic environmental movement was slow to develop. Concern for the environment was simply not a public priority, and Brazil's civil society—which was increasingly urban—was more motivated in other areas. In *Amazônia*, ongoing development, the concentration of land ownership, and the clearing of forests led to increased social conflict and violence, often between the ranchers, industrialists, or other wealthy landowners who owned immense tracts of land, and disenfranchized groups such as rubber tappers and Indians, for whom the destruction of the forest meant the end of their traditional livelihoods and cultures. This violence and the struggle over the fate of the Amazon forests grabbed international attention in 1988 with the assassination of Chico Mendes.

Mendes' murder galvanized international support for these threatened local groups and drew condemnation of the unwillingness or inability of the Brazilian government to protect the region's forests or people from destruction. The Mendes murder also brought together Brazil's nascent environmental movement and the well-entrenched, national social rights

movement, which traced back to the activism of the Catholic Church in the 1960s and was strong in the industrialized south. This emergence of a common agenda among environmentalists, social rights organizations, unions, and the Workers' Party (*Partida Trabalhista*, or PT) significantly increased the domestic political currency of environmental issues.¹¹ The funeral for Mendes, attended by 2000 people from across Brazil, including the rising leader of the Workers' Party Luis Inácio Lula da Silva, was a powerful public demonstration of the common interests of labor across Brazil, from factory workers to rubber tappers.¹²

However, the primary force behind Brazil's eventual shift in Amazonian policy was external. Under sustained pressure from this international environmental campaign, the U.S. Congress threatened to withhold funding for the World Bank and Inter-American Development Bank unless these organizations took measures to enforce environmental protection standards. In 1989, the two banks canceled their support for major energy and road-building projects in Brazil. The demand for responsible conservation and environmental management policies, according to the values of the international environmental movement, had influenced the agendas of the most powerful international institutions. With the cancellation of those loans, Brazilian policy makers found themselves under the thumb of a network of domestic and international NGOs and foreign policy makers, whose collective power derived from their ability to influence and enforce international values and standards for public policies, both international and domestic.

Combined with the crippling economic crisis of the 1980s, which was also largely the result of external factors and Brazil's dependence on foreign financing, Brazilians became painfully aware of the implications of the more internationalized global system for their domestic prerogatives.

THE SHIFT IN BRAZIL'S ENVIRONMENTAL POLICY AS PART OF A LARGER CHANGE IN THE NATION'S STRATEGIC VISION

Following democratization in 1985, Brazil's foreign relations and strategic policies took a dramatic turn. During the "lost decade" of economic stagnation in the 1980s, the nation had lost confidence in the import-substitution-industrialization economic model, and had begun to open further

its economy to international trade and investment. Like most of Latin America, the spread of democracy and free-market economics pushed Brazil to soften its position on national sovereignty and non-interventionism and accept the necessity and potential benefits of enhanced international cooperation and exchange.

Brazil's and Argentina's newly revived democracies took steps to turn their traditional rivalry into partnership, which led to the successful MERCOSUL project and a range of initiatives for institutional cooperation. Brazil softened its official position against the interests of the North and explored areas in which it could serve as a "strategic bridge" between the industrialized and non-industrialized worlds.¹³ Along with its neighbors, Brazil abandoned its nuclear program, signed on to international non-proliferation accords for chemical and biological weapons, and participated more actively in regional institutions, promoting itself as South America's natural regional power.

In this context of enhanced openness, increased trade, and partnership with the international community, the linkage between the concerns of local Amazônian NGOs such as the rubber tappers' union and international environmental groups was a critical development. Though environmental issues were beginning to be of interest to the Brazilian voters, they never developed high political salience.¹⁴ The influence of Brazil's domestic environmental movement was limited by its failure to overcome regional and ideological fragmentation.¹⁵ The dramatic shift in Brazilian environmental policy, which began during the Sarney administration (1985-1990), occurred largely because the nation's environmental record, especially in the high-profile case of Amazônia, began to impinge upon the achievement of its economic goals, which depended on attracting foreign capital and increasing exports. The contradiction between Brazil's internationalist economic and foreign policy strategies and its nationalist, sovereignty-oriented position on Amazônia become untenable, especially following the withdrawal of IDB and World Bank funding for development projects. Paulo Tarso Flecha da Lima, the Secretary General of the Foreign Ministry, remarked that the international attention Brazil received at the time and the withholding of World Bank funding was "the greatest international pressure Brazil has lived through in the whole of its history."¹⁶ The need for international acceptance as a respectable, modern-minded democracy forced Brazil's hand.¹⁷

In 1988, Brazil approved a new constitution that remains today one of the world's most progressive in terms of environmental conservation. President Sarney countered domestic and international criticism of Brazil's environmental policies by passing a series of measures named *Nossa Natureza*. Reflecting the president's ties to the military, the program combined a commitment to conservation and to exploring extractive, sustainable development practices with the traditional nationalist, sovereignty-oriented approach of the national security doctrine. Among other things, *Nossa Natureza* created IBAMA (the Brazilian Environment and Renewable Resources Institute), a federal agency for the coordination of environmental policy. However, the definition of IBAMA's mission was too narrow, and the bureaucratic agencies it included were too politically weak and poorly funded for the agency to be effective.¹⁸ At the same time, Sarney appeased the armed forces by approving the *Calha Norte* (Northern Trench) operation, designed to create a permanent military presence in the northern Amazon to protect the region from a purported threat of encroachment. Still, the modified language and acceptance of some of the principles of the environmentalist agenda—such as “sustainable development” and the setting aside of land for extractive enterprise—indicated a new direction in Amazonian policy.

President Fernando Collor de Mello (1990-1992) quickened the opening of Brazil's economy to international trade and investment and pushed for an enhanced role for the nation in international affairs. By championing internationalism and emphasizing Brazil's purported destiny as the leader of South America and an emerging world power, Collor set the tone for Brazilian foreign policy throughout the 1990s. In line with his drive to draw Brazil closer to the international community, he appointed a noted environmentalist, José Lutzenberger, as Secretary of the Environment, created a new Secretariat for the Environment (SEMA), established a National Environment Program (PNMA), and passed a number of reforms aimed at strengthening the coordination and enforcement of environmental policy. At least in the short-run, the results were a significant reduction in deforestation rates, increased demarcation of Indian lands, and more effective government action against illegal miners, loggers, and perpetrators of violence (including Chico Mendes' assassins).

One of the highlights of this strategy was Brazil's hosting the United Nations' Earth Summit in 1992, in Rio de Janeiro. The Summit suc-

ceeded in bringing international attention to Brazil's improved environmental record. Hosting the Summit also widened domestic public awareness of environmental issues and generated a tremendous increase in the number of environmental NGOs in Brazil and their capacity for cooperation. At the June 1990 meeting of the Brazilian Forum for Environmental and Developmental Social Movements and NGOs (*Forúm Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e Desenvolvimento*), the number of participating groups was 40. In 1991 there were 800; in 1992 1,200.¹⁹

Critics continued to argue that the heightened international activity regarding Amazônia compromised national sovereignty, but Brazil clearly benefited from warmer relations with the international community. The change in the federal government's environmental stance removed a major sticking point in foreign lending and debt negotiations, allowing Brazil easier access to the foreign lending and investment. Strategically, Brazil's admission that a healthy Amazônia was a legitimate interest of the global community opened the way for considerations as to how Brazil could benefit from international cooperation in that area. Brazilian diplomats and their colleagues from other developing nations expressed the trade-off their nations face between social and economic improvement and environmental conservation. The community of scientists and experts that previously had targeted Brazil as an environmental villain now sided with the nations of the South in arguing that the high consumption lifestyles of the North bear most responsibility for global environmental degradation. If underdeveloped nations were to preserve their natural resources instead of exploiting them for development, they argued, wealthier nations should assist them in developing alternative means for economic growth.

Assistance for projects that support sustainable, environmentally conscious economic activities in the Amazon was forthcoming. By far the largest was the Pilot Program to Conserve the Brazilian Rainforests (PPG-7), an agreement made in 1991 between the Brazilian government and those of the Group of Seven industrialized nations to fund a variety of programs, with a total cost of \$1.56 billion. Brazilian environmental NGOs attracted increased funding and technical cooperation from international partners, including the World Wildlife Fund and the Nature Conservancy, which work in partnership with local NGOs to manage

large-scale park lands.²⁰ After years of criticizing debt-for-nature swaps as exploitation, Brazil accepted its first one in 1991.

Under president Itamar Franco (1992–1994), the government gave less attention to environmental policy. The government's principal goals were to control inflation, stabilize the economy, and broaden international commercial ties. Under the current administration the emphasis on economic stability continues, but president Fernando Henrique Cardoso (1994–2002) has made a series of efforts to strengthen national environmental policy and to protect more Amazônian forest from destruction. The 1990s have seen the introduction of a number of major national environmental programs, and the government has reserved approximately 17 percent of national territory for use as Indian lands, national parks, etc. (although much of these reserved lands have yet to be demarcated). This is three times the amount of land reserved in this way in 1985.²¹ Under Cardoso, the *Planafloro* program progressed—after prolonged negotiation with skeptical NGOs—and national codes were changed to require landowners in Amazônia to maintain forest coverage on 80 percent of their lands.²² The government also encouraged cooperation with local NGOs and communities on sustainable development programs. In 1995, Cardoso launched the “Green Protocol” requiring five federal banks to include environmental impact assessments in their evaluations for project loans. Also, the regional network of NGOs, private enterprises, and state, local, and federal environmental agencies that cooperate on sustainable development projects has grown and become increasingly sophisticated.²³

Cardoso's political reforms, including consistent cutbacks in federal spending, have encouraged the decentralization of public policy in many areas. In Amazônia, much interesting and exciting work is in progress at the local level, within states and national parks, to develop sustainable farming, ranching, and extractive practices that are compatible with the environment. Acre's governor Jorge Viana, a member of the Workers' Party, is one of the more prominent regional leaders who has found political success through a conservation-oriented policy platform. “The forest is the answer, not the problem,” according to Viana.²⁴ Viana's success, along with that of other regional leaders, such as the new Secretary for the Coordination of Amazonian Policy in the Ministry of Environment, Mary Allegretti, and Senator Marina da Silva, a rubber tapper's daughter from Acre who is a leading proponent of biodiversity rights, demonstrates the

growing political value of an environmental friendliness. Although such leaders remain a minority and face a mostly apathetic national public and various entrenched, well-heeled groups pushing for more development, their growing presence is an important development in the politics of Amazônia.

Despite Cardoso's positive initiatives, his administration's overall environmental record is mixed. Improved monitoring of the region has indicated that deforestation remains a problem, mostly due to illegal burning and logging, and social violence over land remains severe.²⁵ In 1998, fires in Roraima, which burned out of control for a month, destroyed around 15 percent of that state's forests. For over a month the Brazilian government downplayed the fires and refused offers of fire-fighting assistance from the United Nations, Argentina, and Venezuela. Some prominent military officers predictably denounced these offers as another ploy by which foreigners would gain control over Brazil's forests. As Brazil's inability to control the fires became embarrassingly clear, President Cardoso had to step in and accept the assistance of the international community. The fires were quelled eventually by rain.

Cardoso's environmental policy has been compromised by reductions in the federal budget, by resistance and negotiation from state and local leaders, and by the lack of institutional and operational capacity to enforce existing laws and to implement new ones. Under pressure from the sugar cane industry, President Cardoso in late 1997 vetoed a clause in the environmental crimes law that would have imposed fines and sentences on parties that light fires without taking environmental precautions, a decision censured by Brazilian and international environmental NGOs.²⁶ Although large-scale federal development projects are on the wane, the Amazon forests today are more threatened than ever by the lack of resources, institutional capacity, and political commitment to law enforcement, so that destructive mining, logging, and forest-clearing practices continue. In many ways, the fate of the remaining Amazon forests lies in the balancing of short-term political interests, such as the support Cardoso needs from Amazonian members of Congress on other legislative issues, against the nation's long-term interest in maintaining a thriving, globally unique reserve of tropical forest resources.

Information regarding the progress of the hundreds of local and state programs, as well as federal activities, and that gives a balanced evaluation

of the state of affairs across the vast region is difficult to find. There are many specific instances of national parklands or protected reserves in which local NGOs, with the support of local government and in cooperation with international NGOs, conduct promising sustainable development practices and improve the income and basic living standards of the local population. The Chico Mendes Extractive Reserve, in Acre (government funded); the Jaú National Park (cooperatively managed by the local Fundação Vitória Amazônica [FVA] and the World Wildlife Fund); and the Serra do Divisor National Park in Acre (cooperatively managed by SOS Amazônia and the Nature Conservancy) are prominent examples of local sustainable development and management programs.

However, these local-level endeavors do not reflect a clear national trend or any defined outcome of policy making at the national level. Land use is actually decided at the local level, where the individual interests and economic and political factors that determine whether an area is cleared, farmed, developed, or left alone are complex and resistant to outside interference. For instance, it is apparent in some cases that protected lands, under the control of Indian communities, have been made available to loggers for a cut of the earnings. Government policy in the Amazon region is fragmented among various bureaucratic agencies, activities at the state or local levels, and through the nature of its relationships with various NGOs (both domestic and international), development agencies, farmers, miners, Indians, private corporations, and other local interests. Successive administrations have added additional layers or components to the environmental bureaucracy to address different issues or to create the appearance of activity. As Senator Marina da Silva recently declared:

...we heard a lot from the government that we need to work in partnership. I repeated what I think, which is that this partnership needs to be between public institutions and civil society, but it's fundamental, above all, that partnership is made among our own public agencies.

How many resources, how many times, are wasted and used in isolation?! With SUFRAMA doing one thing, SUDAM another, BASA and the BNDES another, our final objective we would like to see is never reached.²⁷

IBAMA, SUDAM, and other federal agencies that oversee environmental management generally remain underfunded and politically weak. Although interest in Amazon affairs and environmental policy is growing

in the Brazilian Congress, for the majority of leaders these issues remain of low political priority.

The 1990s have seen a decline in the intensity of international attention to the management of the Amazon. International public interest in environmental issues has subsided from its peak in the early 1990s, largely the victim of the perceived success of many of the environmental movement's earlier high-profile campaigns, such as saving whales and baby seals. Also, the international media turned their focus to human disasters such as famine and the rise of brutal ethnic fighting in Africa and Eastern Europe. Although deforestation in the Amazon continues, the short-term improvement in deforestation rates in the early and mid-1990s quelled international panic over the destruction of the rainforest.

Domestically, in the second half of the 1990s the Brazilian government has labored to address other profound national problems, such as the need for economic liberalization, political reform, and improved social welfare. Cardoso's focus on much needed political reforms and the difficulties he has faced in maintaining his coalition of support in Congress have limited his effectiveness in other areas. The shared agenda among social rights activists, urban NGOs, and the environmental movement has frayed, weakening the national political power of environmental NGOs relative to others who advocate for other causes, such as urban issues and land reform. In some cases the interests of environmentalists are less compatible than before with those of their former partners, even if they both still share their general opposition to large business, industry, and conservative political forces.²⁸

With the decline in international attention and Brasilia's limited political interest in Amazonian issues, national security concerns continue to have significant influence on the formulation of regional policies. Although legitimate national security issues, including drug trafficking and forest fires, must be addressed, the persistence of traditional, nationalist concepts of sovereignty and security, which argue for the aggressive development of Amazônia and its isolation from international interests, contradict the nation's larger strategic agenda. I will discuss the question of national security regarding Amazônia further on, but first I want to describe how the current institutionalized international system requires national security perceptions and policies more coherent with Brazil's increasing international role and its agenda of insertion into the group of global powers.

**THE MANAGEMENT OF AMAZÔNIA AS A CRITICAL ELEMENT
OF BRAZIL'S STRATEGY FOR INSERTION IN THE
INTERNATIONAL SYSTEM**

I accept the basic premise of the increasingly dominant institutionalist camp of international relations theory, which states that a prominent feature of the post-Cold War international system is the growing importance of multilateral institutions. Institutions are “persistent and connected sets of rules and practices that prescribe behavioral roles, constrain activity, and shape expectations.”²⁹ Countries tend to join or to form cooperative institutions or “regimes” because the rules and behaviors they support lead to improved stability, provide structures for negotiation, increase the predictability of states’ actions, and reduce the costs and risks of international transactions.³⁰ Although countries that wield more power in the realist sense tend to wield more influence within institutions as well, institutional decision-making opens space for dialogue, negotiation, and compromise. The behavior that derives from membership in a collective institution restricts the likelihood that powerful states will act unilaterally because it raises the punitive costs of such action. Institutionalism diffuses power, and provides normative—and in some cases legal—structure for international behavior. For less powerful countries, participation in international regimes opens avenues for negotiation and insertion in policy making that would not be available to them if they were acting alone or if they depended on negotiating one-on-one with more powerful countries.³¹

It is argued that the interdependence that comes with the globalization and increased institutionalization of international relations restricts state sovereignty. Sovereignty, however, is a complex concept based on an abstract ideal. Indeed, any influence on a state’s autonomy in making domestic policy can represent an erosion of *operational sovereignty*—its ability to do what it wants when it wants. On the other hand, interdependence and cooperative membership in an institutionalized system reinforces a state’s *formal sovereignty*—its ability to negotiate and participate as an equal in the international arena.³² A nation’s refusal to accept to some degree the values and rules of the game of the international system can lead to severe violations of its operational and formal sovereignty, as in the cases of Iraq and Yugoslavia in the 1990s. In the late 1980s, external pressure on Brazil’s domestic environmental policy threatened its operational

sovereignty by raising the costs of maintaining its economic development strategies in the Amazon region. However, by accepting the principles and norms of the international community regarding environmental management, Brazil strengthened the validity of its claim as a responsible international partner and increased its maneuvering space and leverage in negotiations over the costs, trade-offs, and responsibilities of environmental conservation. This strengthened position was manifest in Brazil's success, in cooperation with other nations of the South, at negotiating the terms of the Kyoto Treaty of 1996.

The values and behavior of international institutions are no more static than are those of the nations of which they are constituted. As scientific understanding, technologies, and social values change over time, so do standards and values for international behavior. In the institutionalized international system, "rule-taker" nations—those that have little power by themselves to influence the global system—can seek to expand their influence and further their interests by affecting the evolution of the rules of the game. Joseph Nye states that international politics in an inter-connected world increasingly involve what he terms "soft power," or the ability to attract through cultural or ideological appeal.³³ While Nye refers primarily to the influence of the United States, nations such as Canada, Sweden, and Chile—in the economic development model it represented in the late 1980s and 1990s—enjoy a higher profile in the international community than is proportionate to their military or economic power (i.e. their "hard power"). Their soft power comes from the respect they have earned among their neighbors and around the world for the effectiveness of their diplomacy, their involvement and leadership in international institutions or projects, or the successes of their policies. Soft power is stimulated and spread through the sharing of information, values, or technologies. In a hierarchical world where hard power is hard to gain and tenuous or expensive to maintain, the pursuit of soft power through improved influence and bargaining capacity within the institutions that shape interstate conduct, is an attractive strategy for states traditionally seen as rule-takers.

In Brazil's case, where its geography blesses it with a treasure chest of a rare and increasingly valuable global resource—biodiversity—there is tremendous opportunity for the expansion of influence as a key player in international environmental policymaking. Enhancement of Brazil's

international position will require increased participation in the activities of the international community and the demonstration that it is capable of implementing cooperative environmental management and development projects worth imitating.

From the start, as environmental issues rose to prominence in international politics in the 1960s, Brazil has always been a major player. Brazil played a lead role in the 1972 U.N. conference in Stockholm, and in the 1980s and 1990s, Brazil and its partners influenced effectively the perceptions of responsibility, cost, and cost-sharing on the protection of the environment in developing nations. The federal government promotes cooperation on research and sustainable development projects with the World Bank and IDB. It also accepts the active involvement of NGOs in the design and implementation of local programs. Brazil is working cooperatively with corporations, both foreign and national, in the exploration and responsible management of Amazônian resources. One very promising federal program, Probem, encourages cooperation with foreign companies as partners at a biotechnology lab to be built in Manaus.³⁴ Instead of viewing these resources in a purely physical sense or through the prism of traditional security concerns, the government has realized that the information and knowledge that come from research in the rainforests is potentially of far higher value than any possible use of the land cleared of its unique flora and fauna.

Building cooperation on environmental problems and designing institutions that arbitrate among the conflicting interests of states, corporations and investors, NGOs and other actors is a highly complicated task.³⁵ Values, standards, and codes of conduct must be negotiated among a variety of conflicting political and economic interests. However, because these issues are still relatively young in international politics, there is ample space for non-traditional actors to insert themselves in the formulation of the rules of the game. In the last twenty years, international environmental NGOs capitalized on this opportunity to fortify their interests across the world. Rule-taker states likewise can bolster their international positions by acting energetically and collectively. This is a natural opportunity for Brazil to build upon the leadership it has already demonstrated and assume a lead role in the negotiation of terms that pertain to the conservation and development of its environmental resources through, for example, biodiversity accords.

The issue of “biopiracy” and “bioroyalties” is particularly contentious, and Brazil is active in the promotion of the 1992 Convention on Biological Diversity. A national version of a law that requires “bioroyalties” is under consideration in the Brazilian Congress, including a measure that prohibits foreigners from conducting research without a local partner.³⁶ Belonging to the Convention has benefited Brazil by encouraging international support for a national bio-diversity program, Pronabio, which was established in 1996 along with a national biological trust fund, Funbio. These programs are partly funded by the World Bank and are designed to strengthen public-private collaboration to protect national biodiversity and to support an active NGO and government informational network.

Despite the benefits to be gained from this international activity, there remains a strong measure of protectionist sentiment that would prefer to see the Amazon less open to foreign interests. International biodiversity rights are not secured. The Convention on Biological Diversity still lacks membership from many key nations of the North, including the United States. Nevertheless, Brazil would suffer from a policy that restricts exploration and research in the Amazon region. Such a policy would further postpone or lose forever the opportunity for greater understanding of the resources of Amazônia, while the logging, mining, fires, and population pressures in the region would continue. International research and cooperation brings a higher degree of technical skill and resources into Brazil, materials and knowledge that will be used by and for Brazilians as much as by foreign researchers. What is needed is a national and international legal framework that protects the interests and property rights of the nation and people of the Amazon.

The shift between 1987 and 1992 in Brazil’s Amazonian policy—a move away from an emphasis on development and toward the principles of conservation and sustainable development—was largely a response to the nation’s changing status within the international system. The country’s insertion into the international community and its growing economic interdependence made it increasingly vulnerable to external pressures, while external interest in its domestic policies in Amazônia had reached an apex. Like all nations, Brazil faced increasing economic pressures from the process of globalization, in which it competes for foreign investment and export markets with other newly opened or developing economies.

At the end of the 1990s, Brazil's insertion into the international system continues. Its importance as a regional power and a key player in the global economy is increasingly evident, and Brazil demands greater attention as an economic and political partner and as a participant in international institutions. The trend over recent decades for the institutionalization of international affairs offers Brazil and other "middle-" or "emerging-power" nations a range of opportunities to balance their interests against the political power of the dominant nations and to improve their political positions for the pursuit of their international interests. For example, Brazil's foremost strategic goal of accession to permanent membership on the U.N. Security Council depends largely on the legitimacy it can generate within the international community as a responsible, capable actor and as an active partner in cooperative initiatives. The continuance and consolidation of its policies for a more open, more cooperative approach to the management of Amazonian resources—one that includes the participation of local NGOs as well as the controlled, transparent involvement of international NGOs, researchers, and where appropriate, the resources of foreign governments—will strengthen its legitimacy. This strategy improves Brazil's capacity to understand, control, and manage effectively its Amazonian territory, and thereby strengthens national security, whereas a traditional security-based approach that emphasizes development would likely continue the historical pattern of uncontrolled exploitation. The improved legitimacy gained from being the effective steward of and sovereign over a unique set of global resources would enhance Brazil's power and importance in global affairs.

AMAZÔNIA AND BRAZILIAN NATIONAL SECURITY

Although the Brazilian government's approach to the Amazon shifted dramatically between 1985 and 1995, developmentalist thinking remains powerful, particularly within the military and conservative political camps. The environmental movement within Brazil has not succeeded in generating public awareness and activism at the level seen in industrialized nations. This is partly the result of institutional weakness and the lack of channels for the expression and influence of non-traditional parties (minority groups, the poor, etc.) within Brazil's political system. Also, some scholars of Brazilian culture claim that Brazilians' perceptions of their inland forests

and wetlands have always been antagonistic and exploitative.³⁷ Land and the environment are perceived to exist to be conquered and reshaped for human ends (a perception not at all limited to Brazil). Structuralists suggest that this attitudinal tendency is also supported by Brazil's position historically at the periphery of the global capitalist system.³⁸

Whatever the cause of this predisposition, these perceptions were significantly altered by the diffusion of international environmentalism in the 1980s and 90s, and today the Brazilian media cover environmental issues on a regular basis. A congressional debate over the proposed weakening of the national forestry code in May 2000 generated a high-level of national attention. Except for these ephemeral bursts of outrage, however, the Brazilian public shows shallow interest in experiencing or conserving its national resources. Few Brazilians have ever visited the Amazon region or the Pantanal. Most reside in cities and naturally place political priority on job creation, economic stability, reducing crime, improved health and education systems, and other urban issues instead of the welfare of the rural environment. This general lack of public concern, today as in the past, often leaves Amazônian policy under the influence of powerful special interests such as regional industrialists, large-scale agribusiness corporations, and politically connected landowners.

The end of the Cold War introduced a need for new definitions of national security and for a reconsideration of the role of the armed forces. For Brazil, like many countries, the threat of state-based military conflict has diminished while nonstate, transnational phenomena—international crime, terrorism, illegal migration, and the cross-border transfers of narcotics or arms, for example—has grown. Especially in Latin America, where interstate military conflict is relatively rare, the concept of national security has broadened to include threats to a population's economic, social, environmental, and even cultural life. In Brazil's case, the end of traditional rivalry with Argentina, the growing importance of MERCOSUL, and warming relations with Chile, Paraguay, and Bolivia dramatically altered the long-standing national security agenda. One of the military's traditional missions, monitoring the borders with Argentina, Paraguay, and Bolivia for military activity, was made obsolete. Financial hardship and fiscal cost-cutting threatened the budget of the armed forces at the same time that their primary mission—preparation for war against Argentina and other neighbors—was diminished.

With democratization and a more cooperative regional foreign policy, the national security agenda shifted to other concerns, including a new emphasis on the protection of the Amazon. The *Calha Norte* operation indicated that traditional national security interpretations were still influential in strategic thinking about Amazônia. Though *Calha Norte* has never been fully implemented, the statements of military officers and conservative political leaders show that the topic of security in the Amazon still generates strong emotions. For example, in June 1999, Senator Luiz Otavio (PPB party member, Parana), denounced the presence of international NGOs in Amazônia:

It's important, at this moment, to recall the NGOs that, with great hysteria, pretended to be more realist than the king of our Amazônia. For this, it is difficult to establish an understanding with these organizations. ... These organizations (NGOs) are led by the headlines of the media. Greenpeace, by the way, will set up a base there in Amazônia; they will have their own boat there to travel our territories, our riches, also to interfere with the ecological balance and our resources, of our riches. I give you my alert: *por aí, não!*³⁹

Recently the Brazilian media has reported the alleged presence of international terrorists in Amazônia (members of Peru's *Sendero Luminoso* and Mexican *Zapatistas*, who are purportedly there to help train the *Movimento dos Sem Terra* [MST]) and the unmonitored activity of U.S. Drug Enforcement Agency (DEA) agents involved in antidrug operations in the Amazon.⁴⁰ In accordance with the historical pattern, the sovereignty issue is invoked and military officials and politicians express their "pre-occupations" with territorial control. The expansion of drug trafficking in the region is a serious threat, as are potential incursions by foreign insurgents such Colombian guerilla groups and illegal miners or loggers. Nevertheless, these concerns are routinely exaggerated by military officers and conservative nationalist groups in order to provide a rationale for more state-based control and less openness or cooperation with NGOs, local or international. Some analysts argue that generating fears over national security breaches in the Amazon is a traditional ploy to defend the armed forces' budgetary interests.⁴¹ The armed forces, whose preoccupation with the pursuit of "control" of Amazonia coincides politically with the interests of the region's industrialists and landowners, remain a powerful actor in Amazonian affairs. Their geostrategic, traditionalist con-

ceptions of security and sovereignty continue to influence the formulation of regional policy.

The Brazilian armed forces must have a presence and a defined mission in support of Brazil's national policy for Amazônia. Today's threats, however, are different from the fears of invasion by Venezuelan, Guyanese, or U.S. troops, as was hypothesized earlier in the century when the nation's modern concept of security was formed. Brazilian policy makers and military officials have been working to establish the bureaucratic and institutional means to apply the armed forces to nontraditional challenges. In 1999, following Roraima's disastrous fires in 1998, IBAMA began coordinating with the military to use helicopters for the monitoring of forest fires in the region.⁴² This involvement of the military in nontraditional operations such as policing or fire fighting carries risks. The armed forces are not culturally nor bureaucratically designed to take on nonmilitary tasks that involve cooperation with local police and civilians. The military can carry out policing or assistance functions in the short term or in specific situations, but applying the armed forces to nontraditional operations for a long period of time can confuse their role within the state and affect their preparedness to carry out their principal task of armed combat. The Brazilian armed forces are quick to recognize this fact and are reluctant to accept an expanded version of their duties, as has happened in Venezuela, for instance, where President Chávez has utilized national troops to fulfill local social policy needs such as the distribution of medical supplies and road building. Brazil's armed forces also have been cautious toward growing pressure from congress for a militarized response to domestic drug trafficking. They are mindful of the corruption that has infected the armed forces of Mexico, Colombia, and other nations as they were drawn into combating the drug trade.

The mission of the armed forces in Amazônia should be specific and well defined and must be formulated and overseen by the civilian government it serves. The Brazilian armed forces currently do not have undue influence over the policy making of civilian officials in the Amazon region, although they do seek to protect their budget and relative autonomy. In the first decade of this new century, the militarization of the region or regional policies is extremely unlikely. However, if security problems like drug trafficking, social violence, and uncontrolled fires continue to increase in Amazônia or if the democratic government comes to be con-

sidered incapable of controlling regional events, history indicates that there would be strong popular support for an increased military role in the region. For this reason, the government and in particular the new Ministry of Defense must present a clear, specific regional mission for the armed forces that balances security concerns with developmental, economic, and social goals.

Determining the appropriate role the armed forces should play in modern Amazônia is a complicated task with domestic and international political and security implications. The vastness of the region and the density of its forests make effective monitoring and enforcement difficult, and illegal activities and social violence continue to take place on a regular basis.⁴³ There is no shortage of laws and provisions covering Amazônia. The Brazilian constitution is regarded as one of the most environmentally progressive in the world. The problem is that these laws are poorly enforced.

One significant step toward better monitoring and understanding of Amazônia is the creation of SIVAM (*Sistema de Vigilância da Amazônia*), a regional satellite and radar surveillance network. This technology improves the nation's ability to monitor and study the dynamics of Amazônia, including its ecology, deforestation, vulnerability to fires, agricultural potential, and the location and extent of developmental activities, legal and otherwise. SIVAM and the information it generates are powerful tools for the management of Amazônia. The principal question is how Brazil's institutions for scientific research, public policy, and enforcement can best assess this new information and put it to good use.

In many areas—ecological and agricultural study, territorial demarcation, and demographic analysis—Brazil benefits by cooperating with technologically sophisticated, well-funded international NGOs and multilateral institutions. Regarding security, some degree of cooperation is undoubtedly necessary to confront transnational threats such as drug trafficking. However, the operational or institutional requirements of effective regular collaboration or partnership are extremely difficult to meet. Any cooperative initiative must be carefully defined to suit the capacities of the institutions involved. Cooperation with a partner that has superior technology, training, and resources (such as the United States) must involve, on some level, the sharing of that training or capacity with Brazilian institutions, and at all times these cooperative operations must be transparent and

under the supervision of civilian authorities. This requires effective, active domestic institutions both to take advantage of this cooperation—research institutions, government ministries, university programs, etc.—and to oversee and protect national and local interests—i.e. legal enforcement—so that the national community can participate responsibly and can maximize its gains and minimize the costs of the interaction.

Political obstacles, domestic and international, complicate cooperation in Amazônia. The nations that share the Amazon River basin have attempted in the past to collaborate on economic development, trade, and other objectives. These projects have had little effect due to a paucity of resources and political commitment. Although regional dynamics do produce “externalities,” or cross-border spillover effects both good and bad, these externalities are not of sufficient political or security importance to generate a strong response.⁴⁴ The Amazon basin remains relatively unpopulated and poorly understood, and the fate of its Indians, rivers, miners, trees, and generally low-income population simply is not a high priority for national politicians. Crises such as the fires in Roraima or the massacre of Indians in Eldorado in 1996 bring momentary cries of outrage, but this interest is not sustained.

The forest fires that ravaged Roraima’s forests in 1998 offer a trenchant demonstration of the challenges facing international cooperation in the Amazon Basin. Brazilian conservatives, especially the armed forces, reacted to offers of external assistance and the international criticism the country received for its inability to control the fires with their traditional response: any such assistance and interference is a threat to national sovereignty. To quiet these complaints and to reassert Brazil’s official openness to international cooperation, President Cardoso welcomed this assistance publicly, even while he asserted (against all evidence) that he had confidence in the national armed forces’ ability to protect Brazil’s sovereignty.⁴⁵ One can imagine that if these fires were consuming thousands of acres of Rio Grande do Sul or São Paulo, the government would have reacted more quickly, and an international team of firefighters—composed perhaps of MERCOSUL and U.S. members—would promptly have been accepted as a natural facet of regional relations. The point is that international cooperation with Brazil’s neighbors to the north and northwest lags far behind the institutionalized integration the country has established with those to the south, and the people of Amazônia pay the price not

only in relative vulnerability to security threats such as fires, but also in terms of economic and social underdevelopment.

If sustainable development projects such as eco-tourism, biochemical research, and extractive export industries were to increase in economic value, so naturally would the importance of regional stability and the political and economic impacts of regional externalities. All the governments of the region, like Brazil, stand to gain international prestige and leverage from a well-managed, responsibly developed *Amazônia* that is protected from looting by more effective local enforcement of laws and tighter national and international legal codes. These externalities—the losses and gains that result from either further destruction or the responsible management of Amazon resources—exist today, although they are undervalued. The sooner these nations recognize the importance of such resources for sustainable economic development and international leverage and then work together to secure the benefits, the greater will be their future gains as the proprietors of a thriving and productive *Amazônia*.

CONCLUSION

Brazil's policy toward *Amazônia* has evolved significantly since democratization in 1985. Today the region shows a wider variety of land use, greater conservation, improved monitoring and legal enforcement, and significant areas of promising experimentation with projects for sustainable economic development. Most importantly, the nation's democratic system has shown the capacity to support the participation of multiple actors and interests—local, national, public and private—in the formulation of regional policies.

Nevertheless, deforestation and environmental degradation continue beyond government control. Brazil's national policy on the management of *Amazônian* resources is weakened by fragmentation among various government agencies, a scarcity of political will and public resources, and institutional weakness. Laws often go unenforced, either through ineffective monitoring, poor enforcement, corruption of public officials, or the failure to adjudicate cases in a timely and effective manner. Individuals, special interest groups, corporations, and even politicians negotiate deals and find ways to bypass laws for their own advantage.⁴⁶ As a result, despite what is now a long record of progressive legislation for environmental

preservation or management, and a host of public-private and NGO-sponsored partnerships for local level development, the unique biological and human resources of Amazônia continue to disappear. This record continues to be a prominent stain on Brazil's international profile.

Squarely behind these problems is the lack of political commitment. The Amazon region and environmental management simply do not rank high on the political agenda of an enormous and complex nation that faces severe social and political challenges. This lack of commitment, however, is incongruent with Brazil's larger international strategic agenda of joining the world's most powerful nations. For Brazil, environmental politics is an area of considerable comparative advantage to its strategic agenda, and Amazonian resources are a potential source of value and power. International collaboration on research and sustainable development raises Brazil's profile as an international partner and gains the country additional leverage in critical negotiations over biodiversity property rights and other environmental issues. Demonstrating leadership in creating cooperative mechanisms for environmental management can be a key element of Brazil's campaign to advance its image in the international arena. This will require a heightened, sustained level of political will and investment at the national and local levels to promote sustainable forms of economic development; expanded study of the ecological, biological, and chemical properties of the forest that could lead to dramatic new economic opportunities; a commitment to conservation and protection of the forest in designated areas; and improved control against illegal and unsound development.

Brazil stands to gain in both economic and political terms from improving its management of Amazônia. Not only do the tropical forests offer tremendous economic potential through the uniqueness of their largely unexplored properties, but the nation's equally unique role of steward over these resources offers significant responsibility and the opportunity for prestige—as opposed to scorn—in the international arena. Lack of investment in and political commitment to preservation and responsible development would represent a victory for short-term political apathy or compromise over long-term strategic vision—at the very least. The price of negligence could prove to be much higher. Brazil's leaders should act quickly to remedy the pattern of the last 40 years and promote national discussion and awareness of the alternatives the nation

faces regarding its Amazonian resources. The nation has much to gain—and much to lose—in its management of Amazônia.

NOTES

1. The author thanks Marcia F. Ferreira for her research assistance and Cynthia Arnson and Joseph Tulchin for their comments.

2. These perceived threats, which history has shown to be mostly imaginary or overblown, varied from armies of escaped slaves (in the 1800s) to foreign troops to international businesses.

3. See Luiz C. Barbosa, “The Greening of the Ecopolitics of the World-System: Amazônia and Changes in the Ecopolitics of Brazil,” *Journal of Political and Military Sociology* 21 (Summer 1993): 107–33.

4. See Joseph J. Domask, “International Environmental Politics: Brazil and Amazônia,” PhD dissertation, 1997, Chapter IV.

5. See Anthony L. Hall, *Developing Amazônia: Deforestation and Social Conflict in Brazil's Carajas Programme* (New York: Manchester University Press, 1989).

6. See José Goldemberg and Eunice Ribeiro Durham, “Amazônia and National Sovereignty,” *International Environmental Affairs* 2 (Winter): 31.

7. Faminow, INPE (1997). See also Dennis J. Mahar, “Policies Affecting Land Use in the Brazilian Amazon,” *Land Use Policy* 7 (January): 59–69.

8. See Peter M. Haas, “Do Regimes Matter? Epistemic Communities and Mediterranean Pollution Control,” *International Organization* 43 (1989).

9. In 1987, the World Bank announced a sweeping reorganization, which included tripling the number of positions at the Bank responsible for environmental policies (from 20 to 60), and several new environmental initiatives were announced. See *Science*, June 17, 1988, 1610.

10. See Margaret E. Keck, “The International Politics of the Brazilian Amazon,” Conference Paper #63, presented at the research conference “Crossing National Borders: Invasion or Involvement,” held at Columbia University, New York City, December 6, 1991.

11. See Joseph J. Domask, “Evolution of the Environmental Movement in Brazil's Amazônia,” paper presented at the 1998 meeting of the Latin American Studies Association, Chicago, Illinois. Also, see Margaret E. Keck, “Social Equity and Environmental Politics in Brazil: Lessons from the Rubber Tappers of Acre,” *Comparative Politics* 27 (1995): 4.

12. See Keck (1991), 25.
13. For a discussion of Brazil's post-Cold War foreign policy, see Ricardo U. Sennes, ed., "Brasil e a Política Internacional," *Peace and Security in the Americas Collection* (Santiago, Chile: FLACSO-Chile, 1999).
14. See *Folha de São Paulo*, June, 28 and 29, 1991.
15. See Hurrell and Kingsbury (1992), 413.
16. Geoffrey O'Connor, *Amazon Journal: Dispatches from a Vanishing Frontier* (New York: Dutton, 1997): 300.
17. My assessment of the transition in Brazilian environmental policy during the Sarney and Collor administrations is largely based on the analysis of this topic by Andrew Hurrell in his chapter "Brazil and the International Politics of Amazonian Deforestation," in Andrew Hurrell and Benedict Kingsbury, eds., *The International Politics of the Environment: Actors, Interests, and Institutions* (Oxford: Clarendon Press, 1992) Brazil was under similar pressure regarding its record on human rights, and its eventual acceptance in the 1990s of the legitimacy of international human rights accords follows a trajectory similar to the shift in national environmental policy. On this shift in Brazil's treatment of the human rights issue, see Paulo Sergio Pinheiro, "Brazil and the International Human Rights System," paper presented at the Annual Conference of the Centre for Brazilian Studies, University of Oxford, March 15-16, 1999.
18. For a comprehensive assessment of the bureaucratic and cultural dilemma of Brazilian policy making regarding the environment, see Roberto P. Guimarães, *The Ecopolitics of Development in the Third World: Politics and Environment in Brazil* (Boulder, CO: Lynne Rienner Publishers, 1991). See also Riordan Roett, *Brazil: Politics in a Patrimonial Society* (Westport, CT: Praeger, 1992): 202-4.
19. Joseph J. Domask (1998).
20. The estimated combined annual budgets of Brazilian environmental NGOs was \$79 million in 1997. See Joseph J. Domask (1998): 4.
21. See Joseph J. Domask (1998): 4.
22. As of June 2000, this regulation was under threat in Congress from members from Amazonian states, many of which want it reduced to 50 percent.
23. Between 1985 and 1997, the total area of land placed under federal protection as national parks, ecological stations, extractive reserves, or for similar use almost tripled from approximately 130,000 km², to approximately 440,000 km², or over 5% of Brazil's total land area. See Joseph J. Domask, "International Environmental Politics: Brazil and Amazônia," PhD dissertation, 1997. For a thor-

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ough review of the expansion of NGO participation, see Joseph J. Domask, "Evolution of the Environmental Movement in Brazil's Amazônia" (1998).

24. *Chicago Tribune*, June 28, 1999.

25. The government estimates that 16,800 km² were destroyed in 1998, up 27 percent from 1997. See *Latin American Regional Reports: Brazil Report*, RB-99-07, August 10, 1999 (London: Latin American Newsletters): 8. The 1990s have seen an average of 40-50 reported cases of murder in land disputes each year, a decline of approximately 100 per year in the 1980s. See Joseph J. Domask (1998).

26. *Latin American Regional Reports: Brazil Report*, 28 April 1998 RB-98-04, (London: Latin American Newsletters), 6-7.

27. Speech made by Senator Marina Silva (PT party member, Acre) before the Senate Committee on the Amazon (Bancada da Amazônia).

28. The MST, for instance, has been criticized for its lack of concern for the welfare of the environment, and the tendencies of small farmers for destructive slash-and-burn agriculture. See Joseph J. Domask (1989): 24-25.

29. Peter M. Haas, Robert O. Keohane, and Marc A. Levy, *Institutions for the Earth: Sources of Effective International Environmental Protection* (Cambridge, MA: The MIT Press, 1993): 4-5.

30. See Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy* (Princeton, NJ: Princeton University Press, 1984); or Robert O. Keohane and Joseph S. Nye, *Power and Interdependence: World Politics in Transition* (Boston, MA: Little, Brown, 1977).

31. See Robert O. Keohane, "Lilliputians' Dilemmas: Small States in International Politics," *International Organization* 23 (1969): 291-310.

32. See Haas, Keohane, and Levy (1993), 415-417. For a more thorough discussion of these issues, see Robert O. Keohane, "Sovereignty, Interdependence and International Institutions," Working Paper No. 1, Center for International Affairs, Harvard University, February 1991.

33. Joseph S. Nye, "Redefining the National Interest," *Foreign Affairs* 78 (July/August 1999): 24.

34. *Washington Post*, July, 9, 1999, A21.

35. For a comprehensive discussion of these challenges, see Hurrell and Kingsbury (1992), 1-47, and Haas, Keohane, and Levy (1993).

36. *Washington Post*, 9 July, 1999, A21.

37. See Warren Dean, *With Broadax and Firebrand: the Destruction of the Brazilian Atlantic Forest* (Berkeley, CA: University of California Press, 1995); and Guimarães (1991).

38. For a brief discussion of the structuralist argument, see Luiz C. Barbosa (1993). The classic modern text of this analysis is Immanuel Wallerstein, *The Modern World System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (New York: Academic Press, 1974).

39. Senate records from the Sessão Ordinário, June 7, 1999. Website: www.interlegis.gov.br/bin/gate.exe?f=doc&state=h57k8a.3.16

40. Estado de São Paulo, July, 1, 1999.

41. See Daniel Zirker and Marvin Henberg, "Amazônia: Democracy, Ecology, and Brazilian Military Prerogatives in the 1990s," *Armed Forces & Society* 20 (Winter 1994): 259-81; and Ronald A. Foresta, "Amazônia and the Politics of Geopolitics," *The Geographical Review* 82 (April 1992): 128-42.

42. Reuters News Service, August, 3, 1999.

43. According to Joseph Domask (1998), "In the 1990s, there has been an average of 40-50 murders in land disputes each year."

44. For a description of the role of externalities in regional security complexes, see David A. Lake and Patrick M. Morgan, *Regional Orders: Building Security in a New World* (University Park, PA: The Pennsylvania State University Press, 1997): 45-68.

45. *Latin American Regional Reports: Brazil Report*, April 28, 1998.

46. Such wrangling is not limited to business or private interests. The Kayapó Indians have complicated the environmentalist-Indian rights coalition by renting out rights to mine on their reserved territory and permitting the harvesting of mahogany wood despite a presidential moratorium (*Estado de São Paulo*, "Os índios e a exploração," August 13, 1998).

Amazônia in Environmental Politics

MARGARET E. KECK

With the possible exception of certain endangered species, there is no issue on the global environmental agenda as “photogenic” as tropical deforestation. Even the hole in the ozone layer, while a powerful image, cannot be photographed. For better or for worse, images of forest in flames or of heavy curtains of smoke enveloping huge swaths of the Western Amazon and Southeast Asia, have etched “tropical deforestation” onto the public consciousness. It has especially come to be identified with the destiny of Amazônia and of the lion’s share of the Amazon rainforest that is located in Brazil. The discussion in this paper is limited to the Brazilian portion of Amazônia.

Tracking the ebbs and flows of Amazônia as an issue provides us with a fascinating case study in environmental politics, both domestic and international. Over the past century, Amazônia has occupied a special place in the imagination—at once “green hell” and “enchanted forest”—containing the promise of untold wealth and of ecological catastrophe in equal measure. All of these portrayals have been invoked at one time or another by those attempting to influence the direction of Brazilian government policy and practice in the region.

The argument here, in brief, is that despite having made tremendous headway in public opinion, in Brazil as well as abroad, environmentalists have still not found a way to make conservation of Amazon forest politically palatable at home. Moreover, policymakers’ growing stress on making environmental “goods” pay their own way (encouraged in that position by domestic and multilateral economic actors) makes it unlikely that this situation will change any time soon. As a result, whenever conservation measures require legislative approval or serious political support, they founder. This reinforces a tendency among conservationists to want to bypass political organs, thus fueling the latter’s suspicions of conserva-

tionists' motivations and contributing to a vicious circle that produces further degradation. The very constructive efforts in recent years to identify sustainable local land uses and involve local people in conservation activities, where it has occurred, should not be taken as a substitute for drumming up political support among the real decision-makers. Without the latter, conservation will continue in project mode, but will not become policy. Although foreign money can help promote a conservation agenda, without domestic support it will always be fighting a rear-guard action, fighting fires that (often quite literally) have already gone out of control. Politicians matter in Brazil, both in national legislatures and at state and municipal levels. Until their opposition can be neutralized, most of Brazil's conservation activities remain cosmetic. The good news, however, is that at least for now, those in charge of Amazon policy at the federal level are aware of this and are actively engaging state governors and other key political elites in ongoing dialogues about these issues.

What would it take to generate real support for tropical forest conservation? First of all, conservationists must recognize the full range of land use alternatives that other relevant actors see when they look at the region. They see an environment that is criss-crossed with human activity and history, with a great variety of private ventures involving individuals, firms, and traditional populations. Interfering with these private activities requires justification on the basis of a compelling public interest. Indeed, this is the essence of environmental politics.

Environmental politics involves changes in the norms (legal and cultural) regulating the relationship between human beings and the natural world. We define "environmental"—literally, pertaining to what is around us—as context, with ourselves as the center. This is unlike "ecological," which is drawn from the word *oikos*, or home, in which humans are part of the context. These are public norms, whether or not they regulate public or private behavior. To define something as environmental is to impute to it a public relevance, a public interest. When someone complains that the pile of trash by the stream head is compromising the quality of the stream, I can no longer insist that since it's on my property, I have every right to put my trash there; the disposal of my trash has ceased to be a private issue and has become a public one.

Politicizing an environmental problem—making it into an issue—takes place in three stages: framing, action, and consolidation. Framing begins

with naming, the act of placing a “situation” in a category that readies it for action. In the case of my trash heap, naming the problem involved the move from lamenting the dirty water to calling it a polluted stream. In the case of the Amazon, it involved a similar move from recognizing a diffuse process of frontier settlement (in which the focus was on the human side of the frontier) to calling it tropical deforestation, in which the focus was on the forest itself. Framing also invokes a causal story (Stone 1989), the function of which is to demonstrate that a problem is not an inevitable result of a “natural” process and to identify the persons or organizations responsible (whether for the problem itself or for its solution). In the case of Amazônia, shifting the blame for forest loss from small farmer settlers to the government policies that enticed them to the region in the first place changed the political locus of action. There is often considerable resistance to particular ways of framing an environmental issue; the ongoing debate over human contributions to global climate change is a perfect example of this. Finally, those who frame an issue may do so strategically, stressing one set of causes or potential solutions over another in order to raise the issue in the institutional setting most likely to be receptive to their claims.

New issues tend to get on the political agenda in waves. The public agenda is in a situation of what public policy scholars call a punctuated equilibrium (Baumgartner and Jones 1993). This means that at particular moments, a long period of relative stasis can give way to a sudden burst of activity in which new issues and actors suddenly win attention and succeed in getting action on a problem which may be new or which may have been languishing in relative neglect for a long time. There are any number of reasons for such moments, ranging from a natural disaster to the passage of a new law to a regime transition. These stimuli produce political opportunities, but unless these opportunities are seized by strategically minded actors, they are normally missed. Even at moments replete with opportunity to dramatize an issue, the political skills needed to do so have to contend with the political skills of opponents.

Amazônia has a long history of boom and bust and of periods of geopolitical significance alternating with periods of relative neglect. The region was linked to the rest of the country by telegraph and many of its territories were demarcated at the beginning of the twentieth century by the mission led by Marechal Cândido Mariano da Silva Rondon. Rondon’s mission coincided with the end of the rubber boom, which was

created by the successful British effort to produce latex on plantations in its Asian colonies. Nonetheless, it made possible the mobilization of rubber tappers to reactivate the production of natural latex during World War II, when the rubber plantations of Southeast Asia were under the control of the Axis powers. The protective legislation regarding Indians that came to be enacted was also the result of Rondon's encounters.

Then in the late 1960s, the military dictatorship incorporated the Amazon explicitly into a national security agenda. Here the focus was more geopolitical than it was explicitly domestic; the importance of settlement and development of the region derived both from a belief that subversion could take root in neglected and scarcely populated areas and from a desire to demonstrate Brazil's greatness through the enormous wealth of natural resources the region held. The view of the Amazon as repository of wealth and of Brazil's destiny being coupled with development of that wealth still pertains today. Thus foreign efforts to influence Brazil's actions in the region have long been seen as the result of the "*cobiça internacional*"—international covetousness—regarding the region's resources (Reis 1982).¹ The most recent wave of political attention to the region came in the late 1980s, this time stimulated from abroad inasmuch as tropical deforestation became part of the agenda of "global" ecological problems.

INVENTING "TROPICAL DEFORESTATION"

In fact, the term "tropical deforestation" made it onto the international agenda in the first place because of the Brazilian Amazon, when the International Union for the Conservation of Nature (IUCN) protested the Médici government's development plans for the region. As late as 1968, the Latin American Conference on Conservation of Renewable Natural Resources had no session on forests, and in the index for volume 2 of the *IUCN Bulletin*, covering the period from 1967 to 1971, there is no entry for forests, deforestation, or tropical forest. The problem had not yet been named.

Nonetheless, conservationists both inside and outside Brazil worried about the development programs launched in the 1960s. UNESCO picked up the IUCN's concern and made conservation of the Amazon rainforest the first project of its Program on Man and the Biosphere. Responding to the Brazilian government's decision to accelerate colo-

nization and development plans in the region, IUCN president Harold J. Coolidge and World Wildlife Fund president Prince Bernhard of the Netherlands wrote to President Médici pointing out “the need for careful consideration of the environmental problems involved in Amazonian development.”² The Brazilian military government viewed the conservationist position as unwarranted interference in domestic affairs, indeed, in national security affairs. For most Brazilian officials, conservationists were just stalking horses for foreign governments seeking to prevent Brazil from achieving the place in the sun that her rapid development seemed to promise (Castro 1972).

By the early 1970s, a massive program of road building was luring wave upon wave of settlers to the region in search of opportunity, a plot of land to call their own, or perhaps to strike it rich with tin or, later, gold. As the chain saws felled increasingly large swaths of forest, organizations like IUCN and WWF encouraged Brazil’s environment secretary, Paulo Nogueira Neto, to create conservation areas where possible. However, with almost no budget or human resources to monitor these areas, the secretary was in no position to defend them. Meanwhile, in assuming a strongly nationalist position at the United Nations Conference on the Human Environment at Stockholm in 1972, the Brazilian government put the international community on notice that it regarded environmentalists’ calls for preserving the Amazon rainforest as attacks on Brazil’s sovereignty. However, despite this initial flurry of high profile diplomatic posturing, subsequent years saw a simultaneous increase in settlements (and the failure of many of the early ones), deforestation, and—at least formally—protected areas in the Amazon. Those raising the issue were in the main scientists, who believed that more knowledge, better education, and the gradual empowerment of the institutions charged with conservation offered the only real vehicles for change. Over the next decade or so, researchers at INPA (The National Institute for Amazon Research), the *Museu Goeldi*, and Brazilian and foreign universities vastly increased the store of basic scientific knowledge about the region’s ecology, while historians, anthropologists, geographers, and the occasional political scientist studied its peoples.

What of *Brazilian* environmentalists during this period? Although an Environmental Secretariat was established after the United Nations Conference on Human Environment in Stockholm in 1972 and its lead-

ership entrusted to Dr. Paulo Nogueira Neto, a longtime conservation activist in São Paulo and well-known in international conservation circles, the secretariat had no authority to challenge what other agencies in the government were doing. It also had almost no resources to do anything on its own (Interview, Nogueira Neto, 1991). Given these limits, Nogueira Neto managed to accomplish a great deal. But challenging the government on the Amazon, the country's undeveloped "heartland" in geopolitical terms, would have cost him his job.

However, after the Geisel government began to relax the regime's strictures against opposition political activity in the mid-1970s, the opposition did take up the preservation of the Amazon in a 1978-79 mobilization over "*contratos de risco*." At issue were government plans for timber harvests in which risk contracts for huge areas of the forest would be sold to investors to develop. At the end of 1978, the youth section of the opposition MDB party³ in Amazonas called for protests against the policy. Out of this grew the Movement in Defense of the Amazon, which was organized in eighteen states and the federal district. The Movement's appeal went well beyond environmentalists. In campaigning against the internationalization of the Amazon, the opposition had appropriated for itself the nationalist appeal that the military had tried to wield with its developmentalist project in the early 1970s. Moving beyond nationalism, this new Movement protested the lack of transparency and participation in decisions about the Amazon and the lack of concern for the fate of impoverished inhabitants of the region. The Movement's impact on policy was not very great, but it did nurture activists who later became regional leaders of the environmental movement, especially in north and northeast Brazil. The government response was primarily to make sure that forest policy discussions took place behind securely closed doors (Hochstetler, 1996).

Normally, however, the military regime reserved for itself the mantle of defender of the nation. This was especially evident in relation to indigenous rights claims. Around the end of the decade, scholars and activists trying to secure the rights of indigenous peoples also became important actors in the Amazon story. Their actions were invariably interpreted as threats to Brazilian sovereignty over its territory. Even their language, in speaking of indigenous "nations" raised the ire of national security officials. The presence of guerilla activity in the Alto Araguaia region until 1973 made the Brazilian military particularly sensitive to this issue.

This struggle over the nationalist mantle during the late 1970s was essentially a domestic struggle; it did not spill over into international institutions. Indeed, aside from United Nations agencies like UNEP, which could do little more than issue advice and admonitions, there were no international venues appropriate for acting on concerns about deforestation in the Amazon. This changed in the 1980s, largely due to the political entrepreneurship of environmental activists and the commitment of a small number of people within multilateral development institutions, especially the World Bank. The next wave of attention to the Amazon was much more strident than the preceding one and found the Brazilian government in a much less favorable position to respond.

“THE BURNING SEASON”⁴

There was renewed foreign interest in the Amazon in the late 1980s with the rise of “global” environmental issues like depletion of the ozone layer and, especially, climate change (known in common parlance as “global warming”). Concern about the latter was growing in the late 1980s, and through a set of serendipitous associations, tropical deforestation became associated with global climate change.⁵ The coincidental element was provided by the weather during the U.S. summer of 1988. A month of sweltering heat and prolonged drought, coming on the heels of scientific warnings about probable human impacts on climate, seemed to confirm the worst predictions of the latter. At the same time, satellite images became available showing the extent of fires in the Brazilian Amazon that had been set to clear land either for farming or for speculation. The huge number of Amazonian fires made for great photos and thus stimulated more press coverage. Thus in translation for foreign audiences, a process spearheaded by Brazilian land speculators trying to defend their extensive properties, it became: Brazil is burning down the rainforest.

Foreign pressure to control the situation produced a nationalist response, as it had a decade earlier, but this time Brazil was in a much less favorable position to resist. In 1972, at Stockholm, the Transamazon Highway had just opened, glossy magazines proclaimed a new life on the frontier, and critics were spoilers who wanted to impede Brazil’s glorious progress. By 1988, the Transamazon highway was overgrown and crater-filled, barely passable on a motorbike at some points. It was lined with

deserted settlements, victims of too many hopes with too little infrastructure and extension support. The new life on the frontier had made a few people rich, but it had broken as many dreams as it had fulfilled. At least some of the skepticism about what was going on in the region was home-grown.

The years 1987 and 1988 were record years for deforestation not because of a sudden peak in new settlements or new ranching operations in the region, but for political reasons. In the Constitutional Congress underway at the time, there was a real possibility that agrarian reform measures would be adopted. The prospect led to the creation of a rapidly organized counterattack by rural landowners under the leadership of the the Rural Democratic Union (UDR), which eventually succeeded in gutting the redistributive planks of the new charter. However, ranchers and others with large landholdings in Amazônia did not want to take any chances. Since any land reform measure was likely to focus on so-called “unproductive” land, they looked for ways to make their expanses appear productive. At that time, one of the ways to demonstrate that land was productive was to clear it; such clearing counted as an improvement, which added value to the property. And in case clearing wasn’t enough, it was always possible to add a few cows.

GIVING THE RAINFOREST A HUMAN FACE

In the late 1980s, the conservation cause gained a whole new set of arguments tying conservation of the forest to protection of human extractive activities. This was a powerful narrative in that it contested the government’s claim that fighting poverty required the development (and hence deforestation) of the Amazon for human use. I have written about this extensively elsewhere (Keck 1995). When rubber tappers’ organizations from the Western Amazon made common cause with environmentalists, it undermined the tendency to dismiss environmentalism as a hobby for the well heeled and well fed. The assassination of Francisco “Chico” Mendes in December 1988 by local ranchers created an ecological martyr and gave the problem of deforestation in the Amazon a human face.

The rubber tappers were well aware that unless they built some powerful alliances, it was only a matter of time before the advancing ranching

frontier pushed them out of the way. With the help of the National Rural Trade Union Confederation (CONTAG), they had won court cases that recognized their legitimate use rights to the land they worked, but the law was a small impediment in that region. Working with an anthropologist from the southern state of Paraná, Mary Allegrati (at the time of this writing, she was secretary of the environment for Amazônia) and with help from Oxfam representative Tony Gross, the rubber tappers were developing the concept of an extractive reserve, a form of protected area that allowed for collection and sale of renewable forest products (natural latex, Brazil nuts, and some others) under the protection of the national environmental agencies. Paulo Nogueira Neto was receptive to the idea, and it won support both from environmentalists in southern Brazil and from environmentalists in the U.S. and Western Europe who were campaigning to make the multilateral development banks, especially the World Bank, more environmentally responsible (See Keck 1995; Keck and Sikkink 1998; Keck 1998).

When Chico Mendes was murdered in the midst of sustained international attention to deforestation in the Amazon region, the issue reached a crescendo in terms of salience. President José Sarney created the first extractive reserves and took steps to curb some of the worst abuses in the region (though these measures were weakly enforced). The humanization of the deforestation issue was especially constructive in augmenting the participatory component of conservation programs then on the drawing board. It had an enormous impact on the Amazon Pilot Program, funded largely by the Group of Seven countries and administered by the World Bank. Although the pilot program's results are small scale, the program has funded a significant number of demonstration projects, transformed the methodology of demarcating indigenous reserves, and had some degree of impact, though a small one, on public policies.

MAKING THE FOREST PAY

Just as the source of the spike in fire incidence in 1987 was not widely understood, its use thereafter as the baseline year for measuring deforestation caused observers to overestimate the impact of policies intended to discourage it. On paper, at least, the government undertook several important policy reforms to reduce deforestation. In the package of policies

known as “Nossa Natureza,” Sarney announced the consolidation of existing forest and fisheries administrations into a single environmental institute that would be responsible for monitoring and licensing the cutting of forested areas. However, IBAMA was seriously understaffed in the field and plans for increased monitoring were hard to carry out when underqualified field personnel lacked even budgets to buy gas for the cars and boats they were expected to use. Thus despite policy change and despite the sophisticated satellite-monitoring capabilities developed at the Brazilian Institute for Space Research (INPE), the drop in deforestation rates after 1987 and into the 1990s were mainly due to recession, not to state action. This is evident with the return of high rates of deforestation after the recession ended, and 1997 looked much more like 1987 than like the decade in between. When a wave of land occupations led by the Landless Movement (*Movimento dos Sem Terra*) at the end of the 1990s put agrarian reform back on the agenda, the rate of burning skyrocketed almost immediately.

The use of the 1987 baseline was only one of the elements that allowed the Brazilian government to buy time through the early 1990s. Another was the successful bid by Brazil to host the 1992 United Nations Conference on Environment and Development, also known as the Earth Summit, in Rio de Janeiro. President Fernando Collor, the first directly elected Brazilian president in close to thirty years, was inaugurated in 1990, and he swiftly moved to pacify the environmentalists. He elevated the environmental agency to ministerial status and appointed José Lutzenberger, a key figure in Brazil’s environmental movement and one with broad international recognition, as the minister. Both foreign and Brazilian environmentalists applauded the move and adopted a wait-and-see attitude. Even when it became increasingly clear that however important an environmentalist he might be, Lutzenberger was not an effective minister, most of his potential critics remained silent. There was still reason to believe that with the widespread mobilization of a broad range of organizations in preparation for the Earth Summit, and with the publicity it generated, that the salience of environmental issues in general, the Amazon in particular, was bound to increase.

That was not to be. Lutzenberger’s inability to build on the momentum of the occasion, coupled with the Collor corruption scandals that exploded the minute the Earth Summit left town, wiped the environment off the

political map. For the next six months, the country's attention was glued to the impeachment process, and by the time Collor had left office, the opportunity had dissipated. This is not to imply that there was no progress during those years. Over the past two decades, environmental issues have entered Brazilian popular culture, especially among young people. There is more information and more general sentiment in favor of conserving natural resources than ever before. However, this is still not reflected at the level of politics. The great opportunity of the early nineties was largely wasted.

Also unsuccessful were efforts to make extractive activities appear economically viable, and thus able to "support" the forest—as represented in the 1990s by biodiversity conservation arguments, bio-prospecting, and so forth. Although there were some high profile economic activities generated during this period—by firms like Ben and Jerry's and the Body Shop—they remained highly subsidized. However, the prevailing economic winds had shifted by the 1990s, bringing in a new orthodoxy that was antiregulatory and highly optimistic about market solutions. The discount rate on the future was correspondingly high. People who wanted to prevent deforestation sought arguments that would bolster claims that the forest paid for itself; since its environmental services are public goods, and thus hard to quantify in market terms. They tried to make their arguments more powerful by stressing the potential of private goods—forest products and future pharmaceuticals. Although it is an easier set of arguments to communicate, these are ultimately less compelling reasons than the scientific and ethical issues at the core of tropical forest conservation and the protection of indigenous peoples.

However much proponents of preservation and limited use may have made common cause during the 1990s, there is still a wide gulf between them. This is true both among Brazilians and foreigners concerned with the Amazon. *Grosso modo*, the first set is more often associated with the more traditional conservation organizations in Brazil and the larger conservation NGOs internationally, although there are certainly exceptions. At the beginning of the 1990s it looked as though these two positions were going to come together more than they ultimately did. International conservation organizations began to pay a lot more attention to people-based environmental management, especially community-based resource management initiatives. A growing litera-

ture on common pool resource management suggested that a great many communities had developed over time remarkably effective institutions to manage such resources and that not all degenerated into a “tragedy of the commons” (see especially Ostrom 1990). So, for example, the U.S. World Wildlife Fund hired John Butler, an anthropologist by training, to head its Amazon program. The World Resources Institute, WWF, and the Nature Conservancy collaborated with the U.S. Agency for International Development (USAID) to create the Biodiversity Support Program, which adopted a distinctly optimistic view of the possibility of reconciling human activities in forests with conservation.

However, these human-centered projects and programs remained very small scale and had a significant failure rate. Concerned that these locally focused activities were only creating an unsustainable patchwork of conservation, many conservationists wanted to focus their efforts on affecting larger areas. The sharp rise in deforestation rates that came with resumed growth in the region fueled a fear that time was running out. A decade after *Nossa Natureza*, IBAMA still had only 400 people in the field to monitor forest use, and in a recent study, WWF claimed that about 80 percent of mahogany extraction in the region was illegal (with 70% loss). New regulations allowed more deforestation on savanna land, and the number of situations in which deforestation limits may be waived increased. By the end of the 1990s, logging by timber companies, not a major contributor to deforestation in the Amazon in 1987, had become a major player. Timber exports brought in more than 1.1 billion *reais* in 1997. And the drug trade, long a significant source of revenues in Amazônia, was getting increasingly powerful.

Worried that piecemeal solutions could not address the problem, in the mid-1990s, the World Wildlife Fund proposed an audacious campaign to try to get the Brazilian government to commit formally to conserving 10 percent of the Amazon forest. Also in 1997, worried about the damage that reports of increased deforestation were doing to Brazil’s public image, President Cardoso endorsed the 10 percent proposal. In November 1999, a team in the ministry of the environment, secretariat of the Amazon, began to work with people from WWF-Brazil to identify areas for protection under this program. The process was not smooth. Despite objections from some members of the team,

and despite a prior agreement that the 10 percent could include some areas for “direct use”—in other words, areas with some sustainable human activities (extractive reserves, national forests)—the WWF representatives and several others on the team insisted that only “indirect use” protection would be contemplated. However, when the team forwarded the first version of its proposal to the Global Environmental Facility (GEF), which was to finance significant parts of the proposal, and to Mary Allegratti, Secretary of the Amazon, the latter commented that they had managed to create something that would alienate absolutely everyone who could be alienated—extractive peoples (who by this protocol would have to be removed from the territories in question) and development interests in the Amazon states alike. This was even more problematic in that over the past several years the ministry has been unable to get *any* protected area legislation passed in the Brazilian Congress due to opposition from Amazonian politicians. Allegratti sent them back to the drawing board with instructions to include some direct use areas as well.

Allegratti’s determination to create a feasible program represented an important advance in the politics of the Amazon. Recognizing that confrontation was not producing any positive results, she began to sponsor “positive agenda” conversations about alternatives to deforestation with state government officials in the Amazonian states. She has so far drawn up positive agenda statements from the states of Acre, Rondônia, Amapá, and Roraima. These are fairly minimal agreements, but the fact that they exist at all is important.

CONSISTENT CONSERVATIONIST MISTAKES REGARDING THE AMAZON

If we examine efforts to protect the rainforest over the past two decades of Brazil’s history, we can detect a number of persistent misconceptions that have complicated policy-making in and for the region. Some are misconceptions about current settlement patterns in the region. Others have to do with the expected behavior of important actors. Conservationists in general and foreign conservationists in particular have been prey to one or all of these at one time or another (as have I and as have many of the region’s best analysts, for that matter).

1. Essentialism. Human nature is the cause/solution.

Both romantics and skeptics fall prey to this malady in different forms. By essentialism, I mean the tendency either to take the position that people are naturally conservationist, given the opportunity, or to claim that they are naturally destructive, given the opportunity. In the former camp are many of the proponents of community-based natural resource management, who argue that given the chance and the necessary assistance, attachment to place and to community will cause local people to conserve their environment. In the same category are some property rights theorists, who believe that the possession of a deed of private ownership will dispose someone to conserve what is on his/her land better than he/she might have done otherwise. Skeptics claim precisely the contrary, that it is human nature to be self-regarding and individuals will make instrumental use of whatever resources are available to increase their wealth and/or welfare. Neither absolute seems warranted by the evidence; of more relevance is a careful examination of the kinds of incentives that exist for one or another behavior. These will vary from place to place and from time to time. Into the essentialist category we also have to put those who believe that indigenous people always will desire to protect a particular area because “it’s their culture.” Thus when the Kayapó sell timbering rights to lumber companies, romantics are horrified. They go too far in concluding that indigenous peoples are no more likely than others to conserve natural areas (Conklin and Graham 1995). Cultures, identities, and institutions or structures of authority and practice may be relatively sticky, but they are not frozen; people respond to new opportunities and the way they do so reshapes—to a greater or lesser extent—the older relationships.

2. Keep politicians out of the loop if you want to get anything done.

Many conservationists believe that if you can present politicians with plans for a protected area as *a fait accompli*, they won’t be able to do anything about it. This is worth doing, they think, because politicians will try to either reject or modify proposals for political (usually self-serving) reasons, thus undermining the more “objective” scientific rationality contained in the proposal. A common corollary of this attitude is the belief that it’s a waste of time trying to talk to people who are opposed to you.

A good illustration of this phenomenon was the process by which the first approximation of an agro-ecological and economic zoning plan for

the state of Rondônia was drawn up in the early 1990s. Put together by technically proficient and for the most part well-meaning state officials working with consultants, the plan generated widespread controversy in the state because the kinds of land use mandated by the plan often did not correspond to the situation on the ground. This was partly because the team that drew up the plan worked mainly from satellite images and did very little traveling outside the state capital. More important than this, however, was the *political* isolation within which they worked. When asked whether they had consulted with local government officials in different parts of the state in drawing up the zoning plan, the planners responded that they had not, since the local government officials were certain to be against it. Local government officials were, however, going to be responsible for much of the plan's implementation. Although in the short run this kind of insulated strategy may streamline the creation of "paper parks," it also creates a kind of virtual reality in which all of the actors act as if they believed something were true, all the while knowing that it is not. Over the long run it has politically disastrous results, and this is the best way of insuring that park boundaries will not be respected. When push comes to shove, no one is willing to risk much political capital on a plan drawn up in virtual reality "*para inglês ver*." In a country that is willing or able to devote very little money to enforcement and monitoring, consent and political support are the only resources one has to make a policy effective. However tough it is to work things out with opponents of conservation, preaching to the choir is a much greater waste of time than preaching to the unconvinced.

3. Officials in technocratic state agencies are free agents whose technical training disposes them to support conservationist goals.

Although in many cases the second half of this statement is true, but the first half almost never is. They are not free agents. Almost always, and especially in Amazônia, technical officials at a decision-making level are political appointees. These posts are usually doled out to supporters of the governing coalition (who might be federal or state deputies, mayors, or other political bosses), ensuring that each important supporter may appoint part of his/her own political coterie to public jobs. These political appointments usually reach several levels downward, and the sponsor of names for the second and third echelon appointees may not be the same as the one

who appoints the department heads. As a result, different levels of the same bureaucratic agency may or may not share a common agenda or governing style. These officials are constrained by the political sponsors at whose behest they serve. They can be removed through the same political process that appointed them in the first place, either because they fall out of favor with their immediate sponsor or because the sponsor shifts allegiances or falls out of favor with the governor or mayor (or president) who heads the coalition. The extent to which these officials can take unpopular positions and remain in office thus varies a great deal, but it's usually low.

4. Failure to pay attention to political context.

"Environment" is not a policy arena that exists in a vacuum. Neither is Amazônia, its deforestation, or its development. Understanding what is going on with regard to the Amazon requires paying attention to two relevant dimensions: what else is going on in areas that are politically linked to some aspect of forest conservation, that is, linked in *political space*; and what else is going on in terms of absolute salience on the relevant political agenda (national, regional, international), that is, linked in *political time*. What is important here is the perceptual linkage—whether or not the relationship in reality bears any resemblance to the perception. The debate over agrarian reform in the Constituent Assembly is a perfect example of the former. For landowners in the Amazon, the possibility of expropriation caused them to speed up deforestation on their properties to demonstrate that land was being prepared for productive use as pasture. Land reform and conflict over land tenure have been among the issues most consistently linked with deforestation in Brazil, just as climate change and indigenous peoples are the policy areas most consistently linked with Amazônia outside of Brazil, especially in the United States.

Brazilians, on the other hand, have always believed that foreigners think of Amazônia primarily in terms of its purportedly vast mineral wealth and potential hydroelectric power. Although it must have some, it is not clear how much of an impact multinational involvement in the region has on U.S. foreign policy positions on Amazônia. Nonetheless, time after time, and continuing to the present, Brazilian politicians and some diplomatic personnel have insisted to me that the U.S. government is not really serious when it takes conservationist positions, as these are essentially a front for U.S. multinationals. They refer to a history of fantastic experiments—

Henry Ford's "Fordlandia," Daniel Ludwig's "Jari," and the Hudson Institute's [sic] Great Lakes proposal (See box below).

I have always been fascinated by the persistence of references in Brazil to a proposal by the Hudson Institute in 1965 suggesting a scheme of "great lakes" in the Amazon as a solution to the energy needs of the hemisphere. It is normally referred to in Brazil as a scheme of Herman Kahn and the Hudson Institute. Consistently cited as a demonstration of foreign covetousness (a "cobiça internacional") vis-a-vis Brazil's resources and sovereignty, this paper had, as far as I have been able to determine, absolutely no policy influence whatsoever, at any time. Over the past decade, I had kept a lookout for references to it, but until I finally decided several months ago to put in the time necessary to track it down, I had never seen either the paper itself, nor even a footnote to it. Although I have still not found the paper, I have finally tracked down the reference, through another paper by the same author called "Some Aspects of the Amazon Basin." The latter appears to exist outside the Hudson Institute only in the library of the New York Botanical Garden, where (according to a handwritten marginal note) it was deposited on January 19, 1978 by Dr. Robert Goodland. The original paper was apparently entitled "A South American Great Lakes System," and was, like its successor, written by Robert Panero. Both are Hudson Institute papers, with circulation limited to the Institute staff and with no formal review procedures. Multiple disclaimers insist that it represents the views of the author alone and not of the Institute, its staff, its members, or its contracting agencies. And yet for a generation, it has gone down in Amazon lore as the Hudson Institute's plan to dam the Amazon for the development of hydro-power, with an assumption that this had an important impact on U.S. foreign policy. Indeed, leaders of one environmental organization, the CNDDA (National Campaign for the Defense and Development of Amazônia), claimed that the organization was formed in response to the threat to Brazil's sovereignty represented by the "Hudson Institute" proposal.

Besides being aware of how motivations are perceived, conservationists need to be more aware of how other policy areas affect the ones that most concern them. This has become abundantly clear with regard to land and energy policy. Other policy areas—for example, the expansion of the highway network being undertaken as part of the *Avança 2000* program—have even greater potential for disruption. Where roads are built, ecological processes are disrupted and/or destroyed and settlements inevitably follow. With a focus on privatizing infrastructure development wherever possible, current government policy provides a degree of insulation for economic actors from the constraints of environmental regulation.

Political time is also an important factor: To accomplish reforms, environmentalists have always had to seize what political opportunities become available. Institutional capacity has tended to develop in the wake of major events, such as the Stockholm conference, for example, and the intense international focus on global environmental issues in the second half of the 1980s. Most people expected another such flurry of capacity building in the wake of the Earth Summit in 1992, and Brazilian environmental and social change organizations mobilized for two years prior to that conference to build for just such an eventuality. Although some environmentalists did enter government during that period—Mary Allegretti, the Under-Secretary of the Environment for Amazonia at the time of this writing is an important example—the impetus of the 1992 process was largely dissipated by the coincidence in time with the movement to impeach President Collor. Protestors took to the streets as soon as the foreign delegations had left Rio. Six months later, after Collor had left office, the window through which environmental issues had loomed so large in early 1992 was shuttered once more.

5. Money is the main problem, and “capacity building” is the solution to weakness of environmental protection institutions.

The usual version of this argument is that the money to establish, maintain, and monitor conservation units is simply not available. Certainly there's a good bit of truth in this statement. However, if money were the main obstacle, then a big push on fundraising by conservation organizations, coupled with other instruments like debt-for-nature swaps, foreign assistance by sympathetic governments, and so forth, should resolve the problem. When it does not do so, the failure is often attributed to “lack of technical capacity” or “lack of institutional capacity” on the part of the agencies charged with establishing and/or running conservation units. But capacity has to be measured relatively and absolutely: if an environmental agency is short on money or technical capacity, is it equally true that the transport or public works secretariats lack these things? In fact, governments make choices about where to allocate existing capacity and those choices are political. They must be convinced that protection of the landscape ought to be a priority expenditure before they will make it one. It is therefore impossible to separate the question of adequate funding or capacity from the need for the political will to use money for conservation

purposes. In the absence of the latter, however, no amount of money or skill will make much of a difference.

Abundance, especially sudden abundance, of money (especially) or technical expertise can cause as many problems as a lack thereof. Both nongovernmental and governmental organizations can quickly become intoxicated with easy money from the outside. The fact that the budgetary cycles of both funders and funded (in the case of governments) produce boom and bust periods. It is particularly noxious that recipients wait for long periods for the money to arrive and then are constrained to spend all of it before a predetermined deadline.

CONCLUSION

It is easy to look at the past thirty years of history of the Amazon region and despair. Certainly, from the standpoint of conservationists, victories have been difficult to win and even harder to sustain. If there is to be any policy implication drawn from this essay, let it be that politics and political context always play an important role in decisions about the region and those who want to affect those decisions ignore that context at their peril.

Yet this is a lesson that is also confirmed, through stories of success, in a positive way. Success stories demonstrate that “politics,” which for many scientists means decision-making by people who are not qualified to do so, doesn’t have to be an obstacle to overcome. Consider, for example, the case of Acre, where those who wanted to keep the forest standing were part of—and helped to create—a substantial coalition that opposed predatory land uses at the same time it opposed predatory politicians. That movement eventually succeeded in electing people who supported these goals to high office—mayor of the state capital, then governor, and senator. Under those circumstances, the terms of the equation may begin to change.

But to sustain that change, there must be support from outside Amazônia, and especially from Brasília. We are once again witnessing a shift in the political context and the agenda on which Amazônia appears. In Amapá, where a similarly well-intentioned governor attempted to face down a state legislature permeated with drug money, the legislators were able to create a prolonged stalemate with little more than verbal opposition from Brasília. Although the ubiquity of drug-related activities has

been known in the region for at least a decade, only recently has it been admitted officially as a national security problem. As should be readily apparent from observation of other countries in the region, a prolonged drug war is the last thing the region needs.

NOTES

1. The famous book by Arthur César Ferreira Reis, *A Amazônia e a Cobiça Internacional*, is still widely cited as a major authority on Amazônia in foreign relations, and similar themes are stressed in the majority of Brazilian writings on the region. See, for example, Procópio 1992.

2. "The Opening Up of Brazil," IUCN Bulletin 3:5 (May 1972), 18.

3. The Brazilian Democratic Movement (Movimento Democrático Brasileiro, or MDB) was the legally sanctioned "opposition" political party during the military dictatorship that ruled Brazil between 1964 and 1985/89. A mere paper opposition through most of its first decade, the party began to exercise a genuinely oppositional role beginning with the relaxation of restrictions on its electoral activity in 1974. By 1978, the "opening up" of the authoritarian regime was in full swing.

4. This was the title of a 1992 book by U.S. journalist Andrew Revkin about settlement of the Western Amazon and the life of Francisco "Chico" Mendes, leader of rubber tappers in the region of Xapuri, Acre, who successfully confronted cattle ranchers encroaching on the land they had traditionally used. Mendes was assassinated by a cattle rancher in December 1988.

5. This is not to deny that such a connection exists, but merely to note that public perception of a direct link between the heat of the U.S. summer and the fires of the Amazon were vastly overdrawn at the time.

REFERENCES

- Baumgartner, Frank R., and Bryan D. Jones, 1993. *Agendas and Instability in American Politics*. Chicago: University of Chicago Press.
- Castro, João Augusto de Araujo, 1972. "Environment and Development: The Case of the Developing Countries." *International Organization* 26:2 (Spring 1972): 401-16.
- Conklin, Beth A., and Laura R. Graham, 1995. "The Shifting Middle Ground: Amazonian Indians and Eco-Politics." *American Anthropologist* 97: 4: 695-710.
- Hochstetler, Kathryn, 1996. "Social Movements in Institutional Politics: Organizing about the Environment in Brazil and Venezuela." Unpublished Manuscript. Fort Collins, CO.
- Keck, Margaret E., 1995. "Social Equity and Environmental Politics in Brazil: lessons from the rubber tappers of Acre." *Comparative Politics* 27 (July).
- Keck, Margaret E., 1998. "Brazil's Planaflo: The Limits of Leverage." In Fox, Jonathan and L. David Brown, eds.. *The Struggle for Accountability: The World Bank, NGOs, and Grassroots Movements*. Cambridge: MIT Press.
- Keck, Margaret E. and Kathryn Sikkink, 1998. *Activists beyond Borders: Advocacy Networks in International Politics*. Ithaca, NY: Cornell University Press.
- Ostrom, Elinor, 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.
- Procópio, Argemiro, 1992. *Amazônia: Ecologia e Degradação Social*. São Paulo: Editora Alfa-Omega.
- Reis, Arthur César Ferreira Reis, 1982. *A Amazônia e a Cobiça Internacional*. 5th edition. Rio de Janeiro: Editora Civilização Brasileira / Manaus: Superintendência da Zona Franca de Manaus.
- Stone, Deborah, 1989. "Causal Stories and the Formation of Policy Agendas." *Political Science Quarterly* 104: 281-300.

The Importance of the Amazon Basin Region in Brazil's Evolving Security Agenda

LUIS BITENCOURT

Although concern with the Amazon region is not new in Brazil, in the last ten years it has received extraordinary attention, particularly as part of the country's evolving security agenda. The region has been a focus of world attention as a result of increasing concern for environmental protection and conservation of the Earth's natural resources. For many Brazilians, this increasing interest is perceived as merely a cover to hide more ambitious intentions that directly threaten Brazil's sovereignty in the Amazon. They firmly believe that the developed countries intend to put the Amazon region under "international jurisdiction" in order to keep it underdeveloped.

Interestingly, this perception of a growing world interest in the Amazon region and the concomitant threat to Brazilian sovereignty acquired new relevance in the context of the ongoing changes in the Brazilian security and defense establishment.¹ Communist subversion was no longer a threat after the late 1970s; the military lost their commanding position within the political sphere after 1984; and the defense establishment was deprived of its usual "war hypothesis" (Argentina) after the late 1980s. Consequently, the defense establishment and particularly the military were suffering—although they never admitted it—a serious "identity crisis." The combination of these internal and external concerns about the Amazon created an opportunity for President Cardoso to reform the Brazilian defense doctrine and put the Amazon region in a new security perspective; it also offered a way out of the "identity crisis."

This paper begins by reflecting on the security concepts that have appeared over the last twenty years. Although a rather theoretical consideration, it is crucial for explaining why Brazilians sometimes overreact when the subject is the Amazon. In addition, it highlights the traditional

concept of “national security” as it relates to sovereignty and military threats. It also summarizes the problems in the Amazon from the Brazilian national security perspective and analyzes the position of the Brazilian state regarding the definition of a security threat to the Amazon. Here, the paper will focus on a new definition of the Brazilian security agenda and on Brazilian government projects addressing security concerns. It concludes by emphasizing that failing to understand the Brazilian security agenda regarding the Amazon may impair the ability to assess Brazilian initiatives aimed at accomplishing two seemingly contradictory objectives in the Amazon: development and conservation.

DEFINITIONS OF SECURITY AND THEIR IMPACT ON THE AMAZON

The traditional concept of security influences the conception of both national and international security in the Brazilian mindset for the Amazon region. This traditional—or Hobbesian—concept of security, associated with both sovereignty and military threat, was popular for more than fifty years. Recently, space has been opened for a number of new concepts, all characterized by the association of an additional element with the notion of security. The result is fused concepts of security in which the “security” genre is the same, but there is always a specific difference. Thus, expressions such as “citizen security,” “environmental security,” “economic security,” and “human security” became increasingly popular in the context of politics. For the purpose of this paper, however, the Amazon region must be viewed through the old—however scratched and unattractive—lens of traditional national security. Before moving ahead, however, it is necessary to qualify these different conceptual approaches, particularly because they also influence Brazilian policymakers concerned with security in the Amazon.

Doubts about the appropriateness of the old concept of national security arose with the appearance of new threats in the international arena. The unexpected end of the Cold War shook up the entire conceptual framework. Robert H. Dorff, for example, concerned about the impact of the end of the Cold War on “international security” as a field of study, heightened the awareness of scholars about shortcomings in the field. The end of the Cold War, he argues, and the 1991 Gulf War initially reinforced optimistic

approaches to international security—particularly those related to prospects for new collective arrangements—while the old concepts still seemed adequate. But the emergence of conflicts elsewhere in the world, notably in the former Yugoslavia, proved that the existing security perspective was inadequate to explain the international environment, as new threats to states' survival were appearing outside the traditional realm of military threats.²

The old concept of international security had been heavily inspired by a paradigm defined by both the realist vision of the world and U.S. national security doctrine. However, for Western realists and neorealists, the end of the Cold War meant a sour, almost undesirable victory, for it exposed the lack of predictive power of the paradigm. In addition, the realist concept of international security, which recognizes only states as actors, seemed inadequate to analyze complex power interactions among players that were no longer exclusively states.³

It is well known that in the realist paradigm the concept of international security only admits only recognizes states as actors. Competing states within a chaotic international environment (because there is no world government and the relative distribution of power among states is the primary determinant of state behavior) organize themselves into collective alliances in the face of common threats. During the Cold War, the communist Soviet Union represented such a common threat, at least to the West, and states were the major players dominating international relations. Moreover, because the survival of states was perceived as being permanently at risk, governments were mostly concerned with states' security. Under this paradigm, while the world felt things were dangerous and unstable, scholars found it a comfortable world of methodological equations that could be clearly established upon simple and sharp, usually "black or white," "good or bad," and "friend or foe," elements. Currently, although the world feels more secure, for scholars the relative reduction of state power vis-à-vis the appearance of other institutions makes power relations within the international environment more complex and problematic.

The reigning concept of international security had been heavily influenced by the U.S. perception of threat. Indeed, the United States' national security doctrine for the Cold War led the entire Western Hemisphere to share the same perception. Behind the generic notion of the Cold War lay both U.S. bias and the U.S. capacity to project power and manifest its hegemony: Anything interpreted as a threat to American national interest

echoed as a threat to every state within the hemisphere. Seyom Brown explains that “for nearly four decades, most foreign policy officials and scholars, to the extent that they did concern themselves with world security, tended to regard what was good for the security of the U.S. as good for the world. If there *were* world interests, they were derivative of national interests.”⁴ The complexity of current power relations leads to a different conclusion: Arrangements capable of assuring international—and regional—security will project security over the national sphere.

The Cold War had artificially congealed complex issues including culture, identity, and values in different states and regions.⁵ At first, the end of the Cold War allowed the resurgence of dormant conflicts and revealed distortions caused by the encapsulation of ongoing processes to American strategic interests. Later, with the subsequent reduction of U.S. hegemony—or at least, military hegemony—over the hemisphere and the appearance of new themes related to security, the national security concept based on sovereignty over a piece of land lost considerable explanatory power.

However, it is exactly this issue of sovereignty that has critical implications for the Brazilian security agenda for the Amazon region. Formerly understood as closely associated with territorial borders, the concept of sovereignty has recently been broadened to include the notion of control over the basic needs of the nation-state. This has arisen from the observation that current threats—new or old—do not respect territorial borders because the new pattern of international communications and transnational relations, including economic as well as cultural aspects, are increasingly taking place in areas that are well beyond state control.

Jessica Mathews suggested the necessity for a new conceptualization of “national security.” She contends that in the 1970s the original concept had been expanded to include international economics as it became clear that the U.S. economy was vulnerable to other countries’ economic policies. Hence, she argues,

global developments now suggest the need for another analogous, broadening definition of national security to include resource, environmental and demographic issues. The assumptions and institutions that have governed international relations in the postwar era are a poor fit with these new realities. Environmental strains that transcend national borders are already beginning to break the sacred boundaries of national sovereignty, previously rendered porous by the information and communication revolutions and the instantaneous

global movement of financial capital. The once sharp division between foreign and domestic policy is blurred, forcing governments to grapple in international forums with issues that were contentious enough in the domestic arena.⁶

Mathews' powerful argument effectively summarizes the reasons to redefine national security, which is appropriately considered the core concept for "international security." In addition, her point regarding the vulnerability of territorial borders is well taken. However, there is a risk of sophism in the extrapolation that, since borders are more porous, sovereignty becomes less important for nation-states. In fact, the opposite is true: because of the sensation of loss of control over what is happening inside its borders, governments have become more sensitive to and more interested in preserving the sovereignty of their respective states.

An important observation here is that the concept of national security only dates back to World War II. During the years following the end of the war, national security acquired legal status within the United States—through the 1947 National Security Act—and was transformed into a dominant doctrine in the entire Western hemisphere. Thus, "national security" replaced the notion of "national interest" and became the idiosyncratic motto of the Cold War period:

... few Americans used the term before the Japanese attack on Pearl Harbor. By the time the war ended, however, national security was challenging the older concept of national interest for preeminence within the community of experts and policymakers involved in U.S. foreign policy. The circumstances of the Cold War determined the outcome of that competition. By 1950, national security was established as the leitmotif of U.S. foreign policy, with its own lexicon and supporting institutions. During the next four decades, national security completely eclipsed national interest as the standard for understanding, debating, and justifying American actions abroad. Preoccupation with national security transformed the policy-making process and altered the tone and substance of American politics. As Senator Daniel Patrick Moynihan observed in June 1990: "The Cold War changed us ... We became a national security state."⁷

Likewise, we may argue that the military, which had the Brazilian state under its control during the twenty-year dictatorship (1964-84), developed a complex "national security doctrine" that is still a very influential framework with regard to the Amazon, which has been considered a vulnerable region in need of particular attention. Although this "national security doctrine" was altered after the end of the military rule, security

concern about the Amazon did not vanish; rather, it became quintessential for the definition of both the current Brazilian security agenda and new roles for the Brazilian armed forces.

THE AMAZON SECURITY PROBLEM

Brazilians began to be concerned about the Amazon region at the beginning of the twentieth century. The motivation was not environmental protection but, rather, rubber production. Just before World War I, the Amazon region was the largest rubber-producing area in the world. However, following the transport by the British of hundreds of young trees from the Amazon to Ceylon, by mid-century production capability there had surpassed Brazil's. During World War II, because Japan occupied Ceylon, rubber produced in the Amazon region became a strategic raw material for the Allies. As a result of an agreement between Brazil and the United States, production was intensified and the rubber was shipped to the United States. The reason German submarines sank so many Allied ships at the mouth of the Amazon River was that they were loaded with rubber.⁸

Security concerns about the Amazon arose again in 1964 when the military took over political power in Brazil. Motivated by the perception that the Amazon was too far from the center of political power and somewhat isolated from the rest of the country, the military launched plans to promote the economic development of the Amazon region under the "Security and Development" philosophy and the "National Security Doctrine." The motto became *integrar para não desintegrar* ("integrate so as not to disintegrate"); the Amazon was to be connected to the rest of the country through the promotion of economic development and the construction of communication and transportation infrastructure.

By the mid-1980s, Brazilian authorities began to focus on particular security issues. The instability of the Amazon borders and the lack of control over organized crime activities in the region called for specific policies. From the security perspective, the region seemed increasingly challenging. Criminal and guerrilla activities had intensified in the neighboring countries, and the physical characteristics of the region, with many areas practically inaccessible, made establishing control over these activities extremely complicated.

During the past two decades, environmental concerns have grown paramount around the globe, and the Amazon is again in the headlines. Legitimate concerns about the depletion of natural resources have mixed with fictional theories in calling for the preservation of the Amazon's environment. Most Brazilian authorities were already sensitive to this problem and some programs were in place, such as those addressing rain forest concerns, irrational occupation, the Indians, the *garimpeiros* (gold prospectors), and so on. Even earlier programs aimed at promoting economic development were reassessed and reshaped to meet environmental concerns.

Yet, for nationalists worried about the *cobiça internacional* of the Amazon,⁹ these concerns were seen as simply an excuse to justify a future takeover of the region. In this view,¹⁰ the major threat to sovereignty over the Amazon region from the Brazilian perspective—especially the military's—is the increasing international interest in the region. Many Brazilians see in some positions and statements regarding the Amazon the equivalent of a declaration of war.¹¹ By 1989, because of exaggerated criticisms based upon arguable theories, the international press was presenting Brazil as a criminal killer of Mother Nature—as a kind of environmental rogue state. Again, for Brazilian nationalists, these criticisms and the pressures that ensued were seen as part of a strategy for removing the Amazon from Brazilian control. First, the region would be declared a “patrimony for humankind,” then Brazilians would be portrayed as incompetent to preserve such patrimony. Finally, the Amazon region would be transformed into an internationalized enclave and put under United Nations administration.

This logic attracted many followers and seemed absolutely coherent with the increasing criticism of Brazil. To make the situation more complicated and, in some ways, more credible, at the end of the Cold War some American policymakers suggested that Latin American states downsize their armed forces. The idea was senseless, since the Cold War had little to do with the size of Latin American armed forces. However, for those nationalists already preoccupied with excessive international attention on the Amazon, such a suggestion made extraordinary sense when combined with everything else; from their perspective, the developed countries were weaving a giant conspiracy aimed at taking over the Amazon.

In their view, for example, the establishment of the Yanomami Indian Reserve¹² was a serious mistake. Not even the fact that Jarbas Passarinho,¹³

then Minister of Justice, had been co-author of that decision helped to attenuate the criticisms. Moreover, they considered the term “Ianomami nation” dangerous in itself, since it suggested the possibility of territorial dismemberment. In 1996, Passarinho emphatically countered the opinion of a Brazilian diplomat, Joaquim de Almeida Serra, which appeared in the *Revista do Clube Militar*. According to the Serra article, the United Nations had decided at a certain “Brussels meeting” that all Brazilian Indian Reserves would be considered independent from 1996 onward. Those reserves would then be placed under U.S. protection and would eventually be transformed into U.S. colonies. The Brazilian Foreign Minister denied that the “Brussels meeting” had ever happened and, furthermore, that the act of demarcating an Indian Reserve was in itself a clear demonstration of sovereignty. Regions established as Indian Reserves are, by definition, “property of the Union,” which creates the obligation to demarcate and protect them.

Nevertheless, the issue of the Indian Reserves, particularly the Ianomami, remains controversial among many military and other Brazilian nationalists. Establishing a parallel with the Chiapas situation in Mexico, Manuel Cambeses Júnior suggests that “the demarcation of the Ianomami area, imposed on President Collor upon negotiation with the International Monetary Fund, caused indignation among the military. ... Under generous UN cover, it is possible that the ‘Rambos’ may soon decide to promote exercises in the ‘enclave’ region, which they call ‘Nação Ianomami’.”¹⁴

Speaking at a 1999 *Clube Militar* conference, General Luiz Gonzaga Lessa, Commander of the *Comando Militar da Amazônia*, stressed that because of pressure from non-governmental organizations important questions related to the Indian populations were not being debated. Some of these questions included: “What should be the extension of an Indian reserve? Why is the Ianomami area so large? What are the criteria for establishing an Indian Reserve? Lessa argued that the Brazilian Indian population is only slightly larger than 1% of the entire Brazilian population, yet, they own 11% of the territory. It could be argued that, in fact, the Indians do not own the land since the reserves belong to the union. However, Lessa’s perception about the Indian Reserves is a common one and influences the definition of security in the region.

THE AMAZON FROM A BRAZILIAN SECURITY PERSPECTIVE

The Amazon is the name for the region roughly defined by the basin of the Solimões and Amazon Rivers and includes the territories of Brazil, Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname, French Guiana, and Venezuela. For Brazil, it includes 6,500 kilometers of borders with Colombia, Venezuela, Guyana, Suriname, and French Guiana. The Brazilian Amazon, an area of 5,217,423 km², represents about 65% of the entire continental Amazon and an estimated 20 million Brazilians (including 135,000 natives) live in this area.

Several of the Amazon's characteristics have a direct impact on security issues. The vast and rich territory has many areas that are difficult to access and are relatively distant from the Brazilian center of power; it borders on seven South American states; and in some regions within the forest border markers are hard to distinguish. The name "Amazon" ignites passions around the world regarding protection of the environment and respect for Indian populations. It represents for many a legitimate concern for conservation and environmental protection; for others, it signifies financial opportunities and a chance to exploit its resources—rare minerals, timber, and its complex but equally attractive biodiversity. It also represents a sanctuary for drug traffickers and guerrilla groups active in the region.

Overall, the Amazon is a large and sometimes hostile region where legitimate and idealistic global environmental awareness combines with parochial and selfish intentions to create concerns independent of the definition of security adopted. Concerns about the fate of Indian populations, environmental degradation, international crime and drug traffic, or simple ambition over its natural resources brings world attention to the Amazon region. From the perspective of Brazilian government officials, any initiative dealing with Amazon problems has "Amazon dimensions," which usually translate into difficulties that require major investments. Under the circumstances, human and natural threats to the Amazon have been addressed more or less competently. But from the Brazilian security perspective, the most serious problem is the attention being paid by the international community to all these aspects, which conceals the real threat of "international covetousness" of the Amazon region.

BRAZILIAN INITIATIVES

Such concern about international ambitions for the Brazilian Amazon provoked several types of reactions from the Brazilian state, including an increase in attention paid to essential problems of the environment and Indian populations. Of interest here are the initiation of, first, a diplomatic movement to create a consensual approach to what was perceived as a threat to the Amazon region as a whole; and, second, programs typically identified with the military aspects of security in the region to the North of the Amazon River, or *Calha Norte*.

In its diplomatic effort, Brazil proposed, and the Amazon countries supported, the establishment of a treaty to address common problems in the region. On July 3, 1978, Brazil, Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela signed the Inter-regional Treaty for Economic and Social Cooperation (the Amazon Pact). Brazil's declared goal in launching this proposition was to create conditions for a future Amazon common market; in fact, however, it was intended to create a front by which the Amazon countries could jointly face international threats to the region. The treaty has twenty-eight articles defined according to the following five principles: exclusive competence of the Amazon countries to address the development and protection of the Amazon; respect for national sovereignty regarding the use and conservation of natural resources; regional cooperation as a way to facilitate the accomplishment of such goals; harmony between economic development and environmental protection; and equality among the various partners.

The Amazon Pact accomplished little with regard to the ambitious idea of an Amazon common market, most notably because of the limitations on communication and transportation imposed by the forest. A second difficulty was the lack of a shared vision on the importance of the Amazon region and on ways to promote its development. Nevertheless, the treaty was able to generate some motivation for cooperative initiatives. In April 2000, at the Sixth Meeting of Foreign Ministers of the Treaty for Amazonian Cooperation in Venezuela, Brazil's President Cardoso validated the treaty as a mechanism for confronting the rampant illegal activities in the region, particularly organized crime, and the effects of globalization. He also suggested the estab-

lishment of an Organization of the Treaty for Amazonian Cooperation and the installation of a permanent secretariat. According to Cardoso, the presence of the state is the most powerful inhibitor of crime in the region, but because of the region's natural characteristics, only cooperation among the Amazon countries could create the conditions for an effective state presence.¹⁵

Before analyzing the Brazilian military vision of Amazon security, we must look into the military ethos and, therefore, at recent history. The most conspicuous aspect relates to military involvement in political power during the twenty-year dictatorship. A major factor usually overlooked by many good analysts is the distortion caused by the special case of Brazilian military authoritarianism. The Brazilian case is peculiar because it does not fit the classical models of dictatorship. Although the military had full dictatorial powers and political control, they always tried to justify and legitimize their actions. Since they were all sworn and passionate defenders of democracy, it would take quite an explanation to dismantle democracy in the name of defending it. The Brazilian military created a sophisticated and all-encompassing doctrine capable of explaining, at least to themselves and with fair consistency, the reasons for their dictatorship (a title, by the way, that they never accepted as accurate). It also helped them organize the entire decision-making structure of the government.¹⁶ Even as the *abertura* (opening) process became inevitable, they were still able to carry it out in a relatively controlled way.

Of course, the military paid a price for this sophisticated strategy. When they left political power in 1985, this doctrine made it more difficult for them both to relinquish governing and to define new missions. The transition to democracy went smoothly in the political sphere, as they had planned. However, it did not work as well within the military sphere: Returning power to the politicians proved easier than going back to the barracks. After twenty years behind the desks of nonmilitary establishments, it was difficult to separate the military and purely defense-oriented issues from the governmental bureaucratic entanglement—particularly since they had been very efficient in redesigning the state apparatus according to their military perspective.

During this period (1964–85), the *Secretaria-Geral do Conselho de Segurança Nacional* (General-Secretariat for the National Security Council—SG/CSN), under the direction of the Minister-Chief of the

Presidency of the Republic's Military Cabinet, was the most influential organization for top-level issues related to national security. This organization was responsible for integrating and putting into final form the *Conceito Estratégico Nacional* (National Strategic Concept—CEN).¹⁷ The organization initiated all projects related to security of the Amazon region, including the *Calha Norte* and the program for strengthening the *Municípios da Faixa de Fronteira* (districts located in the border region). Notwithstanding, the SG/CSN—and its successor, the *Secretaria de Assessoramento da Defesa Nacional* (Advising Secretariat for National Defense—SADEN)—also had a poor public image. It was one of the most visible symbols of the military dictatorship because, during the toughest years in the fight against communism, the SG/CSN had overseen the cancellation of political rights. Consequently, it could not attract good will from the left, which was then enjoying a moment of relative revenge and political reaffirmation. President José Sarney, the first civilian president after twenty years of military rule, was inaugurated in 1985, but he never took issue with these remnants of the military dictatorship. The next president would take a different approach.

In 1990, elected President Fernando Collor took office and immediately dismantled the SG/CSN (then renamed SADEN). Along with the domestic intelligence service (the *Serviço Nacional de Informações*—SNI), SADEN was a powerful military enclave located just down the hall from the president's office. By dismantling both organizations, Collor aimed to subject the military to his power. Yet, notwithstanding the political impact of Collor's moves and his rationale of removing the military from political decision making, he also dismantled other important governmental organizations that were not necessarily tied to an authoritarian model.

The opening created by dismantling SADEN could not be entirely filled by its successor, the Secretariat for Strategic Affairs. Consequently, some activities and programs—for example, the revision of the National Strategic Concept¹⁸ and the *Calha Norte*—became orphans. Only several months after Collor took office, the Secretariat for Strategic Affairs was given responsibility for the “special programs” (but not for defense planning) previously under SADEN's control. It was then given the responsibility of advising the National Defense Council. Following Collor, during Itamar Franco's tenure, very little happened, since Franco showed no enthusiasm for defense

or strategic matters. Nevertheless, the Secretariat for Strategic Affairs introduced a proposal (jointly conceived with the military and other ministries) for a defense policy, but it was never approved. Later, under President Cardoso, a defense policy was issued in which the Amazon was defined as a paramount concern for Brazilian security. The defense policy highlighted the existence of regional threats caused by zones of instability, the actions of armed groups operating in neighboring Amazon region countries, and international organized crime.

The minister of defense and the army commander also emphasized the importance of strategies to defend the Amazon. The minister of defense commented in his inaugural speech that Brazilian defense priorities would concentrate on the Amazon. The army commander, in his "Guidelines for the Army," stated that he would give priority to the Amazon units as well as to the completion of personnel equipment.

For examples on a more tactical level, it is interesting to observe recent changes in the Army. By the end of 1980s, the Army began modernizing and transferring units from the south to the Amazon region. Budget restrictions were tight, but the army benefited from some extra-budget resources. These resources came from the *Calha Norte* Project, an ambitious initiative launched in 1985 to intensify Brazilian presence in the Amazon border strip through a series of military and civilian activities to be conducted by civilian sectors of the government.

After 15 years, the project's results are somewhat disappointing; only a small portion of the proposed budget was allocated and its civilian programs fell short of what was expected. Nevertheless, this initial push was exactly what the army needed to begin its changes. Thanks to *Calha Norte*, the army could modernize its border platoons in the Amazon region and deploy new ones in Iauraretê, São Joaquim, Querari, Maturacá in Amazonas State, and Surucucu and Auaris in Roraima State. Headquarters were built for the 5th Border Special Battalion, in São Gabriel da Cachoeira, Amazonas; and for the 1st Jungle Infantry Brigade, in Boa Vista, Roraima. The 16th Motorized Infantry Brigade was transferred from Santo Angelo, Rio Grande do Sul, to Tefé, Amazonas, to become the 16th Jungle Infantry Brigade; and the 33rd Jungle Campaign Artillery Group was created in Boa Vista, Roraima. By all accounts, this was a major strategic movement and today the Brazilian Army has 23,000 troops distributed over 62 Amazon locations.¹⁹

THE CALHA NORTE

On December 19, 1985, at the end of the first year of his mandate, President José Sarney²⁰ approved the Inter-Ministerial Work Team's report: "Development and Security in the Region to the North of the Rivers Solimões and Amazonas²¹: the Calha Norte Project."²² Originally, the work team had been assembled after the "Exposition of Motives" (EM nr. 018/85) was handed down by the SG/CSN, and it involved representatives from several governmental areas. According to its mission, the team presented suggestions for government policies capable of promoting the economic development of the Amazon region and integrating it into the national context.

Interestingly—and also revealing of its nature within the framework of national security—the *Calha Norte* Project began in secrecy. It was publicized only in October 1997, when the Executive Branch was required to clarify a related investigation being conducted by Congress.²³ To explain the secrecy surrounding the project, the government cited its strategic nature, as it involved the precarious state of the Brazilian occupation of that region (which, incidentally, was close to guerrilla regions in border countries and known as a passage for drug traffickers and smugglers).

The *Calha Norte* Project was conceived as a broad and ambitious multisector plan involving several ministries. It was supposed to be simultaneously implemented on several fronts, corresponding to identified vulnerabilities or threats. The weak presence of the state was identified as the major problem in the region. Consequently, the project established several initiatives aiming at strengthening the governmental structure responsible for providing basic services for the population. The foci for the development of these initiatives would be the *Pelotões Especiais de Fronteira* (Special Frontier Platoons), army units installed at strategic points along the northern Brazilian borders. The existing platoons would be modernized and prepared to receive detachments from other civilian ministries participating in the project through their specific tasks in the area. From these bases, actions would be undertaken to improve transportation, health assistance, relationships with neighboring countries, identification of border markers, and assistance to and protection of the Indian populations. Overall, these actions would seek to promote sustainable development in that region.

The *Calha Norte* Project was more than a plan designed for a set of actions; it was conceived as a ambitious strategy. The government was to use it as a set of goals and guidelines with which all the governmental initiatives in the region should be in accord. Therefore, at least in theory, the project should work to rationalize governmental policies there. However, because no department was given coordination responsibilities, the project did little in nonmilitary sectors. In addition, the secrecy under which it took its first steps and the perceived military inspiration behind the initiative gave the project a military look—in a moment of increasing aversion to the military in political circles. Brazil was initiating debates around the writing of a new constitution and all the issues not resolved in 1985, at the end of the cycle of military governments, were converging on the constitutional assembly. Consequently, anything related to the military was inciting negative reactions at the time. The *Calha Norte Project* would suffer as a result of its identification with the military. During the two first years, when the budget was earmarked and guaranteed to the project, *Calha Norte* was able to accomplish most of the planned infrastructure projects (incidentally, most were related to the construction and modernization of military facilities and equipment). But after 1987, investment in the project declined: in 1988, it received only 12.4 percent of the estimated budget; in 1989, 6 percent; in 1990, 6.3 percent;²⁴ and, from 1991 on, investments reached only about 3.5 percent of the estimated budget. Consequently, the budget was even insufficient for basic maintenance of the installed units and equipment. Only in the mid-1990s did the project receive attention, following renewed interest in the Amazon region; yet, this attention did not translate into effective budget increases.

THE SYSTEM FOR THE SURVEILLANCE OF THE AMAZON (SIVAM)

Another important initiative in the security area has been the implementation of the System for the Surveillance of the Amazon (SIVAM). In 1992, during the “Environment Conference Rio 92,” Brazil announced the launching of SIVAM, which was to provide the infrastructure for the System for the Protection of the Amazon (SIPAM). Originally conceived by the Brazilian Air Force because of the perceived lack of an air traffic control system for the Amazon region, SIVAM gathered support from the

area of environmental protection. In fact, by promising more than US\$ 1.5 billion to SIVAM, Brazil used the Rio 92 conference to demonstrate its sensitivity to and concern about the globally denounced ecological attacks on the Amazon rain forest. The hope was that with SIVAM fully operational, Brazilian authorities would be able to better control deforestation, the pollution of rivers by mercury from gold mining, conflicts with Indians regarding their reserves, and, particularly, the indiscriminate use of Brazilian air space by drug traffickers.

Relying on an infrastructure of surveillance and analysis, SIVAM seeks to generate detailed information that will allow the government to implement policies and actions aimed at protecting and promoting sustainable development of the Amazon region. The infrastructure is founded on a network of sensors and systems. The network includes receiving stations for imaging and weather satellites; air traffic control radar; weather radar; environmental data collection platforms; surface and altitude (balloon) weather stations; laboratory aircraft; radar surveillance aircraft; sensing aircraft equipped with synthetic aperture radar; and spectral and infrared imagers.²⁵ Although the original chronology for implementation is not being followed—the system should have been operational after five years—it is in advanced state of implementation and most of the ground facilities have been constructed.

CONCLUSION

“Amazon” is a word that inspires passion and mystery and blends fact and fiction. As such, the region has long attracted the attention of the world for various legitimate and illegitimate, noble and ignoble reasons. Ecologists and anthropologists, Indian population protectors and social scientists, laboratory researchers and missionaries, gold and timber seekers, drug and animal traffickers all have revealed or unrevealed interest in the Amazon region.

This paper has looked at the Amazon region through the security lens. Although acknowledging the various concepts of security proliferating in the international relations realm today, this essay has examined the traditional concept associated with sovereignty and military force—admittedly, neither the most charming nor the most appealing of the conceptions of security. To analyze the Amazon through environmental

security concerns is certainly more attractive; nevertheless, as we have observed here, the relevance of the traditional concept cannot be ignored.

The Amazon is the most sensitive and strategic theme in Brazil's evolving security agenda, proportional to what is perceived as a threat to Brazilian national interests. This threat is also important in another context: It is helping forge a new image for the military. On the one hand, society has begun to perceive the military role as finally dissociated from a past characterized by twenty years of military entanglement with politics. On the other hand, the military could disentangle themselves and continue to define roles and missions that are more traditional.

To ignore the importance of the security variable in the consideration of the Brazilian Amazon is to ignore one of the most critical elements influencing the complex Amazon reality. From the Brazilian security perspective, particularly for the military, there is no doubt that the manifest international interest in the Amazon represents a large and growing threat to the region's sovereignty. If there is one certainty on the evolving Brazilian security agenda, it is that the military is committed to defending the Amazon.

NOTES

1. Between 1964 and 1984, the military ruled Brazil and established a regime heavily influenced by the fight against communist-inspired subversion. Thus, they created a defense and security system mostly concerned with the "internal enemy," and for more than twenty years, this was the rationale for the doctrine and organization of the defense establishment. In 1985, a civilian president was inaugurated. Although this was the end of the military regime, the security and defense establishment remained untouched. Only in 1990, with Collor de Mello as president, did some changes begin to take place. Eventually, the traditional rivalry with Argentina was replaced by cooperation that finally motivated the establishment of Mercosur.

2. Robert H. Dorff, "A Commentary on Security Studies for the 1990s as a Model Curriculum Core," *International Studies Notes* 19 (Fall 1994).

3. Kenneth N. Waltz is a leading contemporary realist. See his *Theory of International Politics* (Reading, MA: Addison-Wesley Pub. Co., 1979).

4. Seyom Brown, "World Interests and the Changing Dimensions of Security" in Michael T. Klare and Yogesh Chandrani, eds., *World Security: Challenges for a New Century*, 3rd ed. (New York: St. Martin's Press, 1998), 24–25.

5. See, for example, Peter J. Katzenstein, ed., *The Culture of National Security: Norms and Identity in World Politics* (New York: Columbia University Press, 1996), 2: "In the context of a bipolar, ideological struggle, the Cold War made relatively unproblematic some of the cultural factors affecting national security. Theories that abstracted from these factors offered important insights. Now, with the end of the Cold War, the mix of factors affecting national security is changing. Issues dealing with norms, identities, and culture are becoming more salient. An institutional perspective permits us to investigate more closely the context, both domestic and international, in which states and other actors exercise power."

6. Jessica Mathews, "The Environment and International Security," in *World Security: Trends and Challenges at the Century's End*, Michael Klare and Daniel Thomas, eds. (New York: St. Martin's Press, 1991).

7. Carnegie Council on Ethics and International Affairs *Newsletter* (March 1999).

8. Some accounts estimate that approximately one-third of the rubber never reached its destination. Jarbas Passarinho, 18^a. *Reunião da Comissão Parlamentar de Inquérito Destinada a Apurar as Denúncias sobre a Devastação da Hiléia Amazônica e a Participação Estrangeira nessas Denúncias*, Dec. 12, 1989, Diário do Congresso Nacional, 7770–81.

9. This paper does not seek to address the validity of these "nationalist" visions and beliefs. Its goal is to identify such beliefs, which are perceptions of threat, and analyze how they give shape and purpose to the security organization in that region.

10. In 1996, Jarbas Passarinho, who can be regarded as an unbiased observer, wrote that the concern about outside interests in the Amazon region, sometimes exaggerated, is not new and is responsible for many distortions existing in the Amazon today. In the early nineteenth century, the naturalist Alexander Von Humboldt and the botanist Aimé Bonpland were traveling in that region when Pará's governor, responding to an order from the Portuguese king (Brazil was then a Portuguese colony), dispatched the police to arrest a "certain Baron Umboldt" and another "suspect," Bonpland. The police confiscated their documents and luggage. According to Passarinho, "expelled from the Amazônia, these 'dangerous' spies left a notable scientific oeuvre. ... With us remained the stupidity of the prohibition of studying our Amazon region and the definition of *Hiléia*, as a specie of humid tropical forest. Remained yet the optimist [and myopic] prediction that the

Amazon region will be the world's cellar." See "A Estratégia do Medo," *Jornal do Brasil* (27 June 1996), 7.

11. See, for example, Bernardo Cabral, "A Problemática da Amazônia Brasileira" in *Revista do Clube Militar*, LXXII, no. 363 (setembro 1999), 6: "The great interest in the Amazon region is more than 300 years old. In this century, such interest has increased in the face of themes that have become universal, such as the environment, Indians, climate change, drug trafficking, and deforestation. Soon the problem of water scarcity will make the world covet the Amazon even more. ... 'Contrary to what Brazilians think, the Amazon is not their property, it belongs to all of us' (Al Gore, Vice-President of the U.S.); 'Brazil should accept a relative sovereignty over the Amazon' (François Mitterrand, President of France); 'The developed nations must extend the Rule of Law to what is common to everybody. The international environmental campaigns over the Amazon region have left the step of propaganda to begin an operational step, which definitely may include direct military intervention in the region' (John Major, U.K. Prime Minister)" (author's translation). The often-repeated Mitterrand statement refers to instructions he sent to Prime-Minister Rocard, in the Hague, to defend the idea that the countries with rainforests should have a "relative sovereignty" over such regions (*Diário do Congresso Nacional*, Seção II, 12 December 1989, 7774). Along the same line, see, Manuel Cambeses Júnior, "A Amazônia Clama por Socorro," in *Revista do Clube Militar*, LXXII no. 366 (dezembro 1999), 10-11.

12. Established in accordance with Art. 231 of the Brazilian Federal Constitution.

13. Jarbas Passarinho was a politician from Para, a state within the Amazon region, and a retired Army colonel. He was always identified with and enjoyed extraordinary respect from the military; thus he should be considered unbiased on this matter.

14. Manuel Cambeses Júnior, "A Amazônia Clama por Socorro," *op cit.*, 11.

15. President Fernando Henrique Cardoso, address at the closing of the VI Meeting of the Foreign Ministers of the Treaty of Amazonian Cooperation, Caracas, April 6, 2000. www.mre.gov.br, "Speeches."

16 For a good example of this military-bureaucratic vision, see the several editions of the Escola Superior de Guerra's *Manual Básico*. The Escola Superior de Guerra (ESG) performed an extraordinary role in providing the military with a philosophical and doctrinal framework that helped both to justify military intervention and to organize government statecraft. Although not everything that ESG prescribed (in its "Methodology for Political Action") could be followed, their

ideological framework was very influential in the organization of the state under the military.

17. The National Strategic Concept was a secret and ambitious plan encompassing every aspect of Brazil's national security. It defined the main objectives for defense, war hypotheses, and general guidelines for all branches with responsibility for defense matters, including the intelligence sector. In practice, though, it worked well only until the mid-1970s, when it provided extraordinary coordination among the security-related organizations. Afterwards, particularly when the urgency to defend against the communist-inspired subversion disappeared (with the defeat of the "subversive" organizations in Brazil), the plan lost its all-encompassing characteristic but remained the basic document for military planning.

18. Truly, the CEN had lost any practical effect long beforehand. After 1974, the Brazilian presidents, all from the military, did not approve other versions of such a concept. Hence, the SG/CSN's attention concentrated on initiatives, most of which were associated with conflicts over land ownership on the Brazilian border areas. Nevertheless, when Collor dismantled SADEN, he was clearly concerned with the political pyrotechnics of his gesture, not necessarily with its implications for the efficiency of government decision making. When the military complained about the lack of a CEN, they merely revealed the flaws in Collor's reform and eventually made him accountable for future security problems. As often happens in politics though, by creating awareness of the matter, this minor crisis led to a better definition of the responsibilities of the Secretariat for Strategic Affairs (a creation of Collor). Later on, these same concerns ignited the first initiative--within the Center for Strategic Studies/Secretariat for Strategic Affairs--for the issuing of a Defense Policy.

19. See, for example, Wendy Hunter, "The Brazilian Military after the Cold War: In Search of a Mission," paper presented at the Fourth Annual Workshop on Latin American Security Issues: Values and Perspectives in Latin American-U.S. Security Relations, May 25, 1993, Santa Fe, New Mexico, 12: "A new military command was created in 1992, with headquarters in Belém, Pará, which has under its jurisdiction the states of Pará, Amapá and part of Tocantins. Virtual consensus within the armed forces over the value of securing the Amazon is one of the main factors supporting an expansion of the military's mission in this area. Tied up with notions of sovereignty and nationalism, defending the resource-rich region is seen in heroic terms. In the military's view, the river makes the region naturally penetrable by foreign forces. The vastness and emptiness of the area heighten its permeability. For generations, army cadets have been taught that the

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occupation and development of the Amazon would be essential to maintaining its control.”

19. “Army Commander’s Guidelines,” Brazilian army homepage.

20. José Sarney was the first civilian president in Brazil after the end of military rule in 1985. President Tancredo Neves, who was elected in an indirect process, died before taking office; Vice-President José Sarney succeeded him. This fact brought a different aspect to the slow, delicate, and relatively controlled process of transition from authoritarian to civilian power in Brazil. Compared to what would be fair to expect after a transition from twenty years of authoritarian rule, the replacement of General João Figueiredo by a civilian brought little change in the decision-making structure. Particularly, the structure related to defense (*segurança nacional*) was left untouched and the military were able to preserve a great deal of political power. Perhaps—some sources say he did—Tancredo Neves had a plan to completely remodel the decision-making pattern and organizations; Sarney did not have such a plan and seemed comfortable with an existing structure in which the military still held considerable power. For example, six military personnel had ministerial status: the ministers of the Army, Navy, Air Force, the Joint Staff, the minister-chief of the Military Cabinet (which included the SG/CSN), and the minister-chief of the *Serviço Nacional de Informações* (an intelligence organization, mostly domestic oriented), which was always headed by army generals. The SG/CSN worked as a president’s advisory branch on strategic matters and was a body formed by military representatives from the three branches.

21. The region comprises an area of 1,200,000 km² in the following Brazilian states: Amazonas, Roraima, Para, and Amapa. It has 6,500 kilometers of borders with Colombia, Venezuela, French Guiana, Suriname, and Guyana.

22. “Projeto Calha Norte,” Relatório Final nr. 05, de 1996-CN.

23. A Parliamentary Investigation Committee (*Comissão Parlamentar de Inquérito*, or CPI) is a temporary committee called by the Congress to investigate specific facts considered to be of congressional interest. It has neither police power for investigation nor enforcement powers, yet, it sometimes proves capable of generating considerable political leverage. In this case, a CPI had been established to investigate criticisms from the Missionary Indian Council (*Conselho Indigenista Missionário*, or CIMI) of the *Calha Norte* Project, denouncing it as harmful to the Indian population in the region.

24. In June 1991, Pedro Paulo Leoni Ramos, Secretary for Strategic Affairs, stated before the Congress’s National Defense Committee that the *Calha Norte*

Project would be decelerated. The ambitious project had accomplished very little other than the modernization and installation of some military units; the civilian side of the project had not advanced. According to the military, the civilian ministries never really engaged in the project. For example, although facilities were built in the military units to accommodate civilians responsible for some programs, they did not occupy them and they did not implement their programs. Both the Minister of the Navy, Mário César Flores, and of the Air Force, Sócrates Monteiro, said that, because of the lack of civilian interest, the idea of a “development promoters nucleus” did not work and the project developed only its military side. See “Governo Desacelera o Calha Norte,” *O Globo* (7 June 1991), 7.

25. See “System for the Vigilance of Amazon (SIVAM): Background and Benefits,” www.raytheon.com.

Drug Trafficking, National Security, and the Environment in the Amazon Basin

ASTRID ARRARÁS AND EDUARDO A. GAMARRA

This paper seeks to examine the relationship between drug trafficking and environmental degradation in the Amazon Basin. Rather than recapitulating debates on the nature and definition of national security, we accept the assumption that drug trafficking is one of many factors that pose a serious threat to the stability and peace of the seven countries that share the Amazon. We focus on how the cultivation of illicit crops, the production of illegal drugs, and their eventual trafficking affect the environment in the Amazon region. We argue that these activities, which in turn generate additional illicit action, have indirectly and directly resulted in environmental degradation—including deforestation, soil erosion, pollution of rivers and streams—and have had an overall impact on the flora and fauna of the Amazon. We also argue that although the actions of those involved in the illicit drugs industry have a serious and deleterious impact on the environment, state attempts to combat traffickers have also had the unintended consequence of greater environmental degradation.

NATIONAL SECURITY AND DRUG TRAFFICKING

In the last two decades, nontraditional issues have come to be accepted as significant threats to national security throughout the Americas.¹ President Ronald Reagan's presidential directive in 1986 was one of the earliest official statements linking drug trafficking and national security. In subsequent years, and with the involvement of the armed forces in combating the "war on drugs," declarations on how drug trafficking constituted a serious threat to US national security abounded. With the collapse of the Soviet Union and the end of the Cold War, officials proclaimed, "drug trafficking is a graver threat to national sovereignty than communism ever was."² That drug traf-

ficking and related criminal activities undermined the young and incipient democracies in Latin America and the Caribbean became conventional wisdom.³ We accept these assumptions, in light of the obvious threats to democracy and national security in Colombia and elsewhere in the Andean region.

Drug trafficking viewed as a national security threat has been studied extensively. Case studies are abundant and detailed.⁴ Scholars and policy-makers have examined the transnational nature of the crime and the proliferation of multinational criminal enterprises. A variety of studies exist on the impact of drug trafficking on internal security dimensions, such as the proliferation of criminality and violence.⁵ In the main, most studies begin with the assumption that countries and their respective governments must both develop national strategies to combat drug trafficking and accept international efforts, generally led by the United States, aimed at curbing the illicit trade. This has led to proclamations that sovereignty is under siege by both traffickers and their transnational criminal enterprises and to efforts led by other countries or multilateral organizations. Latin American governments thus find themselves torn between their attempts to maintain control over vast national territories in order to combat the actions of the illicit drugs industry and international actions that demand an erosion of traditional notions of sovereignty.⁶

This dilemma is clearly illustrated by Venezuelan president Hugo Chávez's refusal to allow U.S. planes to pursue suspected traffickers over that country's airspace. President Chávez has claimed that Venezuela recognizes the transnational nature of the drug trafficking threat, but argues that a national approach to respond to the threat is preferable to the erosion of national sovereignty.

Despite the Venezuelan example, most countries of the Amazon region have pursued a parallel policy track that aims to please Washington. On one level, they have developed national drug policies that promise to stamp out the drug industry. On another level, they have accepted a high degree of international presence to help combat illicit drug activities. Peru and Colombia, for example, have actively participated in an air campaign that, with US radar and intelligence support, has been credited with shutting down the trafficking air bridge in the Andes.⁷

In a significant departure from these interpretations, other scholars warned that state responses to drug production and trafficking activities were a serious threat to the young democracies of Latin America.⁸ As mil-

itary and law enforcement institutions were given more leeway to conduct their counter-drug activities, instances of human rights violations also increased.⁹ Similar warnings were also issued about the course of the drug war in the United States, where critics charged that basic civil liberties were being surrendered so that law enforcement institutions could carry out their activities unaffected by constitutional considerations.¹⁰

In this essay, we examine both sides of this debate. In the next section, we explain how national and multinational actions against drug trafficking have had a negative impact on the environment. In addition, we take into account that the consequences of these actions have also affected democratic stability.

ENVIRONMENTAL DEGRADATION AND NATIONAL SECURITY

The literature on the environment and security is vast. During the last two decades, the debate has centered on whether a causal relationship exists between environmental and security issues. Drawing from the works of these authors, it is possible to identify two broad schools of thought. One group argues that there is a link between security and the environment.¹¹ In their view, environmental issues—including population, migration, degradation of land, forests, fisheries, fresh water resources and climate changes—affect security issues, such as political instability and violent conflict, at the national or international level. Therefore, security is no longer only about fighting forces or weaponry, but is increasingly related to environmental issues. Given the causal relationship between environmental issues and security, these authors call for a redefinition of security that would include environmental factors.

Studies on the nature and extent of this causal relationship differ widely. One scholar claims that environmental factors cause political instability.¹² He suggests, for example, that economic problems caused by deforestation in the highlands of Ethiopia provoked political instability that culminated in the overthrow of Emperor Haile Selassie in 1974. Others point out that environmental factors, while contributing to conflict, are not the sole causal variable.¹³ Through cross-regional case studies they found that environmental factors cannot be considered in isolation from the geographical, historical, socioeconomic, and cultural aspects.

A second group opposes any redefinition or expansion of the concept of security and rejects the causal relationship between environmental fac-

tors and security. In contrast to the previous group, these scholars argue that no evidence exists to substantiate a direct and causal linkage between environmental issues and security. A main advocate of this position maintains that the concept of national security should not include environmental issues because the source, scope, and type of threats from organized violence are different from those of the environment.¹⁴ Another scholar rejects the use of environmental factors to explain the occurrence of conflict.¹⁵ In his view, cross-regional studies have provided evidence that no direct causal relationship exists between environmental factors and the emergence of conflict. In the absence of a direct causal relationship, he proposes that future research on the existence of conflict should focus on multiple factors instead of simply examining environmental concerns.

Notwithstanding the relevance of these arguments, the debate has focused only on how environmental factors affect security issues. The existing literature has failed to examine an inverse causal relationship between these two variables. Does security affect the environment? If so, how? Does it have a direct or indirect impact on the environment? This essay analyzes how security issues may contribute to environmental degradation in the Amazon Basin in an effort to shed some light on these understudied questions.

Several Latin American cases illustrate how security issues have an impact on the environment. During the 1980s, armed conflict inflicted serious ecological damage on the Miskito coast of Nicaragua. Furthermore, as in Africa, political violence resulted in mass population displacements that, in turn, affected the environmental balance. Such is the case of Colombia, where the displaced population that has resulted from the civil war with the FARC and ELN guerrillas and with paramilitary forces has surpassed two million. The environmental impact in the population-receiving areas is noteworthy, especially as the new arrivals engage in the illegal cultivation of coca and poppy. These examples clearly demonstrate that future research should pay considerable attention to the understudied effects of security on the environment.

DRUGS, TRAFFICKERS, DRUG WARRIORS AND THE ENVIRONMENT

A small number of sources, from academic books and articles to the reports of nongovernmental organizations (NGOs), have examined how

security factors have a detrimental impact on the environment in Latin America.¹⁶ These writings all identify the following symptoms of environmental degradation: deforestation, soil erosion, and the pollution of air, soil, and waterways. However, they vary in their interpretation of which security factors cause these environmental problems. Some studies argue that drug trafficking activities have a negative effect on the environment.¹⁷ Unfortunately, their results have not been widely diffused. Another set of works points out that it is not drug trafficking, but state-directed counter-drug activities that produce environmental problems.¹⁸ The authors of these works evaluate the impact of the U.S.-assisted fight against drug traffickers with initiatives like aerial fumigation of coca and poppy fields. Many hardly go beyond the mere denunciation of cases of environmental degradation and usually fail to provide data drawn from scientific studies to prove how state activities affect the environment in a negative way.¹⁹

Unlike the existing literature, this essay argues that environmental degradation cannot be explained by focusing on just one security factor. Our argument is that environmental degradation has resulted both from the uncontrolled or unabated expansion of drug trafficking activities and from national and international efforts aimed at halting these illegal activities. Hence, we note a serious dilemma for law enforcement efforts. As they increase their efforts to control drug industry, they also affect the ecological balance of the region. In short, both the traffickers and those who pursue them have had directly or indirectly an impact on the environment in the Amazon Basin.²⁰

The activities of drug traffickers have caused ecological problems through the cultivation, production, and trafficking of drugs. In the cultivation phase of coca and poppies, deforestation and soil erosion have been significant in areas such as the Bolivian Chapare, the Guaviare and Caquetá area in Colombia, and the Upper Huallaga Valley in Peru. Moreover, the use of pesticides by coca and poppy growers has contaminated lakes and soils. In addition, these cultivated areas have become significant magnets for displaced populations throughout the Andes. The arrival of thousands of people in tropical or semi-tropical areas has resulted in severe environmental pressures. In the production phase, the use of chemical precursors in maceration pits and in cocaine and heroine producing laboratories has had an impact on rivers, soils, and the flora and fauna throughout the Amazon

region. Finally, in the trafficking stage, the clearing of forests for landing strips, for example, has resulted in deforestation.

State activities aimed at controlling drug trafficking have also had an indirect and negative impact on the environment in several countries that comprise the Amazon Basin. Latin American countries, assisted by the United States, have used biological and chemical methods to destroy coca and poppy fields in Colombia. NGOs and social movements have claimed that the biochemical war against drugs in Colombia has caused pollution of waterways and soils as well as destruction of crops and fauna.

PRINCIPAL THREATS TO THE ENVIRONMENT IN THE AMAZON BASIN

We have identified drug trafficking and counter-drug activities as two main security threats to the environment. In this section, we examine how these security threats have contributed to environmental degradation in the Amazon Basin. In analyzing this link, we describe the activities involved in each security area and explain their impact on the environment in the region.

TRAFFICKERS AND THE ENVIRONMENT IN THE AMAZON

Drug trafficking activities have a detrimental effect on the environment in the Amazon Basin.²¹ These activities include the cultivation, production, and transportation of drugs. With activity, drug traffickers have caused ecological problems like deforestation, soil erosion, and pollution of air, soil, and water. Moreover, these activities have attracted people looking for employment opportunities and placed additional pressure on the environment.

The cultivation of drug-yielding crops is a primordial activity of traffickers in the Amazon Basin. Without crops, traffickers are unable to obtain raw material for the production of drugs; this is the logic that has guided all counter-drug efforts in the region. Coca and opium poppy constitute the main illicit crops in the Amazon. As table 1 shows, the most important producers of coca are Bolivia, Colombia, and Peru. Colombia is the region's principal coca producer, with an estimated cultivation of 122,500 hectares in 1999. In comparison to 1998, coca cultivation in Colombia has increased by 20 percent.²² In contrast, Peru and Bolivia's coca production

has suffered dramatic declines since 1995. Colombia is also the main producer of opium poppy in the region. In 1999, Colombia's opium poppy cultivation increased by 23% to 7,500 hectares.²³

Table 1. Illicit Coca Cultivation, 1991-1999
(All figures in hectares)

	Bolivia	Colombia	Peru	Total
1999	21,800	122,500	38,700	183,000
1998	38,000	101,800	51,000	190,800
1997	45,800	79,500	68,800	194,100
1996	48,100	67,200	94,400	209,700
1995	48,600	50,900	115,300	214,800
1994	48,100	45,500	108,600	201,700
1993	47,200	39,700	108,800	195,700
1992	45,500	37,100	129,100	211,700
1991	47,900	37,500	120,800	206,240

Source: U.S. Department of State, International Narcotics Control Strategy Report, 1999.

Illicit crop cultivation has caused several environmental problems in the Amazon region. Deforestation is the most visible environmentally destructive effect of coca and poppy cultivation. Assessments of the deforestation process note that to cultivate coca, farmers in Bolivia, Colombia, and Peru have resorted to extensive slash and burn agriculture.²⁴ One estimate claimed that by the late 1980s, over 700,000 hectares of rainforest had been deforested as a result of coca crop production in Peru alone.²⁵ Another assessment claimed that in Colombia the cultivation of coca is responsible for the destruction of an estimated 240,000 hectares of tropical jungle in the Orinoco and Amazon Basins, and the cultivation of opium poppy has claimed approximately 60,000 to 100,000 hectares of Andean woodland.²⁶ Due to deforestation, the flora and fauna of the region has been severely affected.

Along with deforestation, coca and opium poppy cultivation contributes to soil erosion. Slash and burn techniques for planting coca erode the soil by eliminating the vegetative matter needed to stabilize or replenish the soils.²⁷ Coca plants also extract vital mineral deposits from the soil, thus destroying the possibility of rotating crops.²⁸ Opium poppy cultiva-

tion has a negative impact on the soil as well. Opium poppy plants produce soil degradation for an average of 1 to 3 years.²⁹ As soil erosion increases, growers leave the fields to prepare new plots and subsequently exacerbate the deforestation process.³⁰

Air, soil, and water pollution are also collateral negative effects of the cultivation of coca and opium poppy in the Amazon. Air pollution results from the growers' slash and burn techniques, before then cultivating coca and opium poppy.³¹ In addition, to maximize production, coca growers rely extensively on pesticides, weed killers, and fertilizers. The use of these chemicals translates into almost immediate soil and waterway contamination. In Peru's Upper Huallaga Valley, estimates suggested that coca growers use 1.5 million liters of paraquat to control pests.³² The extensive use of pesticides can contaminate and kill the flora and fauna of the region. In Peru and Colombia, the use of fertilizers by opium poppy growers provokes abnormal algae growth in rivers and consequently kills fish and aquatic plants.³³

Large inflows of migrants attracted by the employment opportunities in the coca and opium poppy cultivation places additional stress on the environment. In the Bolivian Chapare valley, beginning in the early 1970s, migrants from the highlands constantly arrived and cleared land for coca production. The severe economic crisis of the mid-1980s resulted in an additional large inflow of migrants who came mainly from the closing of mines and the collapse of the country's tin mining economy. Additional deforestation increased as the new arrivals also cleared land for the production of subsistence crops. As noted below, the promotion of alternative development also encouraged deforestation, as land was cleared for the production of a variety of legal crops. With a population of over 300,000 people in the Chapare, the valley became one of the most densely populated in the world by the end of the century.

While the most obvious impact of drug trafficking on the environment is related to the activities of farmers, perhaps the most serious overall consequence has to do with the actual production phase. A wide variety of precursor chemicals are utilized in the production and processing of drugs.³⁴ The majority of these chemicals are not produced in the Amazon basin countries, and most are legally imported from the United States and Europe and then diverted into illegal activities. According to law enforcement officers, the squeeze on precursor chemicals has converted their traf-

ficking and diversion into an activity as profitable as the production and trafficking of cocaine.³⁵

Environmental activists claim that the dumping of these chemicals onto the ground and into rivers has resulted in environmental degradation. Experts estimated that more than 100 million liters of toxic waste has been dumped into rivers both in Peru and Colombia.³⁶ The dumping of these chemicals decreases water *ph* levels, reduces oxygen availability, and eliminates several species of plant and animal life.³⁷ Experts have reported the existence of chemical pollution in the waterways of the Caquetá river basin in Colombia and the Upper Huallaga Valley in Peru.³⁸ Besides polluting the soil and water, the production of drugs in clandestine laboratories serves like a magnet for large numbers of migrants searching for employment. This movement of people further exacerbates the pressure on the environment.

Along with cultivation and production, the transportation of processed drugs produces environmental degradation. Once drugs are processed, the traffickers have to transport the final products, such as cocaine HCl, from the laboratories to be sold on the domestic and international markets.³⁹ To transport the final products, traffickers build air landing strips throughout the Amazon. In building them, traffickers cut trees and plants, and thereby contributing to deforestation in the region.

COUNTER-DRUG ACTIVITIES AND ENVIRONMENTAL DEGRADATION

Our analysis thus far has examined the impact of the illicit drug industry and its multiple facets on the environment in the Amazon basin. In this section, we attempt to summarize the charges and the evidence against counter-drug efforts. A sizeable body of work exists on the impact of counter-drug efforts on the environment, although most of the sources surveyed for this essay appear to rely primarily on anecdotal evidence or secondary information.⁴⁰ As we have noted previously, the bulk of this literature, produced by activist organizations, is not the product of systematic or scientific research. We are aware of a few studies that examine the impact of fumigation on soil, water, and crops, but these are not readily available or are restricted to development or law enforcement agencies.

The second part of our argument is simple: Drug interdiction in the Andean-Amazon nations has had a series of unintended consequences

that have resulted in environmental degradation. Drug interdiction ranges from efforts to eradicate and substitute crops to law enforcement and military operations. The fundamental objective of interdiction programs is to stop the production of drugs at their source and to prevent their trafficking and transshipment. We contend that the impact of drug interdiction activities on the environment is unintended and mostly indirect.⁴¹

Reducing the impact of interdiction activities on the environment is a concern of policymakers; drugs traffickers demonstrate no such concern. No hard evidence exists to support the notion that drug interdiction activities are designed to have a negative environmental impact. Research on the environmental effect of chemicals used for fumigation, such as glyphosate, tebuthiuron and 2,4-D, has been conducted, and it appears that law enforcement agencies are generally concerned about their potential impact.⁴² The same can be said about biological agents, such as the *Fusarium oxysporum* fungus or the malumbia worm, promoted as an alternative to the aforementioned chemicals.⁴³

The point is that whether by design or by collateral impact, the environmental damage on the Andean-Amazon region is important. For law enforcement agencies, the dilemma is serious. Counter-drug policy is intended to reduce the production and trafficking of drugs and the means available to pursue interdiction are fairly limited. If interdiction activities were more mindful of their environmental impact, then it is possible, as numerous law enforcement agents have claimed, that more drugs would be leaving source countries and have a concomitant impact on consumer markets.

ERADICATION, ALTERNATIVE DEVELOPMENT, AND THE ENVIRONMENT

The eradication of coca and, more recently, opium poppy crops, through the use of various methods, has been at the core of source-country efforts. All crop eradication efforts rest on the assumption that the destruction of illegal crops will automatically lead to a reduction in the availability of drugs in the consumer markets of the United States and elsewhere. Some studies argue that eradication campaigns resulting in thousands of hectares of eradicated coca and opium poppy fields have not led to significant reductions in the amount of cocaine produced and exported to the United States.⁴⁴

Table 2. Potential Cocaine Production, 1991-1999
(All figures in metric tons)

	Bolivia	Colombia	Peru	Total
1999	22,800	521,400	69,200	613,400
1998	52,900	437,600	95,600	586,100
1997	70,100	347,000	130,200	547,300
1996	75,100	302,900	174,700	522,700
1995	85,000	229,300	183,600	497,900
1994	89,800	35,800	165,300	290,900
1993	84,400	31,700	155,500	271,700
1992	80,300	29,600	223,900	333,900
1991	78,000	30,000	222,700	336,740

Source: U.S. Department of State, International Narcotics Control Strategy Report, 1999.

To understand the environmental impact of eradication, it is important to note the broad distinction between voluntary and forceful strategies employed throughout the Andes. In the former, used principally in Bolivia and Peru, law enforcement agencies rely on farmers to eradicate crops, often in exchange for a payment or promises of technical assistance for crop substitution, also known as alternative development programs. In the latter, employed in Bolivia, Peru, and Colombia, eradication is carried out without the consent of the farmers and by employing a variety of techniques that range from aerial spraying and fumigation to manual or plant-by-plant. The choice between voluntary and forceful, on the one hand, and the selection of the technique to be employed, on the other, has been at the core of the controversy over eradication. Eradication efforts have resulted in marches, road blockades, and occasional violence to thwart law enforcement eradication efforts.⁴⁵ Coca and opium poppy farmers in Colombia, for example, have established significant links to guerrilla groups and thus become a formidable political force that has resisted eradication measures.⁴⁶ The choice of eradication technique is related directly to the amount of political resistance met. So while voluntary and manual eradication was possible in Bolivia, it was never an option in Colombia.

Bolivia presents an interesting case study. In the late 1980s, the U.S. and Bolivia established specific zones where eradication would be forceful—

where violence could be used if necessary to prevent farmer resistance—and zones where voluntary means would be employed. Areas where coca production was deemed solely for the illegal drugs industry were identified, after a prolonged period of voluntary and compensated eradication, a legitimate target for forceful eradication.⁴⁷ Since mid-1995, only Bolivia's Yungas region is allowed to produce coca legally, and eradication there remains voluntary. The decision to move from voluntary to forceful eradication has not been without political cost, as farmers have organized into unions and mobilized to resist law enforcement efforts. All eradication has been carried out manually, owing to a prohibition against the use of chemical and biological agents. Manual eradication is a difficult and labor-intensive effort usually involving dozens, if not hundreds, of individuals removing single plants one at a time.⁴⁸

The political considerations are broader in scale in Colombia and, because that country has never had a tradition of coca cultivation and no legitimate claim exists for the production of the crop, voluntary eradication was never an option. Voluntary eradication was also not considered in Peru, where in the early part of the 1990s coca growers and guerrilla groups established links. Instead, both Colombia and Peru opted for forceful eradication that included the use of chemicals and biological agents. This method allows for the eradication of a much larger area in a shorter period of time, as aerial spraying can cover hundreds of hectares.

Eradication has an environmental impact; arguably, the manual extirpation or plant-by-plant removal may be the least harmful. Given the reservations about chemical and biological agents, it stands to reason that where eradication is done manually, the ecological impact may be less. Some have convincingly argued, however, that plant-by-plant eradication causes serious soil erosion such that “it is practically impossible to grow other crops on land where coca has been eradicated.”⁴⁹ In short, the forests might be better off with coca than without.

Large-scale eradication efforts using chemicals or biological agents have a significant long-term environmental impact. According to one source, aerial fumigation alone is said to cause chemical pollution “affecting humans, animals and vegetation, destroying the livelihood of peasant and indigenous communities, which leads to forced migration. The displaced move further into the rainforest accelerating the pace of deforestation.”⁵⁰

In Colombia, aerial spraying campaigns have been extremely controversial. Critics of the program charge that indiscriminate aerial spraying has a long-term impact on the soil where illicit crops are grown and has affected the fields of legal crops, killed the fish in streams, harmed farm animals, and affected the health of the populations of surrounding towns. According to one source, utilizing sixty-five airplanes and helicopters, the Colombian government has been able to fumigate 104,000 acres of coca and 20,000 acres of opium poppy. U.S. government and law enforcement officials, however, claim that aerial spraying is very accurate and that the charges are politically motivated.⁵¹ The point of controversy is the use of specific chemicals, such as glyphosate and others that do not easily dissolve in water and that, in the United States, carry warning labels recommending no direct human contact.

TWO PARADOXES OF ALTERNATIVE DEVELOPMENT PROGRAMS

In three decades of combating the production of illegal crops in the Andean Amazon, the only nonviolent interdiction policy has been the combination of efforts known collectively as alternative development. Alternative development generally involves a variety of activities including crop substitution; development of markets for legal agricultural products; industrialization of agricultural products; technical construction of a social infrastructure; and organizational development in the communities involved.⁵²

Alternative development, however, has generally been most associated with crop substitution involving the identification of alternative and profitable crops. From the earliest attempts at crop substitution in Bolivia in 1974 to the proposed efforts in Colombia in 2000, the principles are essentially the same: the best farming practices are established, vulnerability to plagues is tested, and the danger that new plants pose to environment is evaluated. Philosophically, the idea is that, combined with eradication and a heavy dose of law enforcement and military efforts, alternative development will provide the carrot to permanently wean farmers from coca. A successful alternative development effort will result in an overall net reduction in the availability of cocaine in the United States.

Funding for alternative development has been highest in Bolivia and Peru and has come primarily from the United States, although the United Nations Drug Control Program, the Organization of American States'

Consejo Interamericano Contra el Abuso de Drogas (CICAD), and the European Union have also provided funding. In the context of Colombia's civil war, the United States has been very hesitant to fund alternative development mainly because coca and opium poppy growing areas are in control of the FARC. Guerrilla control of these areas is such that, as currently conceived, any attempt at carrying out alternative development will require cooperation from the FARC. For Curtis Kamman, the U.S. ambassador to Colombia, the issue appeared to be less about the benefits of alternative development and more about who might take credit if it in fact worked.⁵³

Alternative development efforts have a mixed record, although recently international organizations and the United States have lavished extensive praise on the Bolivian and Peruvian programs. A number of NGOs and farmer organizations have argued that if more funding were available for alternative development it would be successful. Success for the U.S., however, means a net reduction in the production and export of cocaine and heroin. As we have already noted, this is not the case under any measure.

Two paradoxes result from alternative development. The first is illustrated by the following quote from a confidential World Bank (1996) document cited by Francisco Thoumi:

Alternative development provides infrastructure that facilitates coca production and makes life attractive in those regions so that farmers move there and plant more coca. In Bolivia, the development of schools and clinics in the Chapare may make it a more attractive region in which to settle, thereby discouraging outmigration to the Cochabamba highlands, the Santa Cruz area, or other regions that could absorb labor. Second, USAID and other agencies provide technical assistance such as training in how to use fertilizer or pesticides, which can be used by coca growers just as well as by legal farmers. Third, roads facilitate transport and (in the Chapare) also serve as traffickers' airstrips, help coca producers as well as other residents. The IDB financed Cochabamba-Santa Cruz highway, as well as smaller road networks in the Chapare financed by USAID, have probably facilitated movement of essential chemicals to cocaine processing sites as well as export of cocaine paste and base from the region. However, these roads could also facilitate greater enforcement/eradication efforts.⁵⁴

With the success of eradication in Bolivia and the concentration of production in Colombia, this 1996 scenario is now somewhat less dramat-

ic. Such a situation may describe, however, the future of Colombia's illicit cultivation areas. The quote illustrates the unintended consequences of a policy that has a broad base of political support because no other non-lethal alternative appears to exist. Moreover, this is precisely the area in which multilateral organizations and European governments have pledged to support the well-financed *Plan Colombia*.⁵⁵

A second paradox is that the soils in which alternative development programs in the Amazon basin are being carried out are extremely fragile and vulnerable and are not apt for agricultural or livestock development. Because the huge migration of people into these virgin tropical forests and the cultivation of illicit crops resulted in primary forest destruction, soils are not capable of sustaining long-term agricultural development. Due to deforestation and soil erosion, only two small zones in the entire Chapare are apt for agricultural development.⁵⁶ Hence, even if alternative development receives a massive amount of funding, its success in coca and opium poppy growing areas is likely to be short term. Environmental degradation is likely to be exacerbated as long as governments and multilateral institutions cling to the notion that alternative development must be carried out in the illicit crop producing areas and that its success must be linked directly to measurable reductions in the availability of cocaine in the United States.

LAW ENFORCEMENT AND MILITARY ACTIVITIES

Counter-drug law enforcement and military activities in the Amazon basin have increased over the years to meet the expansion of the drug industry. Depending on the country in question, involvement by police and military institutions in the counter-drug effort varies according to the size of the threat. An important consequence of their involvement has been a confusion of roles and missions as law enforcement agencies received extensive military training and conducted actions generally reserved for the armed forces. At the same time, military institutions engaged in internal security activities generally reserved for law enforcement.⁵⁷

This overall expansion of military and law enforcement involvement has responded fundamentally to the explosion of drug production activities in the Amazon basin. Still, no matter how many security agencies

become involved in the anti drug crusade, the territorial extension of the Amazon is so vast that any possibility of ever controlling the entire forest is illusory at best. More important, a perverse relationship exists between expanded law enforcement and military actions, and the territorial expansion of the drug industry. Generally referred to as the “balloon effect,” when interdiction activities manage to shut down an operation in any given location, coca or poppy fields, drug labs, and landing strips move farther and farther into the Amazon rainforest. Hence, the drug production phenomena, that was once limited to specific areas in the Andean-Amazon countries, now affects a much wider territory, making the threat more difficult to control.

An example is the reported recent trend toward increased drug production in Brazil as a result of interdiction activities in Bolivia, Colombia, and Peru. According to interviews with Bolivian, Brazilian, and Peruvian law enforcement officials, the success of Bolivia’s *Plan Dignidad* in shutting down coca and cocaine production in the Chapare Valley led to the establishment of new trafficking routes that span from Southern Peru, to the entire Altiplano, the Pando department in northern Bolivia, and the state of Acre in Brazil. At the same time, these new trafficking routes have also led to the first significant report of drug labs in Brazil, where greater access to precursor chemicals is possible.⁵⁸ The production of cocaine in Brazil is still incipient. With law enforcement successes in Bolivia and Peru, however, it may logically follow that in the short to medium term Brazil could become a major producer of hydrochloride.

Another significant trend in the region over the past three years is the concentration of coca production in Colombia and its significant reduction in Bolivia and Peru. As Table 1 and 2 reveal, while Bolivia and Peru have reduced their share of coca production, more cocaine is being produced in the Andes today than at any previous time. More law enforcement and military resources are being used today to combat drug trafficking than at any time in the history of the region. Despite these efforts, Colombia’s drug entrepreneurs have effectively developed a one-stop station for the entire industry. They no longer require Bolivian or Peruvian peasants to produce coca and coca paste; they no longer have to risk flights over and across the Amazon. They are now able to ship the drug more efficiently than before. The figures speak for themselves: In 1991, Colombian potential cocaine production was 30,000 metric tons. In

1999, potential cocaine production was 521,400 metric tons. Equally impressive are the figures for potential coca leaf production. In 1991, the U.S. government estimate for potential Colombian coca production was 37,500 hectares. In 1999, the estimate had grown to 122,500 hectares. No studies have adequately explored the reasons for the concentration of production in Colombia. Suffice it to say that the production of coca has been facilitated in some measure by the highly protracted nature of conflict in that country.

As law enforcement and military activities expand, and as the balloon effect spirals throughout the Amazon, the environmental impact is notable. Interdiction efforts have led to the establishment of military and police bases in the major drug producing areas. Just as traffickers require infrastructure to move their illicit goods, the movement of personnel into these areas involves the construction of new roads and airstrips. Large quantities of military supplies also must be moved into these areas, using these same roads and airstrips. Military and police actions often involve cutting trails through thick forest to reach isolated labs. Officers report that the destruction of cocaine labs sometimes also involves dumping chemicals into the soil or into rivers, burning down the operation, and generally making sure the lab cannot be functional again.⁵⁹ Finally, the presence of a large military or police base also results in the growth of population centers adjacent to these headquarters. All of these trends have contributed to deforestation and other forms of environmental degradation.

CONCLUSION

In this essay, we have sought to add to the existing literature on national security and the environment. First, we point out that this literature has overlooked the question of whether some aspects of national security protection have had a detrimental effect on the environment. In trying to fill this gap, we argue that elements of national security, such as drug trafficking and related activities, can cause environmental degradation. Second, we recognize a small and incipient literature on how security factors produce environmental degradation. These works usually explain environmental degradation by emphasizing either drug trafficking activities or counter-drug activities. In contrast, we put forth the thesis that environmental degradation has resulted both from the uncontrolled or unabated

expansion of drug trafficking activities and from national and international efforts aimed at halting these illegal activities.

Using the Amazon basin as a focal point, we examine how the activities by traffickers and states cause environmental problems. Traffickers' cultivation, production, and transportation of drugs has resulted in deforestation, soil erosion, as well as air, soil, and water pollution. Alternative development and counter-drug law enforcement and military activities have had similar negative effects on the environment.

If the pattern of drug trafficking and related factors continues, the problem of environmental degradation in the Amazon Basin will increase. Since we are not experts in environmental matters, we are not in the position to predict rates of degradation or to even suggest how much of the forest has already been compromised. However, as analysts of a specific security issue, we are aware that the evolution of the drug industry and its impact on the environment will affect the way in which all countries of the region deal with security concerns. In this sense, we are suggesting that the problems analyzed in this paper transcend the boundaries of traditional nation-state security definitions. There therefore needs to be a regional or even hemispheric approach to the problem.

We have also noted that the problem is twofold: Drug trafficking has an impact and so do attempts to control it. Apart from potential critiques of law enforcement and military interdiction, it is clear to us that national attempts have failed because traffickers have no sovereignty concerns. In other words, country law enforcement and military efforts have been notoriously weak in establishing a collaborative regional focus. A national police force, for example, has no capacity to pursue a group of traffickers across the border. National borders do not present obstacles to traffickers. Drug trafficking and its related activities thus defy classic notions of the nation-state.

We also recognize that law enforcement and military efforts have serious coordination problems both at the domestic and regional levels. Given the issues of nationalism involved, we do not expect countries to engage in any greater international cooperation. Yet, in our view, a regional approach would be the best way to deal with environmental problems in the Amazon. Such a regional effort must contain at least two elements. First, it should focus on finding ways to prevent environmental degradation and to repair the damage already done. Second, a regional effort must coordinate law enforcement and military activities in a way that would at

a minimum avoid further ecological damage. Through joint initiative, countries should be able to prevent further damage to the flora and fauna of the Amazon.

NOTES

1. By nontraditional threats to national security, we mean drug trafficking, environmental scarcities and degradation, migration flows, and the like. In our view, traditional threats to national security, including interstate disputes, regional and sub-regional balances, are still an important dimension of security concerns in the hemisphere. With the end of the Cold War, these concerns were subsumed or relegated to the overwhelming focus on nontraditional threats. In this paper, we have opted to refer to *drug* trafficking as a more precise term than *narcotics* trafficking. Cocaine, for example, is not a narcotic, but a stimulant.

2. General George Joulwan, former Commander in Chief of the US Southern Command, comments delivered at the XV Annual Journalist and Editors Workshop, Miami, Florida April 1997.

3. See, the ONDCP, *US National Drug Control Strategy*; Michael C. Desch, Jorge I. Domínguez, and Andrés Serbin, eds., *From Pirates to Drug Lords: The Post-Cold War Caribbean Security Environment* (Albany: State University of New York Press, 1998); Jorge Domínguez, ed., *International Security and Democracy: Latin America and the Caribbean in the Post Cold War Era* (Pittsburgh: University of Pittsburgh Press, 1998).

4. Bruce Michael Bagley and William O. Walker III, eds., *Drug Trafficking in the Americas* (Coral Gables, Fla: University of Miami North-South Center, 1994); Tom Farer, ed., *Transnational Crime in the Americas* (New York: Routledge, 1999); and Peter H. Smith, ed., *Drug Policy in the Americas: Strategies for Supply Reductions* (Boulder: Westview Press, 1992).

5. For example, see A. Douglas Kincaid and Eduardo A. Gamarra, "Disorderly Democracy: Redefining Public Security in Latin America," in Roberto P. Korzeniewicz and William C. Smith, eds., *Latin America in the World Economy* (Westport, Conn.; Greenwood Press, 1996).

6. Eva Bertram, Morris Blachman, Peter Andreas and Kenneth Sharpe, eds., *Drug War Politics: The Price of Denial*, (Berkeley: University of California Press, 1996); and Tom Farer, ed., *Beyond Sovereignty: Collectively Defending Democracy in the Americas* (Baltimore: Johns Hopkins University Press, 1996)

7. Author's interviews with Colombian and Peruvian Security officers, US South Com, Miami, July 1999.

8. See, Bruce Michael Bagley, *Myths of Militarization: The Role of the Military in the War on Drugs in the Americas*, (Miami: North South Center, 1991); Patrick Clawson and Rennselaer Lee, *The Andean Cocaine Industry* (New York: St. Martin's Press, 1998); and, Eduardo A. Gamarra, *Entre la Droga y la Democracia* (La Paz: ILDIS, 1994).

9. Human Rights Watch Americas.

10. See, for example, Arnold S. Trebach, *The Great Drug War* (New York: Macmillan Press, 1987); Dan Baum, *Smoke and Mirrors: The War on Drugs and the Politics of Failure* (Boston: Little Brown, 1996); and, Douglas Jusak, *Drugs and Rights* (New York: Cambridge University Press, 1992).

11. Peter Gleick, "Environment and Security: The Clear Connections," *Bulletin of the Atomic Scientists* (April 1991) 17-21; Thomas F. Homer-Dixon, "On the Threshold: Links among Environmental Changes as Causes of Acute Conflict," *International Security* 16: 2 (Fall 1991), 76-116, and "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security* 16: 1 (Summer 1994), 5-40; Thomas Homer-Dixon and Jessica Blitt, eds., *Ecoviolence: Environment, Population and Security* (Lanham, Maryland: Rowland and Littlefield Publishers, 1998); Norman Myers, *Ultimate Security: The Environmental Basis of Political Stability* (W.W. Norton and Company, 1993); Jessica Tuchman Matthews, "Redefining Security," *Foreign Affairs* (Spring 1989), 163-177.

12. Norman Myers, *Ultimate Security: The Environmental Basis of Political Stability* (W.W. Norton and Company, 1993).

13. Thomas Homer-Dixon and Jessica Blitt, eds., *Ecoviolence: Environment, Population and Security*.

14. Daniel Deudney, "Environment and Security: Muddled Thinking," *Bulletin of the Atomic Scientists* (April 1991) 22-28.

15. Marc A. Levy, "Is the Environment a National Security Issue?" *International Security* 20: 2 (Fall 1995), 35-62.

16. Elena Alvarez, "Coca Production in Peru," in Peter H. Smith, ed., *Drug Policy in the Americas* (Boulder: Westview Press, 1992), 72-87; E. Bedoya, *Las causas de la deforestación en la amazonía peruana: un problema estructural* (Binghampton, N.Y.: Clark University and Institute for Development Anthropology, 1990); Belén Boville Luca de Tena, *La guerra de la cocaína: drogas, geopolítica y medio ambiente* (Madrid: Editorial Debate, 2000); M. Dourojeanni, "Impactos ambientales del cultivo de coca y la producción de cocaína en la amazonía peruana," in F. León and R. Castro de la Mata, eds., *Pasta básica de cocaína* (Lima: Centro de Información y

Educación para la Prevención del Abuso de Drogas, 1989); Martin Jelsma “The Vicious Circle: the chemical spraying of drug crops in Colombia,” deposition at the Permanent People’s Tribunal on Global Corporations and Human Wrongs at the University of Warwick, March 22–25, 2000; Elsa Nivia and Rachel Massey, “Casualties of the ‘War on Drugs’: Traditional farms destroyed with herbicides,” *Global Pesticide Campaigner* 9: 2 (August 1999); Ricardo Vargas Meza, *Fumigación y conflicto: política de anti drogas y deslegitimación del estado en Colombia* (Bogota: Tercer Mundo Editores, 1999).

17. Trade and Environment Database (TED), USAID and the UN have conducted studies on the effects of drug studies.

18. See for example, Martin Jelsma, “The Vicious Circle: the Chemical Spraying of Drug Crops in Colombia.”

19. For an example of this view, see Belén Boville Luca de Tena, *La guerra de la cocaína: drogas, geopolítica y medio ambiente* (Barcelona: A&M Gráfico, 2000).

20. As part of the Amazon Basin, we include a vast geographic territory shared by Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela.

21. Most studies have paid attention to the impact of drug trafficking on the economy, polity and society of Latin American countries. For example, see Francisco E. Thoumi, *Political Economy and Illegal Drugs in Colombia* (Boulder: Lynne Rienner Publishers, 1995).

22. Coca growers have been steadily moving their cultivation to areas controlled by the main guerrilla organization, the Fuerzas Armadas Revolucionarias de Colombia (FARC.) Through this displacement, coca growers seek to protect their coca fields from the government’s eradication effort.

23. U.S. Department of State. Bureau for International Narcotics and Law Enforcement Affairs. “International Narcotics Control Strategy Report, 1999.”

24. “Peru, Coca Trade, and Environment,” Trade and Environment Database, Case number 437, and “Cocaine Conflict and the Environment,” Trade and Environment Database, Case number 70.

25. M. Dourojeanni, “Impactos ambientales del cultivo de coca y la producción de cocaína en la amazonía peruana,” in F. León and R. Castro de la Mata, eds., *Pasta básica de cocaína* (Lima: Centro de Información y Educación para la Prevención del Abuso de Drogas, 1989). Cited in Elena Alvarez, “Coca Production in Peru,” in Peter H. Smith, ed., *Drug Policy in the Americas* (Boulder: Westview Press, 1992), 72–87.

26. Martin Jelsma “The Vicious Circle: the chemical spraying of drug crops in Colombia”; and Juan Antonio Zomoza Bonilla, “Erradicación de cultivos ilícitos

en Colombia: Intervención de la dinámica conflictiva,” paper presented at the National Environmental Conference “Ambiente para la Paz,” Colombia, July 1998.

27. “Coca Trade and Land Use Changes,” Trade and Environment Database, Case number 16.

28. “Peru, Coca Trade and the Environment,” Trade and Environment Database, Case number 437.

29. Roberto Chiarella, “O Trafico Ilícito de Drogas e a Amazônia.” Unpublished manuscript.

30. “Coca Trade and Land Use Changes,” Trade and Environment Database, Case number 16.

31. Ibid., and “Cocaine Conflict and the Environment,” Trade and Environment Database, Case number 70.

32. “Coca Trade and Land Use Changes,” Trade and Environment Database, Case number 16.

33. “Cocaine Conflict and the Environment,” Trade and Environment Database, Case number 70.

34. Precursor chemicals include ammonia, lime, calcium carbide, ethylsodium bicarbonate, kerosene or gasoline, hydrochloric acid, sulfuric acid, potassium permanganate, and acetone. With increasing controls over precursor chemicals, traffickers have “substituted” other chemicals and products in the process. In the mid-1990s, for example, the appearance of black cocaine was directly related to the use of cement in the production process. “Peru, Coca Trade and the Environment,” Trade and Environment Database, Case number 437.

35. Author interviews with law enforcement officials from Bolivia, Peru, Brazil, and Colombia (Miami, July 1999).

36. B. Marcelo, “Víctimas del narcotráfico,” *Medio Ambiente* 23 (1987), 2, 4. Cited in Elena Alvarez, “Coca Production in Peru,” in Peter H. Smith, ed., *Drug Policy in the Americas* (Boulder: Westview Press, 1992), 72-87; and “Cocaine Conflict and the Environment,” Trade and Environment Database, Case number 70.

37. “Coca Trade and Land Use Changes,” Trade and Environment Database, Case number 16; “Peru, Coca Trade and the Environment,” Trade and Environment Database, Case number 437.

38. B. Marcelo, “Víctimas del narcotráfico,” *Medio Ambiente* 23 (1987), 2, 4. Cited in Elena Alvarez, “Coca Production in Peru,” in Peter H. Smith, ed., *Drug Policy in the Americas*; and, “Cocaine Conflict and the Environment,” Trade and

Environment Database, Case number 70. According to an anonymous source, the U.S. Environmental Protection Agency (EPA) maintains a constant monitoring station on Colombian rivers to determine the presence of precursor chemicals. The information becomes highly valuable to law enforcement, as the presence of drug laboratories can be detected.

39. Traffickers also need to fly in raw materials to processing plants and laboratories. "Coca Trade and Land Use Changes," Trade and Environment Database, Case number 16.

40. See for example, Jim Hogshire, "Biological Roulette: The Drug War's Fungal Solution?" *Covert Action Quarterly* (Spring 1998); Martin Jelsma, "The Vicious Circle: The Chemical Spraying of Drugs in Colombia"; Elsa Nivia and Rachel Massey, "Casualties of the 'War on Drugs.'"

41. Some authors have argued that drug interdiction activities have had a direct impact on the environment. See for example, Ricardo Vargas Meza, *Fumigación y conflicto*.

42. Martin Jelsma, "The Vicious Circle;" and Elsa Nivia and Rachel Massey, "Casualties of the 'War on Drugs.'"

43. Jim Hogshire, "Biological Roulette: The Drug War's Fungal Solution?"

44. Francisco E. Thoumi, *Political Economy and Illegal Drugs in Colombia* (Boulder: Lynne Rienner Publishers, 1995), and Elsa Nivia and Rachel Massey, "Casualties of the 'War on Drugs.'"

45. Elsa Nivia and Rachel Massey, "Casualties of the 'War on Drugs.'"

46. U.S. Department of Justice. "Drug Enforcement Administration (DEA) DEA Congressional Testimony," statement by William E. Ledwith, Chief of International Operations, before the House Government Reform Committee, Subcommittee on Criminal Justice, Drug Policy, and Human Resources, February 15, 2000.

47. Between 1987 and 1999, with U.S. funds, the Bolivian government paid farmers between \$1,500 and \$2,500 per hectare of coca crops eradicated voluntarily. Under the country's current "*Plan Dignidad*," payments to farmers will be completely phased out by the year 2002.

48. In 1997, the so-called "*Plan Dignidad*" promised to extricate Bolivia from the coca-cocaine cycle by the year 2002. As of mid 2000, Bolivia had eradicated all but 20,000 hectares. The eradication program involved hundreds of soldiers and police officers who were employed in yanking each plant from the ground.

49. Corinne Schmidt, "Coca Fields: Better than Devastation?" *AFP Reporter* 17: 2.

50. Martin Jelsma, “The Chemical Spraying of Drug Crops in Colombia.”
51. Larry Rohter, “To Colombians, Drug War is a Toxic Foe,” *The New York Times*, May 1, 2000. See also Elsa Nivia and Rachel Massey, “Casualties of the War on Drugs.”
52. For an in-depth discussion of alternative development, see Clark Joel, “Tamaño y efecto macroeconómico de la industria de la coca/cocaína en la economía boliviana,” in Eduardo A. Gamarra and Francisco Thoumi, eds., *Drogas Ilícitas en Bolivia* (La Paz: UNDP, 1999).
53. John Otis, “Colombian guerrillas unlikely allies in war on drugs,” *The Houston Chronicle*, February 14, 1999. We are indebted to Carl Cira, former director of USAID/Colombia, for sharing his insights with us on this issue.
54. Cited in Francisco Thoumi, *Illegal Drugs, Economy and Society in the Andes* (Washington D.C.: Woodrow Wilson Center Press, Forthcoming).
55. The Spanish government joined other European governments and multi-lateral organizations on July 7, 2000, pledging a combined alternative development package of \$871 million for Colombia.
56. Interview with Osvaldo Antezana, Minister of Agriculture of Bolivia, February 2000.
57. Kincaid and Gamarra; see also Francisco Leal on Colombia.
58. Author interviews, Miami, July 1999.
59. Interviews with Bolivian and Peruvian law enforcement officials, Miami, July 1999.

SIVAM: Challenges to the Effectiveness of Brazil's Monitoring Project for the Amazon¹

THOMAZ GUEDES DA COSTA

For the past two decades, significant political actors, opinion makers, and the general public, both in Brazil and overseas, have turned their attention to the Amazon region. They are primarily concerned with environmental protection of the area as it becomes the backdrop for uncertain social and economic development, exploration of natural resources, and criminal activities with transnational implications. Reacting to internal and external calls for more efficient governance, some agencies in the Brazilian government are making the argument that SIVAM, the System for Surveillance of the Amazon that Brazil is implementing, will play a key role in supporting the coordination of federal policies. Such policy coordination is aimed at improving technical rationality and accommodating political interests through the expansion of available regional data and information.

SIVAM is a complex combination of fixed, mobile, and airborne radar, sensors, telecommunication networks, and computerized data collection and management structures, conceived in Brazil and being developed in association with foreign technology and hardware suppliers. The relevant authorities, particularly in the defense sector, are promising to provide Brazilian government and society with the means to monitor human movements and activities and their impact on the region; to increase knowledge about the environment, biodiversity, climate, and geophysical features; and to attend to the needs of local communities, businesses, and government to protect the environment while promoting local economic development. The first sketchy conclusions about SIVAM's effectiveness will be drawn as parts of the system become operational, are tested, and acquire full capability.

The SIVAM program was born in a politically powerful crib. Its early history saw many controversies and much ambiguity—harsh battles over

contracts, accusations of kickbacks, and bureaucratic disputes marred its technical conception and purposes. From its inception, national security concerns of the national executive, first at the defunct secretariat for strategic affairs and later the Ministry of Defense, have politically controlled the initiative. In the Brazilian Congress, a large number of representatives from the Amazon states were optimistic about the project and the interest it showed in favoring their region. The Brazilian Air Force (FAB) has kept exclusive management over SIVAM and initial expenditures were made for the purchase of radar planes and ground attackers.² This created the image that SIVAM is mainly a military air defense project with only coincidental environmental protection purposes, even though the proposals for financing from international “green money” lenders were based on the promise that the data generated would be valuable for environmental protection. However, even the effort of the Brazilian press to expose wrong-doing and the intervention of the Brazilian Senate in investigating controversies in the early stages of contracting purchases—including international disputes among suppliers; conflicts of interest among foreign partners, local contractors, and government figures; and accusations of foreign control of technological development, among others—did not dispel the cloud of “shady deals” hanging over the program.³ Further compounding the difficulties, the first contracts and activities suffered delays due to unforeseen bureaucratic and legal procedures and congressional debates. Nevertheless, with strong presidential support, SIVAM moved ahead at an estimated cost of US\$1,395 billion, plus interest, with twenty-year financing.

I am aware of how difficult it would be to evaluate the organizational effectiveness of the SIVAM system at this point. Such an effort would have to incorporate the criteria adopted by those developing the system, the organizational goals that were set, the products desired to satisfy clients (both within and outside the federal government), the ability to shape the system as it evolves and to learn from feedback, and many other technical, economic, ethical, and ideological issues and variables.⁴ The purpose of discussing the effectiveness of SIVAM at the outset of the program is to help promote the expected performance of the system itself, to defend the point that an assessment of the project cannot be developed under the closed system in which it has been conceived, and to suggest an increase in the program’s interaction and information exchange with outside con-

sumers and sectors other than those of law enforcement and air defense in the region.

Although future analysts will be able to assess the program and review the issues surrounding its political installation, this article aims only at creating awareness of the need for evaluation. I also argue that before the system becomes fully operational and interacts with other subsystems in Brazilian politics and public policy making, any cost-benefit evaluation of the system as a whole will have only limited validity. It is impossible for an outsider to elaborate extensively on the program because current public information regarding SIVAM is limited at this point. This makes it difficult to assess independently whether certain assumptions adopted were valid or to estimate how the system will operationally sustain the promises being made by authorities as SIVAM moves through a harsh environment of bureaucratic and political storms. But one ought to start asking questions about transparency and the criteria for both the managerial and organizational effectiveness of SIVAM in order to account for the Brazilian government's efforts relating to security, the environment, and social objectives and the intellectual and financial expenses now being committed.

Respecting these analytical limitations, as SIVAM enters its early development phase, I suggest that analysis of its effectiveness will have to take into consideration at least the central arguments that sustain the promises about the products and end results of the system as it comes into full operation. Therefore, I first address the issue of the program *as an instrument for Brazilian national defense*. SIVAM is primarily an air traffic control setup to support air reconnaissance and interdiction. Yet, its formulation differs remarkably from the political approach adopted by proponents of the Integrated System for Air Traffic Control and Air Defense (SISDACTA) in the 1970s and 1980s, which resulted in efficient air traffic surveillance in southern Brazil. I then turn to the "green" (environmental) argument that authorities use to justify the program and comment on the unclear issue of SIVAM as a *knowledge generating mechanism for economic development in and environmental preservation of the Amazon region in Brazil*.

SECURING SOVEREIGNTY

In historical perspective, SIVAM is a continuation, under a different conceptualization, of SISDACTA, the four integrated air traffic control sys-

tems that are in operation in most of the country except the Brazilian Amazon and Northeast regions. One of the key arguments for SIVAM is that the system will enable more effective presence in and control of the Brazilian state over the Amazon region; information will be disseminated within the government and the authorities can then take action more efficiently.

Over the past five years, a new set of expectations for air traffic control and data generation in the Amazon have been hammered into the general public as face value truths of SIVAM's coming technical and managerial successes. At a seminar in Brasília, Ambassador Ronaldo Sardenberg, then Minister for Special Projects, pointed out that SIVAM addresses many political aspects of national interest such as "a) the intense application of high technology that will change the face of the Amazon; b) the integration of government in the federal, state, and municipal levels, involving Ministries and many other specific programs such as the *Calha Norte* [the North Arch, a support effort to the border area from the Atlantic to Colombia], the Economic Ecological Zoning and the Border Area Assistance to Municipalities; c) the establishment of a very broad agenda for the region, from the integration of the Defense Ministry, the Ministry for Environment, the Ministry of Education, and the Ministry for Special Projects; d) and the generation of new products as, for example, the addition of the Pro-Amazonia to the Promotec [programs to increase police presence in the region] that could generate results of dimension superior to that of SIVAM."⁵ At the same seminar, the then-minister of environment, José Sarney Filho, added that the relevance of the role envisioned for the system is to permit air traffic control to aid in environmental protection, territorial defense, and curbing criminal activities. As one would expect, these two messages are representative of the aspirations for positive results from the project; therefore, these aspirations must also serve as a guiding light for future evaluation criteria.

The interest in implementing SIVAM on grounds of national security arises primarily from the notion that Brazil's sovereignty is at risk from foreign covetousness (*cobiça*) of the Amazon territory, illegal crossborder activities, and other potential consequences of conflicts currently observed in neighboring countries. For national security purposes, this overall argument for sovereign "command and control" is the cornerstone for mobilizing internal political support to promote funding for SIVAM within the

federal government and across the Brazilian political spectrum. The official logic for SIVAM that develops from these three lines of threat also originated in sources that are perceived as relevant political actors abroad. The most salient recent manifestation came from the commander of the Brazilian navy as national debate heightened about the need for armed forces weapons' modernization at the turn of the century, and from Deputy José Genoino, a member of the opposition that shares concerns about foreign threats to the Amazon.⁶

There is a popular notion that foreign powers covet the Brazilian Amazon and are interested in turning it into an internationalized territory. Since this argument is based on a threat perception that is built on a subjective assessment of information, one must consider that this perception could be mistaken. There may not be any international political actors interested in challenging Brazil's presence in the Amazon or, in fact, in making offensive moves against Brazil there.⁷ Brazilian diplomatic and public affairs policy could probably create other campaigns to strengthen the image overseas of a Brazilian state as a good steward of the Amazon and a determined defender of its possession and, therefore, neutralize any misperceptions abroad.

Nevertheless, the idea that foreigners covet the Amazon has its roots in the interpretation of some events in nineteenth-century Brazilian history, when agents of several foreign powers had ideas regarding control of the potential riches hidden under the tropical jungle cover. This view continued into the twentieth century with the questioning, by individuals in political office and agents of foreign governments, of Brazil's capacity and will to retain, develop, and protect its territory in the region. This perception of foreign interest in the Amazon gathers strength from more recent arguments, including those made by prominent political figures, that there are forces or conspiracies wanting to internationalize Brazilian territory there. References to the past feed present arguments. Periodically new fears are raised as the issue reappears on the agenda of strategic debates in many circles, especially in more nationalistic ones like the *Escola Superior de Guerra* (ESG) and its alumni associations throughout the country, or the Military Club, a social club of retired military officers in Rio de Janeiro.

The United States is considered a key conspirator. This line of reasoning identifies a U.S. Navy Captain Mathew Fawry's suggestion to the secretary of state about forming a sovereign country in the northern Amazon

as the first overt manifestation of U.S. interest in controlling the region. Between 1989 and 1992, many indirect comments of U.S. officials, and direct ones, such as those of then Senator Al Gore challenging Brazil's sovereignty in the region, have strengthened the perception of threat. Those who question the conspiracy theory are passionately rebuked by its defenders and are accused of being unpatriotic, "innocent-minded" individuals manipulated by imperialists or of simply selling out the country.

As pollution and environmental destruction and degradation increase in many other places, the association of these trends with the increasing demand for natural resources sharpens the suspicion of many Brazilians that resources in the Amazon will be sought after by foreign powers. The Amazon Basin retains approximately 20 percent of the fresh water available in the world. As the distribution of and access to potable water increasingly challenge public managers in many areas of the world, the notion that the water available in the Amazon is valuable (could it be siphoned out?) becomes commonly accepted among those who perceive a challenge coming from foreign powers. The value of the biological system is sustained by the argument that the jungle holds secret marvels that will cure diseases, provide the key to human youthfulness, and offer many other benefits as scientific progress is made. Following this school of thought, foreign scientists, firms, and governments undertake illegal research and gather unauthorized species for collections. This research and collections are kept abroad in an effort to develop new products, secure intellectual property rights, and otherwise use the natural resources of the Brazilian jungle. (Actually, the issue of scientific discovery may justify legitimate concerns in Brazil, as voiced by local populations, scientists, and businessmen, and may not be just a political banner used by government authorities or hysterical nationalistic voices.).

A broad spectrum of increasing illicit activity across permeable borders and sparsely populated areas explains growing concerns regarding governance among the local populations, government authorities, and others interested in the region. Pressures are increasing as a result of drug trafficking expanding from neighboring Colombia, pedestrian contraband across certain border passages, and sophisticated smuggling of minerals and bio-assets. This transnational feature of criminal activities increases with the continued difficulties the Brazilian state has faced in fully exercising its presence in and authority over the region, be it for the protection of its

citizens, the enforcement of its laws, or the regulation of economic and environmental activities.

The Brazilian Amazon covers about 5.2 million square kilometers, roughly the size of Western Europe or the continental United States from its Eastern shores to the Rocky Mountains; forests comprise about 4 million square kilometers. For the Brazilian federal government, this is a well-defined territorial identity that is used as a geographic unit and that has been the object of public subsidies in investments and special legal regulation—the so-called “Legal Amazônia.” With a population density of about 3.0 inhabitants per square kilometer, and with almost 60 percent of its population residing in urban areas, this region presents many challenges to government and those interested in social development of the local population. Long boundaries with neighboring countries that have scant population living within impregnable or unfriendly tropical forest results in borders that are highly permeable to unchecked trespassing. Of Brazil's 16,500 km of land borders, 10,948 km is in the Amazon running from French Guiana, Surinam, Guyana, Venezuela, Colombia, and Peru to Bolivia; this is four times the distance between Madrid and St. Petersburg.⁸ On the Brazilian side, there are eleven federal states and 570 municipalities.

These dimensions feed the Brazilian nationalistic imagination in many ways. Alexandre López has argued that these preoccupations have two facets. “The first one refers to the nature of the physical space, and the second relates to the international valuation of the physical space.”⁹ As most Brazilian strategists or opinion makers have been exposed to the values proposed by the geopolitical thinking that dominated the country's elite during the twentieth century, the attitudes toward valuing space in general, and this area in particular, are grounded in the notion the Amazon is a natural asset reserved for Brazil that helps to define the country's national power. In this logic, SIVAM, as a generator of information about the region, would permit Brazil to concentrate resources where needed to exclude other powers from the region and expand the transformation of natural resources into wealth for its people.

In this great space with permeable borders, the issue of illegal activities is the most salient. Illegal occupation and exploration of soil and resources, criminal activities such as unauthorized mining and minerals trade, logging, the capture and trade of bio-assets, small arms trade, and

trickling migration are key problems for local, state, and federal administrations. Although such activities existed until now without a major “national security” reaction from the authorities, the recent growth of drug trafficking has exposed lawlessness in many parts of the region and revealed the Brazilian as too weak to counter these challenges. Therefore, the issue of security, not just for enforcing laws but for the state’s well being, is advocated. With SIVAM, authorities are sure that they are going to be able to map areas of human presence and activities as well as movements and settlements—be they legal or illegal. As this information is fed to police and other state authorities, repression of illegal activities would then be possible. This certainly will be a wide field for consideration in evaluating the many facets of the program.

The challenge of curbing drug trafficking on the Colombian front heightened the national and international problem confronting Brazil. Human movements by ground, river, and air are now an essential part of a picture that includes Brazil in the Colombian internal struggle and international problem. The particularly active presence of the United States in its “war against drugs” in Colombia and its demand for interdiction of trafficking in transient areas in the Amazon provoked reactions in Brazil. In shaping a policy for monitoring movement, the authorities see SIVAM as an instrument to obtain information on this segment of illegal activities. The expected combination of detection, interception, and authorization for destruction may deter air shipment of illegal drugs through Brazil, prevent the country from sinking further into this strategic regional problem, and reduce incentives for Brazilians to break the law and join drug-trafficking activities.

Although uncertain, the threat—especially from Colombia—of foreign guerrillas moving across Brazilian borders seeking sanctuary, logistic support, or political sympathy offers another justification for SIVAM. Guerrillas could harm Brazilian citizens, challenge authorities, even recruit locals to their cause. In addition, the issues of hot pursuit, operations close to Brazilian territory by Colombian military forces, or unauthorized flights into Brazilian airspace, especially by the United States, create concerns for and pose challenges to Brazilian sovereignty. How can SIVAM effectively attend to the threat perceived by some Brazilians that the country’s sovereignty over the region is challenged or not respected by others?

The answer to this question underlies the interest that the Brazilian Air Force (FAB) has had in commanding the overall SIVAM program since its inception. The program funds—about US\$1.4 million dollars—have been earmarked mostly for the purchase of hardware, such as aircraft and radar. This equipment, procured from many sources in Brazil and abroad, attends to the FAB's demands for surveillance systems specifically for operations in the region, and, more generally, for its general efforts at modernization. The purchase of remote sensing and surveillance aircraft provides FAB with a new level of technology and operational capacity. The dual-use capability allows for both detection of illegal flights of small aircraft and for environment monitoring. It also provides FAB with a capacity for conventional interception operations (at least detection and vectoring) that it did not have before and perhaps would not have if there were not the strong argument of using it for anti-drug operations.

Thus, in security terms, SIVAM could provide great improvement in preventive measures and repressive mission control, both for police and for conventional military forces. It provides, perhaps, a sense of a symbolic response, that Brazil is taking effective control of its sovereignty over the Amazon and will be able to defend it more efficiently if challenged by a foreign power. But the project also demands a new logic in foreign affairs and defense policy. It will need to respond to the perception that Brazil is procuring weapons systems that may upset a conventional arms balance with its neighbors or break the confidence-building environment that has come so far in the last decade.

The effectiveness of the system also faces another curious challenge. In regard to the argument that SIVAM will provide the means for intercepting aircraft over Brazilian territory, a new law was enacted in 1998.¹⁰ The Brazilian Congress gave the president authority, including delegation down the chain of command, to order the destruction of any aircraft that does not respond to procedures to identify itself or obey air traffic control instructions as it moves into Brazilian airspace. This authority, a key feature of a future implementation of interception operations under SIVAM, gives Brazil equal footing with its neighbors and could serve as an instrument for coercive action against drug air trafficking. The effectiveness of SIVAM in this critical area will be related to the concrete application of the relationship between air detection and the physical interception of violators.

GENERATING KNOWLEDGE FOR DEVELOPMENT AND SUSTAINABILITY

The second fundamental dimension of the effectiveness of SIVAM refers to the expectation that the program will be a significant generator of data and information for local and regional management and for the integration of the region into Brazil's efforts at economic development and environmental preservation. In a political statement to the Brazilian Senate on the purpose of SIVAM, then Brazilian Minister of Defense, Dr. Élcio Alvares, said:

The purpose of the SIPAM/SIVAM project is to integrate, to evaluate, and to disseminate knowledge [*conhecimentos*] that can permit global and coordinated actions of government agencies in the Amazon Region in order to take advantage of its resources. The project will contribute mainly to environmental protection, control of land occupation and its use, surveillance and border control, prevention and fight against endemic and epidemic diseases, civil defense, identification and combat of illicit activities, protection of indigenous peoples' lands, and control of air traffic, river movements, and others.¹¹

If contributing to the generation and dissemination of information to be used by other sectors is a central argument to justify and support the program, then SIVAM's relationship with consumers should be a basic avenue for evaluating its effectiveness. Other authorities have emphasized that information from SIVAM can and will be used for better governance and social progress. Nevertheless, consultations with potential consumers have been few or very narrow, not at all indicative of an exchange that will help establish the epistemological model that will permit the linkages of data to be generated by SIVAM with the information demanded by consumers (governing authorities, bureaucrats, scientists, investors, individuals, etc.).

My concern is with the current silence on how to link these ends and the lack of clear evidence that the "technical reasoning" for SIVAM, as Gilberto Câmara pointed out, is being matched by an effort to lay down tracks for "interpretative reasoning" of the data and information the program promises to deliver. Pointing to the perceived disconnection between SIVAM's technical design and existing efforts in knowledge generation in Brazil regarding climate and biodiversity in the Amazon,

Câmara suggested that the engineering nexus of the program was leaving out the contributions of individuals and agencies outside the circles of the Air Force and its foreign technological suppliers. For Câmara, SIVAM is conceived as a centralized information processing system within the new anarchical features of the global net, associated with the already traditional lack of interaction with many Brazilian organizations and networks, in data generation resulting in extensive data base and proven methodological instruments.¹² The difficulty in challenging both postures—that SIVAM's managers are integrating the system with those of other organizations or the contrary view espoused by Câmara—is the absence of transparency or any clear evidence to support either view. As a result of this lack alone, effectiveness may be harmed.

As SIVAM is essentially managed by the Air Force with extensive supervision by the Defense Ministry, the culture of secrecy and self-sufficiency, traditional in the military establishment, may be conducive to autonomous and closed development of the project, further secrecy standards, new information flow filters, and limited research and development with only a few technological partners/contractors, mostly from abroad. Another hypothesis is that the law and security enforcement subculture may have reduced the level of desired transparency and the dissemination of some information in the name of preserving secrecy required for “national security” or law enforcement missions. Therefore, an objective assessment of the effectiveness of the information generation procedures and their use may not be possible.

There is little evidence to show that the Brazilian government will be able to integrate SIVAM with other information platforms or develop the expected multiprogram articulation—or to demonstrate even that SIVAM's managers are focused on anything other than the program's output for national security. Actually, the integration of federal programs in the Amazon region has already met with failures in the past decade. SIPAM, the System for the Protection of the Amazon, an idea launched by the now defunct secretariat for strategic affairs in the 1990s, which was to be a strategic umbrella concept for a “holistic” protection of the region, has never made any progress. In fact, SIPAM, as an integrator of all government programs, has been rejected by all bureaucracies; not even the Office of the Presidency has been able to find a proper “fit” for the idea. Its coordination has been moved to the Defense Ministry, running the risk

that “protection” may now take on a “national defense” connotation. This recent history of civilian inability to harness resource allocation and full implementation of “sensitive” programs in the Amazon continues. The Border Area and the North Arch are two other federal projects initiated by the same secretariat for strategic affairs. Both have now either lost the support of the Executive or been taken over by the Defense Ministry for administration and funding. Inter-agency coordination is a central issue that President Cardoso recognizes as he calls for greater integration, for instance, in protecting against fires in the region.¹³ But fragmentation has been the dominant feature of federal programs for the Amazon, and this will continue to be a challenge to SIVAM’s effectiveness.

The effectiveness of SIVAM could also be evaluated by vertical articulation with local governments. The natural conditions and the political complexity of the region challenge policy formulation and implementation regarding human presence and social development. The vast areas, the limited means of transportation and communication, and the difficulties in setting up logistical infrastructure have been factors limiting the intrusion of people in the region. Nevertheless, for two hundred years the promise of riches has drawn immigrants to many points in the Amazon. Immigrants have been enchanted by everything from mineral exploration, forestry gathering and industry, and extractive cycles for the exploitation of natural rubber, palms, and other flora products, cattle, fishing, and bio-assets to industrial ventures in urban areas. As a result of the past century of immigration and political actions in the Brazilian Amazon, the region now includes nine federative political units with governors who control local politics and take advantage of a disproportionately superior representation in the national Congress. Thus, federal investments, subsidies, assistance, and spending in the region result from budgetary limits on federal programs, from bureaucratic disputes over scarce political attention, and bottom-up exercises of local and state-level politics in the actual allocation of resources. In sum, the Brazilian constitution of 1988 has limited the actual authority of the federal government to command a centralized policy on development and environment protection in the Amazon.

The other potential technical/interpretative reasoning disjunction of SIVAM regards the production of data for environmental monitoring. With the promise of two hundred stations to monitor water resources and twenty for weather, what more information will SIVAM provide than is

already produced by other government agencies, such as the National Institute for Space Research (INPE) or the Brazilian Institute for Natural Environment (IBAMA)? Sometimes one suspects the “green” basis for SIVAM is only an effort to justify it under the rubric of conservation since, at least up to this phase, little effective bridging is available from the scientific proposals for the information modeling process. In fact, it is not clear to what “sustainable development standards” SIVAM is being developed.¹⁴ If, on one hand, one may find links between the project development and significant institutions in the scientific community in Brazil, on the other hand, the scope of such common efforts is unknown. The homepages of organizations such as the Brazilian Council for Scientific and Technological Development or IBAMA, or representatives of the Brazilian scientific community, such as the Brazilian Society for the Progress of Science (SBPC) or the National Academy of Science (ABC), give no news of their respective involvement with the program or whether they are contributing, as SIVAM's managers are saying, to become consumers.

In addition, if international cooperation is a mainstay in the conduct of Brazilian foreign policy in the Amazon region, what role does SIVAM play in support of this aim? The question draws another blank regarding the information on and sharing of SIVAM's technology and “know-how.” Given the great products SIVAM is projected to provide, it would be helpful to extend participation and the sharing of ideas with neighbors, even in the conception phase. But again, no significant efforts are identifiable in this regard.

The effectiveness of SIVAM in knowledge production could permit the even more significant accomplishment of changing the perception about the origin of the threat to the region. The generation of knowledge regarding strategic interactions in the Amazon will have little utility unless assumptions regarding the “truth” of science and politics are challenged analytically. Perhaps the greatest contribution yet made toward focusing on the issue of security in the Amazon and the source of threat comes from an unexpected quarter: Senator Marina Silva, who represents the State of Acre. She is a *cablocla*, a former worker who, after being raised in and making her livelihood from extractive activities in the jungle, became a labor leader and a representative of her people and state in the federal Senate. Senator Silva has a different perspective:

[I]n relation to the Amazon, as an asset threatened, I believe that one of the most important and significant threats we experience results from wrong policies implemented after the end of the extractive cycles and the introduction of models centered on large projects. The threat results from misleading perspectives. The first mistake is to consider the Amazon as an empty demographic space. The second mistake is to consider the Amazon as an homogenous forest. The third mistake is to think of development in the Amazon and not of the Amazon. Development in the Amazon makes us to think of defense policy in the Amazon, large projects in the Amazon, actions of government in the Amazon, instead of thinking of a process of endogenous development, where the Amazon itself can generate its own responses. From this matrix of misleading perspectives results a series of mistakes that makes the Amazon be seen, not only by us Amazonidas, but also by all Brazilian people and even by those from abroad, as an asset under threat. The idea of such large projects produced the destruction of 13,000 km², burnt last year [1998]. If we continue at this destructive pace, in thirty or fifty years, and this is the truth, there will be no more Amazon. I am not the one affirming this, but the technical research from alternative sources and also those conducted by the government through official research institutes [such as INPE].¹⁵

CONCLUSION

In the Amazon, information gathering is necessary to report on human presence and movements, to permit monitoring of settlements, and to identify illegal land use, trafficking, contraband, and the infiltration of foreign political groups across borders. Equally important, data generation and information dissemination are essential tools for monitoring environmental conditions, human impact on natural habitats, and the evolution of the geophysical and biological features of this tropical region. As a whole, law enforcement, economic development, and environmental management combine to challenge Brazilian governance of the land. As a political reaction to a problem critical to national interests, the Brazilian public sector strives to create agencies to assert sectoral control and global coordination. The argument of the risk of foreign interference in the management of the Brazilian-held Amazon, including the most extreme call for the internationalization of that area, has been the main reason for concern and the political attractiveness of nationalistic arguments. The need to increase the generation and dissemination of information, beyond immediate security issues, is another factor seen as necessary for improving pub-

lic policies that will attend to the needs of Brazilians living in the area by promoting economic gains and social welfare with environmental sustainability.

These general aspirations are important components that define the criteria for evaluating SIVAM's effectiveness in its implementation phase and when it comes into full operation, the nature of its interactions with other agencies and actors, and the quality of its products. The difficulty of establishing methodologies to assess the program can be a result of secrecy or just poor communication between the program's leaders and those concerned with the issue of accountability and efficient use of the resources now being allocated. Greater transparency and intellectual exchange of theories and information are necessary to establish valid assessment methodologies. Although care and concern must be taken into account in matters of national security and law enforcement, other perspectives must also be considered, since development and well-being are not exclusively achieved under strict military/police policies.

SIVAM is a clever and practical concept for the preservation of Brazil's sovereignty and law enforcement and in the generation of information for social and scientific development. But its implementation risks being deficient due to the magnitude and complexity of its modeling. Probing how this model is set and how it functions are the keys to improving it. Questioning how the evaluation process of the program evolves demonstrates a commitment to its success in meeting the expectations of the Brazilian taxpayers, citizens, and others concerned with the protection of the Amazon as a unique and significant natural environment on Planet Earth.

NOTES

1. This chapter reflects comments made during the seminar "Brazil's SIVAM Project: Implications for Security and Environmental Policies in the Amazon Basin," at the Woodrow Wilson International Center, Washington, DC, June 14, 2000.

2. FAB's purchases initially included five Embraer EMB-145 airplanes, equipped with PS-890 Erieye radar, manufactured by Ericsson; three EMB-145s for ground remote sensing, using radar with synthetic aperture; and numerous SuperTucano ground attackers.

3. For a summary of these issues see Jorge Zaverucha, "The SIVAM Affair," <http://www.lanic.utexas.edu/ilas/brazctr/publications/papers/zaverucha/sivam.html>

4. Hal Rainey, *Understanding and Managing Public Organization* (San Francisco: Jossey Bass, 1991), 208.

5. "As Dimensões do SIPAM/SIVAM na Região Amazônica." Centro de Estudos Estratégicos, Gabinete do Ministro Extraordinário de Projetos Especiais (30 June 1999). Mimeo.

6. "Forças Armadas temem internacionalização da Amazônia," *O Estado de São Paulo* (11 June 2000); José Genoíno, "Acordo Militar e Política de Defesa," *O Estado de São Paulo* (8 June 2000).

7. For a summary of this historical interpretation, see Carlos Chagas, "Querem internacionalizar a nossa Amazônia," *Manchete* (5 June 1997).

8. Renne Armand Dreifuss, "Strategic Perceptions and Frontier Politics in Brazil," in Anthony Hall, ed. *Amazonia at the Crossroads* (London: University of London Institute of Latin American Studies, 2000), 225-232.

9. Alexander López, "Environment, Security and Conflict: Exploring the Links in the Brazilian Amazon." Paper prepared for the 1998 meeting of the Latin American Studies Association, Chicago, Illinois, September 24-26, 1998, 8.

10. Law no. 9614, 5 March 1998.

11. Élcio Álvares, Defense Minister. Statement at the Seminar "A Amazônia – patrimônio ameaçado?" Comissão de Relações Exteriores e Defesa Nacional, Senado Federal, Secretaria-Geral da Mesa, Subsecretaria de Taquigrafia, Serviço de Comissões, 16 November 1999, SC-2.

12. Gilberto Câmara, "O Projeto SIVAM e a Biodiversidade Amazônica: Há Espaço para a Ciência Nacional?" Paper presented at the 48th Annual Meeting of the Brazilian Society for the Progress of Science (SBPC), 1999, 1-4. See <<http://www.dpi.inpe.br/gilberto/sbpc.html>>

13. "Presidente: Código Florestal deve assegurar preservação da Amazônia." See http://www.radiobras.gov.br/presidencia/palavra_1505.htm

14. Valter Rodrigues, "SIPAM." Paper presented in the seminar "Brazil's SIVAM Project: Implications for Security and Environment Policies in the Amazon Basin." The Latin American Program and the Environment Change and Security Project, Woodrow Wilson Center, June 14, 2000, Washington, DC.

15. Marina Silva, Brazilian Senator. Statement at the Seminar "A Amazônia – patrimônio ameaçado?" Comissão de Relações Exteriores e Defesa Nacional, Senado Federal, Secretaria-Geral da Mesa, Subsecretaria de Taquigrafia, Serviço de Comissões, 16 November 1999, SC-28.

SIVAM: Environmental and Security Monitoring in Amazônia

CLÓVIS BRIGAGÃO

Glancing at the map it is clear that the Amazon Basin constitutes a macro-frontier region,² within which conflict and cooperation coexist on many levels. The region comprises a broad geographical zone from the Atlantic Coast through the Guyanas, pointing toward the Antilles, and westward to the edge of the Andean range toward the Pacific. This vast region includes territories in eight sovereign states: Bolivia, Brazil, Colombia, Ecuador, Guyana, French Guyana, Peru, Suriname, and Venezuela. The Amazon spills across these nations' borders, linking them along multiple dimensions: physically, economically, politically, socially, ethnically, ecologically, and culturally.

Despite knowledge acquired through the work of innumerable scientists, explorers, writers, sociologists, anthropologists, biologists, government institutions (civilian and military), private groups, and multinational organizations, our understanding of the Amazon region remains fragmented. Our cognizance of the problems facing Amazônia far exceeds our knowledge about possible solutions. When one considers the size of the Amazon (5.2 million km²), the range of genetic diversity it supports (estimated at 30 percent of the world's animal and plant species, most of which remain unidentified), its massive hydro-ecological cycle (the basin contains 20 percent of the world's fresh water), and its other natural resources (mineral, timber, and other extractive products), one appreciates the complexity of the region and the challenge this presents to those seeking to address the region's problems.

Policymakers and scientists interested in regional development and in tapping these resources for human development are currently refining their policies toward Amazônia, and are seeking to broaden and improve our understanding of this complex region. These efforts are based on an

ecosystemic vision which aims to create mechanisms, suitable to the complex nature of the region, that will support human sustainable development while also protecting its multiple interactive qualities.³ Principal among these are:

policies to increase integration and cooperation in regional development, consisting of joint actions on the part of private, national, regional, and international entities, including special projects supported by international multilateral agencies (System for the Protection of Amazônia, or SIPAM); and

policies to improve the collection of information and surveillance of the region, in particular to monitor the security of the region's borders and air space (System for the Surveillance of Amazônia, or SIVAM)

The first set of policies consists of multiple and inter-related public development projects, including the international Treaty for Cooperation in Amazônia as well as various regional, state, and local policies for land-use zoning, environmental protection, agroforestry,⁴ agricultural and livestock policies, and the rights of indigenous peoples. These projects should in principle be formulated and implemented through the environmental protection system (SIPAM), utilizing the capacities of the SIVAM. Digressing for a moment, it bears noting that there are innumerable other projects being considered or implemented in the Amazon Basin—for instance, a plan for the physical integration of northern South America (Brazil, Colombia, Ecuador, Peru, and Venezuela) by means of an axis of highways and waterways. The plan is promoted by the governments and business communities of the countries involved.⁵

Another example is the rich and incisive development model elaborated by Eliezer Batista and his team of researchers who study South America, particularly the “Northern Belt of Development,” using a new geoeconomic model. This model promotes sustainable development in a systemic and holistic form, in which the economies of the region grow collectively through the simultaneous development of regional systems of energy, infrastructure, and communications. Batista refers to this new paradigm of infrastructural development as one of “eco-efficiency,” combining efficiency and synergy. He argues it would generate development on ethical and just terms, without environmental or social costs.⁶

SURVEILLANCE MECHANISMS: A VISION OF ECOLOGICAL SECURITY

The concept of surveillance is comprehensive and multi-dimensional and includes environmental vigilance. Surveillance and information-gathering helps experts assess Amazonia's capacity for ecosystemic self-regulation and adjustment, and can lead to a more informed understanding of the region's biodiversity and other natural cycles and systems. This ecosystemic monitoring approach, and its logistical implementation via information and telecommunications technologies (radars, satellites, radio-communications, etc.) functions schematically at four levels:

- technical and scientific instruments for surveillance and data gathering;
- operational methods for the prevention of ecosystemic risks;
- a system for the facilitation and integration of information, planning, and implementation, disseminating advancements in knowledge of the region, by way of informational systems on the various interactive levels between environmental management and security; and
- a central organizing agency (propiciador) for the formulation of policies over the medium and long-term for sustainable development.

This new Strategic System for Amazônia, or SEAM, demands a reconceptualization of conventional definitions of security and sets the stage for improvements in our understanding of the nation's inventory of ecosystemic resources and the issues of security that concern them. The application of a broadened, comprehensive concept of security, coupled with the logistical system for monitoring (SIVAM), will make regional surveillance much more effective. This concept of ecological security emphasizes broader regional management of shared resources, and is operationalized at the intersection of issues of defense and monitoring of the civilian and military communities (by the use of cutting-edge technologies) and with respect for the environmental complexity of the region.

Basically, *ecological security is security that guarantees each citizen a safe and protected environment, the responsibility for which lies with the society and the*

state. Regarding the Amazon Basin, we can define four basic areas for the operationalization of ecological security:

- policies for environmental protection and conservation in the broad and traditional sense;
- policies for the sustainable development of ecosystemic resources;
- a system for the monitoring, prevention, and minimization of risks to the environment resulting from economic activities (agroindustry, industrial activities, mining, extractive goods, trade and services, etc.) and technologies unsuitable to the region, within the objectives of civilian law and defense;
- a system of monitoring and control—in accordance with the goal of C3IC⁷—as a logistical tool of information and communications technology, capable of enforcing and overseeing regional security and supporting the defense technologies required by the plans of the SIPAM.

This architecture of surveillance and defense contrasts sharply with the more traditional notions of national security that characterized the period of military rule in Brazil (1964–1984).⁸ In reality, Amazônia should be a secured and protected ecosystem, providing benefits to the region's inhabitants in terms of both security (civilian and military) and environmental conservation (civilian). Moreover, there seems to exist a correlation between “Amazonian greed,” about which much is written and which we must aim to control, and the systematic neglect, at the public and private levels, of development policies—which have had much more to do with uncontrolled business and exploitation than with development.

SIVAM could serve as an effective instrument for the reconceptualization of security and defense in Brazil and could change the path of Amazonian development as a new paradigm for surveillance and sustainable development in the 21st Century. Mainstream global public opinion, which has been so concerned with the fate of Amazônia, can only greet these new policies and programs with appreciation; that is, if we understand correctly that Western leaders, the world press, and international NGOs are concerned about the destiny of the “Amazonian paradise.”

It is believed that the implementation of these systems of protection and surveillance in 2002 will allow for the better management and exploitation of nonrenewable resources in Amazônia, as well as the better production of goods (wood and its secondary products, fruits, seeds or nuts, oils, rubber, latex, rosins, unique chemical compounds, proteins, and genetically altered plants and seeds). These systems are a synthesis of research carried out since 1987, which has explored monitoring and remote sensing and has its philosophical and political base in the theory of ecological security. I will now apply this approach to the cases of SIPAM and SIVAM.⁹

THE SYSTEM FOR THE PROTECTION OF AMAZÔNIA (SIPAM)

In 1990, the Brazilian government approved the creation of SIPAM, which systematically combines the efforts of various state institutions. The objective of SIPAM is to provide the needed support and oversight for sustainable development initiatives in the Amazon region, which are carried out cooperatively by sectoral agencies. The initiative aims to establish a common infrastructure to coordinate information-sharing among the multiple public agencies at work in Amazônia.¹⁰ This grand challenge that will likely require years or even decades to accomplish.

At the beginning, SIPAM will serve primarily as an organizing instrument for the processing and management of data. It will include a network of coordinating centers for the distribution of information for use by federal, state, and municipal public agencies, responsible for policy formulation in Amazônia. In support of practical, accurate policymaking, SIPAM will provide access to its enormous collections of data and images obtained from the radar and satellite operations of SIVAM. SIPAM will serve simultaneously as:

1. an institutional mechanism for the monitoring and control of the multiple initiatives planned by various government agencies and departments; and
2. an institutional memory, or informational database, capable of assessing projects' successes in meeting their planned objectives.

Originally, this coordination was carried out by the Secretary of Strategic Affairs, now defunct, in conjunction with Ministries and public agencies which together formed the National System of Coordination.¹¹ Today, SIPAM is under the direct control of the Civil Affairs Office of the Presidency, with SIVAM the operational responsibility of the Ministry of Defense. SIPAM's mission, path of development, and design have evolved to be quite different from how they were originally formulated.

As a multidimensional national policy, given the absence of a clear coordinating process, budget, and administration, SIPAM leaves much to be desired. At present, this bureaucratic and operational ambiguity is delaying its implementation. With SIPAM's lack of clear coordination and bureaucratic design (understandable, in some ways, considering its grandiose political, financial, and administrative dimensions combining federal, state, and local-level activities), the SIVAM superceded it. SIVAM became the higher priority project, due mainly to the enormous contract signed with Raytheon Corporation for SIVAM's construction. As time passed, the difficulties of defining the objectives and establishing the programs of SIPAM resulted in SIVAM's assuming the role as the principal element for the government's Amazon initiative.

THE SYSTEM FOR THE SURVEILLANCE OF AMAZÔNIA (SIVAM)

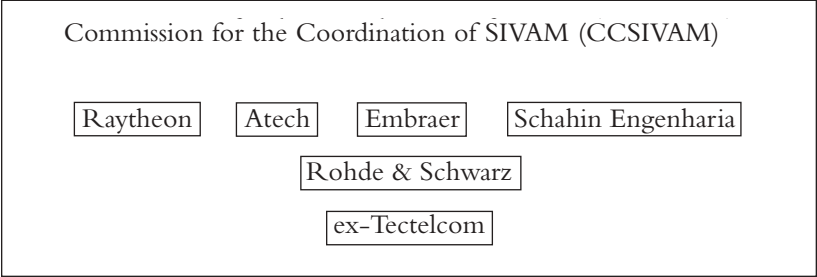
In order to implement the broader SIPAM, the government of Brazil announced the creation of the SIVAM, which endured a fierce international bidding process. The winning contract went to the American firm Raytheon, which received the support of the U.S. Export-Import Bank, which guaranteed 75 percent of the program's financing. A consortium was formed to support the project's development, the acquisition of materials, the installation, integration, and testing of the various system components, all of which were scheduled to be completed in July 2002.¹²

The Brazilian Senate approved the contract with Raytheon in 1996. The financing was restructured in 1997, and the letters of credit—which will total US\$1.4 billion—went into effect in July 1997. In 1999, SIVAM acquired its first equipment and made its first installments in the region. As of 2000, approximately 40–50 percent of SIVAM's instrumentation was in place and, according to the contract, the rest was scheduled to be in use by 2002. The structure of the SIVAM-Raytheon contract is the following:

POLITICAL STRUCTURE



LOGISTICAL IMPLEMENTATION



It is appropriate here to include some clarifications regarding the new structure of the SIVAM. At the top level of command is the new Ministry of Defense (which in January 2000 replaced the Secretariat of Strategic Affairs, or SAE), which is responsible for overseeing the SIVAM-Raytheon contract. This task will be operationally carried out by the new Air Force Command, which manages the System for Air Space Control (SISCEA) and the Commission of SISCEA, which by means of the Aeronautical Fund acts in conjunction with the CCSIVAM.

Three triads come under the CCSIVAM. The first triad consists of the three principal signatory corporations of the SIVAM contract:

1. **Raytheon:** responsible for the acquisition and production of equipment, the installation and logistical support, training, and technical assistance;
2. **Atech** (Foundation for the Application of Critical Technologies): which replaced the problematic first Brazilian private agency for SIVAM, the ESCA, will supply the technical personnel (engineers and scientists) that will form the know-how for the private operation of the system. Also, Atech will design and provide Brazilian software, which will raise industry standards in the preparation of strategic software for the use of the coordinating commission in its interface with the client

agencies, serve as its communications and database, develop new technologies and offer expanded services; and

3. **Embraer:** the Brazilian commercial and military aviation company will produce the team of high-tech monitoring aircraft: five surveillance aircraft Emb-145 (R99A), each with an Ericsson sensory radar system (the most advanced system in the world), and three Emb-145 (R99B), which will carry radars and equipment for the monitoring of electronic and communications signals, as well as optical, multi-spectral, and infra-red sensory equipment of the latest design.

The second triad is formed by three subcontracted corporations:

1. Schain Engenharia: the civil engineering firm, for residential units;¹³
2. Rohde & Scharwz: the German firm, is providing datalink land-air radio communications for data collection and transfer; and
3. Tectelcom: the São Paulo producer of communications systems and meteorological radars, which had to withdraw for management failures. The CCSIVAM will need to make a new offer of contract to a North American company because, unfortunately, Brazil lacks a suitable national alternative for the installation of meteorological radar subsystems.

DESCRIPTION OF SIVAM

Officially, the SIVAM is a vital tool for the implementation of Brazilian national policy toward the Amazon region; that policy is SIPAM. SIVAM also functions simultaneously as a project with civil and military ends, namely, the control of air traffic, enforcement against regional drug trafficking, monitoring and protection of the environment, conservation of reserves for indigenous peoples, and transportation and logistical support for public policy in Amazônia, particularly regarding public health. Currently, SIVAM represents one of the world's most advanced systems for gathering and disseminating regional information. It is also the most advanced ecological security database.

SIVAM consists of a network of radars, environmental sensors, communication and aerotransport systems, and ground-based air traffic monitor-

ing centers designed for surveillance and coordination. According to Raytheon, the objectives of SIVAM are:

1. Monitoring of the environment and sustainable development initiatives in the Amazon region;
2. Improvement of environmental, atmospheric, and climatological research in the area, using specially designed, cutting-edge software (making Brazil the world's leader in the application of these technologies);
3. Promotion of the growth and development of Brazilian high-tech companies, centered around environmental surveillance and planning;
4. Improving the efficiency of government operations at the federal, state, and municipal levels (depending on budgetary allocations).¹⁴

In terms of products from SIVAM, the following six areas are emphasized:

- *Environmental Surveillance* (maps, licensing and registration, climatic and environmental data, studies of air and water pollution levels, etc.);
- *Processing of Meteorological Information* (maps, observations and patterns, early warning systems of storms or floods);
- *Land and Air Surveillance* (law enforcement, the discovery and elimination of illegal air strips, tracking deforestation and illegal mining, drug cultivation and production areas, etc.);
- *Monitoring and Processing Regional Communications* (official records of regional airwave communications, their patterns and growth);
- *Air Traffic Control* (flight security, radar controlled airways, flight planning and coordination); and
- *Planning and Control of Regional Operations* (plans of action, operational recourses, emergency seek and rescue missions, location of the system and its logistical support).

SIVAM will apply ultrasophisticated remote-sensing and user-service technologies within an open architecture, one which will facilitate the incorporation of new users as future policies and projects develop. In addition, the project will provide the Brazilian authorities with the capability, through a high-tech network of sensors, to track and monitor specific local

targets (cooperative and non-cooperative), gather environmental information, and support the flight paths and landings of regional air travel.

SIVAM will cover the “Legal Amazônia,” which includes 61 percent of Brazil’s territory. This includes the states of Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Roraima, Rondônia e Pará. This does not include the area covered by the Amazon Cooperation Treaty (TCA, or the Amazon Pact), which includes eight sovereign nations—Brazil, Bolívia, Colômbia, Equador, Guayana, Peru, Suriname, and Venezuela, excepting French Guayana.

These parameters are derived from the traditional concept of national security, which greatly influenced the conceptualization of SIPAM/SIVAM. At some point, national and regional policymakers will have to discuss two issues: the broadening of SIPAM/SIVAM to the international region included in the TCA; and, the broadening of the TCA to include French Guayana. France has indicated interest in negotiating the admission of its territory into the regional accord. It is possible that after SIVAM is implemented, other TCA nations will be interested in acquiring the monitoring and remote sensing services it provides. In these cases, the Ministry of Foreign Affairs, in conjunction with the Ministry of Defense, would be involved in the negotiations of bilateral accords.¹⁵

SIVAM: PRINCIPAL COMPONENTS

The principal components of SIVAM are:

- 14 rotating radars for air traffic control: 7 ASR23SS primary + monopulse secondary, and 7 Condor MK-2, only secondary;
- 6 mobile radars TPS-B34 primary/secondary, Banda L, 3D long distance;
- 5 surveillance aircraft, Embraer EMB 145 (with surveillance radar, and equipment for the analysis of communications and data);
- 3 aircraft suited for remote sensing, EMB 145 (SAR, MSS, optic/infrared sensors, and equipment for the analysis of communications and data);
- 10 meteorological radar;
- 297 sensors: meteorological (83), solar (14) and hydrological (200);

SIVAM: Environmental and Security Monitoring in Amazônia

- 5 satellite image receivers;
- 4 systems for landing control (ILS); and
- 3 systems for the determination of origins of emissions in HF (HF/DF).

At the same time, a telecommunications system for voice and data transfer will be put in place, connecting various areas. It will consist of:

- 940 land-base satellite terminals;
- 336 VHF radios to serve 32 integrated land-air communications stations;
- 21 primary centers for the distribution and channeling of telecommunications; and
- 940 user terminals for data access;

Another component will be the processing of data and information from environmental research and monitoring and from air traffic control:

- 3 Regional Centers for the control and routing of air traffic (16 positions for radar control);
- 3 Regional Centers for Surveillance (in Manaus, Porto Velho e Belém); and
- 1 Center for General Coordination (CCG, located in Brasília).

The regional centers for surveillance, located in the three Amazon state capitals of Belém, Manaus, and Porto Velho, will be structured as operational sub-centers (responsible for the management of technical operations) and one sub-center to coordinate the link between the regional centers and the Center for General Coordination, which will house and maintain the database and image library. The technical resources available at each regional center will include telecommunications equipment to process satellite data, as well as a databank of information pertinent to the implementation of the public policies of the agencies involved with SIPAM.

REGIONAL AND NATIONAL CENTERS FOR COORDINATION

In addition to the regional centers, SIVAM includes remote offices that will house telecommunications resources to support local operations.

Over the long term, these local activities will be financed through federal, state, and local spending in cooperation with Brazilian and multinational private companies and banks, which have pledged their support for nationally and internationally coordinated scientific research and technologies. Considering the limited telecommunications infrastructure in Amazônia, the SIPAM program, if managed by efficient public policies, could ultimately serve as the stimulus for a wider availability of telecommunications service in the area.

In sum, the SIVAM is a complex and sophisticated technological system which, in addition to its uses for the monitoring and protection of environmental and eco-systemic resources in Amazônia, will provide control over regional air traffic (civilian and military). This is especially important in a region where aircraft severely lack coordination and support, and where national airspace is extremely vulnerable to trafficking of illegal contraband and drugs, as well as undetected foreign military aircraft.

At the time of this writing, the Brazilian System of Air Space Control and Defense (SISCEAB), under the command of the Air Force and within the Ministry of Defense, includes the Integrated Centers of Air Defense and Air Traffic Control (or Cindactas) of the south, center-west, and north-east parts of the country. It does not cover the Amazon region. SIVAM will be, in essence, a new and spectacular operation under which each kilometer of ground and air space in Amazônia will be monitored and controlled.

SIPAM, an integrative system of sustainable development policies in the region, and SIVAM, the operational and technical framework for SIPAM, together constitute a new paradigm for the strategic management of ecosystemic resources. Once in place, they will give the nation new management and enforcement options for the protection of the environment and the security of the people of Amazônia.

FINAL OBSERVATIONS

The implementation of SIVAM represents Brazil's entry into the 21st Century and introduces into this complex and fragile region a unique instrument for environmental monitoring and for the enforcement of national security. The project has profound strategic value. Considering the magnitude and the extent of the services being provided to Amazônia, one can argue that the project is well worth the US\$1.4 billion price tag.

SIVAM represents a definitive step forward in the reduction of the environmental costs of development in this vast region, while also guaranteeing improved security against risks and damage. It is crucial that the implementation of SIPAM/SIVAM occurs in a publicly transparent fashion, with the active participation and oversight of the Brazilian Congress and all relevant government agencies.

Despite the tremendous usefulness and merits of the SIVAM as a critical tool for Amazonian security and protection, Brazil cannot subordinate public policies on development—SIPAM—to questions of security and monitoring. Giving priority to security over development would be an inversion of the roles of these two political areas. This would be a strategic error on the part of the government, one which could cost much more than the maintenance of the SIVAM project. Even with all of its sophisticated technological instrumentation, SIVAM could not continue without the necessary framework of human, social, economic, and political objectives that make up the SIPAM.

Recently, sustainable development has become the central axis for integrating this tool—with its important aspects of monitoring, surveillance, and data collection—for defense. This emphasis on human and regional development and environmental management—upon which the legitimacy of the security issue depends—requires more than the coordinated dedication of governmental agencies. It depends on the support and participation of society at-large and of universities and research centers in the ongoing effort to better understand the region. The business community and local citizens must also develop a better understanding in order to create viable solutions to the problems facing Amazônia.

Without these shared efforts in the planning and execution of regional policies—which should be broadened to fit the Treaty for Amazonian Cooperation—SIVAM is a highly sophisticated, technological system and nothing more. Absent its SIPAM counterpart of socio-environmental-economic objectives, SIVAM will likely remain a tool of a disorganized, fragmented political approach and never become a fully articulated instrument for the management of Amazônia. It is crucial that the conceptualization of Amazonian sovereignty be balanced against its ecosystemic value and that—through a process of careful, incremental fusion—the public policies of SIPAM come to optimally incorporate the powerful capacities of SIVAM.

NOTES

1. This paper was prepared by the author for presentation at the June 14, 2000 Woodrow Wilson Center conference, "Brazil's SIVAM Project: Implications for Security and Environmental Policies in the Amazon Basin.

2. This image is well presented by Pedro Motta Pinto Coelho, *Fronteiras na Amazônia: Um Espaço Integrado* (Brasília: Funag/Ipri, 1992).

3. It is important to clarify that this conception is based on a premise of democratic governance and norms, which is distinct from the traditional conception of national security with its origin in authoritarianism. See the important article by Thomaz Guedes da Costa, "Política de Defesa: uma discussão conceitual e o caso do Brasil," Working Paper/Documento de Trabalho no. 10, Centro de Estudos Estratégicos/Secretaria de Assuntos Estratégicos/PR, Brasília (March 1994). Regarding the concept of sustainable development, it is helpful to remember that article 225 of the national Constitution of 1988 obligates the state and its citizens to preserve Amazônia for present and future generations.

4. See Nigel Smith, et al., *Agroforestry Experiences in the Brazilian Amazon: Constraints and Opportunities*, Washington/Brasília, World Bank/Secretary for the Coordination of Amazonian Affairs/Federal Government of Brazil, Washington/Brasília, 1998.

5. See "Projeto traça eixo de Desenvolvimento," *Gazeta Mercantil Latino-americana*, May 15-21, 2000, 27.

6. Eliezer Batista da Silva, *Infraestructura para Desarrollo Sustentado e Integración de América del Sur* (Rio de Janeiro: Ed. Expressão e Cultura). The eco-efficiency model relates to the concept of ecological security and fundamentally informs this study of SIVAM.

7. The Coalition Command, Control and Intelligence Center (C3IC) was used during the Gulf War. The C3IC was designed as a coordinating staff between the Arab coalition headquarters and the U.S.-led coalition headquarters. The Arab states did not permit their military forces to be subordinated to a U.S. headquarters, but instead maintained a separate military command structure in parallel to the U.S.-led organization.

8. This same conception was presented by Eliezer Batista in his previously mentioned study: "In the past, the nations of South America in general developed their infrastructures by means of centralized planning and investments controlled by the state. Infrastructure was planned as a means of realizing geopolitical ends. In other words they sought, before all else, to occupy territory with the object of

establishing a national presence at the border regions. They tried to attain economic self-sufficiency and to manage their development needs within a strictly nationalist context. This resulted in the growth of economic poles in the large cities and economic centers. This traditional pattern led to various inefficient investments in infrastructure and development, as well as certain social and ecological disasters.” (my emphasis), in E. Bastista, op. cit., 11.

9. See, in chronological order: “Amazônia y Antártica: Diagnósticos de Seguridad Ecológica”, *Comisión Sudamericana de Paz*, Doc. Trabajo 3, 1989, Santiago do Chile, Julho de 1989; “Amazon: Aspects of Security”, *Peace Review*, Palo Alto, CA (Winter 1990), 48-51; “Amazônia: diagnósticos de segurança ecológica”, in Héctor R. Leis, ed., *Ecologia e Política Mundial*, (Petrópolis (RJ), Ed. Vozes/Fase/IRI-PUC-Rio, 1991), 65-98; “Segurança Ecológica da Amazônia: novos desafios,” in Crodowaldo Pavan, ed., *Uma Estratégia Latino-Americana para a Amazônia, Conferência Internacional* (Ed.UNESP/Fundação Memorial da América Latina, SP, 1992), 152-64; and the following publications by Clóvis Brigagão: “Os Aspectos Militares e Não-Militares da Segurança: aviação,” “Os Militares e a Segurança Ecológica,” and “Segurança Ecológica na Amazônia,” in *Margens do Brasil—ensaios de política global* (Rio, Ed. Topbooks), 40-64; *Amazônia: Segurança Ecológica* (Petrópolis, Ed. Firmo, 1995); *Inteligência e Marketing: o caso SIVAM* (Rio, Ed. Record: publicação da FAPESP, 1996); *Monitoramento e Segurança da Amazônia*, (SP: publicação avulsa, Fapesp/PRI/SP, 1996).

10. This is according to the Secretary of Strategic Affairs, Ambassador Ronaldo Sardenberg.

11. The following agencies made up the National Coordinating Board for SIPAM/SIVAM: the Ministry of Defense and the executives of the armed forces, the Civil Affairs Office of the Presidency (the coordinator of SIPAM), Ministries of the Environment, Science and Technology, Justice (which will oversee the juridical and legal integration of SIPAM), Foreign Affairs, Regional Development, Health, Education, Transportation, Planning, Social Security, Agriculture, IBAMA, FUNAI, the Federal Police, etc., along with the governments of Amazonian states (Mato Grosso, Rondônia, Acre, Amazonas, Roraima, Pará, Amapá, Maranhão), regional city governments, research institutes and universities, etc.

12. Interview with the CEO of Raytheon, Gregory Wuksick in *Brazilian Business* 33 (May 2000).

13. The Air Force Command is investigating alleged irregularities that involve the management of the Aeronautic Testing Field of Cachimbo (Pará)—which

according to the law, should not be collecting from the Aeronautic Fund payments received from the company contracted to perform the civil construction of SIVAM, Schain Engenharia, for the use of buildings, equipment and energy from the entity. This constitutes another link in a possible network of corruption, a problem to which these types of enormous public-private projects are vulnerable, which should be investigated and punished rigorously. See the *Jornal do Brasil* (May 29, 2000), 5.

14. See the printed bulletin distributed by Raytheon, s/d, s/ref. Local, 2000. However useful, the leaflet is rather generic and its information poorly organized and unclear.

15. Without doubt this will be the first strategic interface between Brazil's foreign policy agency, Itamaraty, and the policies of the Ministry of Defense.

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