

BRAZIL'S NEW EYE ON THE AMAZON



Brazilian airforce officers in a SIVAM control center in Manaus, Brazil.

BY MARCELO BALLVÉ

The gleaming military installation rises from the patchy forests surrounding Belém, a city of one million people in Brazil's eastern Amazon Delta. The building's futuristic design seems out of place amid neighborhoods of wood and brick homes with tin roofs, and rutted alleyways where cattle pace. One side of the building—some four stories high—is a sloping surface of glass, which reflects the sky and jungle. Inside, rooms for banks of computers are painted an antiseptic white and lit by fluorescent lights. But the lobby is an airy atrium that allows the bright sun and green of the forest to stream inside.

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This building houses a crucial node in a new \$1.4 billion radar system known as SIVAM, the Portuguese acronym for System to Guard the Amazon, run by the Brazilian Air Force. This sophisticated surveillance tool, launched in mid-2002, represents the most significant innovation in Brazil's Amazon policy since the government's huge settlement and road building drives in the 1970s. Belém's SIVAM installation is only one of three such massive intelligence centers. Dozens of fixed radar stations, weather-tracking units, and specialized truck- and plane-mounted radars are also scattered about. Three jets equipped with state-of-the-art imaging technology scan the jungle and feed data to SIVAM's computers. All the technology is linked via satellite.

The information gathered by SIVAM can, in theory at least, be used for a variety of purposes, from monitoring illegal logging and mining to spying on insur-

gent groups and drug traffickers who enter the Brazilian Amazon from neighboring countries. The handling of SIVAM may be the first big test that will determine how the new government of President Luiz Inácio Lula da Silva intends to balance security, economic and environmental concerns in the Amazon.

There has been a great deal of anticipation that the administration of President Lula—as he has asked to be called—will be the “greenest” yet in Brazil’s history. Rainforest advocates were excited by Lula’s appointment of Marina Silva, a former senator and Amazon activist from the jungle state of Acre, to head the Environment Ministry. Those familiar with rainforest policy say Silva and others in the government are ready to chart a new course for the Amazon, and they have made speeches promising a new policy aimed at sustainability.

So far, however, Lula has emphasized SIVAM’s security dimension, which was always the overriding concern for its military builders. The Brazilian military views the Amazon as the country’s most vulnerable region from a security standpoint, and anxiety over the Amazon’s security has increased in the aftermath of September 11 and with the escalation of Colombia’s civil war and its increasingly international dimension.

What’s more, many Brazilians, inside and outside the military, see increased control over and exploitation of the Amazon’s resources as a form of “manifest destiny”—and see SIVAM as an aid to fulfilling that destiny. A Brazilian Navy Admiral put it to me this way: “In Brazil we are 100 years behind the United States. The development of the Amazon is simply part of our national process, just as your governments populated the American West in the 19th Century.”

The SIVAM project’s headquarters aren’t in the Amazon, but in Rio de Janeiro. They occupy a suite in an Air Force complex next to the domestic airport. The lobby is decorated with vibrant color photos of Indians and monkeys. In a conference room with views of Rio’s postcard-famous Guanabara Bay, Air Force Col. Francisco Leite Albuquerque Neto, an athletic, middle-aged balding man with a trim moustache and a well-pressed uniform, is a fount of information on SIVAM, of which

he is the vice-president. Albuquerque said the new government has prioritized SIVAM, and has backed the military’s efforts to make it fully operational. “This was, without doubt, a pleasant surprise,” he said.

Drawing with a marker, Albuquerque describes the hardware that will make SIVAM revolutionary. The system is already in partial operation, and its patrols already have helped identify over 30 clandestine air strips used by smugglers, according to the government. By the end of 2003, the entire system is scheduled to be synched and working around the clock.

For the first time, infrared technology will allow for night patrols. Whereas weather often frustrates the taking of satellite images, the SIVAM jets will be able to buzz under cloud-cover. Much of the government’s past mapping depended on outdated LANDSAT satellite pictures; SIVAM images will be 900 times more powerful. In the air, five radar planes will detect unauthorized flights for a 500-mile radius.

A rapid-response force will back SIVAM’s monitoring. About two-dozen new

Brazilian-made Super-Toucan fighter jets equipped with air-to-air Piranha missiles will fly from jungle bases. Over 3,000 jungle platoons will be on alert, as well as Navy gun ships and armored amphibious vehicles. All will be ready to deal with any unauthorized intrusions into Brazilian territory, said Albuquerque.

Ideally, with SIVAM, all information about the Amazon region—including data gathered by virtually every government office and major research institution—will be funneled into one place. For some environmentalists and Amazon experts, however, the problem is that the Brazilian military now has a stranglehold on the information generated by the rainforest radar, limiting its use for purposes other than border and internal security.

Environmentalists argue that unless SIVAM receives more guidance from Lula’s new government, the radar’s potential role as a tool for ecological management and research will be eclipsed by military concerns. But the way SIVAM’S Col. Albuquerque explains it, the project’s security aims overlap with environmental concerns: “In the past, we’ve had only scattered government actions in the Amazon,” he said. “They were not coordinated actions. That meant we weren’t able to solve the

Lula’s government seems ready to chart a new course for the Amazon—but so far it has emphasized SIVAM’s military and security aspects rather than environmental protection.

Amazon's problems, which were growing: the abuse of Indians, deforestation, smuggling, illegal border-crossings. In other words, the state wasn't as present as it should be."

SIVAM planners also envision a push toward "ecological zoning," according to Albuquerque. This is a fancy way of saying that once the Brazilian government knows in detail the make-up of the vast mosaic of savannas, highlands, rivers, lakes and forests that constitute the Amazon, it will be better able to set aside land for specific uses that are "ecologically correct." This could include, for example, irrigated farming on the fertile riverbanks, sustainable extraction of fruit and tree products in inland forests and fish farming in networks of lakes and river channels.

"[SIVAM] will allow us to monitor to see that only permitted activities are taking place, and we will be able to evaluate that with images," he said, rapping his fists on a table to emphasize the incontestable nature of photographic evidence, which could alert officials about illegal logging, planting, burning or mining.

But Philip Fearnside, a research professor in ecology at the government's Institute for Amazon Research, part of the Ministry of Science and Technology, said that the project has been slow in

living up to its billing as an environmental watchdog. In early March 2003, when forest fires flared in the northern state of Roraima, SIVAM didn't detect the blazes, though the military and some aircraft were later deployed with SIVAM support to combat the flames.

Lula has promised to strengthen SIVAM's civilian component, known as SIPAM, or System to Protect the Amazon. SIPAM is centered on civilian research centers, one in each Amazonian state, which process SIVAM data for environmental and scientific uses and then distribute it to local researchers. These centers are staffed by agents of federal and state regulatory agencies and are intended to download information from SIVAM and also feed it with data to coordinate Amazon-wide environmental policing and monitoring. "It's a great opportunity," for developing sustainable conservation techniques, said Mario Jardim, a botanist and ecologist with the prestigious Museu Goeldi, a research center in Belém.

The civilian centers have been going on-line in phases since 2002, but the sharing of data has so far not fulfilled expectations. "We're still waiting for the data to come out," ecology professor Fearnside said. "I think the question still is, 'how much is this going to be a military thing?' which implies, 'how much

LULA'S ENVIRONMENT POLICY: AN OVERVIEW

As of this writing, the new Brazilian government headed by President Lula da Silva is scarcely two months old. It will require many more assessments before it can be determined just how far its accomplishments match up with its intentions in the environmental area.

So far, the most novel part of Lula's environmental policy is a willingness to treat the theme as part of national strategic planning. Previously, many growth plans were designed without putting any thought into moderating their environmental effects. This was only done later. Now the environment will be treated as a key underlying theme in all major projects undertaken in Brazil.

The government also has new and promising perspectives on the tropical rainforest of the Amazon region. One auspicious step in this regard was the appointment of ex-rubbertapper Marina Silva as minister of the environment. She knows the region

well and understands how to deal with its problems.

Also interesting is the fact that, for the first time, we are making use of SIVAM, a system of radars, computers and airplanes that cost the country \$1.4 billion dollars. The only way to keep adequate watch over Amazonia was to make a basic change in our way of doing so; the vastness of the region requires electronic resources, the use of satellites and thousands of inspectors with laptops interacting with the system.

The creation of River Basin Committees (Comitês de Bacia), a new form of administration, opens the possibility of better managing the country's water resources. These committees will include representatives of NGOs as well as water users; they will reinvest the money collected from water use fees in restoring and maintaining Brazilian rivers.

The Lula government's first environmental test concerned the production of genetically modified crops. The Environmental Ministry wanted more time to test the effects of genetically modified food; this position prevailed. [Editor's note: GM crop production is currently banned in Brazil, though soy farmers frequently violate the ban. In mid-March, President Lula announced that exports of illegally produced GM soy would be permitted

Fernando Gabeira has been a member of Brazil's congress since 1995, winning the most recent election as a candidate of the Workers Party (PT). Before that, he served as a representative of the Brazilian Green Party, of which he is a former president. Gabeira is also a well-known journalist and political activist. These comments were translated from Portuguese by NACLA.

secrecy is going to be involved?' Everyone talks about openness, but experience shows when it comes to getting the data it isn't as easy as all that."

Fearnside also believes that bureaucratic inefficiency and sparse funding have meant that many of the civilian centers and some radar stations aren't fully activated and staffed, and some expensive technology may be "gathering dust" in SIVAM's many outposts.

In any case, Lula comes into office after a concerted six-year military buildup in the Amazon. Ever since democratization in the 1980s, the military has declined in importance throughout much of South America, but in Brazil's Amazon, the role of the military has recently grown. Brazilian national security officials deployed over 20,000 extra troops to the region as Colombia's conflict heated up in the late 1990s. New bases were built, some in indigenous areas. Jungle warfare exercises have intensified along the Amazon's northern fringes, with Brazilian troops practicing anti-insurgency tactics.

In 2000, with its Plan Colombia, the United States began pouring hundreds of millions of dollars in military and financial support into Colombia. Brazilian officials, seeking to calm widespread fears of the conflict's possible spillover to the Brazilian Amazon,

pointed to SIVAM—then in development—as the nation's defense, along with a troop buildup.

Following September 11 there was more widespread worry about the country's jungle frontiers bordering territory infested with so-called Colombian and Peruvian "narcoterrorists," including four groups on the U.S. State Department's list of international terror groups. Again, SIVAM was touted as Brazil's insurance against incursions, and the timetable for completion was speeded up.

Against this background, Lula may be wary of intruding on the military's new turf in the Amazon. Lula was an enemy of the military as a trade union and pro-democracy activist in the 1980s, but sought to repair the relationship during the 2002 presidential campaign. He promised a generous military budget to a demoralized and underpaid officer corps and apologized for his former opposition to the Northern Trench plan, a military buildup along Brazil's northern jungle borders launched in the mid-1980s. This was a clear nod to the military's vision of the Amazon borders as military zones that will protect Brazil from chaos in bordering Andean nations.

Lula's first major policy move involving SIVAM came in March 2003, three months after his inauguration, when he sealed an agreement with Colombian

for one year in order to avoid destruction of the crops.]

Lula's environmental program also demonstrates great concern with quality of life. Initially, it has focused on guaranteeing basic sanitation in the poorest areas. In the future, these concerns should be expanded to include the restoration of beaches in Brazil's great oceanfront cities. These are both a constant tourist attraction and a possible source of "democratic recreation."

Since the 1980s, when Brazil's environmental policy made it a kind of planetary villain, there has been great evolution in this area. This was begun by the previous government of Fernando Henrique Cardoso. Since 1992, when Brazil hosted the United Nations conference on the environment, the nation has not stopped evolving in this area, and, naturally, it understands that its first international duty is to, in a certain way, "internationalize" its successes in this field by bringing them into the ambit of Mercosur, the regional common market. In the last two years, work has been done to unify South American environmental laws and to find common positions to take in larger international forums.

The environmental question is one of the pillars of Brazilian policymaking, along with the question

BY FERNANDO GABEIRA



Brazilian Environment Minister Marina Silva.

of peace and the questioning of globalization as it is currently being carried out. Our position in defense of the Kyoto Agreement [which limits greenhouse gas emissions] is an example of this. Minister Silva believes that because Brazil is a nation of great biological diversity it must assume responsibility for playing a leading role in forums where such major planetary questions are discussed. ■

AP/WIDEWORLD PHOTO

President Álvaro Uribe that gives the Colombians access to SIVAM data in order to combat drug trafficking. Similar talks are being held with Ecuador and Peru, a process that flatters Brazil's vision of itself as a South American power leading regional integration.

Lula's government also has shown itself willing to position the Brazilian military, backed by SIVAM, as a sort of multi-purpose peacekeeping force—not only in Rio, where they kept the peace during *Carnaval*, but also in Brazil's "Wild West," as the Amazon is sometimes called. The same month, March 2003, that troops aided by SIVAM aircraft were put in command of snuffing out Roraima forest fires, Brazilian Justice Minister Marcio Thomaz Bastos ordered the military to coordinate with SIVAM to carry out a detailed mapping of border regions, in order to identify drug and weapons trafficking routes.

In a larger sense, SIVAM is only one in a series of gargantuan undertakings meant to help the nation coalesce as a territory. In the 1960s, President Juscelino Kubitschek managed the construction of Brasília, the ultra-modern national capital built on an interior plateau of dusty scrublands. That feat was meant to help the country look inland, and draw at least some population and development away from the megalopolises of São Paulo and Rio de Janeiro along the Atlantic Coast.

SIVAM, with its intention of bringing governability to western jungles, has a similar logic. Former President Fernando Henrique Cardoso, who ended his term at the end of 2002, intended SIVAM as one of the hallmarks of his administration and personally authorized infusions of funds so the project could be launched during his presidency. It was an almost unheard of feat in Brazil: a government ribbon-cutting ceremony held on the scheduled date, in July 2002.

The plan is popular with the Brazilian media and a general population that is receptive to the idea of exerting more sovereignty in the Amazon, which even in Belém is seen by ordinary Brazilians as an unruly frontier region dominated by criminal gangs. This is a perspective that echoes Washington's view that the Brazilian Amazon is a favored pit stop for drug traffickers. Anderson de Jesus Calvacante, 23, a student and car mechanic in Belém, puts it this way: "Everyone knows there's a lot of mafia-type groups.

They have immense power in the jungle. They have secret landing strips and planes taking off continuously for all parts of the country."

Other than these threats, many ordinary Brazilians are alarmed about a trend they call "the Amazon's internationalization." The region is viewed as a far-off territory coveted by foreign powers for its genetic wealth. In this analysis, U.S. concerns over drug trafficking in the region are merely a cover for gaining commercial control over the jungle. Washington's Plan Colombia is sometimes perceived as a sort of Trojan Horse—a vehicle for exerting U.S. hegemony in the region. European and U.S. biotechnology companies are perceived as modern-day pirates, robbing Brazil of its genetic heritage.

There is at least a kernel of truth to such concerns: In 2000, a scandal erupted when it was revealed

that a research pact between Bioamazonia, a state-funded biotechnology and research firm, and Novartis, a Swiss biotech multinational, included a provision that allowed the extraction of genetic material—mostly micro-organisms, fungi and bacteria—from the Amazon and its export to Europe. Cardoso quickly signed a tough decree that prohibited the removal of Brazil's "genetic heritage." The decree is still in effect, though it is under review.

Last year, a widely circulated e-mail that attracted the attention of a Brazilian legislator purported to show a page from a U.S. textbook. A wide swath of the Amazon was set apart and labeled, "International Amazon Reserve" under the United Nations' control.

Though fake, the e-mail played on fears that were not completely far-fetched. In the 1980s, when large sections of the Amazon were burning, there was an outcry among international environmentalists for intervention. In March 2003, Thomas Barnett, a professor of warfare analysis at the U.S. Naval War College and an adviser to the Pentagon, wrote an article for *Esquire Magazine* detailing security threats to the world in the age of terror and globalization. He wrote: "the Amazon [is] a large ungovernable area for Brazil, plus all that environmental damage continues to pile up. Will the world eventually care enough to step in?"

Brazilians bristle at these types of statements, implying they are not competent to manage this key center of biodiversity. This fear is the contemporary equivalent of a long-held Brazilian concern that the country is not doing enough to disperse the seeds of modernity in its jungle frontier zone, or to tap its riches.

Many Brazilians, inside and outside the military, see SIVAM as a way of helping Brazil fulfill its 'manifest destiny' in the Amazon.

There are many Brazilian thinkers who have tackled the subject of the Amazon, but among the most influential is a writer who built a vision emphasizing the Amazon's frontier mystique, describing it as a land that could help renew Brazil. In the first years of the 20th Century, Euclides da Cunha, a journalist and government envoy, traveled to Manaus and the Amazon's far west, where a border dispute brewed because Peruvian rubber-tappers were settling land that was claimed by Brazil.

Euclides, as he is known, was the era's most celebrated chronicler of the country's remote areas, and his books remain among Brazil's most treasured literary classics. The jungle, Euclides wrote in one celebrated phrase, represents an "opulent disorder." He described the Amazon as a new land, malleable to human designs, describing it as "the last page of Genesis, which still has to be written." He emphasized the region's isolation, and its vulnerability to foreign predation.

To arrive in the rubber capital of Manaus in the center of the jungle, Euclides had to sail for weeks along the Atlantic coast and then for days up the Amazon River. His portrayal of a disorderly, faraway Eden that cried out for organization and exploitation of its extraordinary national wealth has helped shape decades of policy.

Generations of military thinkers quoted Euclides as they wrote about a vacuum of sovereignty in the jungle. As a solution, they created Brazil's version of the westward march, encouraging migration. The end result was decades of intense settlement schemes and highway building beginning in the late 1960s, when Brazil's military dictatorship sought to populate the Amazon and develop the regional economy. This frontier ethos has managed to hold its grip on the military imagination to this day.

As with most human endeavors in the Amazon, SIVAM's Belém installation began with a clearing carved from the jungle. Even near the city, vegetation had to be pushed back before civilization's plans could take root. "It took us a long time just to push back the jungle," said Ismael Pereira, a civil engineer overseeing the site. "We started clearing the area in 1999. It was all bush, just bush." Standing on the roof in his hard-hat, Pereira sweeps his hand over surrounding plots of forest.



The shadow of a logger is cast over mahogany logs—often harvested illegally.

CARLOS CARVALHO/BRASIL IMAGEM

In the distance, a cluster of high-rise apartments marks Belém's modest downtown, near the 16th Century colonial center. The Portuguese city of houses and canals was built behind fortifications intended to defend the Amazon basin from Dutch and French raiders. Pereira said the SIVAM site—which includes a security perimeter, a water well and filtration station, watch tower and miniature power plant—encompasses 62,000 square meters, the size of 12 soccer fields. It is a fortified compound for the 21st century, meant to control sky, water and earth through sophisticated satellite technology.

Back at his small office near the gated entrance to the compound, taking eager sips from a glass of water retrieved from a refrigerator, Pereira kicks off his boots before unrolling a laminated map over his desk. As defined by the government, the Brazilian Amazon covers 60 percent of Brazil's land area, roughly equivalent to the size of half the United States territory, including Alaska. This vast area is shaded green on Pereira's map. Scattered about are drawings representing SIVAM's many different components.

"I think it's about time that the Amazon became incorporated into the rest of Brazil," said Pereira. SIVAM "will help that happen."

But Belém journalist Lúcio Flávio Pinto believes the ongoing military-led attempts to exercise control over the region and "civilize" it will simply lead to more deforestation. Pinto is one of the most outspoken critics of government policy in the Amazon. Much of Pinto's work is informed by his thesis that democracy has never become rooted in the region. His column, *Carta da Amazônia*, or "Letter from the

Amazon," is published on the website operated by the *Estado de São Paulo* newspaper, one of the country's largest.

The column, laced with Pinto's encyclopedic knowledge of Brazilian history, has lately been a relatively lonely dissident voice against SIVAM. Pinto's stance stands in contrast to that of most Brazilian media and the *Estado* newspaper itself. In an April editorial, *Estado* praised the project, saying SIVAM's capacity to "protect the Amazon will boost respect for Brazil internationally." Much media coverage has also celebrated SIVAM as the ultimate Brazilian spying tool that will root out outlaws.

But Pinto, a dapper man who lives in a villa near Belém's old quarter, sees SIVAM as evidence of weak civil institutions and a powerful police state in the jungle.

SIVAM "represents a geopolitical vision of the Amazon," he said. "The official vision of the government has remained based on the parameters of the national security doctrine," which considers low population density and lack of economic infrastructure dangerous weaknesses.

Pinto's column can be read as a revisionist contemporary history of the region. He regards SIVAM as the ultimate coup in the military's consolidation of its control over the Amazon. In 1985, President Jose Sarney helped advance Brazil's transition to democratic rule, but in the Amazon he launched the Northern Trench plan that introduced military troops to far-north regions, including those bordering Colombia.

"This is a distorted vision of our frontier problems," Pinto said, sipping dark coffee in his living room while a thunderstorm rumbled outside. He acknowledged the situation in Colombia is dangerous, but argued SIVAM is an exaggerated response. Although Brazilian troops have exchanged gunfire with and sometimes capture Colombian guerrillas, Pinto believes the rebels' cross-border trafficking and weapons dealing is a problem for Brazil's Federal Police, not for the military.

He bemoans spending so much on a regional radar while research languishes. By his own calculations, SIVAM's price tag represents 20 years worth of government science funding for the Amazon. Pinto insists that with the military in firm control, the entire project will turn on bolstering jungle security. No matter how many satellites or jets the government has, he says, Brazilians will never be able to utilize the Amazon intelligently unless they invest more in science and research.

He is hopeful the new government will change things, but he still fears SIVAM's information, unless the project is re-focused and taken out of military hands, will be used for the wrong ends. "It's false to say that SIVAM is a scientific project," he said. "It's a project that uses science to meet a pre-established military objective. I think the price to pay for that is the continuing destruction of the Amazon."

Already, the jungle isn't as pristine as many may imagine it. Estimates are that 17 percent of the rainforest has been destroyed—burned, cleared or thinned out for pasture, with the worst deforestation radiating out along roads connecting cities, which are home to over half of the Brazilian Amazon's 17 million

people. In many ways, this state of affairs is the legacy of past technological innovations and how they enabled military planners to accelerate settlement in the region.

In 1971, the RADAM project was implemented. Combining satellite images with aerial surveys, it was carried out to catalog the Amazon's wealth. The data showed there were billions of dollars in unexploited mineral, timber and hydropower resources. As General Meira Mattos wrote in his 1980 book, *A Pan-Amazonian Geopolitics*, the RADAM inventory "completely altered our concept of the region's potential." Millions were invested to get at the newly discovered wealth and the migrants followed, encouraged with government incentives. According to the government's five-year Amazon plan published in Belém in 1976, "diverse areas of the Amazon received thousands of families of settlers ... in a process of directed colonization without precedent in the world."

If it is to start working toward Col. Albuquerque's description of a sustainable, high-tech jungle policed by jets, data stations and radars, the military will need to avoid repeating the mistakes of RADAM. This means it will need to discard outdated ideas about the need for more roads and settlements to secure sovereignty, and be nudged by Lula's government into cooperating fully with civil society and research institutions so that environmental priorities don't get short shrift.

In 1905, Euclides da Cunha compared the Amazon to the rugged society of California's gold-rush days in the mid-19th Century. Euclides wrote that justice was nonexistent and violence the dominant factor in human relations. "However, all those evils will begin to disappear once this exiled society is incorporated to the rest of the country," he wrote. A century later, SIVAM aims to put an end to anarchy in the Amazon, but order hasn't always been the rainforest's friend. ■

One critic sees SIVAM as a sign of a powerful police state in the jungle that won't protect the Amazon from destruction.
