Forest Policy Reform in Brazil

Simone Bauch, Erin Sills, Luiz Carlos Estraviz Rodriguez, Kathleen McGinley, and Frederick Cubbage

ABSTRACT

Rapid deforestation in the Brazilian Amazon, caused by economic, social, and policy factors, has focused global and national attention on protecting this valuable forest resource. In response, Brazil reformed its federal forest laws in 2006, creating new regulatory, development, and incentive policy instruments and institutions. Federal forestry responsibilities are maintained within the ministry of the environment; its regulatory agency responsibilities are divided among three different branches of the agency; many powers are delegated to states and municipalities; and a new private concession system is being developed. These reforms offer promise to improve forest protection and management in Brazil but must overcome significant institutional and social resistance for success.

Keywords: Brazil, forest policy, law, Amazon

> … The present public-land reserves had to be set aside … [to prevent] … the headlong monopolization of the public domain that was threatening the West with peonage. Those reserves were also made to halt the waste of natural resources which the United States had dissipated more prodigally than any other nation. They had to be made so that a useful part of our national wealth could be preserved, developed, wisely managed, and intelligently used in future times … necessary to prevent Eastern and foreign corporations from taking over the whole West by fraud, bribery, and engineered bankruptcy.
>
> (Devoto 1953)

This apt quote by Devoto describing the western frontier of the United States in the 19th century could be transposed with a simple "change all" of the United States to Brazil, and West to Amazon, and would then describe the common perception of forest threats and policy needs in the Brazilian Amazon today. History appears to be repeating itself in the Amazon, with domestic interests, foreign corporations, and ineffective forest policy leading to rapid deforestation and extreme environmental and social costs. The Brazilian government is aware of this perception and has responded with innovative and rapid policy change, most recently with regard to timber management and extraction. Although continued rapid deforestation of the Amazon is well publicized, these momentous policy changes are less well known. This overview briefly summarizes and analyzes the most recent policy reforms, which focus on creation and management of national forests designed to protect this region, its natural resources, and its people.

Brazil Forest Policy Issues

The fundamental issue driving forest policy in the Brazilian Amazon is the ongoing rapid rate of deforestation. The United Nations Food and Agriculture Organization (FAO 2007) data indicate that Brazil lost about 42 million ha of forests from 1990 to 2005, decreasing from 520 to 478 million ha at an average rate of 2.8 million ha/year (0.5%). Hansen et al. (2008) estimate that over 45% of all deforestation of tropical humid forests occurs in Brazil. The rate of forest loss actually increased slightly after 2000 to 3.1 million ha/year (0.6%) from 2000 to 2005 (FAO 2007). Not all this loss occurs in the Amazon region, but the vast majority does. INPE (2008) estimates that the Amazon lost an average of 1.8 million ha/year (18,000 km^2) of moist tropical forest from 1990 to 2005, although this decreased to about 1.4 million ha (14,000 km^2) in 2006 and 1.1 million ha (11,000 km^2) in 2007 and was estimated to increase to 1.2 million ha (11,968 km^2) in 2008 (INPE 2009).

Deforestation in the Amazon can be attributed to conversion to cattle ranches and cropland, both of which are facilitated by gradual expansion of the road network by government agencies and logging operations, and associated clearing and burning (Fearnside 2005). Complex problems occur with determining and granting land tenure,

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Simone Bauch (scbauch@gmail.com) is PhD student, and Erin Sills (erin_sills@ncsu.edu) is associate professor, Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, NC 27695-8008. Luiz Carlos Estraviz Rodriguez (lcer@esalq.usp.br) is professor, Universidade do São Paulo, Piracicaba, and analyst, Ministério do Meio Ambiente, Serviço Florestal, Brazil. Kathleen McGinley (kmcginley@fs.fed.us) is research social scientist, US Forest Service, International Institute for Tropical Forestry, Río Piedras, Puerto Rico. Fred Cubbage (fredcubbage@yahoo.com) is professor, Department of Forestry and Environmental Resources, North Carolina State University, Raleigh, NC 27695-8008. *The authors thank reviewers for the* Journal of Forestry *and many persons in Brazil who provided personal interviews with Fred Cubbage in March 2008 as part of the research for this article.*

Figure 1. Map with the states and public forests of Brazil.

contradictory policies that alternately promote and restrict agriculture and land clearing, assignment of land to new reserves for indigenous peoples, and enforcement of rules and regulations (Verissimo and Lentini 2009). The local, national, and global benefits of the native Amazon forest have been widely touted and promoted in the popular and scientific literature. Thousands of books and articles and more than a million web references address forests and the Amazon. Benefits that could be lost through deforestation of the Amazon include protecting wildlife and biodiversity, storing carbon, maintaining hydrologic cycles, sustaining indigenous and traditional communities, and providing timber and other commodities, to mention a few. These global issues have prompted both world reprobation and considerable assistance and aid to protect these forest goods and services.

The tension between increasing market development of the Amazon for agroindustry—cattle, crops, and associated logging—and the conservation of its natural resources and cultural heritage has led to national debate in Brazil. This debate is partly about the appropriate balance between national and local interests in determining resource use and protection. The effectiveness of government at all levels is often criticized, either for excessive bureaucracy or for direct or subtle corruption. Although these are not the only factors driving resource allocation and use in the Amazon, their resolution is critical for stabilizing forest cover and benefits.

Brazil has 27 states, including the federal district of Brasilia (Figure 1) and an area of 8.5 million km^2 (slightly larger than the continental United States). The FAO (2007) reported that there were 478 million ha of forests in Brazil in 2005, compared with 303 million ha in the United States. The country has many diverse forest regions, ranging from the Atlantic Coastal Forest in the Southeast, which have been largely deforested and developed by intensive settlement and agriculture over the last three centuries, to the more recently developed areas of the Cerrado savanna forests in the middle of the country, and the Amazon tropical rainforest in the North. There were 193 million ha of forestlands under federal government ownership in Brazil as of 2007 (Table 1), with 178.5 million ha (92%) of this in the Amazon biome (Serviço Florestal Brasileiro [SFB], Ministério de Meio Ambiente 2007b).

Brazil also has an extensive and expanding network of federal protected areas (SFB, Ministério de Meio Ambiente 2007b). These are mostly, but not all, forests. There are 29 million ha designated exclusively for environmental protection (e.g., national parks and ecological stations). Twenty-four million ha have been designated for sustainable use, under widely varying rules for management, occupation, and use. This includes 19.2 million ha of national forests, 6.4 million ha of which have conflicting designations as indigenous reserves. Approximately 99.2 million ha are designated as indigenous reserves managed by the Brazilian Foundation for Indians (FUNAI).

Barreto et al. (2008) examined land tenure data for all lands in the Amazon. Out of a total area of 491 million ha, 211 million ha are protected by state and federal governments. This includes 100 million ha of indigenous land, 2.6 million ha in military use, 52.4 million ha of federal protected ar-

Table 1. Federal forestlands in Brazil, 2007.

Category	Area (million ha)
Total federal forestlands	193.8
Areas still not designated for specific ownership and use	29.3
Areas designated for ownership and use	164.5
Integral protection—Ecological stations, national parks, biological reserves, wildlife refuges, and others	29.3
Sustainable use—Areas of environmental protection, areas of relevant ecological interest, national forests, extractive reserves, sustainable development reserves, and projects	24.3
Indigenous territories[a]	120.7

[a]Approximately 10 million ha have conflicting designations as both indigenous territories and protected areas.
Source: SFB 2007b.

eas, and 56.3 million ha of state protected areas. The federal protected areas include 25.5 million ha of integral protection and 26.9 million ha of sustainable use. Areas designated for sustainable use include extractive and sustainable development reserves, which are generally both occupied by and managed for the benefit of local populations. Also included are national forests, which have timber production as one of their key objectives. The first national forest in Brazil was created in the Amazon in 1974 (Tapajos National Forest). The states also have 12.5 million ha of integral protection and 43.8 million ha of sustainable use areas (not included in Table 1). In addition, another approximately 25 million ha are owned by the federal and state governments but, so far, are not designated for specific uses.

Although these protected areas include both forest and nonforested landscapes, it is clear that Brazil has protected a very substantial area of forest, especially in the Amazon. For example, the United States has 303 million ha of forests in total (FAO 2007), compared with the 211 million ha of land with some form of protection in the Amazon per Barreto et al. (2008). Both the state and the federal protected areas alone, of more than 50 million ha each, are immense. In fact, their combined area of 108 million ha, compared with US data (Smith et al. 2004), is greater than all the forests in the US South (82 million ha), the US West Coast (24 million ha), the US North (64 million ha), or the 77 million ha in the US National Forest System. The areas for indigenous use of more than 100 million ha are far larger than Native American areas in the United States, which cover less than 3 million ha.

Forest Policy Responses

Brazil has had a plethora of policies addressing the forests throughout the country for decades. In fact, it has some of the most complex, albeit not always effective, forest laws in the world. Modern forest legislation began with Lei 4.771 in 1965, which provided the general framework for forest laws, established some broad regional areas of protection and the means for delineating them, and set detailed forest practice guidelines for protected areas and reserves on all forestland in the country (Promanejo 2007). Figure 2 shows Congress flanked by the federal government buildings in Brasília.

In recognition of its historical record of very modest implementation of complex forest laws, the country began one of many periodic reviews and recommendations for changes several years ago. This included a well-planned and fortuitous combination of national dialogues and forest resources leadership with support from the Minister of the Environment to seek new laws and policies in the early 2000s.

Up to that date, national forestry regulation and protection were concentrated in the Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis (IBAMA), with the exception of indigenous reserves, which are managed by the Brazilian Foundation for Indians, or FUNAI. IBAMA is a broad environmental regulation agency located in the Ministry of the Environment (Ministerio do Meio Ambiente [MMA]). It was created in 1989 to protect and regulate the environmental, forestry, fisheries, and rubber sectors. IBAMA also worked with communities, specifically for production of nontimber forest products in extractive reserves. However, its proudly avowed mandate in most cases was to protect natural resources through "command and control" regulations. This did not prove particularly effective in the vast forests of the Amazon, given relatively modest agency resources.

Institutional Change. Thus, in the 2000s, many interests convened a process to change the focus and approach of IBAMA and Brazilian forest policy, especially for the Amazon. First, the National Forestry Program (Programa Nacional de Florestas) in MMA proposed that the federal government shift its focus from only forest protection to forest *development*. The premise was that by creating opportunities to earn income from productive forests, they could be protected better than by command and control alone, partly by building alliances with interest groups who want to use and develop forest resources (e.g., Verissimo et al. 2002, Verissimo and Barreto 2004). Development explicitly includes timber harvest and concessions on public forestlands. By 2004, the National Forestry Program had successfully promoted forest development as a national goal, and it was included in the top 12 of 100 programs listed in the President's development plan. Figure 3 depicts the felling of a tree in the first Brazilian concession, at the Tapajos National Forest.

Second, the same presidential decree that created the National Forestry Program created a new forestry commission—Comissão Coordenadora do Programa Nacional de Florestas (Conaflor)—to discuss forest conservation and development and to promote the development of new laws or improve existing laws. Conaflor was created in the biodiversity and forest secretary of MMA and is composed of 39 members, including 19 from government and 20 from nongovernment organizations, social groups, rural workers, universities, and other interest groups. This commission provided a vehicle for new discussions about forest issues and responses. Revisions of laws had been considered in the past but usually focused narrowly on forest concessions and ended in failure. For 2 years, Conaflor worked actively to develop a new forestry law, including consultations with 1,200 organizations

Figure 2. Congress and federal government buildings in the Esplanada dos Ministérios, Brasília. (Photo by F. Cubbage.)

Figure 3. Felling a jatoba tree in the Tapajós National Forest Concession. (Photo by S. Bauch.)

and eight drafts of a new law. At the same time, officials from MMA also participated in an informal network of forestry leaders from the largest forested countries in the world, including visits to other countries and meetings, to discuss their forest organizations (de Azevedo 2008). These organizations served as models for the new agency in Brazil.

The proposal for the new law was sent to Congress in February 2005, passed in February 2006, and was signed by the President in March 2006. Partly because of the consultative process facilitated by Conaflor, the law was supported by a broad coalition of interest groups, albeit not all, with the greatest controversy being associated with plans to issue private timber harvesting concessions (e.g., Merry et al. 2003, Nepstad et al. 2004).

A new law and regulation—Lei Nº 11.284 de 2/03/2006 and Decreto Nº 6.063 de 20/03/2007—(Serviço Florestal Brasileiro [SFB], Ministério de Meio Ambiente 2007a, Promanejo 2007) created the SFB in March 2007. The SFB—or Brazilian Forest Service—manages zones designated for production within federal protected areas, including funding and technical assistance to develop the private concession system. The temporary measure Nº 366 de 26/04/2007, after the creation of the SFB, which was converted into law (Lei Nº 11.516) still in 2007, discusses the creation of the new Instituto Chico Mendes de Conservação da Biodiversidade (ICMbio; with overall authority for all federal protected areas) based on a division of IBAMA. In brief, these laws maintain forestry responsibilities within the MMA, divide IBAMA's many authorities and responsibilities among three different branches of the agency, and provide authority to decentralize many powers of IBAMA to the states and municipalities.

Thus, although the law provides opportunities for forest development, it preserves the protection and regulatory components and structure of IBAMA. Some Conaflor discussions had suggested transferring IBAMA's forestry powers to the Ministry of Agriculture. However, retention in IBAMA maintains a strong environmental focus and agency infrastructure for forestry regulation and development. IBAMA had achieved relatively good compliance with forestry laws in southern Brazil, where both industrial forest plantations and, in some areas, the native Atlantic Coastal Forest area had increased in the past decade. Maintaining the new Forest Service within IBAMA created space for new ideas about forest development within an existing strong institutional framework (de Azevedo 2008).

Legal Authority. IBAMA retains much of its traditional command and controls regulatory powers, although the scope of those regulatory powers is shifting under the law. In the past, the agency regulated all public and private lands. All forest landowners were required to have an approved forest management plan (Plan de Manejo Florestal Sustentável [PMFS]) before they could harvest timber, and all harvested timber was required to have a transport authorization to show that the wood being transported to a mill had come from an area with an approved forest management plan. Under the new law, the approval and enforcement (fiscalização) of PMFS has been transferred to the state environmental agencies. Some state agencies also took over the responsibility of transportation authorizations, now termed the Documento de Origem Florestal (DOF) with a new web-based application process. IBAMA is still responsible for enforcement in private and public areas where management has not been approved and thus remains the frontline agency for dealing with the illegal logging and deforestation, which are among the most significant barriers to

Figure 4. Diverse forest products for sale in a city market in Belem, Para. (Photo by S. Bauch.)

sustainable forest management in the Amazon (Tollefson 2008).

Even before the new law, about 10 of the 27 states in Brazil had assumed responsibility for reviewing and providing licenses for sustainable forest management plans on private, state, and municipal lands. By 2008 all states except Rio de Janeiro had signed cooperative agreements to work with IBAMA and assumed authority for approving and monitoring compliance with PMFS and DOF. However, IBAMA has continued to provide some of these functions during the transition period and, in general, still has authority to work with states on enforcement activities, when requested by the state. IBAMA will continue to review and grant licenses for PMFS and DOF from federal lands or lands that cover two or more states or that have threatened and endangered species listed in Annex 2 of the Convention on Trade in Endangered Species.

The ICMbio was given authority over all federal areas of integral protection and sustainable use, covering 65.3 million ha. Integral protection areas will be managed by ICMbio for the designated uses, which do not include forest development or timber harvests. Extractive reserves are comanaged with their residents primarily for nontimber forest products, such as rubber. This is the basis for the name of the Institute: Chico Mendes was a famous leader (assassinated in 1988) of the rubber tapper movement, which successfully campaigned for creation of extractive reserves. Figure 4 shows some examples of forest products harvested by communities.

With the reorganization of IBAMA, it has become critical to prepare management plans—official documents that specify how conservation units are to be used—for each area designated for sustainable use. These

management plans, along with an annual national plan for forest concessions (Plano Anual de Outorga Florestal [PAOF]), designate zones to be managed by the SFB for production purposes. Currently, the forest management stands in the sustainable use conservation units are still being demarcated; therefore, the actual area to be managed by the SFB is still unknown.

The new law provides a mandate that the SFB can offer long-term concessions for private harvesting of timber and nontimber products from national forests, although many other uses are retained under direct IBAMA control. Before any concessions can be granted, each national forest must have a complete forest inventory completed and a sustainable forest management plan prepared by the SFB and approved by IBAMA. When the new laws took effect, only 7 national forests, among the 67 in existence, had approved sustainable forest management plans. The SFB has been working rapidly to obtain inventories for other national forests, so they can proceed with writing forest management plans and requesting bids on concessions.

The revenues generated by these concessions are to be shared among relevant agencies and governments. Specifically, the base minimum fee for a concession will be allocated 70% to the Serviço Florestal (the organization that executed the agreement) and 30% to IBAMA. For royalties paid exceeding this base concession level, 30% would accrue to the relevant state, 30% to the relevant municipalities, and 40% to a national fund for forest development (National Forest Development Fund [FNDF]). This will be the primary source of funds for the FNDF, which is intended to help provide financial support, technical assistance, reforestation of degraded areas, and control and monitoring of public production forests.

In addition to the FNDF, SFB was also given responsibility for establishing a system of national forest information, for providing technical assistance and studies to local communities in sustainable use areas, and for the federal forest products lab, Laboratório de Produtos Florestais (LPF). The new institutional arrangement improved prior laws that allowed banks and other financial institutions to provide loans for forestry as well as agriculture and other uses. As a consequence, these loans increased from only $Reais 5 million in 2002 to $Reais 200 million in 2008.

Issues

To say that the new forestry laws could solve all the forestry issues in Brazil, or even address them all, is of course inaccurate. The law, however, has tried to improve forest management and protection, largely on public lands throughout the country and in the Amazon in particular. Many issues continue or were created by the new law and decree themselves.

Bureaucracy. One set of issues relates to the transfer of powers from the old IBAMA to the new Serviço Florestal and Instituto Chico Mendes (ICMbio). As mentioned, many employees of IBAMA opposed the new law virulently, because they felt the changes would weaken the agency and environmental protection, cause them to lose their jobs, or result in their transfer to ICMbio. Public demonstrations including protests by hundreds of IBAMA employees in Brasília, the national capital. Most forestry employees also went on strike after the law was passed. In fact, many employees of IBAMA who were transferred to the new ICMbio continued "personal strikes" and did not report to work for several months after the law was passed. These employees eventually were offered amnesty and most have accepted their new positions in ICMbio.

After two years, most employees and bureaucrats have accepted the major changes in agency authorities, with varying degrees of enthusiasm. The professional regulators who remained in IBAMA have pretty much accepted the change without significant evidence of bureaucratic resistance. Perhaps more employees of the new ICMbio are recalcitrant and are taking more time to adjust to new responsibilities. Presently, the SFB does not technically have its own employees (details mentioned later) but the 50 or so employees who do work for the SFB are extremely dedicated and committed to creating the new agency and fulfilling its promise, as well as its legal authority. In addition, the leadership of the LPF is pleased with the opportunity to work for the SFB, given its focus on forest development, not just environmental protection, as was the case in IBAMA.

The SFB still does not have authority to create new personnel positions within the agency. Rather, it is operating with a modest budget and authority to hire persons on a temporary basis from other agencies in the federal government, universities, or the private sector. To date, the SFB consists of a dedicated group of talented temporary professionals, almost all located in Brasília. For the initial phases of developing a new agency, this has proven successful. The SFB employees have a high esprit de corps and commitment to the agency. The Director-General, Tasso Azevedo, is a charismatic, articulate, and enthusiastic spokesperson and is well respected within and outside the agency. The lack of field personnel, however, with only a few coming on board in the Amazon as of 2008, conveys a perceived lack of agency power. If the SFB is to manage its public forestlands successfully, permanent employees in both Brasília and field offices in the Amazon are required, along with adequate operating budgets.

Decentralization. Even the technical issues involved with the new institutional structure were daunting. In Lei Nº 11.284 of 2006, there were 15 articles and many sections that discussed who would assume responsibility for the new functions as outlined in the law. These included management of public forests, forest management plans and solicitations for concessions, contracts with the SFB, composition of the budget for SFB, use of public lands, and other matters. However, several key issues were not specifically addressed and are being resolved mostly by muddling through.

Decentralization of IBAMA's regulatory authority and enforcement for forest regulations is foremost among the shifts in authority affecting success of the new law and decree. Most states have signed agreements to take over or share responsibilities with IBAMA. However, signed agreements do not necessarily mean that the states have the capacity for enforcement. Personnel and budgets are lacking, especially in the vast Amazon states with the most forest problems. The new federal law did not provide any funds to the states for implementation. The two largest states of Pará and Amazonas—each with forest areas larger than the entire state of Texas—had less than five forestry staff when the new law was passed.

In many states, the limited staff also lacked political motivation, technical skills, training, vehicles, and/or an operating budget to implement the agreements. This is in contrast to the infrastructure and expertise that IBAMA has built up over the past 5 years, including ground personnel, airplanes, helicopters, and geographic information system monitoring. Now, IBAMA even has been able to track and monitor transport truck fuel purchases to identify likely illegal

loggers. In fact, some critics suggest that developers and agroindustry interests did not oppose the law because they would prefer not only to work locally with states and municipalities, but because they felt these local authorities were less powerful or at least more sympathetic to local business.

Forest Plans, Profitability, and the Courts. There are of course many other issues remaining from the past or created by the new law and decree. Just the simple ability to institutionalize the new national forestlands, conduct inventories, prepare management plans, solicit and review concessions, and make forest management pay remains a major issue. All concession solicitations require that a forest first have a complete inventory using a sampling system and a completed sustainable forest management plan. The SFB has contracted inventories and is writing the requisite sustainable forest management plans for many areas. But both the inventories and the plans are complex. In 2007, the new plans were only completed for one national forest in the state of Rondônia, which was therefore the site of the only request for bids in the first year of the new law.

A related issue is whether sustainable forest management can indeed be profitable enough to attract companies that will pay the required fees. As part of its plan and concession solicitation for the Jamari National Forest in Rondônia, the SFB estimated local prices, estimated a harvest schedule of products for 30 years, and set minimum bid prices for specific species and total amounts per year. At least some critics have responded to the solicitation by stating that the estimated timber prices were too high and that they would not bid on the concession. Others noted that the excessive rules and requirements, including a 100% cruise of all trees before any harvesting can occur, are too costly. Seventeen firms or cooperative ventures did bid on the three forest management units in the Jamari solicitation released in 2007, so opportunity for profit apparently exists. Still, this is an absolutely fundamental premise for the new law—that forest development via concessions will pay, and this forest management will lead to forest retention and its associated benefits. If management proves to be unprofitable for the companies awarded concessions, the entire system will be undermined.

Environmental interests have expressed concern that to compensate for low profitability per unit area, the SFB will proceed to indiscriminately harvest vast areas. In contrast, the first Annual Plan for Forest Concessions (PAOF) was relatively conservative. It identified up to 4 million ha that could be harvested, but only about one-quarter of this area, slightly less than 1 million ha, was actually authorized for concessions. The rest of the area was set aside in various biological or community reserves. In addition, any harvests would have to occur in compliance with the relevant sustainable forest management plan as well as the fairly rigorous forest practice requirements promulgated under the 1965 forestry law or since.

No debate over forest management on public lands in the United Stattes would be complete without appeals and judicial intervention, and the Serviço Florestal seems likely to face the same. Laws and regulations are so important that 7 of about 50 SFB employees as of March 2008 were lawyers—more employees than in field offices at that time. An early procedural challenge was that several early bidders who were ruled out of the response to solicitations for Jamari chose to appeal to the President's office. It took months for the administration to make a final decision to allow the winning bidders to receive the contract.

Second, the Brazilian Constitution states that any concession of public land with a total area greater that 2,500 ha must be approved by Congress. The many lawyers working for the SFB argued that concessions of timber rights were not a federal grant of *land*, and thus the agency proceeded with the request for bids on the Jamari. However, in March 2008, a federal judge in the state of Rondônia ruled that the proposed concession required congressional approval. The appeal was resolved in favor of the Forest Service, but the concession process can and will still be challenged, even though the legal grounds for such challenges are gradually decreasing in meaning and strength.

In August 2008 the first concession contracts were signed between the SFB and the winning bidders for the Jamari. By the end of 2008, the SFB had started a second concession process in the Saracá-Taquera National Forest in the state of Pará.

Conclusions

On paper, Brazilian forest policy has provided relatively strong environmental protection and tough regulations since its 1965 federal forestry law. However, vast forest areas, a modest number of underequipped personnel, vested local interests, murky land tenure, and conflicting land settlement policies have led to continued rapid deforestation in the Amazon, and in the Cerrado savanna forests as well. Pervasive international pressure from other countries and environmental organizations, coupled with stronger Brazilian environmental interests, have made forest policy a crucial national agenda issue. Increasing national capacity and financial and technical capacity have also helped create the conditions for policy reform.

Brazil has divided the forestry functions of its immense command and control environmental protection agency, IBAMA. Regulatory authority remains in IBAMA, and, in fact, the agency has developed increasingly high tech and sophisticated means to combat illegal logging in the Amazon. The ICMbio has taken over management of federal protected areas and reserves. The SFB is beginning to establish itself as the new agency for forest development for utilitarian uses of some federal forests, primarily through the use of forest concessions.

Each of these changes is challenging. IBAMA's agreements with the states to decentralize enforcement may result in more responsive and more locally adapted management. On the other hand, it may allow more deforestation at least in the short run, as developers rush to take advantage of the interim transition period when states will be adding personnel and infrastructure. State agencies will face increasingly sophisticated logging operations that have evolved to evade IBAMA's enforcement tools, e.g., by making light cuts of high value species that are not perceptible with remote sensing.

ICMbio manages forest protection areas and reserves, and IBAMA remains responsible for enforcement. So far, ICMbio does not need to press for management plans, because these are not, per se, necessary for parks and reserves. However, to be more than paper parks, management authority will need to be exercised even to achieve preservation objectives.

The SFB shows great promise and vigor as the new agency responsible for forest development. However, its role and success are far more fraught with dangers. These include some residual resentment in its other IBAMA forestry bureaucracies and, perhaps, under-the-table opposition from development and logging interests on one side and strict environmental protection interests on the other. There also are the immense technical challenges of rapidly preparing sound

forest management inventories and plans for millions of hectares of forests for the first time, following detailed environmental and procedural requirements laid out in the 2006 law and 2007 decree, pushing the paperwork and legal questions through satisfactorily, and resolving ambiguities inherent in any law.

The success in rapidly reformulating Brazilian forest policy at the national level, but decentralizing forest regulation, is exceptional in its speed and the broad-based support generated in passing the laws. This change from centralized federal regulation to decentralized governance and the use of forest concessions tracks forestry sector trends throughout much of the developing world (Agrawal et al. 2008). Similarly, Brazil has decentralized much of its other sectors in the last 10 years, including health and education.

To achieve such change in the forestry sector, there was a fortunate alignment among the interest groups in the Comissão Coordenadora do Programa Nacional de Florestas, leaders in the MMA, and the Executive Branch including President Luiz Inácio da Silva (Lula). The direct involvement of the former Minister of Environment Marina Silva in supporting the policy and coordinating with the new Forest Chief Tasso de Azevedo brought credibility and clout to advocates of the new forest laws. Marina Silva resigned after 6 years as the minister in 2008, stating that she lacked the necessary political support to protect the Amazon. She has been replaced by Carlos Minc, who also appears to be aggressively pursuing forest protection measures for the Amazon. In fact, on Sept. 29, 2008, he announced a series of 12 additional reforms and enforcement measures to help protection of the Amazon forests (Mendes 2008).

Almost all interest groups remain supportive of the new forest policy and the efforts to mix classical national forest regulation on federal lands (IBAMA) and protection or restricted uses (ICMbio) with decentralization and modern forest management (SFB) as an attempt to protect its remaining Amazonian and other forests. However, the challenges remain substantial, and success of the new agencies and latent interest group opposition with philosophical design, economic impacts, or niggling implementation questions can still undermine success. In addition, it is still unproven that forest management for development can pay in the Amazon and other regions. Brazil has taken a major step forward to improve its national forest policy, image, and success. We hope that these laws, decrees, and implementation will succeed in achieving the pervasive goal of retaining, protecting, and managing its forests for sustainable development for this and future generations.

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