

Brazil's bold initiative in the Amazon

A proposed new system of forest concessions in the Brazilian Amazon would reshape the logging industry there

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THE Brazilian government has frequently been criticised for the environmental damage caused by its development policies, but now it is undertaking progressive reforms to balance its economic needs and the long-term conservation of the country's natural resources. By 2010, the Brazilian government plans to have established 50 million hectares of national forests (FLONAs) in the Amazon, 10% of the Brazilian Amazon territory (Veríssimo et al. 2002a). Establishing these FLONAs is just the first step, though, in what will be a paradigm shift in how the timber industry operates and, to a larger extent, in how development proceeds in the Amazon.

The strategic expansion of the national forest system is designed to promulgate the widespread adoption of forest management practices through an innovative forest concession system. The intent is to stabilise the timber industry so that it does not create a progression of boom-and-bust logging towns across the Amazon, which has led in the past to chaotic and unplanned regional development.

The underlying strategy is to first gain control of the resource. By placing many of the economically viable forests under protection, the goal is to constrain extensive deforestation and predatory logging activities. Logging on privately-held lands will be pressured to become more sustainable—and the resulting resource scarcity will force timber companies to enter the FLONA concession system. Defined management standards will be required and enforced. Stumpage fees and taxes will be collected to support the administration, operation, monitoring and enforcement of the system. If a specific FLONA cannot be operated at a profit, its concessions will not be opened for bidding. In principle, timber companies will be obliged to improve practices in order to survive. Certified timber will most likely become the rule instead of the exception. Government and local communities will capture more of the revenue stream and the timber industry will be stabilised at sustainable production levels. This proposed system has been criticised and, indeed, many challenges must be addressed to achieve it; here we explain how some of these are being tackled.

FLONAs in the Brazilian Amazon

FLONAs were first created in Brazil in 1965 and the first Amazonian FLONA, the Tapajós National Forest, was



Sustainable development driver? A log truck carries logs produced by reduced impact logging in a training area (funded partly by an ITTO grant) near Belém, Brazil. Photo: Tropical Forest Foundation

established in 1974. By 1999, FLONAs covering 8.3 million hectares existed in the Amazon, although their primary purpose was to protect mineral reserves (Veríssimo et al. 2000).

With the launch of the National Forest Program in 2000, FLONAs gained new political prominence. Under Brazilian law, FLONAs are conservation units covered by native forest species that are designated for the rational use of forest resources, including timber, under a regime of sustainable management. Recreation, tourism and scientific research are also allowed, but environmental services must be protected. Similar public forest reserves exist in Canada, the United States, Malaysia, Indonesia, Peru and Bolivia (Barreto & Arima 2002).

The status quo

At present, some 350 Amazonian tree species are harvested commercially in Brazil (Martini et al. 1994), providing upwards of 28 million m³ of roundwood annually (Veríssimo

& Smeraldi 1999). In addition to salvaged timber from deforestation processes, well over 1 million hectares of standing forests are selectively logged each year for their most valuable trees (Matricardi 2003). Of the logs arriving at Amazonian sawmills, 50% have been harvested illegally (Lentini et al. 2003). The great majority (95%) of timber extraction is done without management, damaging forest structure, placing excessive pressure on high-value species and increasing the vulnerability of such forests to fire (Veríssimo et al. 2002b).

Predatory timber extraction has characterised the Amazonian timber boom and exhausted forest resources in the old logging centres of eastern Pará, north-central Mato Grosso, and southern Rondônia. Lumber mills are now relocating to new timber frontiers in north-central Pará (Pacajás and Anapu river regions), western Pará (along Highway BR163), and southwestern Amazonas. Timber is generally taken illegally from unclaimed public lands. These logging activities, in synergy with agriculture and cattle production, accelerate forest degradation and deforestation (Schneider et al. 2002).

Why FLONAs?

The destructiveness of conventional logging practice has led some Brazilian environmental non-governmental organisations (NGOs) and timber companies, with assistance from ITTO in some cases, to develop, test and demonstrate better harvesting techniques, commonly known as reduced impact logging (RIL), on the relatively small area of FLONAs already declared in the Amazon and on some private lands. Under RIL regimes, timber-cutting cycles and the negative environmental impacts of logging activities can both be substantially reduced (Barreto et al. 1998, Holmes et al. 2001). However, this requires considerable planning and expertise, and profitability relies on the availability of specific green markets for certified forest products; in the absence of the latter, timber produced under a RIL regime cannot compete in the market with low-cost, illegally cut timber. Despite the difficulties, there are now over 1 million hectares of managed forests in the Amazon (Veríssimo et al. 2002a). However, even if all private lands (24% of the Amazon) were somehow harnessed for timber production, it would not be possible for them to meet current timber demand on a sustainable basis—since such lands are heavily deforested and have often already been logged destructively (Veríssimo & Cochrane 2003). Nor will the existing FLONAs be able to meet demand. It is clear that government will need to facilitate the process if sustainably managed timber production is to become widespread in the Amazon.

The National Forest Program

The Brazilian government has three broadly defined strategies under its National Forest Program:

- establish national and state forests on unclaimed public lands and regularise land tenure for privately-owned lands;
- promote sound forest management practices; and
- improve enforcement and monitoring of logging practices.

The proposed establishment of new FLONAs faces resistance from some local stakeholders, particularly those whose livelihoods depend on agriculture and ranching and who would rather remove the forest for cattle-raising and for the production of crops such as soybeans. To overcome this resistance, FLONAs must provide measurable benefits to rural people, including the provision of social services and equitable distribution of stumpage fees among communities and municipalities.

The government's strategy for locating new FLONAs is based on social, economic and biological criteria (Veríssimo et al. 2002b). Potential FLONAs have high commercial timber value, low human occupation or use, and are not priority areas for the creation of parks or biological reserves. FLONAs are being established on public lands that are either unclaimed or under disputed title, thus avoiding the costs of dispossession. In the last two years, five new FLONAs covering 2.3 million hectares have been established in Pará, Amazonas and Acre, and twelve additional FLONAs totalling 3.6 million hectares are in process. State forests are also being established in Acre, Amapá and Amazonas using similar methodologies.

Although the creation of FLONAs is progressing rapidly, the challenges of fully implementing the accompanying forest management regime have just begun. Several more legislative and administrative elements must be put into place before the system can be initiated. Key to effective implementation are: a concession model that includes external auditing of forest management standards, accounting practices and social benefits; efficient monitoring and enforcement to reduce illegal logging; and dedicated institutional capacity to provide technical and managerial oversight.

Concession models: Although still in the early stages of development, it is clear that the forest concession policy will need to address national, state and private-sector rights and responsibilities, concession sizes and durations, taxes, and requirements for management plan development, approval, execution and monitoring. The actual concession system will be defined, in part, through an open public debate within the Brazilian National Congress over the next one to two years, with the participation of NGOs, rural workers' movements, traditional peoples (eg rubber tappers, caboclos, etc), forest scientists, and logging industry representatives. This transparent and democratic process is very different to what has occurred in many other tropical countries.

Preliminary studies (Barreto & Arima 2002, Schneider et al. 2002) reveal that stakeholders hold an array of concerns about concession models and their implementation. During interviews and in questionnaires, the issues most discussed by stakeholders were the loggers' technical capacity and reputation and the overall transparency of the concession process. Stakeholders emphasised that concessions should guarantee opportunities to local populations and that the system should be designed to avoid restricting access to the FLONAs to only a few companies. For their part, loggers also feared institutional instability within the public administration, poor government administrative capacity, and the comparative advantage that large timber companies may have in complying with bidding requirements (Barreto & Arima 2002).

Provisional plans for approaching the concession system will build on Brazil's ongoing democratisation of administration for conservation units. The new Conservation Unit Law (Ministério do Meio Ambiente 2002) stipulates that each FLONA must have a 'board'. Such boards will be composed of government personnel from the Brazilian Institute for Environment and Natural Resources (IBAMA) and other departments but must also have representation from local communities, NGOs and the private sector. They will oversee administrative processes, provide conflict resolution and, if necessary, cancel the contracts of non-compliant concessionaires.

The establishment of FLONAs is just the first step. Once demarcated and staffed, FLONAs must be zoned to protect ecologically sensitive regions (eg wetlands, steep slopes) and prescribed amounts of undisturbed forest.

When local markets can support the necessary stumpage fees for operating the FLONA profitably, bidding for concessions will be opened. The highest bidder is not guaranteed to win the concession, since decisions will be based on three criteria: the bid price; the proposed management plan; and the credibility of the bidder.

The company bidding for the concession will need to weigh potential income against four costs: stumpage fees; administration costs; management plan costs; and exploration costs. Each of these is discussed below.

Stumpage fees will be a function of timber volume removed and value class of the species extracted (eg high, medium and low). Mahogany (*Swietenia macrophylla*) might warrant its own class but other species will be grouped by their market prices. Scaling factors will make adjustments for the location of the FLONA and any regional surcharges or discounts. Fees will be gauged to changes in market prices and operating costs. Returns can be used to strengthen management, monitoring and the administrative capacity of these forests; a portion can also be returned to communities living in buffer zones to foster local acceptance and interest in the successful management of these working forests. There are precedents in Brazilian law (eg mineral royalties as established by the 1998 Constitution) that could serve as models for managing stumpage fee funds. A study carried out by the Instituto do Homem e Meio Ambiente da Amazônia (IMAIZON; Arima & Barreto 2002) of the five main FLONAs in the Amazon has shown that four are amenable to stumpage fees with current market pricing.

Administration taxes will be levied by IBAMA to cover the operating costs of a FLONA, including development of the zoning plan, protection, and monitoring and enforcement activities. Monitoring may be contracted to or validated by NGOs. The tax will be collected as a flat percentage of the estimated value of the timber removed and tied to the operating costs of individual FLONAs.

Management plan costs may be internal to the company making the bid or contracted out to consultants or NGOs with the requisite expertise. The management plan has to show convincingly how planned timber extraction will be conducted and verified and will also need to include the technical details of forest inventory, felling techniques, extraction volumes, silvicultural treatments, maximum canopy damage, etc. Given the competitive bidding process, it is expected that many management plan activities will be contracted to credible independent professionals.

Exploration costs are the actual operational costs (ie mapping, cutting and harvesting) of the company within the concession.

The concession process in Brazil is expected to be robust due to its transparency, its emphasis on democratic decision-making, oversight by forestry-oriented NGOs and strong competition for concessions between the many timber companies operating in the Amazon. An important check on the concession-granting and administering systems will be provided by the legal system, since the open and very public nature of FLONAs places them within the realm of public prosecutors. These legal scholars are not beholden to either government or industry and can act independently at any time to investigate irregularities in any FLONA.

Encouraging forest management: One of the major obstacles to the adoption of forest management is the scarcity of regulated forest areas. Most loggers prefer to operate under defined rules and land tenure, and with protected timber supplies (Schneider et al. 2002). Loggers have demonstrated strong support (~80%) for the national forest policy (Barreto

& Arima 2002), mainly because of the guarantee it offers of continued access to managed and verifiably legal raw materials.

The monitoring of concessions must also be addressed. The recent successes of the Brazilian government's collaboration with NGOs to detect illegal trade in mahogany point to one possible model. Adoption of internationally recognised certification standards (eg Forest Stewardship Council) would provide additional assurances. Further, recent developments in the satellite-based monitoring of forests have demonstrated the capacity for remotely detecting and monitoring much of the Amazon's logging activity (Matricardi 2003). This may provide the best assurance of proper concession implementation and forest management, since the government, or any concerned group, will be able to remotely verify locations and, to a lesser degree, the intensity of logging activities.

While there are still many uncertainties surrounding Brazil's new forest policies, it is clear that they will have a chance to reshape the logging industry. But before the system can become operational, substantial institutional capacity needs to be developed; towards this end, IBAMA is scheduled to open numerous positions for skilled professionals in 2004. Several legislative hurdles need to be overcome as well but piloting projects are planned for 2005 that will ramp up to full operation across the entire FLONA system by 2010. Undoubtedly, there will be false starts and unforeseen problems along the way; nevertheless, we believe that Brazil is laying the foundation for sustainable management on a scale befitting the Amazon.

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