

# **Long-term Planning for the Brazilian Amazon: lessons, challenges and perspectives.**

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## **ABSTRACT**

This essay examines relevant aspects of governmental planning for the Brazilian Amazon. It focuses on the analysis of previous public planning in two different periods (military-led development policy and environmental policies of 1990s-onwards) and draws lessons from these experiences, making connections with how they later became major issues of social-ecological concern such as poverty, deforestation and climate change. It finds that current public policies lack consistent long-term planning to deal with new agendas and provides some practical suggestions for future work. This paper aims to be relevant for long-term development planning in the Amazon. It also encourages further research in areas such as adaptive policies, institutions and governance mechanisms targeting this region.

## **I. Introduction**

Four decades ago, Hardin (1968) envisaged the ruin of societies in which the predominant belief was the freedom of common pool resources. In order to prevent the so-called *tragedy of the commons*, Hardin suggested two possible paths: either selling off the commons as private property or keeping them as public land but allocating rights to enter them. Following this viewpoint, cooperation is not a solution for overcoming problems arising from common use of natural resources. Yet experience has shown that society has indeed provided co-operative solutions that can effectively help to manage common resources (see work chiefly developed by Elinor Ostrom).

During the last couple of years, the Brazilian government has developed innovative solutions to address the global environmental concern, particularly in relation to the Amazon. This has been a considerable shift after 3 decades of continuous development planning based solely on fostering strategic territorial presence and economic development policies now regarded as unsustainable.

If the Amazon region ought to develop on sustainable bases, adequate long-term policy-making should be pursued. This planning must be based on previous lessons and enduring national interests – particularly free of political attachments. This paper examines historical aspects of regional planning in two different periods, namely the military-led economic development and the subsequent response to the rise of the environmental concern. It also summarises some main challenges to the overall difficult task of achieving sustainable development in the region. Finally, some main principles to be taken into consideration in long-term planning are underlined in an effort to make a contribution to policy-making debates for the region.

## **II. Background of Public Policy Planning of the Brazilian Amazon**

It was not before the early 1930s that the first official regional planning was designed for the Brazilian Amazon. Up to this point, the economy of the region was based on exports of basic forest products, particularly rubber, and the main political concern was underpinning boundaries and territorial occupation. Therefore, two very diverse models of occupation co-existed during this period, namely the geopolitical strategy and an embryonic endogenous growth project, i.e. led by local population (Becker 2003).

The initial phase of planning consisted in the economic intervention and the creation of a Development Programme stated in the Constitution of 1946. The delimitation of the region based on scientific parameters was a key outcome of this stage, but only stressed a concern about the region, and was not expressed in actual action. Deforestation up to this point was minimal and restricted to riparian areas along main rivers (Andersen, Granger, Reis, Weinhold and Wunder 2002). The Kubitschek administration (1956-61), on the other hand, made feasible the setting up of the Belem-Brasilia and Brasilia-Acre roads under the motto “Fifty years of progress in five”. After this period, the Amazonian population considerably increased from 1 to 5 million people between 1950 and 1960 (Becker 2003).

### *The military-led “Operation Amazon”*

During the military regime, the patterns of human settlements in the region experienced a substantial transformation. With the change of the capital from Rio de Janeiro to Brasilia, the Amazon became a main target of development policy. The core stone of these policies was the massive road building to enable the freeing from a dependence on river transportation. Additionally, under the so-called “Operation Amazon” – a series of decrees and acts enacted in the late 1960s – established foundations to occupy and definitely integrate the region into Brazil’s economy. The basis of the plan was the creation of growth-poles that would enjoy cheap credit, land concessions and other incentives managed through the Superintendence for the Development of Amazon – SUDAM. Credit for agriculture played a significant role in this case. The hope was that trickle-down effects would end up supporting industries, services and trade (Andersen et al 2002), relying on cities as logistical centres (Becker 2003). The regional planning was regarded as both a geopolitical project to modernise the society and as an alternative to conciliate the wave of migration from the North-eastern and South-eastern regions, which was pushed by agricultural modernisation (ibid).

Regional economic policies during the 1970s varied according to various military regime presidential terms. Although the institutional structure remained, guidelines and emphases about targets, stake-holders and policy instruments tended to change from administration to administration (Andersen et al 2002). Medici’s government concentrated on social integration and national security, whereas Geisel’s administration shifted back to the idea of growth poles (including the Poloamazonia programme) and large-scale private entrepreneurs, with a small concern for preventing predatory occupation. Once again the region experienced an economic boom: regional income per capital more than tripled and population grew at a 5% rate (ibid).

The last phase of the economic development planning during early 1980s was directed to the creation of public enterprises focused on mining and hydroelectric power generation, respectively Companhia Vale do Rio Doce at the Carajas

mining complex and Eletrobras at the Tucuruí hydropower plant. Another initiative was the creation of Polonoroeste development programme, which promoted investments in infra-structure for agricultural settlements (ibid). Following the national trend, economic growth slowed down in this period as opposed to the previous one, also due to the oil crises and subsequent rises in international interest rates.

The Operation Amazonia was devoted to economic development and security. Some important lessons can be drawn from this period in terms of future long-term sustainability plans. Perhaps the most important in the misregarding of the region as a homogeneous one and thus not respecting social and ecological differences (Becker 2003). The failure in addressing adequate policies for the region, for example, is expressed in the preferential subsidies given to major economic groups, reinforcing the old Brazilian policy of large (and profitable) crop properties. In general, relatively wealthy migrants from South and Central regions in Brazil were more likely to prosper than poor migrants from the Northeastern region and local populations.

Policies of economic integration of this period certainly led to severe long-term environmental impacts, such as forest clearing in the expectation of making easy-money in land speculation cycles – timber logging, cattle ranching and nowadays soybean crops (Brazil is one of the largest soybean exporters). Furthermore, pessimistic (although debatable) forecasts envisage potential social and environmental impacts arising from prospective biofuel production, considering Brazil's official intention to become an economic leader in this sector.

#### *The economic fall back and the emergence of the environmental concern*

The year of 1985 is a milestone for development planning in the Brazilian Amazon. Concurring with the decline of the so-called national-developmentalism, which has in the last military development project – Calha do Norte – its official end, important social movements began to arise, particularly the one led by rubber tappers (*seringueiros*). The social conflicts that persisted

during the 1970s and 1980s became institutionally organised and translated into alternative bottom-up development experiments – based on conservation and livelihood of traditional populations (Becker 2003).

Rubber tappers' struggle for rights to natural resources gained attention at a time when deforestation in Amazonia was becoming a major issue among environmentalists (Brown and Rosendo 2000). With the decline of the international rubber market<sup>1</sup>, along with the removal of rubber tappers from their lands located in areas of the agriculture frontier expansion, resistance began taking the form of violence. Despite some minor palliative land distribution to rubber tappers in individual lots, due to the lack of incentives and appropriate follow up of this distribution, they had no choice but to abandon or sell their individual plots and migrate to cities (Allegretti 1990).

In order to scrutinise possible solutions for this emerging clash of interests, a national meeting of Amazonian rubber tappers was called in 1985 by University of Brasilia, the Ministry of Culture and several non-governmental organisations. The meeting gathered almost 130 rubber tappers from various areas of the Brazilian Amazon and resulted mainly in the creation of the National Council of Rubber Tappers (CNS) and the political call for the creation of extractive reserves, in which property rights would be assigned by the government in accordance with traditional patterns of land use rather than imported models of occupation (ibid).

In addition to the social pressure and the 1980s national economic recession (that squeezed the government's development budget), the international environmental concern turned the Amazon into a major ecological frontier (Becker 2003). The government's *Nossa Natureza* (Our Nature) programme was the first practical measure to reshape policies which would take preservation of the environment into consideration. The creation of the National Secretariat of

the Environment (which in 1993 became the Ministry of Environment) was a key response to the call of the international community, among other institutional changes towards a new vision of development for the region. Along with that, economic development policies scaled back due to the impossibility of subsidising Amazonian development. For instance, a federal decree officially withdrew cattle ranching subsidies in any forested portion of the Amazon – also indirect subsidies keep persisting. At the same time, a couple of programmes were designed to address the previous environmental damage, such as Planafloro (targeting mitigation in forests of Rondonia state) and CVRD private-led forest recovery (Andersen et al 2002).

The chief policy for an immediate answer for deforestation in the Amazon was the establishment of conservation units spread out in various parts of the region. There are two core categories of CU. The sustainable use units combine conservation and sustainable use of natural resources such as environmental protection area, relevant ecological interest area, national forests, extractive reserves, fauna reserve and sustainable development reserves. The integral protection units aim at full biodiversity conservation and under-application-scientific research. These are ecological stations, biological reserve national parks, natural monuments and wildlife refuges. Indigenous reserves are also officially classified as CU, although there have been debates among several authors. CU (here included indigenous reserves under federal protection) amount to around a third of the Brazilian Amazon territory and have been widely recognised as an effective tool of *environmental* (rather than sustainable development) policy. The proportion of deforested areas within protected areas ranged between 1,5-4,7%, whereas in areas without any sort of protection between 29,2 and 48,1% (Ferreira, Venticinque and Almeida 2005). The government created a National System of Conservation Units (SNUC) which defines categories of CU and sets up management plans. SNUC is responsible for the general management of the policy at the federal level, which currently

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<sup>1</sup> The fall down started with the broken of the Amazonian monopoly when Brits established

encompasses federal, state-level and municipal CUs. The main problem of CU, however, is the lack of adequate financial and human resources to fully implement conservation policy (Andersen et al 2002). This results in sustainable management plans not being effectively established or monitored.

Regarding extractive reserves, Goeschl and Iglioni (2006) suggest that they offer a good chance to analyse the relationship between property rights, conservation and development. Extractive reserves are a co-managed property right regime in which the traditional communities are given the right to explore the natural resources of the reserve in a sustainable manner and the possibility of managing subsistence agriculture and small logging. The main objective of this structure is to protect the means of subsistence of traditional populations, whilst assuring the sustainable use of the natural resources of the reserve. The point the authors raise here is that, despite aiming primarily at enhancing household income, if extractive reserves are to offer an alternative to the conservation-development trade-off, the extraction of non-wood forest products (NWFP) should generate above-subsistence levels of revenues within a certain time. The authors are led to conclude that the internal property right structure is deficient, leading to a lack of systematic support for activities in the extractive reserve to reach broader markets. Extractive reserves work effectively in a narrow sense: improving families' income that benefit from it and promoting conservation. For the communities to benefit from extractive reserves and become market competitors, the authors suggest a change of internal and external property rights. Extractive reserves are still in early stages, and their advantage in providing a solution for the conservation-development dilemma cannot be concluded yet (Goeschl and Iglioni 2006). Therefore, higher value added activities are likely to persist superseding extractive ones.

The role of international organisations such as the World Bank and UNDP during this period was a key factor in transforming social demands into new

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plantations in Southeast Asia. It came to a definite decline with the post war collapse of rubber.

experimental bottom-up policies. This period matches the rise of a broad understanding of development planning, which takes into consideration not only economic growth, but also to new approaches of development thought. In fact, the Pilot Programme for Protection of Tropical Forests in Brazil (PP-G7), which is co-funded by the Brazilian Government, the World Bank, the European Commission and bi-lateral cooperation agencies such as USAID and the Department for International Development (DFID) had a leading role in converting endogenous-oriented movements into pro-poor policies (Becker 2003). Relying on pilot experiences, PP-G7 seeks to demonstrate that biodiversity conservation and development in the Amazon region are compatible, generating good practices that could be replicable in other forests worldwide.

Two additional programmes are worth mentioning. Amazon Protected Areas Programmes (ARPA) is the government's response to the commitment of protecting at least 10% of the Amazon. The aim is to cover 500,000 km<sup>2</sup> of the forest up to 2012, either providing full protection or establishing extractive reserves. Another one is the Demonstrative Projects (within PP-G7), targeting communities in order to foster sustainable fishery and agriculture practices.

Civil society engagement was another key element of this new phase of development planning in Brazil. By building alliances with national and international NGOs, social movements obtained additional leverage to clearly make the point of linking social and environmental concerns. The result was the establishment of bottom-up development approaches combining livelihoods and access to natural resources of traditional populations along with biodiversity protection (Becker 2003).

Since late 1990s, the Brazilian government has been putting considerable resource and political efforts to improve their capacity to enforce and monitor conservation and sustainability policies. Investments in and commitments to remote sensing systems (e.g. satellite monitoring) amount to billions of dollars. This project also includes centres for information processing and supports not



only protection purposes, but also for monitoring of borders, detection of drug-trafficking and control of diseases (Andersen et al 2002).

### **III. The issues and the future**

#### *The issues...*

In Brazil, the Amazon covers an area of around 5 million square kilometres. This area is likely to be endowed with world's greatest biological diversity, as scientists estimate that it has the largest number of identified parrots, primates, anthropods, amphibians and plants. Scientists also estimate that 20% of the world's available fresh water is in the Brazilian Amazon (Carvalho 1998). These are the reasons why the Amazon is frequently called "a set of superlatives".

Even being so resource-endowed, the region faces the lowest levels of social development, reflected in indicators showing low access to water and sanitation. Despite continuous economic growth periods, only large producers (soybean, cattle ranchers and large timber loggers) have been benefiting from them. The result is an unimpressive GDP per capita, large predominance of informal markets and high unemployment rates (Becker 2003).

Deforestation is certainly the most pressuring issue in relation to the Amazon. Unsustainable land use changes have been causing severe biodiversity loss and green-house gas emissions (Brazil figures among 5 largest emitters). The expansion of agribusiness and cattle ranching, urbanisation processes and infrastructure projects are leading to a predatory exploitation of the rainforest. Expanding to the north from the state of Mato Grosso and to the west from the eastern part of the state of Para, a mosaic of messy occupation and deforestation areas have been emerging and moving towards regions that are still preserved (Brasil and PNUMA 2006).

Soybean production expansion and cattle ranching are not the only immediate causes of deforestation: it is necessary to understand four different momenta. The first one is the land acquisition at low costs (through land grabbing) in the

expectation that prices increase in a forthcoming moment. The second momentum is engendered by the immediate method of generating liquid capital from land, timber exploitation. The third momentum, when either part or the entire land has been cleared, comprises the use of the land for pastures of cattle. This shift from the second to the third step can be taken either by the same owner of the land or by producers that acquire it at a higher price than the former one did. The fourth momentum takes place when economic activities shift towards higher value added activities, which is the case of the soybean production, usually performed in areas that had already been cleared. Thus, it is possible to identify several direct sources of deforestation, such as land grabbers, timber loggers, cattle raisers, soybean producers (usually big companies) and other related actors (ibid).

On the role of the Amazon in the world climate system, Nepstad says:

The Amazon forest complex is intimately connected to the world's climate. First, it influences climate by acting as a giant consumer of heat close to the ground, absorbing half of the solar energy that reaches it through the evaporation of water from its leaves. Second, it is a large, fairly sensitive reservoir of carbon that is leaking into the atmosphere through deforestation, drought, and fire, contributing to the build up of atmospheric heat-trapping gases that are the cause of global warming. Third, the water that drains from these forests and into the Atlantic Ocean is 15-20 per cent of the world's total river discharge, and may be enough to influence some of the great ocean currents that are, themselves, important regulators of the global climate system. Amazon forest conservation will be necessary to stabilize the world's climate.

Nepstad (2007) argues that extensive degradation of forest could be speeded through the synergistic influence of several vicious feedback loops that exist within and among the ecosystems and climate of the Amazon region. Ecological and climatic tipping points may be reached well ahead of end of century predictions, but at the same time some processes and virtuous feedback loops

could prevent the Amazon from reaching these tipping points and provide the basis for a new Amazon conservation strategy.

*The Sustainable Amazon Plan (SAP): the future?*

SAP is the initiative for public planning of the Amazon by Lula's administration. It proposes strategies and actions to reconcile economic and social development with environmental concerns in the region, to be taken in consideration whilst designing and implementing the official 4-year governmental planning – pluri-annual plan or PPA. It originally aimed to be another programme for the region, but ended up becoming a set of articulated policies to address both federal and state-level long-term actions for the Amazon.

SAP puts forward several new and innovative ways of thinking a plan for the Amazon. It has been developed in partnership with state level governments and carries out wide regional public consultations involving main stakeholders such as private sector leaders, social movements, academia, municipal governments and federal government officials. It also promotes articulation among various ministries and levels of government.

Perhaps the most important step forward of the plan is the fact that for the first time the government is not officially regarding the region homogeneously and subject to a single course of action. In fact the plan suggests an innovative territorial classification, for which different set of policies should apply. The first region - the dense settlement arch (also known as deforestation or fire arch) – concentrates the majority of agricultural crops and deforestation processes, but is also the core of the regional economy. According to Becker (2003), this is no longer an expansion frontier, but a consolidated human settlement with significant development potential if policies are well designed. The Central Amazon area, with middle population density region, is currently facing expansion of agribusiness, but has also a large proportion of CUs. Finally, the West Amazon region has large areas of CUs, indigenous reserves and forested areas.

Although SAP draws very realistic ideas on what public policies in the Amazon should aim, it lacks concrete proposals of effective political measures. The plan does not put forward clear measurable indicators to monitor progress, and some progress reports mention that steps that might have happened in the absence of a plan. It does not assign clear responsibilities to different government bodies and state administrations either. Consequently, accountability becomes another critical issue. SAP became a handbook with guidelines for political quoting rather than a clear long-term commitment to the sustainable development of the Amazon.

Not surprisingly, deforestation rates in the second half of 2007 might put to an end the three-year celebration of continuous decreases by Lula's administration. The Brazilian Spatial Research Institute (INPE) estimates that around 7,000 square kilometres of forest have been cleared between August and December 2007. Debate on the roots is still at stake. On the one side the government blames cattle ranchers and soybean producers, linking rises in the price of commodities to the massive clearance. The agriculture sector, on the other hand, argues that only 24% of the clearance happened in private lands, being the rest in protected areas and national parks. The point here shall not be who to blame. The clear interpretation is that conservation-development trade-offs still represent the mainstream rural perception: political incentives to conserve the forest and effective buy-in of sustainable regional growth potential have not yet become realistic.

#### **IV. Long Term Policy-making: some conclusions.**

The Amazon represents an example *par excellence* of the need for long-term policy design. Drawing from Sprinz (2007), sustainable planning for the Amazon is surrounded by a relatively high degree of uncertainty and is likely to persist in forthcoming generations. Moreover, the issue cannot be solved in one or two legislative periods, or rather presidential terms considering Brazil's policy-making praxis. More importantly, it demands a high degree of political effort.

Policy targets for the Brazilian Amazon tend to shift from administration to administration, therefore not binding present commitments to future policy-making. It is worth mentioning during the previous administration, led by F. H. Cardoso's, the Avanca Brasil Plan (Advance Brazil PPA) sought to promote the resurgence of interest in development and integration plans, mostly translated into infrastructure projects and with only a small share of investments in environmental projects and information collection (about 5-8%).

Even within one administration structure, public policies happen to clash or overlap. The recently created Ministry for Long-Term Planning only just came up with a background paper on what is thought to be the long run plan for the Brazilian Amazon. Despite having a relevant geopolitical view of what the Amazon represents for Brazil, stressing for instance the need for developed countries to provide incentives for conservation in developing ones, the paper points to incredibly unsuitable policy suggestions such as an aqueduct to bring water from the Amazon river basin to the semi-arid Northeastern region of Brazil, massive hydropower generation, and unrealistic policies targeting indigenous peoples. Generally, the report is vague and does not provide useful insights for actual long-term planning. It has been fiercely criticised by civil society and the press. Additionally, the Ministry of Environment preferred not to comment on the document – a clear message of an existing lack of coordination.

The protection of the Amazon in the medium and long-terms requires considerable efforts to increase (i) the value of conserving the forest, (ii) the costs related to unsustainable forest use (e.g. land use change) and (iii) the incentives to profit from sustainable forest management (Becker 2003).

Let us take the example of cattle ranching, a well established economic activity of the region. It was a profitable activity for long periods due to governmental fiscal incentives that played a major role; cattle ranch was seen as an effective way to ensure land tenure, but was far from being economically feasible without fiscal

incentives (Margullis 2003). In addition, a great amount of credit given by the Banco da Amazonia still targets cattle ranching, whereas very little is done in terms of micro-credit for ecosystem services or exploring non-timber forest products. The region is still unable to build strong comparative advantages, particularly related to technology and innovation generation (PAS 2006). In this scenario, sustainable activities are unlikely to generate a shift unless direct and indirect tax incentives, credit and subsidies for cattle ranching and agriculture expansion are phased-out and re-directed to certified forest management and other sustainable forest activities (Volpi 2007).

Two very diverse development planning momenta were described in this essay. The first phase was based on economic development and security, whereas the present one is dictated by non-matching policy objectives, one favoring new infra-structure developments and another directed to local population rights and environmental conservation. I suggest that an effective *long-term plan based on science and technology for sustainable innovation should be pursued and started very soon*. It is important to recognise that the sociol-environmental model is not a solution *per se* for regional development, articulated and strengthened public policies at federal, state and municipal levels are needed.

In order to pursue such a long-term model, I suggest some general suggestions, as follows.

- (i) General principles for sustainable regional planning are now well established, perhaps except for access to benefit-sharing, due to the inability of social sciences to provide constructive insights about this issue (Stiglitz 2006) and of global environmental regimes to advance internationally agreed solutions – at least not at the same pace the World Trade Organisation advances intellectual property right regimes. Policy-design principles should feed back policy-implementation ones, and vice-versa.

- (ii) Plans should have regular schedules of monitoring, revision and adjustment, as appropriate. Generally, public policies are typically not adaptive. Pluri-annual plans (PPAs) are rigid and do not provide room for adjustments to unanticipated changes. They do not provide means for long-term accountability either.
- (iii) It is a paramount to have a better understanding of how informal institutions operate in the Amazon. Mainstream views of regional institutions are rule-based and fixed. The availability of social capital, functioning of informal markets (particularly illegal ones) etc must be scrutinised at greater depth.
- (iv) Non-state actors are no longer in a position of only advising, lobbying and implementing small projects. They have become the main way to link communities and governments. On the other hand, their effective inclusion requires governance mechanisms, perceived as legitimate and fair.
- (v) Horizontal understanding of environmental policy planning in the three supreme powers is needed. The Executive should take effective measures to deliver one single line of action. The Judiciary should be supported (and generally encouraged!) to enforce excellent Brazilian environmental law. The Legislative should count on an effective and well-trained auditing structure to inform congress and request necessary action in due time.
- (vi) Social costs of unsustainable practices should be effectively perceived by the government and also by the society. Estimations point to an increasing valorisation of wood, ecotourism, bioprospection and carbon markets (Margullis 2003). Vulnerable peoples have the right to use natural resources and economies should take advantage of sustainability. Yet, what is “socially desirable” is effectively perceived primarily through governmental incentives.
- (vii) Any regional plan must have a clear commitment to the rule of law.
- (viii) Strengthening the Amazon Cooperation Treaty Organisation (ACTO) would mean prioritising sustainable development of the region over

particular national interests. Biomes do not recognise country boundaries.

This paper aims to be relevant for long-term development planning in the Amazon. By putting forward the above-mentioned perceptions, it should encourage further research in areas such as adaptive policies, institutions, and governance mechanisms for the Amazon.

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