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Opinion article

Legalizing environmental exploitation in Brazil: the retreat of public policies for biodiversity protection

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Abstract

Brazil is the country with the most biodiversity in the world and also hosts the largest rainforest on the planet. Although Brazil was a pioneer of public policies for conservation of biodiversity and natural resources, it has recently jeopardized all biome conservation through questionable environmental policies. Over the past four years, the government has drastically altered its environmental legislation, removing vast areas from protection and encouraging overexploitation of natural resources,, which will result in loss of biodiversity, reduction of forest cover, and increased pollution of soil and water. The Brazilian political-social scene and its relationship with biodiversity conservation are discussed as well.

Key words: legislation, environmental conservation, socio-political panorama, biodiversity.

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Introduction

Brazil has the greatest biodiversity on the planet and hosts two global biodiversity hotspots [1,2]. The fifth-largest country (in area), Brazil owns most of the Amazon, which is currently recognized as the largest continuous tropical rainforest, and has played a prominent role in conservation of global biodiversity and natural environments. [3]. However, today Brazil is no longer a good example of environmental stewardship.

Although the history of environmental protection in Brazil dates back to the nineteenth century, the first efforts to protect Brazilian biodiversity were only legally set in the 1960s, strengthened by constitutional renewal in the 1980s. Since then, dozens of laws protecting biodiversity and natural resources were created, giving Brazil the broadest environmental legislation in the world and serving as a model for conservation initiatives worldwide [4]. Over recent decades, the establishment of fully protected areas, the development of national and state's Red Book of Endangered Species, the rise of NGOs, and the advancement of conservation science made Brazil a global example of conservation success [5-6].

Under its present government, however, Brazil has been steadily reversing its environmental legislation, ceasing to protect areas [7] and altering its environmental policies. Both the government and various society sectors are now divided into two camps: the so-called "*ruralista*" composed of large agribusiness producers allied with the majority of deputies and senators, who are opponents of the environmental agenda; and the "environmentalist" bench, composed of NGOs for environmental protection, the scientific academy, and a small number of politicians. This dichotomy is generating a lot of discussion throughout Brazilian civil society [8].

The retreat of legislation

In October 2012, Brazil reversed 20 years of achievements in environmental policies. The President, Dilma Rousseff, approved modifications to the Brazilian Forest Code (Law 2,727, from October 17, 2012, amending Law 12,651 of 25 May 2012). As a result, a great portion of the remaining natural areas are now unprotected, and the commercial use of these areas is now supported by law, which (i) decreases the size of forest belts around streams, watercourses and other water bodies, (ii) no longer requires agricultural landowners to preserve native vegetation on hills and hill tops, and (iii) no longer requires most landowners to maintain riparian vegetation on the boundaries of lakes and rivers. In addition, protected areas were drastically reduced: in the Amazon, for example, from 80% to less than 50%. Areas previously considered unusable, such as *igapós* (flooded forests) and *várzeas* (lowlands forests), which together total over 400,000 km², are no longer considered Areas of Permanent Protection (APPs). Consequently, Brazil will have nearly 22 million hectares of unprotected forest area [9]. Environmental damage, both in the loss of natural resources and of fauna and flora, will be devastating. A major assessment of the damage this law will cause Brazilian biodiversity was done by a large group of researchers [10-17].

Another serious setback came from LC-140 (Complementary Law 140, of December 8, 2011), which was also approved by President Rousseff. It gives broad autonomy to states and cities on environmental issues in their territories. Governors and mayors will have full authority over licensing and decisions to allow the use of forest resources, including deforestation, mineral exploration, and construction of roads, hydroelectric plants, and other enterprises. Moreover, nearly all of these projects will be undertaken without qualified professionals or inspections. Considering the current Brazilian economic situation, it is obvious that few of the 26 states and 5,564 Brazilian cities have the capability to address environmental issues. The majority of cities do not have qualified professionals to inspect and evaluate environmental problems effectively.

Given current levels of corruption in Brazil, it is clear that not all local governments are reputable and honest enough to function without any criminal involvement or conflicts of interest

Another serious issue is the continued construction of the hydroelectric plant of Belo Monte, in the state of Pará. Even though many studies indicate disastrous environmental and social impacts [18-21], Brazil still bases its energy matrix almost exclusively on hydroelectric plants. After Belo Monte, the Brazilian government plans to build a series of hydroelectric plants on the Tapajós River, in the Amazon. The Tapajós River basin is considered the largest biodiversity complex on the planet and is conserved by twelve protected areas (PAs), including the Amazon National Park, which together form the largest mosaic of protected natural areas on Earth. Moreover, the water flow, width and the depth of Amazon rivers are unsuitable for hydroelectric generation. In January 2012 President Dilma Rousseff published Provisional Measure 558, which opens large areas of conservation units in the Amazon to construction of large hydro reservoirs, without any technical studies and without consulting the affected populations or Brazilian society in general. In June of the same year, the Senate passed the Provisional Measure into law (Law 12,678, June 25, 2012).

Changes in Brazilian environmental legislation are still in progress. The law project 3,682/12 of Federal Deputy Mr. Vinícius Gurgel (PR-AP) allows mineral exploration in protected areas. If approved, the law will allow the exploitation of up to 10% of a protected area and designate an environmental counterpart twice the size of the exploited area. However, there is no simple way to replace areas that are currently preserved. How will the country organize the supervision and specialized technical expertise to ensure that "counterpart" areas are similar? How can short-term studies evaluate the biological value of huge areas? How can we exploit relicts or priority areas for biodiversity conservation? These are the last remaining areas providing environmental services we truly need, for example, to recycle water. The consequences of adopting this law can be extremely harmful and can cause increased forest fragmentation, one of the greatest threats to global biodiversity conservation [22]. In protected areas formed by continuous forested areas, mining can shred the forest cover, accelerating the advancement of edge effects, the introduction of exotic species, and habitat loss.

In May 2008, the former Minister of Environment, Marina Silva, resigned from office under pressure from sectors of agribusiness and energy exploitation [23], which opposed legal barriers to new projects that have potential environmental impacts. During the same period, the presidents of IBAMA (Mr. Bazileu Margarido) and ICMBio (Mr. João Paulo Capobianco), also resigned, claiming to suffer political pressures without government support. In January 2011, the president of IBAMA, Mr. Abelardo Bayma, who opposed the dam construction, also resigned from office after intense political pressure from Eletronorte (the company bidding for construction of this dam)..

Implications for biodiversity conservation

The main problems for conservation of Brazilian biodiversity are the reduction and fragmentation of habitat, hunting, and pollution of soil and water resources [5, 24-29]. However, the new legislation, legalizing the overexploitation of natural resources [10, 11, 12, 13, 14], is now the main threat.

The reversal of Brazilian environmental legislation removes legal protection of vast natural areas [7], and can result in the extinction of species, qualitative and quantitative losses to agriculture, increased soil pollution, eutrophication of water bodies, imbalance of trophic networks, impacts on the pharmaceutical industry [11] and most of all the impoverishment of one of the greatest biodiversity areas of the planet.

Conflicts between biodiversity conservation and the government's interests continue. In the Amazon, the construction of a hydroelectric complex on the Madeira River threatens the reproductive cycle of several fish species, including the golden-catfish (*Brachyplatystoma rousseauxii*), a fish with great commercial value for the local population [30]. In Rio Grande do Sul, the construction of a small hydroelectric plant threatens population viability of an endangered species, *Melanophryniscus admirabilis*, a rare and endemic frog of a small remnant patch of Atlantic Forest in southern Brazil [31]. Numerous examples demonstrate that projects supported by the government could endanger biodiversity in many areas of Brazil [31,32]. Even more alarming are the statements by members of the Brazilian government, which display a total lack of interest in biodiversity and natural resources [30].

Ethical and economic considerations from the current socio-political panorama

Several economic arguments have been presented to justify the conservation of biodiversity [33], but ethical considerations should also be taken into consideration [34]. Conserving biodiversity and indigenous cultures transcends any economic value. Above all, clear and accurate information should be available for the population. For example, Belo Monte will produce an annual average of only 40% of expected capacity with an investment of 30 billion reais (about US\$15 billion), but the government did not reveal this information [35]. For conservation and ethical reasons, we disapprove, but there is also the economic point of view, which is crucial to understanding the current situation. Official reports do not match reality, since Brazil's move away from sensible energy development will cause long-term damage to its economy, degrading and diminishing natural resources that are economically important [36]. The Brazilian development model is based on supplying the demand for electricity without concern for efficiency, and is often designed to benefit corporate campaign donors rather than the public. This power relationship is a chronic problem in Brazil and is reflected in every sphere of society, including biodiversity conservation. This leads us to a pessimistic prediction for the future.

Future prospects: what is the emerging message?

The overexploitation of natural resources in Brazil dates back to colonization and the widespread destruction of the Atlantic Forest [38]. For nearly 500 years, Brazil created no methods to protect its ecosystems, until the end of the last century when there was considerable progress in environmental protection [6]. However, the beginning of the 21st century shows a worrying trend. On average, the Brazilian forests stock up to 50 Mg carbon/ha [39], but new levels of deforestation would release about 1.1 billion tons of carbon (equivalent to 4 billion tons of CO₂) into the atmosphere, an amount of greenhouse gases four times greater than what Brazil had pledged to cut in the 2009 Copenhagen Agreement [40]. If we continue on this path, the most pessimistic forecasts can come true. The wound that can be opened in Brazil will certainly have painful consequences for the entire planet.

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