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Brazilian amazon: environmental and economic tragedy

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Resumo

Discute-se que a questão da preservação da Amazônia brasileira vai além do meio ambiente, tornando-se um assunto mais amplo e sério no Brasil. As perdas são enormes com a redução de acordos comerciais e investimentos, nesse contexto, a visão e as ações do então governo brasileiro aumentam os riscos de efeitos a longo prazo sobre a economia, a saúde e os recursos ambientais brasileiros. São abordados os riscos de curto, médio e longo prazo, bem como as possíveis oportunidades ambientais geradas pela criseresultante. O Brasil pode se tornar um modelo de preservação ambiental mundial, e com tecnologia e ciência pode se consolidar como um grande produtor agrícola sem avançar no desmatamento, principalmente na Amazônia.

Palavras-chave: Preservação; política; economia; ciência; oportunidades

Abstract

It is arguedthat preserving the Brazilian Amazon goes beyond environmental issues, becoming a much broader and more serious issue in Brazil. The losses are hugewith the reduction of trade agreements and investments.In this context, the vision and actions of the (then)Brazilian government increase the risks of long-term effects on the Brazilian economy, health and environmental resources. Short-, medium- andlong-term risks are addressed, as well as the possible environmental opportunities generated by the resultingcrisis.With technology and science,Brazil can become a model of global environmental preservation,consolidating itself as a majoragricultural producer without the need toadvance deforestation, especially in the Amazon.

Keywords: Preservation; Brazil; politics; economy; science; opportunities

Introdução

Since the beginning of president Bolsonaro's term in office, his disregard for the environmental issue has been evident (SCARROW, 2019).As examples of the Bolsonaro government's actions against the environmental cause, the following can be mentioned, among others: the decree that excluded the participation of civil society in the deliberative council of the National Environmental Fund (FNMA) and the extinction of some structures that were part the Ministry of the Environment (MMA), such as the Secretariat for Climate Change and Forests and the Secretariat for Extractivism, Rural Development and Combating Desertification. For his ardent followers,these are nothing more than conspiracy theories, despite the growing data on deforestation released by the government itself (ESCOBAR, 2020).

It is important to point out that deforestation was only one facet of this government´s anti-environmental policy.Authorization for oil exploration in the vicinity ofthe Abrolhos Marine Reserve (CORDEIRO; NOVAES; BARCELLOS, 2022), a marine preservation reserve of inestimable environmental value(GONCHOROSKY et al., 1989), and the authorization for the commercialization and useof more than

a hundred pesticides of considerable risk(OLLINAHO; PEDLOWSKI; KRÖGER, 2022), showed a pattern of environmentaldisregard and destruction.

This negligence with the environment and with so many other areas, such as health(SILVA, 2021a)was bluntly exposed at a dramatic meeting in April 2020. Perhaps the culmination of this meeting, and its immoral daydreams, was the speech of the Brazilian Minister of the Environment at the time, in which he suggested "taking advantage" of the distraction caused by the pandemic to approve legislation contrary to environmental preservation (ANALYTICA, 2020). Along the same lines, the lastMinister of Health, a general expert in logistics who failedtomake vaccination against Covid-19 feasible with the urgency required and made absurd statements about the pandemic in agreement with Bolsonaro, suggested the useof the drug Chloroquinein the Amazon,the government's iconic solution to the pandemic, even without scientific backing(FERNER; ARONSON, 2020; MÉGARBANE, 2020).However, those who evaluated that the disclosure of this meeting and the absurd speeches of the Ministers would lead to a movement for the President´s firing, were wrong.

This placement in a government meeting is immoral from an environmental, social, and human point of view in the face of the intense tragedy that the pandemic has caused and is causing in the Brazilian population and worldwide. However, those who evaluated that the disclosure of this meeting and the absurd speeches of the Ministerswould lead to a movement in favor of the president's resignation were mistaken. The president's followers, especially on social networks, do not believe that the environmental issue is important; it would just be another conspiracy theory (SILVA, 2021). Months later, the policy of dismantling environmental protection continues its march, with reports, satellite images and documents continuously pointing to the increase of devastation in the Brazilian Amazon (ESCOBAR, 2020). Prospectors, loggers, cattle ranchers, invaders of vacant land, among other deforesters continue to act almost with impunity in the shadow of a government that seems to support them (FERRANTE; FEARNSIDE, 2019)and demonstrates as well little appreciation for the indigenous peoples who could be the support forenvironmental preservation in the region (FERRANTE; FEARNSIDE, 2020; PIVELLO, 2011).

The Amazon rainforest has two well-defined seasons, one wet and the other dry (in fact, less humid), so fires should not be considered as part of the naturalcycle like the Australian events that cause seasonal fires in that country (BRADSTOCK, 2010). For this to happen in the Amazon, it is necessary to cut down the forest, dry the wood and set it on fire…i.e. fuel is needed(SILVA, 2021). Both the strong humidity and the eventual drought are getting more intense because of the planetary climate changes with their unpredictable and, some, predictable consequences (GLOOR et al., 2015).

Despite President Bolsonaro's initial statements that the pandemic would be different in Brazil because the virus was not supposed to spread in hot climates, these predictions did not materialize, and the country became one of the world´s biggest failures in facing the COVID-19 pandemic (THE LANCET, 2020). Ironically, the hottest regions of Brazil suffered a lot at the beginning of the pandemic (and at the beginning of 2021, as a second wave came), with a very high incidence in the northeast and north regions.Especially in the Amazonas state, named after the forest and its capital, Manaus (ORELLANA et al., 2020), for which the later fall was considered an effect of herd immunity, given the high number of deaths and initial contamination.

The winter of 2020 combined two impacts of this neglect into a perfect storm for the population's health, namely an increase in forest fires (smoke in the air) due to the decrease in rainfall and the high incidence of COVID-19 in that region. Nevertheless, Bolsonaro’s followers think first about the economy, then aboutnature and health. In the summer of 2021, the tragedy of Amazonian public health continues, without a vaccine, without a policy to facethe pandemic, and the continuous recommendationsby social networks for treatments without scientific support (RICARDet al., 2020; SILVA, 2021).

These issues are interconnected. Destruction of the Amazon rainforest will severely affect Brazilian agriculture by changing the rainfall regime in the producing regions (PLOTKIN, 2020). However, the future is uncertain, critics will say. In the years of Bolsonaro's government, Brazil has lost billions of dollars in environmental preservation funds, but Brazilian fanatics will say they do not need money from

communists. Instead of using these funds for technology that could increase their agricultural production without destroying the forest, Bolsonaro and his supporters prefer confrontation (AKER, 2011).

1. The disasters (and opportunities): In the short term...

The process of losing resourcesdue to the lack of commitment to environmental protection in the Bolsonaro government began in 2019, and the values are high, in the range of billions of dollars, because billionaire funds from Germany and Norway suspended their contributions due to the leniency of the administration of these funds by Brazil. The Brazilian trustee and his undersecretaries stated that this large financial contingent was not necessary, and that Brazil could do the protection without these values, evoking nationalism through conspiracy theories (HERRIOT, 2020). The Brazilian government could use these funds, and the international pressure in its favor, both for the increase of agriculture and for the protection of the forest, because with technology (accessible through these resources), one can increase production without cutting down any more trees (WHITE et al., 2001).

The theories spread by Bolsonaro and his followers propagate the idea that developed countries have already destroyed their forests and now want to prevent Brazil from exploiting the supposedly very rare minerals of the Brazilian Amazon; they also claim that environmental NGOs would be in favor of these governments, even saying that they would be causing the forest fires (KRÖGER, 2020). The spread of these daydreams has been influentialon social networks in Brazil(SILVA, 2022), supporting many of the president's followers and, incredibly, increasing their popularity (DAVIS et al., 2020; RICARD; MEDEIROS, 2020). This increase in popularity, notably in extreme right-wing groups, is based on a nationalism that limits the perception of the advantages of keeping the forest non-deforested, something already seen in environmental policies of other countries, such as Costa Rica, for example(BROCKETT; GOTTFRIED, 2002).The issue that could be taken advantage of by the Brazilian government is that we need to feed ourselves, it is a lot of food, but we need the forest, so it is possible mutual gain with technological progress, and it is possible that farmers and conservationists can achieve their goals (ANGELSEN, ARILD; KAIMOWITZ, 2001), especially in a country like Brazil.

The present gives us examples of the economic disaster of this chaotic environmental policythat can impact the country and its commercial relationship with other countries and regions in the world. Brazil and its partners(MERCOSUR) intend to ratify a major trade agreement with the European Union after much time and work (VOICU, 2019), but there is already a protestagainst it from several countries.

Another celebrated trade treaty, the one with the US, also seems doomed to failure as Democratic representatives have already positioned themselves against it. Of course, much of this backlash is due to agricultural protectionism (MARKOVIĆ; MARKOVIĆ, 2014), but Brazil gave other countries the perfect alibi, and the damage should be calculated in trillions of dollars. In a joint letter, large global investment funds threatened to withdraw investments from Brazil, and capitalism opted for preservation.

Brazil could take advantage of this combination of factors, interest in the Amazon, concern about climate change and the preeminent need for food production for a growing world population. As a premise, some basic points from sustainable technologies: I. increase food production and farmers' income. II. distribute in an equitable way to its population the benefits resulting from this new perspective. III. Provide the minimum degradation of land already used for agriculture. IV. To make the expansion of agriculture less and less towards natural forests (ANGELSEN, ARILD; KAIMOWITZ, 2001).

1.1. In the medium term…

Theenvironmental issue and how the Bolsonaro government handled it should not be seen only in the short term; the Amazon deforestation has already proven effects on the fragile Brazilian climate balance. The droughts, the currents with humidity that influence the temperatures and the rains in almost

all of Brazil strongly relate to what occurs in the Brazilian Amazon. Moreover, Brazil's most economically and populously important regions depend on a rainfall regime strongly influenced by evaporation in the Amazon forest (STAAL et al., 2018).

Governments, like Brazilians, must prepare themselves to make environmental and commercial choices, analyzing the alternatives that present themselves. Some solutions may be useful for farmers and environmentalists. In the Brazilian case, it is necessary to be aware that climate change is underway; avoiding further deforestation is imperative, but promoting new technologies can not only preserve the forest but also foresee problems for agricultural production in a new climate. It is not only the preservation of the Amazon but also the use of science and technology in favor of maintaining food production on a planet that is changing and doing everything possible not to make this problem worse (ANGELSEN, ARILD; KAIMOWITZ, 2001).

The only Brazilian economic sector that has passed, and is passing, unscathed by the pandemic was agriculture, for its strength and dynamism, besides the preeminent need of humanity for food (SELEIMAN et al., 2020). The problem is that this economic sector depends directly on the rainfall regime, which in the Brazilian producing regions, especially the southeast and central-west, are closely linked to what occurs, or should occur in the Amazon when the forest performs its vital functions in the climate balance (FEARNSIDE, 2005).

Two other medium-term economic aspects cannot be disregarded, and one would be Brazil's inability to receive resources from carbon market agreements (NEPSTAD et al., 2008), which should grow soon. Another loss will be the extinction of species that could have great value, and that will be lost even before they are perceived and explored (LAURANCE; USECHE, 2009), such as plants of unknown nutritional value, animals and microorganisms with pharmaceutical potential.

One way for Brazil to face the dichotomy between economy and preservation is to seek balance in using technological options for the Brazilian Amazon. Only promoting increased agricultural production will lead to increased deforestation. Perennial plantations in the areas surrounding the Amazon with intensive use of technology may be one way, but one must be cautious because in the long-term, labor and capital may migrate to the Amazon looking for profits, and the result may be increased deforestation.

Technological innovations with intensive cattle raising and perennial plantations would reduce deforestation in the short term but planning for the long term is necessary. There is an evident relationship between income generation, food security, distribution of benefits and the issue of environmental protection in the Amazon. Therefore, perennial plantations decrease pressure on the forest and promote equity, and innovations in ranching increase income and food security, in addition to representingchanges in the concept of occupation of the Amazon that can be implemented in the medium term (CATTANEO, 2001).

Perennial crops can be important for the economy in the humid tropics, in ecologically sensitive parts like the Amazon. However,this crop type is more common in Asian and African forests. Interestingly, two of the most important perennial crops - cocoa and rubber - are native to the Amazon, but the countries in this area have not given as much attention to their research and development of this type of agriculture commercially as have other crops such as oil palm, coconut, banana, etc. (ALVIM, 1981).

1.2. In the long term...

No doubt the greatest pressure on the Brazilian Amazon comes from extensive cattle; in the long run technological alternatives must be thought of, not in the sense of putting an end to this source of resources in the area bordering the forest, but rather to try to minimize it (GARCIA et al., 2017). One of the ways is to seek the integration of livestock with other sources of income from the land, such as agriculture, but think about ways to intensify them to reduce the pressure on the forest (CORTNER et al., 2019). It is necessary to rethink how technology can improve the use of pasture and the cattle production

system in this region. These technologies can be beneficial to all, but it is necessary that those who formulate the policies for the region, the Brazilian rulers, are able to provide profitable alternatives for these cattle breeders in exchange for the commitment to preserve the Amazon forest (CARPENTIER; WITCOVER; VALENTIM, 2001).

There is another important issue to think about and plan for the future of the Brazilian Amazon. The paralysis of economic activities due to the pandemic led to a decrease in productive activity and, consequently, to an important decrease in pollution on the planet (BERMAN; EBISU, 2020; SHARMA; KAUR; NARWAL, 2020).Although this gain in the number of pollutants, with much evidence, is debatable to some authors because the pollution would have just changed its form during the pandemic, as with the increase in the amount of plastic accumulated by the population(ADYEL, 2020). The moment of diminishing economic activity should be an opportunity to rethink the energy matrices. The decrease inenvironmental aggressions, in a general way throughout the world, may make us reflect on the resumption of the economy on different bases concerning the preservation of the environment (MICHAELIDES, 2012).

These alternative forms of energy production, replacing fossil fuels, in addition to reducing pollution, and the release of carbon dioxide into the atmosphere, will be able to generate more jobs, many more jobs, in the medium and long term. The efficiency of solar, wind and other renewable energy sources also tends to increase, and their costs lower, as they are used on a large scale and encouraged by governments (WEI; PATADIA; KAMMEN, 2010).

Brazil could lead this change in world posture in the face of global warming and attract investment in the post-pandemic era. A move in this direction could have an even greater effect than the Paris Treaty itself in confronting climate change, and beyond positive global leadership, it would generate resources for Brazil and a virtuous cycle of prosperity from clean energy. The opposite would happen to what happens today, with the flow of resources coming to Brazil, the fundamental maintenance of the Amazon rainforest and the need for investment in education, generating social, health and political change within a new perspective of energy production (KUZEMKO et al., 2020).

1.3. Lessons to the future...

The crisis caused, first by the Bolsonaro government's erratic environmental policy in the years 2019 and 2020, exacerbated by the Covid-19 pandemic, may allowBrazil to reflect on its role in world food security and its relevance in protecting the environment, especially the Amazon. Demand for food is growing today and will be growing, putting more pressure on the forest, and Brazil can benefit from this but will need to address some prominent issues: I. Illegal land use occurs in areas that should be protected. II. there is a large deficit in legal reserves and protected riparian forests on private farms, and III. there are vast areas of unprotected natural forest in regions under agricultural pressure around them. Brazilian governments can basically plan through changes in land use for agriculture, reversing agricultural areas (outside the current environmental legislation) into natural vegetation that was once. Besides the demand for food, the current and future demand for biofuels needs to be considered at the same time as the protection of biodiversity and natural vegetation; for this it will be necessary to improve environmental legislation and seek alternative models of development (SI'AROVEK et al., 2010).

Another lesson forthe future is that the pandemic seems to have originated from a disastrous human environmental action, from which everything leads us to believe that the new coronavirus migrated to the human species from an incipient contactwith a species of wild animal, the result of an interference in the environment (SHEREEN et al., 2020; ZHANG; WU; ZHANG, 2020). The dramatic economic results for humanity probably cannot even be calculated because of its scope. We must learn the lesson, the deforestation of the Amazon may release one of its countless viruses that are lodged in the forest leading to more pandemics from new emerging diseases (RUIZ-SAENZ et al., 2019). It would be

a new collapse in the world economy, so we must learn from what has happened so that it will hardly be repeated in the future.

However, if we talk about economic issues, we should think that perhaps the worst could come from an issue directly linked to the environmental theme. While the pandemic and all its consequences for the world's financial equilibrium have a date to end, whether through the vaccine, the cure through a new drug, mass testing or the so-called herd immunization effect;the demands, risks, and urgency of climate change's consequences will remain(KUPFERSCHMIDT; COHEN, 2020; LURIE et al., 2020; PETO, 2020).

Nevertheless, intense climate changes should arrive and will not disappear, as well as theireffects on humanity. The consequences on agriculture, health and quality of life are likely tobe an economic disaster for which there will be no foreseeable end, and the difficulties will be permanent, with an unimaginable cost tothe economy and human lives (CARLETON et al., 2020; TOL, 2009). In this sense, there is much to be done to avoid chaos in the economy (and in humanity); these are feasible actions if there ispolitical and social will to face the attacks on the environment and their consequences, such as those currently occurring in the Brazilian Amazon Forest.

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