

Climate Change and Its Role in Brazil's Social Relations, Economy, and  
Environmental Policy Under President Lula's Administration from 2003-2010

By: Elisabeth Kuras

Category: Science, Climate Change

\*This essay complies with the Kalamazoo College Honor System\*

Climate Change and Its Role in Brazil's Social Relations, Economy, and Environmental Policy  
Under President Lula's Administration from 2003-2010

The issues surrounding climate change have become ever more urgent in recent decades. With a global rise in temperatures and sea levels, as well as increased carbon emissions, the earth is facing a point of no return unless its leaders effectively address systemic shifts in policy practice. Brazil is particularly vulnerable to environmental effects considering the influential role of the Amazon rainforest in all aspects of Brazilian life, especially the economy. It is difficult to navigate the balance between major economic growth and protections on the natural resources that drive that growth. This essay will begin by explaining the role of the Amazon in the global context, as well as the particular aspects of Brazilian society that are most affected by climate change. It will be followed by a comprehensive analysis of Brazil's environmental policy and national sentiment under President Luiz Inácio Lula da Silva's administration from 2003-2010.

The Amazon region plays a crucial role in maintaining climate function both regionally and globally. Food products that come from rainforests are necessary to the international food supply chain. Approximately 80 percent of staple crops come from rainforests, including coffee, chocolate, rice, potatoes, bananas, and corn (Amazon Aid Foundation 2016), as well as minerals and medicinal plants. The Amazon River contains over 20 percent of the world's flowing fresh water and is essential for the balanced movement of the universal water cycle. Additionally, over 2,500 species of fish and aquatic animals live in the Amazon River and all its tributaries (Amazon Aid Foundation 2016). More than 10 percent of the world's biodiversity is housed in the Amazon, inhabiting over three million different species. An estimated one million of these species are currently facing extinction, which is at a level over a thousand times faster than what would happen naturally (Thompson 2020). Part of this accelerating extinction is caused by carbon emissions: the Amazon contains 90-140 billion metric tons of carbon, which, when even

a portion is released, has dire consequences in hastening global warming. Currently, 0.5 billion metric tons of carbon are released per year through deforestation and land development, demonstrating the massive impact to the environment (Global Environment Facility 2020).

While the Amazon region plays an important role globally, it is especially significant to Brazil, particularly its social, economic, and environmental practices. Brazil controls over 60 percent of the Amazon region, which is home to more than 30 million people, including over 350 indigenous communities (USAid 2018, 1). These inhabitants rely upon the natural resources that the Amazon region provides, and base their livelihood on its fresh water, food, and traditional medicine. Furthermore, Brazil's national economy depends predominantly on the agricultural sector, which wouldn't exist without the development of the Amazon. Agricultural output has doubled since the early 1990s, with the sector accounting for 5.5 percent of the GDP in 2016. It employs 18 million people, comprising approximately 17 percent of the labor force as of 2017 (Trading Economics 2017). Workers on small farms make up a majority of that population; of the five million farms in Brazil, 85 percent are run by a single family (USAid 2018, 3). Climate shocks drastically impact these "minifundios," which are particularly vulnerable to increased temperatures and drought. There is significant risk to crop yield and livestock production as a result of the depletion of nutrient-rich soil by large scale land holdings and industrial corporations. Commercial agriculture commonly engages in the method of monoculture, which is the mass production of a single primary product. Monoculture practices abuse the land through deforestation and soil erosion; this devastates small family farms from escaping their way out of poverty, because they simply cannot compete in the same markets. Additionally, industrial agriculture companies are shown to play a significant role in furthering climate change; they are responsible for between 25 and 30 percent of global greenhouse gas emissions, while small farms present only a fraction of that number (Amazon Aid Foundation 2017). Minifundios also

directly experience the effects caused by industrial farming. The local livestock industry, for example, is particularly vulnerable to environmental changes, which has consequences that ripple across the world. The beef sector accounts for 14 percent of global output; livestock is directly affected by high increases in temperature and drought. The global meat market takes extensive hits, leaving nearly one-third of the world's population in an insecure position for food (USAid 2018, 3). It is clear that the environmental repercussions of large-scale agriculture affect billions of people worldwide.

Family farming and agricultural practices are not the only industries susceptible to a changing environment; the tourism industry is also affected. In 2016, tourism accounted for 8.5 percent of the country's GDP (USAid 2018, 2) and is heavily dependent on an abundance of natural resources and access to the coastline, where the bulk of the population and economic activities are concentrated (Lèbre la Rovere and Pereira 2014). Extreme weather events pose a threat to the tourism industry because of a higher likelihood of a state of emergency, and coastal areas are most vulnerable to rising sea levels and flooding. Such events could cause significant damage to the economy and infrastructure, as well as a loss of land. Some projections show that Brazil is at risk of losing 11 million hectares of land by 2030 as a result of climate change, in areas that disproportionately affect the indigenous population (USAid 2018, 3).

Another outcome of climate change is an increase in certain diseases and other health issues. Higher temperatures generally create more favorable conditions for infectious diseases, while increased water levels are associated with the prevalence of waterborne diseases, such as cholera (USAid 2018, 4). Environmental issues such as higher sea levels and more extreme weather conditions lead to inland flooding, making communities in the Amazon River basin particularly vulnerable to such infections. Additionally, higher temperatures will affect medical conditions that target the elderly, chronically ill, and children. Flooding, runoff, and

contaminants will decrease water quality, which, in turn, is a leading cause of malnutrition. As a result, flooding and drought, both of which are exacerbated by climate change, can create strains on the healthcare system. In addition to an increase in the numbers of diseases, important waterways and transportation mechanisms in the Amazon may be destroyed or damaged.

This section of the paper provided an analysis of the significant role of climate change on Brazil's domestic agriculture and tourist industries, and national health. These aspects are all important for state leaders to consider when creating regulations and protections to protect the environment.

#### **Brazil's Environmental Policies Enacted During President Lula's Administration from 2003-2010 and the Country's National Sentiment:**

This section of the paper will explain the background of President Lula's government and elaborate on key actors that played an important role under his leadership. Next, it will give a comprehensive analysis of major environmental policies enacted under his administration. Finally, it will describe how public sentiment toward the environment has shifted from before President Lula was elected to the completion of his term.

Luiz Inácio Lula da Silva (popularly known as Lula) was elected President in 2003. He promised social, economic, and environmental transformation to all Brazilians under the Workers' Party. This coalition was built on the trade union and landless peasants' movements; they had ties to organizations such as the rubber tappers union and the indigenous peoples of the Amazon. As a result, the policies of Lula's government were initially aimed at achieving broad-based economic and social development, particularly for urban workers and landless laborers in the rural sector. In the six years after Lula's election, programs such as Fome Zero (Zero Hunger) and Bolsa Familia (Family Allowance) helped Brazil address its social

inequalities. Brazil reduced its poverty rate from 34 percent to less than 23 percent, while 29 million citizens rose into the middle class (Boucher 2014). Important strides were taken to reduce economic disparities, while also substantially dropping malnutrition rates. As a result of this astounding success, President Lula and his administration were able to redirect their focus to the environment. He took actions aimed to reduce deforestation while also emphasizing the creation of protected indigenous lands. During Lula's first term, he prioritized environmental measures, passing a majority of the comprehensive policies that would be implemented throughout his eight-year administration, with support from his environmental minister.

One of President Lula's first appointments at the beginning of his term was to install Marina Silva (no familial relation) as the head of the Ministry of the Environment. Silva had a compelling background in connection to the environment; she grew up in a family of rubber tappers in the Amazonian state of Acre and later worked closely with major historical figures in Amazonian environmental politics such as Chico Mendes, a Brazilian environmentalist who advocated for the human rights of peasants and indigeneous peoples. Her environmental credentials and reformist ideology made her a suitable fit for the position. She was a proponent of the idea that environmental goals could only be achieved in coordination with social objectives. She worked to curb deforestation, promote environmental bureaucracy, and create a specialized environmental career path for public servants (Hochstetler 2017, 11). She oversaw a series of policies that led to an unprecedented decline in deforestation in the Amazon after 2005. Additionally, she had significant influence in non-governmental initiatives such as national consumer boycotts of products grown on deforested land. Marina Silva resigned at the end of Lula's first term in 2008 over high tensions, caught in the middle between an empowered environmental base that expected larger policy achievements and a broad coalition of political actors who minimized the importance of legislation she tried to advance (Hochstetler 2017, 11).

However, she continued to work on these issues even after leaving her position in Lula's administration. This action demonstrated how motivated and well aligned actors like Silva were in achieving environmental policy goals. She "led the effort to reduce deforestation from within the government, but was also willing to leave that government and join the social movement when it was necessary for the struggle against deforestation" (Boucher 2014).

President Lula replaced Marina Silva with Carlos Minc, who had extensive background as an urban environmental activist. In 1969, under the military government, Minc was exiled to Europe for supporting guerrilla movements in opposition to the military. He returned to Brazil 10 years later under political amnesty and held a number of state and local positions both as an elected representative and a bureaucrat in the environmental sector. Minc became the head of the Ministry of the Environment in 2008. He opted to continue many of the policies implemented during the first Lula administration, but faced many of the same tensions as Silva. Immediately into his term, there was a global financial crisis, and Brazil briefly sank into a recession. Minc left after just two years, and although not up to the idealistic standards of the most vocal environmental activists, Minc did have some successes during his time in office. Deforestation continued to drop, but that was largely due to the policies implemented during Silva's tenure (Hochstetler 2017, 12).

In 2004, President Lula and Marina Silva collaborated to enact the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM). The plan was designed to be implemented in three phases; the first phase, during 2004-2008, would involve expanding the number of protected areas and improving the enforcement of forest protection. Within this first phase came the drafting and enactment of Law 11284 in 2006, which established the management of Public Forests, the Brazilian Forest Service, and the National Fund for Forest Development. The second phase, between 2009-2011, aimed to initiate

cooperation between federal agencies and state and local governments. Finally, the third phase, from 2012-2015, would include efforts to build sustainably-developed infrastructure (Centre for Public Impact). Overall, this action plan accomplished all of its policy goals. By 2007, just three years after the action plan was implemented, the deforestation rate fell by 59 percent; two years later, it had dropped by two-thirds (Boucher 2014).

Many aspects of this policy proved successful: there was strong support from both internal and external members of the government, as well as national and international organizations such as the National Commission of Forests and the World Bank. Additionally, private actors and associations, such as business representatives, scientists, and members of the indigenous community, all backed the policy. Furthermore, the policy contained a clear structure and management plan that outlined both short-term and long-term goals. Skilled, collaborative experts led each of the four priority areas: territorial planning, monitoring and enforcement, fostering of sustainable production activities, and infrastructure (Centre for Public Impact 2016). The policy had the buy-in of the National Commission of Forests, scientists, representatives, administration officials, and members of the indigenous community, all of whom drafted the law together. The federal police and the Ministry of Justice worked in coordination to enforce fines and carry out the law, while federal and public prosecutors held them to that standard (Centre for Public Impact 2016). The PPCDAM ended up jailing over 700 people, including government employees, for illegal logging (Environmental Defense Fund 2009, 1) and created 148 new protected areas between 2003-2008 that covered 640,000 km<sup>2</sup>, an area equivalent to the size of France (Environmental Defense Fund 2009, 1). Overall, the PPCDAM was successful in many areas, making it the basis for future environmental legislation.

Another policy enacted under the Lula administration was through the United Nations, under the Framework Convention on Climate Change (UNFCCC). Last year, deforestation

emissions in Brazil accounted for approximately 44 percent of the country's national emissions (Aljazeera 2020), which plays an influential role in global levels. As of 2014, deforestation was responsible for 17 percent of universal greenhouse gas emissions (REDD Monitor 2014), a number that could be reduced if the international community works in unity. The UNFCCC designed a payment program called the Reduction of Emissions from Deforestation and Forest Degradation (REDD), which aimed to drastically reduce deforestation through awarded compensation. Brazil was the first country to voluntarily commit to national emissions reductions under this program and receive performance based payment from the Green Climate Fund (United Nations Climate Change 2019). Between 2005 and 2016, Brazil received the equivalent of \$1.037 billion in US currency, which translates to almost 200 million reduced tons of CO<sub>2</sub> (Bastida 2017, 6). The REDD payment was not given solely to the federal government; it was declared a public good, because it was considered a service provided to society. In 2016, 88 percent of the total funds designated for Brazil were distributed to programs outside of the national government (Bastida 2017, 6). The compensation was used to build an environmental service incentive program for the conservation and recovery of native resources, as well as developing sustainable alternative income sources for local communities. Additionally, REDD payments promoted improved agricultural practices to increase productivity and lessen the need to expand farmland. Water resource development projects, ecotourism promotion, fuel-efficiency, and social infrastructure are all activities that REDD supported (Nhantumbo 2015, 35).

In addition to PPCDAM and UNFCCC, the Lula administration found success through reducing deforestation by establishing and effectively preserving indigenous lands and protected areas. Beginning in 2002, areas in the Amazon were classified based on various federal and state regulations; twelve years later, over half of the Amazon forest was protected under law in some

form. Nearly half of this land is reserved for indigenous peoples, a fifth is under strict environmental control and enforcement, and a fourth is designated for sustainable development (Boucher 2014). Under legal administration by the Brazilian government, indigenous peoples are granted the right to use the land for sustainable forest management and its resources (Boucher 2014). While they are granted the ability to exploit timber and non-timber forest resources, in practice they have generally chosen to keep all of their land as forest. Studies show that indigenous populations have reduced deforestation by over ten times the rate of nearby areas (Boucher 2014). While these policies have been extremely successful as environmental protection measures, President Lula cannot claim all the credit. Any legitimate progress was made by indigenous groups, rubber tappers, labor unions, and environmentalists putting pressure on the government and businesses. These groups were able to change the political dynamics so that their interests were represented. Finally, these policies represent the physical right of the indigenous peoples to their land, something denied to them for centuries.

The shift of public support and national sentiment toward protecting the environment is another influential aspect of Lula's administration. For decades, the issue of deforestation and regulation of carbon emissions was seen in terms of national sovereignty. Brazilians observed foreign non-governmental organizations pressuring them to save Amazon forests, often at the expense of their own right to economic development. Brazilians criticized foreigners concerned with "saving the Amazon forests" when they themselves came from countries that became wealthy through the exploitation of forests and natural resources (Boucher 2014). Additionally, foreigners claimed "to speak for the natural world, but were counter-posed to Brazil's right to decide how to use its own land" (Boucher 2014). Decades full of resentment over these issues grew until President Lula and his administration changed this narrative. Deforestation was reframed as an exploitation of natural resources that justly belonged to all Brazilians, particularly

the indigenous population. Organizations and communities representing indigenous peoples, rubber tappers, and Amazonian labor unions united with urban environmentalists to put pressure on the federal government and reclaim what was rightfully theirs. Public support is crucial for enacting a comprehensive environmental policy; without pressure from the public, leaders will not act. Now that attitudes toward Brazilian environmental politics have shifted, the public will continue to hold the government accountable.

Policy actions surrounding the environment have become a priority of Brazilians and people across the globe. Our planet is in desperate need for governments to immediately address these issues. This essay explained how urgent this matter is, while focusing on the effects of climate change on Brazilian society, its economy, and its governmental policy. Under Lula's administration from 2003-2010, environmental protection and regulation was a priority issue. President Lula delivered the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAM), as well as the Reduction of Emissions from Deforestation and Forest Degradation (REDD) under the United Nations. These particular pieces of legislation achieved astounding success; they curbed deforestation by approximately 70 percent since 2005, making Brazil the country that has made the largest contribution to reduce global warming (Boucher 2014). While Brazil made huge environmental advances, at the same time, it also enjoyed strong economic and social growth, particularly in the agricultural and tourist sectors (Boucher 2014). If world leaders focus on enacting policy with this in mind, the environment will be protected and valued once again.

## Bibliography

- Al Jazeera. "Brazil's Carbon Emissions Rose in 2019 with Amazon Deforestation." *Latin America* | *Al Jazeera*, Al Jazeera, 7 Nov. 2020, [www.aljazeera.com/news/2020/11/7/brazils-carbon-emissions-rose-in-2019-with-amazon-deforestation](http://www.aljazeera.com/news/2020/11/7/brazils-carbon-emissions-rose-in-2019-with-amazon-deforestation).
- "Amazon." *Global Environment Facility*, 16 Jan. 2020, [www.thegef.org/topics/amazon](http://www.thegef.org/topics/amazon).
- Bastida, Ana Carolina, et al. "Mapping Financial Flows for REDD+ and Land Use in Brazil ." *Forest Trends REDD+ Report*, July 2017, doi:[https://www.forest-trends.org/wp-content/uploads/2017/09/doc\\_5621.pdf](https://www.forest-trends.org/wp-content/uploads/2017/09/doc_5621.pdf).
- Bayrak, Mucahid Mustafa, and Lawal Mohammed Marafa. "Ten Years of REDD+: A Critical Review of the Impact of REDD+ on Forest-Dependent Communities." 2 July 2016.
- Boucher, Doug. "How Brazil Has Dramatically Reduced Tropical Deforestation." *Resilience*, 3 July 2014, [www.resilience.org/stories/2014-07-03/how-brazil-has-dramatically-reduced-tropical-deforestation/](http://www.resilience.org/stories/2014-07-03/how-brazil-has-dramatically-reduced-tropical-deforestation/).
- "Brazil GDP From Agriculture 1996-2020 Data: 2021-2022 Forecast: Historical: Chart." *Brazil GDP From Agriculture | 1996-2020 Data | 2021-2022 Forecast | Historical | Chart*, [tradingeconomics.com/brazil/gdp-from-agriculture](http://tradingeconomics.com/brazil/gdp-from-agriculture).
- "Brazil National and State REDD." *Environmental Defense Fund*, Nov. 2009, doi:[https://www.edf.org/sites/default/files/10438\\_Brazil\\_national\\_and\\_state\\_REDD\\_report.pdf](https://www.edf.org/sites/default/files/10438_Brazil_national_and_state_REDD_report.pdf).
- "Climate Risk Profile: Brazil ." *USAid*, Apr. 2018, doi:[https://www.climate-links.org/sites/default/files/asset/document/2018-April-30\\_USAID\\_CadmusCISF\\_Climate-Risk-Profile-Brazil.pdf](https://www.climate-links.org/sites/default/files/asset/document/2018-April-30_USAID_CadmusCISF_Climate-Risk-Profile-Brazil.pdf).
- "Forest Protection in Brazil Boosted through REDD-plus ." *United Nations Climate Change* , 5 Mar. 2019, [unfccc.int/news/forest-protection-in-brazil-boosted-through-redd-plus](http://unfccc.int/news/forest-protection-in-brazil-boosted-through-redd-plus).
- "The Global Importance of Amazon Natural Resources." *Amazon Aid Foundation*, 14 Aug. 2017, [amazonaid.org/global-importance-amazon-natural-resources/](http://amazonaid.org/global-importance-amazon-natural-resources/).
- Hochstetler, Kathryn. "Tracking Presidents and Policies: Environmental Politics from Lula to Dilma." *LSE Research Online* , Mar. 2017, doi:[http://eprints.lse.ac.uk/69386/1/Hochstetler\\_Tracking%20presidents%20and%20policies\\_2017.pdf](http://eprints.lse.ac.uk/69386/1/Hochstetler_Tracking%20presidents%20and%20policies_2017.pdf).
- Lèbre la Rovere, Emilio, and André Santos Pereira. "Brazil & Climate Change: a Country Profile." *Sci Dev Net*, 2 Feb. 2014, [www.scidev.net/global/policy-brief/brazil-climate-change-a-country-profile.html](http://www.scidev.net/global/policy-brief/brazil-climate-change-a-country-profile.html).
- "National Plan on Climate Change: Brazil ." *Government of Brazil: Interministerial Committee on Climate Change* , 21 Nov. 2007, doi:[https://www.mma.gov.br/estruturas/208/\\_arquivos/national\\_plan\\_208.pdf](https://www.mma.gov.br/estruturas/208/_arquivos/national_plan_208.pdf).

Nhantumbo, Isilda, and Marisa Camargo. "REDD+ for Profit or for Good?" *IIED Natural Resource Issues*, International Institute for Environment and Development, 2015, [reddplusbusiness.com/wp-content/uploads/2014/07/redd\\_for\\_profit\\_or\\_for\\_good.pdf](http://reddplusbusiness.com/wp-content/uploads/2014/07/redd_for_profit_or_for_good.pdf).

"Reducing Deforestation in Brazil." *Centre for Public Impact (CPI)*, [www.centreforpublicimpact.org/case-study/reducing-deforestation-in-brazil/](http://www.centreforpublicimpact.org/case-study/reducing-deforestation-in-brazil/).

Thomson, Ashley, et al. "Biodiversity and the Amazon Rainforest." *Greenpeace USA*, 27 May 2020, [www.greenpeace.org/usa/biodiversity-and-the-amazon-rainforest/](http://www.greenpeace.org/usa/biodiversity-and-the-amazon-rainforest/).

Yanez, Ivonne, et al. "REDD Myth No. 1: Deforestation Accounts for 25% of Greenhouse Gas Emissions." *REDD*, 8 May 2018, [redd-monitor.org/2014/02/15/redd-myth-no-1-deforestation-accounts-for-25-of-greenhouse-gas-emissions/](http://redd-monitor.org/2014/02/15/redd-myth-no-1-deforestation-accounts-for-25-of-greenhouse-gas-emissions/).

Vos, Jurriaan M. De, et al. "Estimating the Normal Background Rate of Species Extinction." *Society for Conservation Biology*, John Wiley & Sons, Ltd, 26 Aug. 2014, [conbio.onlinelibrary.wiley.com/doi/abs/10.1111/cobi.12380](http://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/cobi.12380).