



NHSMUN

CRISIS - BRAZILIAN CABINET

BACKGROUND GUIDE

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Terry Wang

Director-General
Jordan Baker

Delegate Experience
Nastasja Vásquez

Global Partnerships
Daniela Maciel
Sebastian Jimenez

Under-Secretaries-General

Nachiketh Anand
Alina Castillo

Seonghyun Chang
Naina Dhawan

Ximena Faz
Kellie Fernandez

Grace Harb
Adiva Ara Khan

Anshul Magal
Analucia Tello
Sofia Velasco
Renata Venzor

Dear Delegates,

My name is Walker Blackwell, and I am very excited to have you all part of the Brazilian Cabinet Crisis Committee at this year's NHSMUN conference! I am a sophomore at USC studying business administration and theater. I joined my school's Model UN team last year and am excited to see you all at NHSMUN as your Crisis Director. Coming from a speech and debate background, I felt drawn to this competitive speaking atmosphere. I am particularly interested in crisis committees because they allow for more originality and, in my opinion, do a better job mimicking real-world committees as they create real-time changes in debate. I look forward to seeing your unique perspectives this spring!

I grew up in Dallas, Texas and moved last year to Los Angeles, California. Professionally, I plan on pursuing a career in acting. I've been acting for the past decade. My background consists primarily of stage productions; however, I'm hoping to make the transition to film acting. My love for acting stems from the desire to understand how people operate. This endeavor is especially important in MUN as understanding how people work can give you insight into what they value. It can also help you convince others to open their mind to new ways of thinking. We encourage delegates to think critically about "why" other delegates might have opposing views and use that knowledge to become more persuasive.

Outside of Model UN, I am very passionate about finance and film. In my free time, I enjoy brushing up on the latest films. My favorite two films are The Social Network and Get Out. I am currently part of Alpha Kappa Psi, a business fraternity, and in several investing clubs at USC. Lastly, I am very interested in improving prison education.

My co-director, Keshav, and I thought tackling the issues pressing the Amazon rainforest, though ambitious, would be equally rewarding and timely. The Amazon is one of the world's most heavily researched regions. The depth of knowledge available surrounding the forest combined with the many riches it holds made it a great subject for debate. Additionally, as climate change is becoming a growing concern amongst global leaders, it felt like a great time to introduce a climate change committee. We hope that learning about the struggles posing the region and the consequences that they hold for the greater world will inspire you to create positive change in your own lives.

Keshav and I are always able to clarify any questions or concerns you may have. The Amazon has a wide range of struggles and there is a lot of opportunity for debate. In your own research, feel free to take creative perspectives and imagine new solutions to saving the region. I am looking forward to seeing what you come up with.

See you all soon,

Walker Blackwell

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Brazilian Cabinet Director, Session I



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Hello Delegates!

I am incredibly excited to welcome you to the Brazilian Cabinet Crisis Committee at NHSMUN 2025! My name is Keshav Badri, and I am your Session 2 director for this committee. This is my second year on NHSMUN's staff and my third year attending this conference overall. As a delegate, I attended NHSMUN in 2020 as a delegate in the International Organization for Migration. Last year, I had the pleasure of being the Session 2 Assistant Director for the Kutupalong Crisis Committee. NHSMUN has played a pivotal role in my development as a Model UN delegate and has helped me explore my varied interests in public policies and affairs. I am looking forward to returning to NHSMUN this year as a Director and helping facilitate this committee's debate!

I was born and raised in Central Jersey and am currently in my sophomore year at Rutgers University-New Brunswick. My majors are Physics and Mathematics. On campus, I am a board member for Rutgers's Society of Physics Students and Model UN travel team. One of my passions is public speaking and education. One day, I hope to become a professor so that I can study subjects that interest me and be a lecturer for upcoming undergraduate students. Model UN seems like a weird outlier in this goal, but it has become an integral part of my identity.

Outside of school-related activities, I am very interested in soccer and cricket. It can be hard to keep up with both the English (soccer) and Indian (cricket) Premier League, but I find both sports fun to play and watch. One of my personal growth goals for this upcoming school year is to become a better runner. I hope to run in local 5K and 10K events later on in the spring or summer.

My co-Director, Walker, and I chose the Amazon Rainforest to be the focus of our committee after wanting to simulate a non-conflict based crisis. The preservation of the rainforest is a matter of global concern, and the constantly evolving situation lends itself well to a crisis committee. That being said, the non-conflict nature of this crisis does not mean it can be any less fast-paced as a crisis committee. Expect to be constantly challenged and constantly be learning over the course of this committee. This background provides a comprehensive overview of the various situations in the rainforest. However, it is not all inclusive. As conference approaches, new developments will occur in the Amazon Rainforest. Make sure to stay informed and up to date with these developments, and use this background guide to understand the context and possible reasons behind the new developments. NHSMUN was one of the most influential conferences in my Model UN career.

If you have any questions, comments, or concerns, please do not hesitate to reach out to Walker or me. We are here to answer your questions and give you support if you need it.

All the best,

Keshav Badri

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Brazilian Cabinet Director, Session II



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A Note on the NHSMUN Difference

Esteemed Faculty and Delegates,

Welcome to NHSMUN 2025! We are Terry Wang and Jordan Baker, and we are this year's Secretary-General and Director-General. Thank you for choosing to attend NHSMUN, the world's largest and most diverse Model United Nations conference for secondary school students. We are thrilled to welcome you to New York City in March.

As a space for collaboration, consensus, and compromise, NHSMUN strives to transform today's brightest thinkers, speakers, and collaborators into tomorrow's leaders. Our organization provides a uniquely tailored experience for all through innovative and accessible programming. We believe that an emphasis on education through simulation is paramount to the Model UN experience, and this idea permeates throughout numerous aspects of the conference:

Realism and accuracy: Although a perfect simulation of the UN is never possible, we believe that one of the core educational responsibilities of MUN conferences is to educate students about how the UN System works. Each NHSMUN committee is a simulation of a real deliberative body so that delegates can research what their country has said in the committee. Our topics are chosen from the issues currently on the agenda of that committee (except historical committees, which take topics from the appropriate time period). We also strive to invite real UN, NGO, and field experts into each committee through our committee speakers program. Moreover, we arrange meetings between students and the actual UN Permanent Mission of the country they are representing. Our delegates have the incredible opportunity to conduct first-hand research, asking thought-provoking questions to current UN representatives and experts in their respective fields of study. These exclusive resources are only available due to IMUNA's formal association with the United Nations Department of Global Communications and consultative status with the Economic and Social Council. No other conference goes so far to deeply immerse students into the UN System.

Educational emphasis, even for awards: At the heart of NHSMUN lies education and compromise. Part of what makes NHSMUN so special is its diverse delegate base. As such, when NHSMUN distributes awards, we strongly de-emphasize their importance in comparison to the educational value of Model UN as an activity. NHSMUN seeks to reward students who excel in the arts of compromise and diplomacy. More importantly, we seek to develop an environment in which delegates can employ their critical thought processes and share ideas with their counterparts from around the world. Given our delegates' plurality of perspectives and experiences, we center our programming around the values of diplomacy and teamwork. In particular, our daises look for and promote constructive leadership that strives towards consensus, as real ambassadors do in the United Nations.

Debate founded on strong knowledge and accessibility: With knowledgeable staff members and delegates from over 70 countries, NHSMUN can facilitate an enriching experience reliant on substantively rigorous debate. To ensure this high quality of debate, our staff members produce detailed, accessible, and comprehensive topic guides (like the one below) to prepare delegates for the nuances inherent in each global issue. This process takes over six months, during which the Directors who lead our committees develop their topics with the valuable input of expert contributors. Because these topics are always changing and evolving, NHSMUN also produces update papers intended to bridge the gap of time between when the background guides are published and when committee starts in March. As such, this guide is designed to be a launching point from which delegates should delve further into their topics. The detailed knowledge that our Directors provide in this background guide through diligent research aims to increase critical thinking within delegates at NHSMUN.

Extremely engaged staff: At NHSMUN, our staffers care deeply about delegates' experiences and what they take away from their time at NHSMUN. Before the conference, our Directors and Assistant Directors are trained rigorously through hours of workshops and exercises both virtual and in-person to provide the best conference experience possible. At the conference,

delegates will have the opportunity to meet their dais members prior to the first committee session, where they may engage one-on-one to discuss their committees and topics. Our Directors and Assistant Directors are trained and empowered to be experts on their topics and they are always available to rapidly answer any questions delegates may have prior to the conference. Our Directors and Assistant Directors read every position paper submitted to NHSMUN and provide thoughtful comments on those submitted by the feedback deadline. Our staff aims not only to tailor the committee experience to delegates' reflections and research but also to facilitate an environment where all delegates' thoughts can be heard.

Empowering participation: The UN relies on the voices of all of its member states to create resolutions most likely to make a meaningful impact on the world. That is our philosophy at NHSMUN too. We believe that to properly delve into an issue and produce fruitful debate, it is crucial to focus the entire energy and attention of the room on the topic at hand. Our Rules of Procedure and our staff focus on making every voice in the committee heard, regardless of each delegate's country assignment or skill level. Additionally, unlike many other conferences, we also emphasize delegate participation after the conference. MUN delegates are well researched and aware of the UN's priorities, and they can serve as the vanguard for action on the Sustainable Development Goals (SDGs). Therefore, we are proud to connect students with other action-oriented organizations to encourage further work on the topics.

Focused committee time: We feel strongly that face-to-face interpersonal connections during debate are critical to producing superior committee experiences and allow for the free flow of ideas. Ensuring policies based on equality and inclusion is one way in which NHSMUN guarantees that every delegate has an equal opportunity to succeed in committee. In order to allow communication and collaboration to be maximized during committee, we have a very dedicated administrative team who work throughout the conference to type up, format, and print draft resolutions and working papers.

As always, we welcome any questions or concerns about the substantive program at NHSMUN 2025 and would be happy to discuss NHSMUN pedagogy with faculty or delegates.

Delegates, it is our sincerest hope that your time at NHSMUN will be thought-provoking and stimulating. NHSMUN is an incredible time to learn, grow, and embrace new opportunities. We look forward to seeing you work both as students and global citizens at the conference.

Best,

Terry Wang
Secretary-General

Jordan Baker
Director-General

A Note on Research and Preparation

Delegate research and preparation is a critical element of attending NHSMUN and enjoying the debate experience. We have provided this Background Guide to introduce the topics that will be discussed in your committee. We encourage and expect each of you to critically explore the selected topics and be able to identify and analyze their intricacies upon arrival to NHSMUN in March.

The task of preparing for the conference can be challenging, but to assist delegates, we have updated our [Beginner Delegate Guide](#) and [Advanced Delegate Guide](#). In particular, these guides contain more detailed instructions on how to prepare a position paper and excellent sources that delegates can use for research. Use these resources to your advantage. They can help transform a sometimes overwhelming task into what it should be: an engaging, interesting, and rewarding experience.

To accurately represent a country, delegates must be able to articulate its policies. Accordingly, NHSMUN requires each delegation (the one or two delegates representing a country in a committee) to write a position paper for each topic on the committee's agenda. In delegations with two students, we strongly encourage each student to research each topic to ensure that they are prepared to debate no matter which topic is selected first. More information about how to write and format position papers can be found in the NHSMUN Research Guide. To summarize, position papers should be structured into three sections:

I: Topic Background – This section should describe the history of the topic as it would be described by the delegate's country. Delegates do not need to give an exhaustive account of the topic, but rather focus on the details that are most important to the delegation's policy and proposed solutions.

II: Country Policy – This section should discuss the delegation's policy regarding the topic. Each paper should state the policy in plain terms and include the relevant statements, statistics, and research that support the effectiveness of the policy. Comparisons with other global issues are also appropriate here.

III. Proposed Solutions – This section should detail the delegation's proposed solutions to address the topic. Descriptions of each solution should be thorough. Each idea should clearly connect to the specific problem it aims to solve and identify potential obstacles to implementation and how they can be avoided. The solution should be a natural extension of the country's policy.

Each topic's position paper should be **no more than 10 pages** long double-spaced with standard margins and font size. **We recommend 3–5 pages per topic as a suitable length.** The paper must be written from the perspective of your assigned country and should articulate the policies you will espouse at the conference.

Each delegation is responsible for sending a copy of its papers to their committee Directors via [myDais](#) on or before **February 21, 2025**. If a delegate wishes to receive detailed feedback from the committee's dais, a position must be submitted on or before **January 31, 2025**. The papers received by this earlier deadline will be reviewed by the dais of each committee and returned prior to your arrival at the conference.

Complete instructions for how to submit position papers will be sent to faculty advisers via email. If delegations are unable to submit their position papers on time, please contact us at info@imuna.org.

Delegations that do not submit position papers will be ineligible for awards.

Committee History

The Cabinet of Brazil is part of the executive branch, which is led by the President as outlined in the 1988 constitution.¹ The current members of the Brazilian Cabinet were sworn in by President Luiz Inácio Lula da Silva on January 1, 2023.² The cabinet aims to undo the policies set by former President Jair Messias Bolsonaro, whose mandates were widely considered to be harmful to the environment, Indigenous rights, and those who would publicly scrutinize him.³

Members of the Brazilian Cabinet hold positions that concern various matters within the jurisdiction of the federal government; examples of this include the Minister of Education, the Minister of Finance, and the Attorney General of Brazil. One of the most notable positions in the current cabinet includes the first-ever Minister of Indigenous Affairs, which was introduced by President Lula before his inauguration.⁴ Overall, the purpose of the members of the cabinet is to advise the President in exercising his executive power, which is done by overseeing a corresponding government ministry. An example of this would be the Minister of Environment and Climate Change advising the President to put forth proposed policy changes regarding the use of renewable energy over fossil fuels. In the ongoing transition from Bolsonaro to Lula, the cabinet must address the ongoing deforestation of the Amazon rainforest. Under Bolsonaro, deforestation had surged by 59.5 percent in comparison to the presidency that preceded him.⁵

However, achieving sustainability goals will be difficult. While President Luiz Inácio Lula da Silva successfully won a third term, former President Bolsonaro's Liberal Party (PL) made significant gains in the 2022 election, going from seven seats to thirteen (twenty-three including allies) in the 81-member senate. Meanwhile, President Lula's Workers Party only has nine seats (fourteen counting allies) in the Senate. The remaining seats belong to a collection of political parties known as the Centrão, who have historically traded their support for funds to send back to their home constituencies. Given their control of Congress, President Lula and his advisors must negotiate with the Centrão if they seek to pass legislation.⁶ Lula took the first step toward getting his agenda passed in February 2023, when lawmakers reelected Chamber Speaker Arthur Lira and Senate President Rodrigo Pacheco, Lula's choices for the positions, over their Bolsonaro-aligned opponents. Since the two congressional leaders have the significant administrative power to set the daily agenda for proceedings, choose which bills are put up for debate and vote, and greenlight congressional investigations, their reelections have helped President Lula's prospects of passing his agenda in Congress.⁷

Although Brazil holds about 60 percent of the Amazon rainforest, it shares the rest with its neighbors in Bolivia, Colombia, Ecuador, Guyana, Peru, Suriname, Venezuela, and French Guiana, making regional cooperation essential for its protection.⁸ Brazil has worked with its neighbors to preserve the Amazon in the past through the Amazon Cooperation Treaty Organization and has also collaborated with the wider international community through the revival of the Amazon Fund and projects with

1 Christopher Sabatini and Jon Wallace. "Democracy in Brazil." *Chatham House*. January 25, 2023. <https://www.chathamhouse.org/2022/08/democracy-brazil>.

2 "Should Prioritize Human Rights", Human Rights Watch, October 30, 2022, <https://www.hrw.org/news/2022/10/30/brazil-president-elect-lula-should-prioritize-human-rights>.

3 "Biography - President Luiz Inácio Lula da Silva", Presidência da República, September 7, 2023, <https://www.gov.br/planalto/en/composition/biography-president-of-the-republic>; "Brazil: President-Elect Lula

4 Diane Jeantet, "Brazil's Lula appoints record-high 11 women to his cabinet", *AP News*, December 29, 2022, <https://apnews.com/article/jair-bolsonaro-brasilia-brazil-law-enforcement-crime-cab73825e8a661cf676f78502234bbf7>.

5 Karla Mendes, "Despite 11% drop in 2022, Amazon deforestation rate has soared under Bolsonaro" *Mongabay*, December 2, 2022, <https://news.mongabay.com/2022/12/despite-11-drop-in-2022-amazon-deforestation-rate-has-soared-under-bolsonaro/>

6 Bryan Harris and Carolina Ingizza, "Radical Changes Are Not Going to Fly: Brazil's Divided Congress Reassures Investors," *Financial Times*, October 4, 2022, <https://www.ft.com/content/47ee1860-4d50-49ec-b8ac-9a4f914acaf1>; Bryan Harris, "Brazil's Centrão: the political kingmakers propping up Bolsonaro," *Financial Times*, August 14, 2022, <https://www.ft.com/content/6d1d94f9-dabf-447e-b901-bcfe2c1bf73a>.

7 Carla Bridi and Eléonore Hughes, "Brazil's Congress Reelects Leaders, Aiding Lula's Agenda," *AP News*, February 1, 2023, <https://apnews.com/article/politics-brazil-government-caribbean-democracy-02535a22bdeaf2b24e04bb1a20638597>.

8 "Brazil's Forests," *Mongabay*, accessed September 21, 2024, <https://worldrainforests.com/brazil/>; Tigre, Maria Antonia. "Building a Regional Adaptation Strategy for Amazon Countries." *International Environmental Agreements: Politics, Law, and Economics* 19 (May 2019): 411-427, <https://doi.org/10.1007/s10784-019-09443-w>.

the United Nations.⁹

With the power to take direct action within the Amazon rainforests through directives and the individual resources at their disposal, committee members must take action to support conservation efforts, navigate political opposition, and work with the international community to protect the Amazon and chart a path to a sustainable future.

⁹ Tigre, “Building a Regional Adaptation Strategy for Amazon Countries,” 411-427; “The Return of the Amazon Fund and Lula’s Race to Cut Deforestation,” *The Wilson Center*, February 19, 2023, <https://www.wilsoncenter.org/article/return-amazon-fund-and-lulas-race-cut-deforestation>; “UNEP’s Amazon Retreat Mobilizes Efforts to Protect One of the Largest Forested Areas in the World,” *UN-REDD Programme*, May 26, 2023, <https://www.un-redd.org/post/unepts-amazon-retreat-mobilizes-efforts-protect-one-largest-forested-areas-world>

Simulation

This committee will be operating with some modified procedural aspects because of the unique way that delegates will be able to change the flow of the committee. There will be less of an emphasis on formal debate and, because of the nature of a crisis simulation, the committee will encourage fast and detailed debate. Because delegates represent individuals tied to areas of government as opposed to the countries in general, roles are more specific, while also giving delegates the task of ensuring that their actions are appropriate for both who they represent and the governing body as a whole.

Because this crisis simulation has specific responsibilities and mandates, delegates must be aware that each action taken must follow their representative's unique policy while also falling in line with actions prescribed in the governing body's mandate. If an action is taken outside of its mandate, it will be ruled improper and removed from consideration. The aforementioned responsibilities require different procedural mechanisms; thus, this committee will use heavily modified procedural rules during both the mandate review and crisis management portions of debate. Due to the complex nature of this committee, we encourage delegates to read the following pages thoroughly.

Individual and Committee Mandates

The committee will be called upon to resolve any crises that may take place under the purview of the committee. Delegates should be acutely aware of the actors and interests surrounding the issues, the possible causes, and barriers to solutions.

Delegates must become absolute experts on the background, politics, and past actions of their assigned positions. This exceptional knowledge is needed to prepare for updates that will be presented to delegates at an extremely rapid rate. New crises will emerge throughout committee sessions, and delegates must call upon past actions attempted by the committee as well as the current situation to formulate a response that is in line with their assigned character's policy. If delegates are not aware of their standing on an issue of their own policy platforms, contradictory and unfeasible policies may arise, slowing down committee and halting debate. With informed delegates, the committee will make informed decisions. For a more detailed account of the various roles, their duties, and functions, please refer to the Committee Representatives section of the paper.

Similarly, delegates must be well informed of the powers of the committee and the types of decisions it is empowered to make. Anything outside the mandate of the body will not be accepted. The committee will be tasked with a variety of issues that will encompass many parts of its mandate, and so prioritizing will be key to ensuring that crises are responded to efficiently. Various actors will have access to information or resources which the whole committee does not have access to. As a result, individuals will have to make decisions on whether they want to respond to issues unilaterally, work with other actors, or through the committee as a whole. Delegates will also have their own agendas, and delegates must consider what they can gain for their countries by approaching a situation in a certain way.

Special Parliamentary Procedures

To better control the unique powers of this committee, special rules and procedures will be adopted. Three forms of debate will be used in this crisis simulation: round robin, roundtable, and moderated caucus. When a standard committee ends a caucus with no further motions, debate automatically returns to the speakers list. This is called the "default debate format." In our simulation, once another form of debate is exhausted, such as a moderated or unmoderated caucus, the committee will revert to a non-exhaustible moderated caucus with a speaking time to be decided at the chair's discretion. This will be this committee's new default debate format. The speaking time can be adjusted by the delegates via a motion.

To modify the default debate style, delegates will have a new procedural motion available to them during debate being a “motion to change the default debate style.” The motion will require a simple majority to pass and will not require any speakers for or against. At the start of committee, the chair will accept motions to set the debate style, generally a moderated caucus with speaking time selected by simple majority; however, the dais understands that it may become necessary from time to time for the committee to create a speakers list or enter a round robin of speeches to have each delegate elaborate on their respective policies.

If the committee reaches a portion of debate where delegates feel that a more fluid form of procedure is needed, such as a time elapsing crisis in which delegates will be forced to solve a specific issue in a controlled period, a new form of debate is necessary. Debate during these segments will need to move much faster than the crisis debate before this period to meet the time requirements set by the dais at which the crisis shall be solved. During these situations, the committee can vote for a roundtable discussion. Thus, delegates will openly discuss the crisis at hand without a structured speaking time. This form of debate resembles an unmoderated caucus that is held at the table to help delegates hear all points of view on the present without a time limit. Of course, if delegates find that the crisis requires a lot of writing, an unmoderated caucus can be motioned for as well.

The last form of debate style is called “round robin.” During this form of debate, each delegate will be allotted a time to speak on the topic. Each time this form of debate is used, a different person will start a speech and then move clockwise or counterclockwise from that delegate. If a delegate wishes to not speak on the issue, they can merely say “pass” to the chair, and their speaking time will be absorbed by the dais. In addition, a delegate may also say, “I yield my time to the chair” to skip his/her speech. Note that personal pronouns here are appropriate because delegates are representing individuals, not countries. To move into this style of debate, a delegate may simply request the following: “motion to change the debate style to a round robin.”

Final Products

The document output for the crisis portions will be heavily modified as well. Because of the nature of the updates provided throughout committee, there will be no resolutions used in this committee. Instead, the committee may pass three types of documents: **press releases**, **communiqués**, and **directives**. Press releases and communiqués are similar documents but have quite different uses. Press releases are when the committee or individuals wish to make information of any kind available to the public. On the other hand, communiqués are addressed to particular individuals and will not be released into the public eye. Anyone who can access a newspaper can subsequently access press releases, but only selected recipients can access communiqués. Thus, if a committee member only wants one other member to know of their stance on an issue, a communiqué may be issued to only that one member.

Directives are of an entirely different nature. Standard resolutions take far too long to write and are very ineffective when dealing with constant crisis. Thus, the committee will utilize directives as an alternative to resolutions. Directives exercise the executive power of the committee in any way that it sees fit. For example, delegates of the committee may redirect aid, distribute pamphlets about the issues, or anything that delegates can think of as long as it falls under the mandate of this special session. Directives are only comprised of sponsors and operatives, and all perambulatory clauses that a resolution must have are stripped. Thus, a directive is a less formal resolution, having only the operative needed and sponsors enlisted.

Each of these documents will require a different voting procedure to be passed. Communiqués sent from individuals concerning a representative's own organization do not need to come before a public vote. Rather, the communiqué is simply handed to chair and immediately passed. Similarly, for directives, if it is within the individual powers of your organization then the committee does not have to pass it for it to go into effect. However, the committee must approve communiqués and directives sent from the governing body. These documents must have three members as sponsors to be considered, and no signatories are needed. After the directive or communiqué is presented to the dais, the dais will formally present it to the committee. At this time, the committee

may either vote immediately on the piece, or the committee may continue to debate the proposal. To enter voting procedure, the committee must approve a motion to vote on the proposals on the floor, and it requires two-thirds to pass. Proposals that pass will immediately go into effect, and proposals that fail will no longer be recognized by the dais and will be returned to one of the sponsors. The document may be altered and reintroduced, but it must go through the voting process once again.

Final Notes and Summary

This committee will be moving extremely quickly, especially during crisis situations. There is no formula to provide the real-time at which a crisis is moving (e.g., 1 crisis minute = 1 simulation hour) since this would make some portions of debate outlandishly quick and others extremely slow. Instead, crisis times and allotted periods for discussion will be under the chair's discretion. All crises will be accompanied by a day, month, and year to keep delegates aware of how the committee is moving. Clearly, this committee is extremely unique and moves at a much different pace than all other committees at NHSMUN. However, if delegates come into committee having read this document and already possessing a rudimentary understanding how this secretariat will function, then the committee shall run smoothly. Delegates will also quickly pick up these concepts as debate moves.

If there are any questions or concerns, please feel free to contact the Crisis directors.



CRISIS-BRAZILIANCABINET

NHSMUN 2025

**TOPIC A:
BATTLING TO SAVE THE AMAZON RAINFOREST**

Photo Credit: Neil Palmer

Introduction

The Amazon is one of the world's most vibrant, diverse regions. The Amazon is home to over 3 million species and 2,500 tree species.¹ For reference, this is about a third of all tree species in the world. Due to its grand size and unique life, it's important to keep the Amazon safe, as it can make waves around the world if its ecosystem is disrupted. If the region is not protected it can result in increased fires, chaos for the lives of Indigenous people, less rain, a loss of biodiversity, disruption to migration patterns, and soil erosion to name a few consequences.² One of the main threats to this region is people cutting down trees for their own benefit.³ This has led to a loss of wildlife in the region. If this trend continues, global warming will worsen as the Amazon currently acts as a carbon sinkhole.⁴ Trees and a variety of plants hold carbon in and do not let it up into the atmosphere. In other words, when people destroy the Amazon, they destroy the world. To keep ecosystems across the world balanced, efforts must be made to stop parties from illegally chopping trees in the region.

The Amazon is also home to over a million native people.⁵ These groups are split into many tribes and spread throughout the forest. They vary from culture to culture, but one thing is constant: they utilize the natural resources that the Amazon provides to support their lives. Their relationship with nature is mutually beneficial. Since they knew the region the best, they have acted as protectors of the Amazon for many centuries.⁶ Unfortunately, their efforts to help the region come at a cost. They are often vulnerable to the many crimes that occur around them.⁷ They are particularly challenged by the drug trade and illegal mining in the region. This activity disrupted their communities and threatened the health of many tribes. They are also facing threats from governments as they often want to encroach on their land.⁸ Fortunately, over time their rights have been recognized to a larger extent.⁹ This effort has been backed in large part by the UN. As time progresses,

hopefully, more protections can be offered and their safety, along with that of the Amazon, will be better protected.

The Brazilian government also focuses on the resources of the Amazon as an essential economic asset for the country. They come in the form of both renewable energy and non-renewable resources. Some of the more lucrative practices include cattle farming, hydroelectric power generation, and mining.¹⁰ However, they often come with harmful side effects. One example is gold mining. The World Wildlife Fund found that fish in the waterways near illegal mining sites had mercury levels around eighteen times the normal amount. They also found that sixty-four percent of the mercury in Amazonian waterways came from illegal mining.¹¹ Even with these harmful side effects, gold is still one of the region's primary exports, with much of it being mined illegally.¹² With the economic

1 Greenpeace USA. "Biodiversity and the Amazon Rainforest." Greenpeace USA. Accessed August 7, 2024. <https://www.greenpeace.org/usa/biodiversity-and-the-amazon-rainforest/>.

2 Amazon Aid Foundation. "Effects of Deforestation on the Amazon." Amazon Aid Foundation. Accessed August 7, 2024. <https://amazonaid.org/resources/about-the-amazon/effects-of-deforestation-on-the-amazon/>.

3 Amazon Aid Foundation. "Threats to the Amazon." Amazon Aid Foundation. Accessed August 7, 2024. <https://amazonaid.org/resources/about-the-amazon/threats-to-the-amazon/>.

4 The Guardian. "Amazon Rainforest Now Emitting More CO2 Than It Absorbs." The Guardian, July 14, 2021. <https://www.theguardian.com/environment/2021/jul/14/amazon-rainforest-now-emitting-more-co2-than-it-absorbs>.

5 NASA Earth Observatory. "Indigenous Communities Protect the Amazon." NASA Earth Observatory. Accessed August 7, 2024. <https://earthobservatory.nasa.gov/images/151921/Indigenous-communities-protect-the-amazon>.

6 "Indigenous Communities Protect the Amazon."

7 Mongabay. "From Murder to Mining: Threats Abound in Colombian Amazon Indigenous Reserves." Mongabay, February 2024. <https://news.mongabay.com/2024/02/from-murder-to-mining-threats-abound-in-colombian-amazon-indigenous-reserves/>.

8 Reuters. "Indigenous Groups in Brazil Oppose Plans for Amazon Infrastructure." AOL News. Accessed August 7, 2024. <https://www.aol.com/news/Indigenous-groups-brazil-plans-amazon-203838574.html>.

9 National Center for Biotechnology Information. "The UN Declaration on the Rights of Indigenous Peoples." Accessed August 7, 2024. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9904148/>.

10 Marina Somma, "What Are the Resources of the Amazon Rainforest?" *Sciencing*, September 30, 2021, <https://sciencing.com/resources-amazon-rainforest-7214334.html>.

11 *Living Amazon Report* (World Wildlife Fund: December 2022): 68-71, https://files.worldwildlife.org/wwfcomprod/files/Publication/file/1w8fz5mkt_n_lar_inles_23_dic_2022.pdf.

12 "Gold in Brazil," Observatory of Economic Complexity, accessed August 7, 2024, <https://oec.world/en/profile/bilateral-product/gold/>

benefit that the Amazon rainforest provides, governments are in a tight spot. Any conservation efforts taken are met with the consideration that they could be hurting the economic status of already suffering nations in the Amazonian region.

Brazil is home to around 60 percent of the Amazon rainforest and parts of an adjacent ecosystem known as the Cerrado biome. Together, these areas are known as the Brazilian Legal Amazon.¹³ Experts consider the Brazilian Legal Amazon, also known as the Brazilian Amazon or BLA, to be one of the most important forest areas in the fight against climate change.¹⁴ However, it is also one of the most endangered parts of the rainforest. Deforestation rates in the Brazilian Amazon have fluctuated throughout time, with the highest rates recorded in 2004 at 27,772 square kilometers per year.¹⁵ Scientists estimate that around twenty percent of the BLA has been deforested in the past fifty years.¹⁶ As such, the status of the Brazilian Amazon has always been a major concern for the Brazilian government. From numerous points of view, protecting the Amazon is key to ensuring the livelihood of Brazil.

As global warming has become a more pressing threat in recent years, many countries have started to understand the need to help Brazil save their Legal Amazon. Unfortunately, while President Bolsonaro was in charge of Brazil from 2019-2022, the rainforest experienced an all-time high level of crime as the drug trade and deforestation broke records.¹⁷ This led to many countries, including a leading foreign donor, Norway, to temporarily withdraw funding.¹⁸ Since President Silva took charge in 2023, the forest has begun to recover and get back to lower crime levels. Funding from various countries is starting to resume. Additionally, non-government groups such as the

World Wildlife Fund and Amazon Watch have greatly aided efforts in the region.¹⁹

By understanding the underlying issues behind the current problems in the rainforest, Brazil's Cabinet has the potential to come up with effective and holistic solutions to save the Amazon. The responsibility lies on each of the Cabinet members to contribute their unique points of view, whether that comes from a conservationist or economic standpoint. Failure to do so entails disastrous consequences for not only Brazil but the world as a whole, in everything from global trade to maintaining breathable air. While the effects may not be seen within a short period, the actions of this Cabinet will affect Amazon for years to come.

History and Description of the Issue

Conservation Efforts and the Protected Areas Program

Some of the largest challenges the Amazon Rainforest faces include climate change, deforestation, and misuse of the land. These actions endanger the safety of the rainforest. One solution that the Brazilian government has used to protect its rainforest is the creation of Protected Areas.²⁰ Protected Areas are areas of land and water that the Brazilian government determines to be important for conservation efforts and sustainable development.²¹ They are also known as Conservation Units. These areas make Brazil's conservation programs some of the most successful around the world. Despite this, global organizations are still calling for more effective programs in the face of further destruction in the Amazon Rainforest.

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¹³ Bruno Felin and Joana Oliveira, *New Economy for the Brazilian Amazon* (Brasilia: World Resources Institute, June 2023) <https://www.wri.org/research/new-economy-brazil-amazon>.

¹⁴ Bruno Felin and Joana Oliveira, *New Economy for the Brazilian Amazon*.

¹⁵ Phillip Fearnside, "Deforestation of the Brazilian Amazon," *Oxford Research Encyclopedia*, September 26, 2017, <https://doi.org/10.1093/acrefore/9780199389414.013.102>.

¹⁶ Diana Roy, "Deforestation of Brazil's Amazon Has Reached a Record High. What's Being Done?" Council on Foreign Relations, last modified August 24, 2022, <https://www.cfr.org/in-brief/deforestation-brazils-amazon-has-reached-record-high-whats-being-done/>.

¹⁷ Vox, "The Amazon Rainforest, Brazil, Jair Bolsonaro, and Lula: Deforestation." Vox, September 29, 2022. <https://www.vox.com/down-to-earth/2022/9/29/23373427/amazon-rainforest-brazil-jair-bolsonaro-lula-deforestation>.

¹⁸ The Guardian. "Norway Halts Amazon Fund Donation in Dispute with Brazil over Deforestation." The Guardian, August 16, 2019. <https://www.theguardian.com/world/2019/aug/16/norway-halts-amazon-fund-donation-dispute-brazil-deforestation-jair-bolsonaro>.

¹⁹ Global Citizen. "Organizations Donate to Save the Amazon Rainforest." Global Citizen. Accessed August 7, 2024. <https://www.globalcitizen.org/en/content/organizations-donate-amazon-rainforest/>.

²⁰ "ARPA Program: Project Description," Brazilian Fund for Biodiversity, accessed June 30, 2024, https://www.funbio.org.br/en/programas_e_projetos/arpa-program/.

²¹ Beatriz Moraes Murer and Sílvia de Melo Futada, "Conservation Areas," Unidades de Conservação no Brasil, accessed July 9, 2024, <https://uc.socioambiental.org/en/conservationareas#system-of-conservation-areas-snuc>.



Aerial view of deforestation patterns
Credit: NASA Earth Observatory

Future conservation efforts by the government of Brazil will need to consider the tools and resources already available and find new ways to use them to effectively conserve its portion of the Amazon.

One of the biggest concerns of scientists today is the Amazon Rainforest's approach towards a critical transition. A critical transition in the forest system occurs when the forest abruptly transitions to another kind of ecosystem, such as a desert.²² This process tends to occur after heavy fragmentation in the forest. Fragmentation refers to the separation of a forest into smaller sections, such as through soy farming, logging, and cattle ranching.²³ The fragmentation of the Amazon Rainforest has many detrimental effects on the environment. For example, a study in 2006 found that the species of trees on the borders of the fragmented regions changed between 1980 and the time of the study. They had gone from taller and long-living to smaller and shorter-lived species.²⁴ This change of species inadvertently affects local wildlife and the traditional use of the land by native populations.²⁵ For example, native populations in the Yanomami region of Brazil have seen higher

rates of malnutrition and disease as their traditional food and medicines are endangered by fragmentation.²⁶ Overall, forest fragmentation has resulted in a 75 percent drop in biodiversity, a lowered biomass in the forest, and changes in the presence of certain nutrients.²⁷ With the loss of key parts of the Amazon ecosystem, such as Indigenous species and essential nutrients, fragmentation has had terrible effects on local communities. In some cases, it is changing the entire landscape of the forest and the way of life for those who rely on it. Fragmentation is the result of years of deforestation and unsustainable use and must be slowed down before the rainforest reaches a critical transition.

There are a few steps before forests experience a critical transition. It first starts with the ability of the ecosystem to withstand small disasters. Many parts of the Amazon's ecosystem are currently struggling to recover from smaller situations such as forest fires and logging. Over time, this results in trees showing reduced resilience. This means that they are not able to recover from natural or human-made disasters. Recent research shows that areas in the forest near

22 Leonardo A. Saravia, Santiago R. Doyle, Ben Bond-Lamberty, "Power laws and critical fragmentation in global forests," *Scientific American* 8 (December 10, 2018): 1, <https://doi.org/10.1038/s41598-018-36120-w>.

23 Saravia et al, "Power laws and critical fragmentation in global forests," 1.

24 David Biello, "Fragmentation Quickly Destabilizes Amazon Rainforest," *Scientific American*, November 27, 2006, <https://www.scientificamerican.com/article/fragmentation-quickly-des/>.

25 Biello, "Fragmentation Quickly Destabilizes Amazon Rainforest."

26 Alokya Kanungo, "The Silent Cry of the Forest: How Deforestation Impacts Indigenous Communities," *Earth.org*, August 8, 2023, <https://earth.org/the-silent-cry-of-the-forest-how-deforestation-impacts-Indigenous-communities/>.

27 Saravia et al, "Power laws and critical fragmentation in global forests," 1.

human activities are among the most vulnerable to reduced resilience.²⁸ Then, forest fragmentation begins as the natural habitat can no longer withstand the climate changes around it. Among the other top causes of reduced resilience and fragmentation were global warming, higher amounts of greenhouse gasses, and the lowering volume of rainfall.²⁹ Then, with time, the fragmentation becomes a critical transition. After a part of the rainforest crosses its transition point, there is expected to be a large-scale destruction of its ecosystem. One example of large-scale destruction in the Amazon would be a massive reduction in rainfall. Another example is the loss of many of the forest's diverse species due to a lack of food, water, or natural habitat.³⁰ It is predicted that up to 47 percent of the forests within the Amazon region could see transitions that would result in major ecosystem changes.³¹ The progression of a forest to a critical transition may seem like a lengthy process, but recent times have indicated that many parts of the Amazon will experience a transition shortly. Sustainable conservation efforts will be necessary to prevent a critical transition in the Amazon rainforest.

Brazil is responsible for the loss of nearly 15.8 percent of the original forest in the Amazon. This means that 670, 861 square kilometers of the total Amazon rainforest has been lost within Brazil's borders over time.³² In comparison, Great Britain has a land size of 209, 331 square kilometers.³³ The total amount of the Amazon that has been lost in Brazil is nearly the size of three Great Britain. However, recent years have shown improvement in Brazil's efforts to conserve its rainforests. Brazil contributed the second-least to the total deforestation of the Amazon between 2010 and 2018 out

of all of the countries in the Amazon region at around 7.5 percent of the total deforestation rate.³⁴ Countries in the Amazon region that also performed well in deforestation rates include Ecuador (6.7 percent deforestation), Guyana (9.5 percent) Suriname (10.8 percent, and Venezuela (13.3 percent).³⁵ Brazil's low percentage value is a key indicator of its success with its conservation programs. It shows that Brazil has had great success in recent years despite the large amount of forest that it contains. One of the biggest contributors to this improvement is the National System of Conservation Units, known as SNUC.

The Brazilian government created SNUC to protect areas of Brazil's Amazon in the year 2000.³⁶ The goal of SNUC was to provide a central agency for Conservation Units that were already implemented at the end of the 20th century. They used this central power to create more effective programs over the years. One that they did so was by organizing the conservation units under their purview.³⁷ The important difference that SNUC made between units is to classify them as strict protection areas or sustainable use areas. One example of a strict protection area would be the Alto Maués Ecological Station, located in central Brazil. This conservation unit conducts scientific research, and public visits, and helps advise on local conservation programs.³⁸ An example of a sustainable use area is the Cururupu Extractive Reserve in East Brazil. The primary goal is to regulate the mining of natural resources on Indigenous lands.³⁹ There are three different types of strict protection areas and seven different types of sustainable use areas in Brazil. In 2015, around one-third of the protected areas were classified as strict protection areas. The majority

28 Katie Hunt, "Amazon near tipping point of shifting from rainforest to savannah, study suggests," *CNN*, March 8, 2022, <https://www.cnn.com/2022/03/07/americas/amazon-tipping-point-climate-scn/index.html>.

29 Bernardo M. Flores, Encarni Montoya, Boris Sakschewski, et al, "Critical transitions in the Amazon forest system," *Nature* 626 (February 14, 2024): 555, <https://doi.org/10.1038/s41586-023-06970-0>.

30 Flores et al, "Critical transitions in the Amazon forest system," 556-562.

31 Flores et al, "Critical transitions in the Amazon forest system," 556-562.

32 Timothy J. Killeen, "The geography of environmental degradation in the Amazon," *Mongabay*, June 7, 2023, <https://news.mongabay.com/2023/06/the-geography-of-environmental-degradation-in-the-amazon/>.

33 "The Largest Islands In The British Isles By Size," *World Atlas*, accessed July 8, 2024, <https://www.worldatlas.com/articles/the-largest-islands-in-the-british-isles-by-size.html>.

34 Killeen, "The geography of environmental degradation in the Amazon."

35 Killeen, "The geography of environmental degradation in the Amazon."

36 "National System of Nature Conservation Units (SNUC)," Ministry for Environment and Climate Change, last modified 07/03/2024, <https://www.gov.br/mma/pt-br/assuntos/biodiversidade-e-biomas/areas-protegidas/sistema-nacional-de-unidades-de-conservacao-da-natureza-snuc>.

37 Ministry for Environment and Climate Change, "National System of Nature Conservation Units (SNUC)."

38 *Amazon Region Protected Areas Program: The world's largest tropical forest conservation initiative*, 9-11.

39 *Amazon Region Protected Areas Program: The world's largest tropical forest conservation initiative*, 9-11.

of those areas were national parks.⁴⁰ SNUC was initially successful in its goal. However, the government of Brazil decided that even more support was needed for these areas. To do this, they created the Amazon Regions Protected Areas Program (ARPA).

In 2003, the government of Brazil started ARPA to create a dedicated forest conservation agency. It would conserve and promote the sustainable use of 60 million hectares of the Amazon Rainforest by 2039.⁴¹ This is around 15 percent of the Amazon within Brazil's borders. The program would be financially managed by FUNBIO, which is the Brazilian Biodiversity Fund, and the Ministry of Environment and Climate Change. The program is also supported by many international donors. They include the Global Environment Facility, the World Wildlife Fund, the German Development Bank, and the World Bank.⁴² The support of UN organizations, such as the World Bank, has been key in showing international support for the program. Immediately after its creation, ARPA set up three different phases. Phase I lasted from 2003 to around 2009. It created around 23 million hectares of land to be a Protected Area under ARPA. As part of Phase II, ARPA managed to meet 100 percent of its original goal. In 2017, the organization announced that it had successfully supported nearly 117 Protected Areas, covering 60.8 million hectares of the Brazilian Amazon.⁴³ Phase III of the program is focused on establishing long-term financial security as the program goes from creating new Protected Areas to effectively maintaining those areas.⁴⁴

ARPA's support for conservation units has been very effective in lowering deforestation rates. In strictly protected conservation units, ARPA-supported areas have 9 percent

lower deforestation rates compared to the units that ARPA does not support. Their support has shown to be even more effective with 39 percent lower deforestation rates in sustainable use conservation areas.⁴⁵ Recent studies show that increased investment on behalf of ARPA is associated with lower deforestation rates. In 2019 and 2020, the program invested around 35 million Brazilian Reais (USD 6.4 million) and managed to reduce deforestation rates by close to 35 thousand hectares during these years. Scientists have also shown that between 2008 and 2020, ARPA spent on average less than USD one on each ton of avoided carbon emissions.⁴⁶ ARPA's support for the conservation units it creates and holds under SNUC is key to the success of conservation units around Brazil. However, funding is not unlimited and is an important topic when considering ARPA's long-term sustainability.

Then, the Brazilian government announced the Transition Fund in 2014 to help support ARPAs fast growth. The fund is managed by FUNBIO. They govern the distribution of resources through an advisory council. FUNBIO aims to prioritize local funding sources over international ones in the Transition Fund.⁴⁷ This fund has made ARPA one of the more important conservation organizations in the Brazilian government. Since ARPA has very little interest in commercial markets, international groups are more likely to donate to ARPA instead of private conservation organizations. This is due to a fear that private groups might have other motives. However, ARPA can be limited by these international donors. The low success that ARPA has had in creating social improvement for Indigenous populations is one example of international limitations.⁴⁸ In the long run, these international partnerships might create environmental improvements, but

40 OECD *Environmental Performance Reviews: Brazil 2015, Part II Chapter 5 — Protected Areas*: 233-244.

41 Brazilian Fund for Biodiversity, "ARPA Program: Project Description."

42 Brazilian Fund for Biodiversity, "ARPA Program: Project Description."

43 *Amazon Region Protected Areas Program: The world's largest tropical forest conservation initiative*. (Brasilia, Brazil: Global Environment Facility, January 2018), https://www.thegef.org/sites/default/files/publications/Arpa_GEF%202018_22.01.18-v2.pdf.

44 OECD *Environmental Performance Reviews: Brazil 2015, Part II Chapter 5 — Protected Areas* (Paris, France: Organization for Economic Cooperation and Development, 2015): 235, <https://www.cbd.int/doc/c/757d/e6ec/5c0b072897b58d2af9237a10/mcb-em-2018-01-occd-submission2-en.pdf>.

45 Britaldo Silveira Soares-Filho, Ubirajara Oliveira, Mariana Napolitano Ferreira, et al, "Contribution of the Amazon protected areas program to forest conservation," *Biological Conservation* (March 2023): 4, <https://doi.org/10.1016/j.biocon.2023.109928>.

46 Soares-Filho, et al, "Contribution of the Amazon protected areas program to forest conservation," 6.

47 *Amazon Region Protected Areas Program: The world's largest tropical forest conservation initiative*

48 Liliana B. Andonova, Dario Piselli, "Transnational partnerships, domestic institutions, and sustainable development. The case of Brazil and the Amazon Region Protected Areas Program," *World Development* 157 (September 2022): 12, <https://doi.org/10.1016/j.worlddev.2021.105809>.

limit social improvements.⁴⁹ It will be important to balance the role of international groups in funding conservation efforts going forward. It will be the duty of the government to identify whether the donors' interests are aligned with the interests of Brazil, ARPA, and other conservation agencies in Brazil.

For example, the Marine Protected Areas Program is currently protecting marine and water-related areas. It acts similar to SNUC, except for mainly coastal and waterway conservation. In 2020, Brazil created 96.4 million hectares of marine Protected Areas, making it the largest marine protected area program in Latin America. They were created to combat pollution, and illegal fishing, and to protect marine biodiversity.⁵⁰ However, the Marine Protected Areas are not proving to be as effective as the land-based conservation units. One reason for this is that there is no central way to procure resources or financial aid.⁵¹ ARPA provides training, financial resources, and effective monitoring for its conservation units on land. There is no similar program for the waterways.⁵² Unifying the waterway conservation units in the Amazon would provide necessary support for aquaculture and local communities that rely on the Amazon River and its tributaries. It is undeniable that forest land conservation is one of the most pressing matters for the Amazon area. Still, the importance of creating sustainable funding for the conservation of the rainforest's water resources should not be overlooked.

Scientific recommendations also show that reforestation efforts must take place to prevent future destabilization. Amazonia

Live and the Amazon Landscapes Project partnered together and committed to planting 73 million trees in deforested lands throughout the Brazilian Amazon in 2017.⁵³ They are joined by local partners such as FUNBIO and the GEF. Their goal is to restore around 20 percent of the forest that was destroyed for agriculture and pasturing.⁵⁴ The effort was also used for scientific purposes. Research projects used reforestation to study how to best reforest and create the most natural forests. Amazonia Live hopes to double the number of reforested trees to 150 million in the next six years. They are looking to gain the support of many celebrities and international organizations.⁵⁵

The United Nations and its associated groups also play an important role in Amazonian conservation efforts. One of the biggest projects in recent years has been the Amazon Sustainable Landscapes Program. It is led by the World Bank and funded by the Global Environment Facility.⁵⁶ The goal of the program is to reconnect fragmented ecosystems and coordinate national projects between different governments.⁵⁷ It operates similarly to ARPA and SNUC but on a more global scale. While governments have individually tailored programs, the Landscapes Program creates a forum for sharing ideas and best practices between nations.⁵⁸ For example, the Amazon Sustainable Landscapes Program and the Global Wildlife Program created a workshop in 2022 that brought together groups from three different continents. The goal was to share conservation practices and improve the overall management of conservation groups around the world.⁵⁹ While the Landscapes Program does not directly enforce policy in the Amazon, it is crucial to fostering communication between different non-

49 Andonova, et al, "Transnational partnerships, domestic institutions, and sustainable development. The case of Brazil and the Amazon Region Protected Areas Program," 12.

50 "Building One of Latin America's Largest Networks of Marine Protected Areas in Brazil," World Bank Group, last modified October 23, 2020, <https://www.worldbank.org/en/results/2020/10/23/building-one-of-latin-americas-largest-networks-of-marine-protected-areas-in-brazil>.

51 Carina Tostes Abreu, *Brazilian Coastal and Marine Protected Areas: Importance, Current Status and Recommendations* (New York: United Nations Office of Legal Affairs, December 2015): 75, https://www.un.org/oceancapacity/sites/www.un.org.oceancapacity/files/thesis_carina_abreu_31_12_pdf_1.pdf.

52 Soares-Filho, et al, "Contribution of the Amazon protected areas program to forest conservation," 6.

53 Daley, "Brazil Begins Effort to Plant 73 Million Trees in the Amazon."

54 Jason Daley, "Brazil Begins Effort to Plant 73 Million Trees in the Amazon," *Smithsonian Magazine*, November 6, 2017, <https://www.smithsonianmag.com/smart-news/brazil-begins-effort-plant-73-million-trees-amazon-180967086/>.

55 "The greatest restoration effort ever made in the Amazon rainforest," Believe Earth, accessed July 9, 2024, <https://believe.earth/en/greatest-restoration-effort-ever-made-amazon-rainforest/>.

56 "Amazon Sustainable Landscapes Program: Overview," World Bank Group, accessed July 9, 2024, <https://www.worldbank.org/en/programs/amazon-sustainable-landscapes-program/overview>.

57 "Amazon Sustainable Landscapes Program: Overview," World Bank Group.

58 "Amazon Sustainable Landscapes Program: Overview," World Bank Group.

59 "Enhancing ecological connectivity in the projects of the Amazon Sustainable Landscapes and Global Wildlife Programs," World Bank Group, last modified October 5, 2022, <https://www.worldbank.org/en/news/feature/2022/10/05/enhancing-ecological-connectivity-in-the-projects-of-the-amazon-sustainable-landscapes-program-and-the-global-wildlife-p>.

governmental organizations and governments themselves. Overall, international organizations such as the Landscapes Program will be influential in introducing new practices to Brazil. They will also be influential in shaping how nearby countries perceive and are influenced by Brazil's practices.

Brazil's conservation programs are proving effective in slowing deforestation within the country. The country holds an impressive amount of conservation units and deforestation projections show that less than twenty percent of future deforestation will take place inside of these units. However, only forty-two percent of Brazil's land is covered by protected areas.⁶⁰ The country has the largest number of conservation units. Yet, it proportionally protects the least amount of land with them.⁶¹ Recent years have also seen reversals in the government policies made to conserve the Amazon. Under President Jair Bolsonaro, environmental agencies had their budgets drastically reduced and international conservation funds were put on hold. One example is the Amazon Fund, which had over USD 550 million saved for conservation efforts. The result was satellite imagery showing that the amount of deforested area in Brazil was on a dramatic rise over Bolsonaro's presidency between 2019 and 2021. A federal judge even considered his rollbacks and lack of environmental protection to be constitutional violations.⁶² Future goals for Brazil's conservation programs should focus on expanding the reach of the current support systems. The government will also need to find innovative ways to reach more areas that are not formally protected areas. Most importantly, it will have to figure out how to effectively reverse the damage that President Bolsonaro's policies had on the rainforest.

There are more important conclusions to be made for future conservation initiatives. The primary concern goes back to a "critical transition" in the Amazon rainforest. Experts predict that a global temperature increase of nearly four degrees

Celsius or a deforestation limit of forty percent will cause the rainforest to permanently change.⁶³ Even with current conservation efforts, scientists estimate that nearly 70 percent of the Amazon will disappear by the end of the century.⁶⁴ However, a study in 2019 estimated that by regrowing 23 percent of the destroyed forest, the looming critical transition can be avoided for the time being.⁶⁵ In 2023, the Amazon Network of Georeferenced Socio-Environmental Information laid out three possible futures for the Amazon. In the future, deforestation rates will decrease by ten percent over the next few years. In the worst-case scenario, the rainforest may lose 23.7 million hectares of land as a whole.⁶⁶

The need for effective conservation in the Amazon becomes more important as time passes. Brazil has so far put together a strong program with a strong conservation mission: the Amazon Regions Protected Areas Program. ARPA has proven to be one of the most effective conservation programs in the world. Its growth has ensured that more and more of the rainforest is kept alive. The country must now find ways to collaborate with international organizations, find new ways to protect its forests, and actively combat deforestation. Brazil must consider the stance of the various organizations that support its environmental goals. It must create strong policies that will strengthen the effectiveness of its protected areas.

Biodiversity in the Amazon and the Impact of Invasive Species

The Amazon rainforest hosts a variety of life. It is home to an incredible array of plants, animals, and ecosystems. It covers over 2.5 million square miles, which is almost the size of the 48 contiguous United States. It is even referred to as the "lungs of the Earth" due to its vital role in producing oxygen and regulating the planet's climate.⁶⁷ The Amazon Basin is unparalleled in its biodiversity, hosting around one in

60 Sibélia Zanon, "Deforestation in the Amazon: past, present and future," *InfoAmazonia*, March 21, 2023, <https://infoamazonia.org/en/2023/03/21/deforestation-in-the-amazon-past-present-and-future/>.

61 Zanon, "Deforestation in the Amazon: past, present and future."

62 Ines Eisele, "How has the rainforest fared under Bolsonaro?" *Deutsche Welle*, October 2, 2022, <https://www.dw.com/en/how-has-the-amazon-rainforest-changed-under-jair-bolsonaro/a-63211783>.

63 Silvia Carvalho, Andre Oliveira, Jiesper Strandsbjerg Pedersen, et al., "A changing Amazon rainforest: Historical trends and future projections under post-Paris climate scenarios," *Global and Planetary Change* 195 (December 2020): 2, <https://doi.org/10.1016/j.gloplacha.2020.103328>.

64 Carvalho, et al, "A changing Amazon rainforest: Historical trends and future projections under post-Paris climate scenarios," 2.

65 Carvalho, et al, "A changing Amazon rainforest: Historical trends and future projections under post-Paris climate scenarios," 2.

66 Zanon, "Deforestation in the Amazon: past, present and future."

67 "Amazon Rainforest," *Nature & Culture International*, accessed July 10, 2024, <https://www.natureandculture.org/wild-places/amazon-rainforest/>.



Two squirrel monkeys in the Javari-Buriti Protected Area
 Credit: Miguelmonteiro5

ten known species on Earth.^{68, 69} Additionally, the Amazon is known to “host 40 percent of the world’s remaining rainforest, 25 percent of its terrestrial biodiversity, and more fish species than in any other river system.”⁷⁰ Looking at these facts, it is clear that the Amazon is home to a vast amount of species.

Sadly, humans aren’t doing a great job at keeping this jewel safe. Within the past 50 years, the Amazon has lost nearly 20 percent of its forest, in large part to human activity.⁷¹ This has effects beyond saying goodbye to the region’s natural beauty. In recent years, experts found that many of the lush trees within the Amazon have medicinal properties that still have not been fully explored.⁷² This shows how human’s attempt to take advantage of the region’s plants now might limit the long-term benefits the Amazon can provide.

Human interaction with the land is a leading cause of the

loss of biodiversity. Deforestation brought on by the practice of cattle ranching and new infrastructure development in the region is a major danger to the Amazon.⁷³ While cattle ranching was introduced to the Brazilian Amazon in the 16th century, the industry boomed in the 1960s when the Brazilian economy wanted to expand its sector.⁷⁴ For reference, cattle ranching is the practice of raising cattle on large tracts of land. Cattle ranching has proven to be a very harmful thing for the Amazon. Cattle pastures increase the risk of fire in the Amazon. Additionally, the rising demand for Brazilian beef and soy production has led to an increased desire to repurpose the Amazon land for farming activities.⁷⁵ Brazil exported USD 35 billion worth of beef and soy in 2020. It will take strong intervention to halt their expanding practice.⁷⁶ These activities have begun to lead to the loss of vital habitats for countless species. Human disturbances have increased the frequency

68 “Amazon Rainforest,” Wikipedia, accessed July 10, 2024, https://en.wikipedia.org/wiki/Amazon_rainforest.
 69 “What animals live in the Amazon? And 8 other Amazon facts,” World Wildlife Fund, accessed July 10, 2024, <https://www.worldwildlife.org/stories/what-animals-live-in-the-amazon-and-8-other-amazon-facts>.
 70 “Why the Amazon’s Biodiversity is Critical for the Globe: An Interview with Thomas Lovejoy,” *World Bank Group*, May 22, 2019, <https://www.worldbank.org/en/news/feature/2019/05/22/why-the-amazons-biodiversity-is-critical-for-the-globe>.
 71 “Protecting the Amazon Rainforest Basin.” *The Nature Conservancy*, accessed August 3, 2024. <https://www.nature.org/en-us/about-us/where-we-work/priority-landscapes/priority-landscape-stories/protecting-amazon-rainforest-basin/>.
 72 “Where we work,” World Wildlife Fund, accessed July 10, 2024, https://wwf.panda.org/discover/knowledge_hub/where_we_work/amazon/about_the_amazon/wildlife_amazon/plants/.
 73 “Why the Amazon’s Biodiversity is Critical for the Globe: An Interview with Thomas Lovejoy,” *World Bank Group*.
 74 “Cattle Ranching in the Amazon Rainforest.” Cattle ranching in the Amazon rainforest. Accessed August 30, 2024. <https://www.fao.org/4/xii/0568-b1.htm#>
 75 Diana Roy, “Deforestation of Brazil’s Amazon Has Reached a Record High. What’s Being Done?” *Council on Foreign Relations*, August 24, 2022, https://www.cfr.org/in-brief/deforestation-brazils-amazon-has-reached-record-high-whats-being-done?gad_source=1&gclid=CjwKCAjw4ri0BhAvEiwA8oo6Fw2slTa20kjREMxY3zG-iYjjeXKoKYaC-jFzwXUQH1AhVDxuBTyqhoCTWgQAvD_BwE.
 76 Diana Roy, “Deforestation of Brazil’s Amazon Has Reached a Record High. What’s Being Done?”

and intensity of extreme events such as frequent floods and more severe droughts.

Another major threat to the Amazon's biodiversity is invasive species. Invasive grasses have disrupted the Amazon's ecosystems.⁷⁷ These species outcompete native plants and disrupt ecological roles, which can potentially drive native species to extinction. One dangerous grass is the *Paspalum virgatum*, commonly known as "capim-navalha."⁷⁸ This species is mainly found in production pastures. It spreads disease that is deadly to certain native grasses.

Non-native fish have also been a concern in the Amazon. Non-native fish have clear negative impacts on native fish populations. They have led to local species extinctions, a loss of diversity, and a deletion of some ecosystem functions.⁷⁹ They also have had spillover effects around the world. Non-native fish have caused economic impacts within native fish markets and social impacts regarding food sources for riverside communities. The impacts of invasive species are troubling and hard to fix. For the Amazon to maintain its biodiversity, solving the issue of invasive species must be discussed. The spread of invasive species is a growing concern that adds to the challenges facing the Amazon's biodiversity.

Sadly, many fish species are also threatened by the destruction of river banks for deforestation and mining purposes. This trend has led to many fish being isolated to a single lake.⁸⁰ The natural process of fish species becoming isolated, branching off, and eventually forming new species once reentering the ocean thousands of years later is crucial. It is a major contributor to the rich diversity of fish we have today. To maintain the diversity in the Amazon, more effort must go into protecting the region's plants and animals.

Maintaining biodiversity in the Amazon is crucial to not disturbing the local global carbon cycle and even the climate of South America as a whole.⁸¹ If the Amazon loses its vast vegetation, it will lose its ability to absorb carbon dioxide. As it stands currently, the Amazon is a carbon sinkhole absorbing 5 percent of the world's global emissions.⁸² If the region were to gradually lose its ability to hold that much carbon, it would increase global warming patterns. The Amazon's dense vegetation is also releasing billions of liters of water vapor daily. If these plants were to be reduced, water runoff in the region would rise and rainfall in the region would decrease. Improper management and reduction of its agriculture could lead to a tipping point converting many parts of the lush forest into desert. This could potentially eliminate the Amazon River as we know it. Consequently, solutions to meet these challenges to biodiversity must be prioritized.

To mitigate these threats, a range of solutions have been proposed. Conservation efforts play a crucial role in safeguarding the rainforest and its inhabitants. Sustainable land-use practices offer alternatives to activities like deforestation. They can help protect biodiversity while supporting local communities.

"Engagement with state governments to create sustainable development models that conserve the forest" is essential.⁸³ Collaborative approaches that involve local communities, Indigenous peoples, researchers, and policymakers are key to ensuring the long-term sustainability of the Amazon. The Indigenous Peoples alone take up 6 percent of the global population and are the protectors of 80 percent of the world's biodiversity.⁸⁴ Due to their knowledge of the land, they have been very influential in creating economies and cities that function in sustainable manners.

77 Giuliette B. Mano, Aline Lopes, Maria Teresa F. Piedade, "Will climate change favor exotic grasses over native ecosystem engineer species in the Amazon Basin?" *Ecological Informatics* 75 (July 2023), <https://doi.org/10.1016/j.ecoinf.2023.102102>.

78 Wanessa Almeida da Costa, Cinthya Elen Pereira de Lima, Sérgio Henrique Brabo de Sousa, et al, "Invasive Species in the Amazon," *Diversity and Ecology of Invasive Plants: Invasive Species in the Amazon* (December 18, 2019), doi:10.5772/intechopen.84720.

79 Carolina Rodrigues da Costa Doria, Edwin Agudelo, Alberto Akama, "The Silent Threat of Non-native Fish in the Amazon: ANNF Database and Review," *Ecological and Evolution: Biogeography and Macroecology* 9, June 9, 2021, <https://doi.org/10.3389/fevo.2021.646702>.

80 "Amazon River Fish: Best Known Species," Rainforest Cruises, accessed July 10, 2024, <https://www.rainforestcruises.com/guides/amazon-river-fish-best-known-species>.

81 "Why the Amazon's Biodiversity is Critical for the Globe: An Interview with Thomas Lovejoy," *World Bank Group*.

82 David Imolore, "The Importance of the Amazon Rainforest for Climate Regulation: Everything You Need to Know," *Fund the Planet*, March 31, 2023, <https://fundtheplanet.net/rainforest-conservation/the-importance-of-the-amazon-rainforest-for-climate-regulation-everything-you-need-to-know/#the-amazon-rainforest-and-climate-regulation-how-are-they-connected>.

83 "Why the Amazon's Biodiversity is Critical for the Globe: An Interview with Thomas Lovejoy," *World Bank Group*.

84 "Lessons from Indigenous leaders to protect the Amazon rainforest," World Economic Forum, January 30, 2024, <https://www.weforum.org/agenda/2024/01/lessons-from-Indigenous-leaders-to-protect-the-amazon-rainforest/>.

Sustainable cities would offer additional support to the loss of biodiversity. By creating cities that can support forestry and not harm the surrounding environment, preservation becomes an easier long-term reality to achieve. For this to happen in the Amazon it will require “national, international, border, regional and global pressures” to make the needed change.⁸⁵ In short, a large-scale collaborative effort is required to create the necessary change.

In conclusion, the Amazon rainforest stands as a testament to the astonishing diversity of life on Earth. Its unique ecosystems, extraordinary species richness, and ecological importance make it a global treasure worth protecting. By addressing the threats facing the Amazon, implementing sustainable solutions, and supporting conservation programs, we can ensure that the rainforest continues to thrive as a haven of biodiversity for generations to come.

Economic Development, Natural Resources, and Sustainable Use of the Rainforest

Conservation efforts tell only part of the story about saving the Amazon rainforest. Data shows that 8.6 percent of Brazil's Gross Domestic Product in 2016 came from Amazon-related sources. This includes logging, fishing, mining, and farming. The data also shows that this contribution has increased by 1.7 percent since 2002.⁸⁶ The troubling matter is that nearly 40 percent of logging operations in the rainforest are illegal. The illegality of extraction operations, including mining, is also an indicator of their unsustainable practices. Between 2020 and 2021, researchers found that 15 percent of these illegal operations are in protected areas.⁸⁷ These concerns are just a few indicators of the importance of sustainable use. Furthermore,

a large portion of the Brazilian economy is reliant on the rainforest. This includes Indigenous and local communities. Many large corporations also use their resources for popular products. Their presence helps support the Brazilian economy as well. Notably, Indigenous communities are more reliant on the forest as a way of life, but the large corporations often see the most profit.⁸⁸ Some examples of industries that produce the most profit in the Amazon are soy farming, cattle farming, and mining.⁸⁹

Brazil's top export in 2022 was soybeans. The country exported USD 47.2 billion, and the product contributed 13.8 percent of Brazil's total export revenue.⁹⁰ However, the practice of soy farming in Brazil's Amazon is very controversial. Soy farming has long been linked to deforestation in the Amazon. Agricultural firms often burned areas of land to clear it for cattle grazing. They then converted the land into soy farms after it was ruined by the cattle industry. The preparation of land for soybean farms is a lengthy process. It takes three years to deforest, clear the land, prepare the land with an intermediary crop, then plant the soybean. This process can be expensive and environmentally harsh as the land is unusable for many years before it produces the soy.⁹¹ Iterations of the Brazilian government were eager to produce soy due to its high profit and low maintenance rates. Starting in the 1970s, Brazil's National Institute for Colonization and Agrarian Reform (INCRA) was created to settle family farmers on Indigenous lands. Their goal was to help use the land for economic gain, mainly by planting soy. The establishment of INCRA was accompanied by a period when Brazil was encouraging deforestation. INCRA itself said that the clearing of the forest was directly linked to more productive use of land.⁹²

85 Katherine Britt Indvik, Ignacio Gallo, Mónica Quintana, et al, *Amazon Cities and Sustainable Urban Development: Executive Summary* (Brasilia: Amazon Regional Program, June 2018), https://apps.oraotca.org/aro/documentos/files/amazon_sustainable_development.pdf?token=dGVzdGNsaWVudDp0ZXN0c2VjcmV0.

86 Bruna Alves, *Contribution of the Legal Amazon area to Brazil's Gross Domestic Product (GDP) in 2002 and 2016, by industry sector*, (Statista, December 2018), <https://www.statista.com/statistics/1044320/brazil-legal-amazon-area-share-gdp-sector/>.

87 “Almost 40% of logging in the Amazon is illegal, shows an unprecedented study,” Imazon, accessed July 7, 2024, <https://amazon.org.br/en/imprensa/almost-40-of-logging-in-the-amazon-is-illegal-shows-an-unprecedented-study/>.

88 Rafael Feltran-Barbieri, Bruno Felin, and Alex Simpkins, “Ending Deforestation in the Amazon Can Grow Brazil's GDP — but That's Not the Only Reason to Do It,” *World Resources Institute*, June 19, 2023, <https://www.wri.org/insights/zero-amazon-deforestation-can-grow-brazil-gdp>.

89 Bibi van der Zee, Patrick Greenfield, and Jonathan Watts, “A look at some of the corporations that dominate the Amazon,” *The Guardian*, June 2, 2023, <https://www.theguardian.com/environment/2023/jun/02/mining-cattle-ranching-soya-farming-corporations-dominate-amazon>.

90 “Brazil,” Observatory of Economic Complexity, accessed July 10, 2024, <https://oec.world/en/profile/country/bra>.

91 Daniel Furlan Amaral, Joaquim Bento de Souza Ferreira Filho, André Luis Squarize Chagas, et al, “Expansion of soybean farming into deforested areas in the amazon biome: the role and impact of the soy moratorium,” *Sustain Sci* 16 (April 01, 2021), <https://doi.org/10.1007/s11625-021-00942-x>.

92 Rita Damasceno, Joana Chiavari, and Cristina Leme Lopes, *Evolution of Land Rights in Rural Brazil*, (Rio de Janeiro: Climate Policy

This policy changed with the creation of Brazil's Constitution of 1988. The change from a military government to a more democratic one was also accompanied by sweeping environmental reforms for the rainforest. The very text of the Constitution was focused on protecting the land. This was a major change from the policies that earlier governments held. Then, the practice of large-scale soy farming took a firm hold in Brazil in the late 1990s to the early 2000s.⁹³ This time, the government was able to identify the destructiveness of the soy industry and implemented the Soy Moratorium. This agreement between the government and civil organizations was created in 2008.⁹⁴ The agreement allowed the government to monitor 76 regions in the rainforest. These monitored regions were accountable for nearly 98 percent of the soy produced in the rainforest. The goal of the monitoring was to ensure that companies were not destroying new land or encroaching on Indigenous lands to create soy plantations. Since 2006, less than one percent of new land has been cleared for soy production in Brazil.⁹⁵ The Soy Moratorium is one of the best examples of how powerful collaboration between the government and corporations can reduce deforestation in the rainforest.

After the boom of soy plantations started to subside, gold mining became the next craze in the rainforest. Gold prices have been strictly increasing since the 1980s, and the demand for gold has been increasing as well. The biggest issue with gold mining, especially small scale, is how mercury is used to find the rare metal. In small-scale operations, gold miners will mix liquid mercury into river sediment. The mercury then attaches itself to small gold pieces due to their chemical properties. Miners then burn the pieces until all of the mercury

is removed from the gold.⁹⁶

This process has had many detrimental effects. The mercury released into river sediment and in the air negatively affected fish and local wildlife. The chemical accumulated in this wildlife and then passed through the food chain, all the way up to Indigenous populations. A study conducted in 2020 showed elevated levels of mercury in three different Indigenous groups along the banks of a river in the state of Para. Out of the children studied, over 15.8 percent of them had neurodevelopmental issues.⁹⁷ Miners themselves also saw negative health effects. Since small-scale operations are usually done without a permit, the miners did not work with professional ventilation standards or proper safety techniques. The gold-mercury substance, known as amalgam, is made up of 40 percent and 80 percent mercury. These miners are therefore exposed to high levels of the dangerous substance many times during the burning process. Many miners showed memory loss, dizziness, loss of motor function, and other health detriments over time.⁹⁸ Despite this, gold remains important to the economy of Brazil.

The Amazon region produces over 400 metric tons of gold per year, which is around 10 percent of the world's supply. However, a large portion of this mining is illegal. The 2021 Amazon Assessment Report publishes that around 36 percent of mining in Brazil is illegal.⁹⁹ Furthermore, gold mining has many negative impacts on the environment. One of the causes for concern is the burning of forests to access gold-rich areas. Artisanal gold mining also leads to disturbances in river environments, as sediment is mixed with the river water to look for gold.¹⁰⁰ Despite all of this, gold remains the twelfth

Initiative, June 2017): 16, https://climatepolicyinitiative.org/wp-content/uploads/2017/06/Evolution_of_Land_Rights_In_Rural_Brazil_CPI_FinalEN.pdf.

93 Damasceno, et al, 17, https://climatepolicyinitiative.org/wp-content/uploads/2017/06/Evolution_of_Land_Rights_In_Rural_Brazil_CPI_FinalEN.pdf.

94 Amaral, et al, "Expansion of soybean farming into deforested areas in the amazon biome: the role and impact of the soy moratorium."

95 "10 Years Ago the Amazon Was Being Bulldozed for Soy — Then Everything Changed," GreenPeace USA, accessed July 10, 2024, <https://www.greenpeace.org/usa/victories/amazon-rainforest-deforestation-soy-moratorium-success/>.

96 Jaqueline Gerson, "Gold Mining Is Poisoning Amazon Forests with Mercury."

97 *Living Amazon Report* (World Wildlife Fund: December 2022): 68-71, https://files.worldwildlife.org/wwfmsprod/files/Publication/file/1w8fz5mktl_lar_ingles_23_dic_2022.pdf.

98 Louisa J. Esdaile and Justin M. Chalker, "The Mercury Problem in Artisanal and Small-Scale Gold Mining," *Chemistry - A European Journal* 24, no. 27 (May 2018): 6906-6909, <https://doi.org/10.1002/chem.201704840>.

99 *Living Amazon Report* (World Wildlife Fund: December 2022): 68-71, https://files.worldwildlife.org/wwfmsprod/files/Publication/file/1w8fz5mktl_lar_ingles_23_dic_2022.pdf.

100 Jaqueline Gerson, "Gold Mining Is Poisoning Amazon Forests with Mercury," *Scientific American*, January 28, 2022, <https://www.scientificamerican.com/article/gold-mining-is-poisoning-amazon-forests-with-mercury/>.

most exported item out of Brazil. It contributes USD 5.04 billion to the Brazilian economy and plays a crucial role in global trade.¹⁰¹ Future policies must consider the role of gold mining in Brazil from both the perspective of an unsustainable practice and an essential part of the economy.

Then, in 2016, the UN Development Program published a policy paper known as “The Amazon and Agenda 2030”. It contained recommendations for promoting sustainable use in the Amazon Rainforest. One of the recommendations was to provide incentives that encourage corporations to follow new policies. Another recommendation was to utilize the biodiversity of the forest to create economic value.¹⁰² The current Amazon rainforest plays an important role in the economy of Brazil. Both renewable and non-renewable resources impact the lives of Indigenous communities, wildlife, and the environment of the rainforest. With rising pollution, illegal extraction, and unsustainable practices, the government of Brazil must step in. They must find ways to create actionable policies that preserve the rainforest, Indigenous lands, and the Brazilian economy. This includes action in both renewable and non-renewable resources. As the 2010s progressed, the government of Brazil took action and refocused its efforts on soy and family farmers.

Family farmers have always been instrumental in Brazil. According to Brazil’s 2017 Agricultural census, family farmers are responsible for the majority of food production in Brazil. This includes fruits, vegetables, and animal products. With the modern conversion of family farming to soy farming, concerns were raised about food security in the country. This was accompanied by the fact that the majority of soybeans that are not exported from Brazil are mainly used for biofuel and animal feed. President Lula created the Ministry of Agrarian Development and Family Agriculture to combat the loss of family farmers in 2023. The ministry has not shown

major results yet.¹⁰³ Local communities have also joined the fight against soy farming and the loss of family farms. Seed banks, led by Indigenous populations and concerned locals, are playing a big role in reforesting destroyed land. These initiatives use native knowledge and techniques to return lost species to various parts of the rainforest. Seed initiatives are also helping the Indigenous population involve themselves in the local economy. Companies will often pay locals to sell them seeds for reforestation efforts. They also use their knowledge to replant the seeds effectively.¹⁰⁴ Seed initiatives and government programs are paving the way for Brazil to recover from the destructive practices of soy plantations.

Another recent concern with soy farming is the preservation of Indigenous lands. With organizations like INCRA and new agencies under President Lula focused on creating more family farmers, the Indigenous way of life is at risk. In the face of this, some Indigenous groups chose to adapt to the government’s agricultural policies. For example, the Manoki people of Brazil received approval from the government to use mechanized farming on their land to harvest soy in 2019. They were able to make USD 12,800 from selling the soy produced on their land. This money went towards medicines, food, and other essential needs.¹⁰⁵ However, the effects of large corporations were still prevalent. In 2021, the forest area near the Wawi Indigenous Territory was burned to make way for a soy plantation. This action was legal since 80 percent of the forest on the total property was kept standing. However, representatives from the nearby Indigenous village claim that the area burned was part of disputed territory. They also feared that the fires would get out of control, destroying their native lands and rivers.¹⁰⁶ The practice of soy farming has a long history in Brazil but remains a key part of the country’s economy. Another way that Brazil started recovering from destructive practices is through renewable energy.

101 “Gold in Brazil,” Observatory of Economic Complexity, accessed July 10, 2024, <https://oec.world/en/profile/bilateral-product/gold/reporter/bra>.
 102 *The Amazon and Agenda 2030* (United Nations Development Programme: December 6, 2016): 28, <https://www.undp.org/latin-america/publications/amazon-and-agenda-2030>.
 103 Flávia Milhorange, “How soy took over family settlements in the Amazon,” *Dialogue Earth*, February 24, 2023, <https://dialogue.earth/en/uncategorized/363602-how-soy-took-over-family-settlements-in-the-amazon/>.
 104 Ana Ionova, “In Brazil’s soy belt, community seed banks offer hope for the Amazon,” *Mongabay*, February 15, 2024, <https://news.mongabay.com/2024/02/in-brazils-soy-belt-community-seed-banks-offer-hope-for-the-amazon/>.
 105 Fabiano Maisonnave and Lalo de Almeida, “On the edge of the Amazon, Manoki people grow soy and fight for land rights,” *Climate Home News*, October 15, 2021, <https://www.climatechangenews.com/2021/10/15/edge-amazon-manoki-people-grow-soy-fight-land-rights/>.
 106 Ana Ionova, “As soy frenzy grips Brazil, deforestation closes in on Indigenous lands,” *Mongabay*, July 21, 2021, <https://news.mongabay.com/2021/07/as-soy-frenzy-grips-brazil-deforestation-closes-in-on-Indigenous-lands/>.

One of the most important forms of renewable energy for Brazil in the mid-2010s was hydropower. Dams and other forms of hydroelectric generation are currently used to meet 20 percent of the world's electricity needs. Recent years have made use of dams in tropical regions with a positive impact on reducing fossil fuel consumption. Brazil itself is a pioneer of hydroelectric power in tropical countries. It started a large-scale hydroelectric project starting around 2016.¹⁰⁷ Renewable energy sources make up 86.4 percent of the country's electricity capacity, and hydroelectric power accounts for almost half of that.¹⁰⁸ The projects, however, have been met with much controversy from both the local and scientific community.

This is because more recent studies show that hydroelectric dams in tropical regions are doing more harm than good. One major worry is the flooding caused by dam reservoirs. For example, the Balbina Dam in central Brazil broke its surrounding, unbroken landscape of forest into 3,456 islands, as of 2021.¹⁰⁹ This is an example of inadvertent fragmentation when unbroken forests are broken into different sections. Fragmentation can destroy entire ecosystems.¹¹⁰ Tropical dams

107 Shazi Shukrullah and Muhammad Yasin Naz, *Clean Energy Opportunities in Tropical Countries* (Singapore, Springer Publishing, January 21, 2021), chap. *Hydropower Generation in Tropical Countries*, https://doi.org/10.1007/978-981-15-9140-2_2.

108 Kevin Damasio, "Solar power is booming in Brazil. Can it be a boom for all?" *Dialogue Earth*, June 14, 2024, <https://dialogue.earth/en/energy/solar-power-is-booming-in-brazil-can-it-be-a-boom-for-all/>.

109 Shukrullah and Naz, *Clean Energy Opportunities in Tropical Countries*, chap. *Hydropower Generation in Tropical Countries*.

110 Saravia et al, "Power laws and critical fragmentation in global forests," 1.

111 Shukrullah and Naz, *Clean Energy Opportunities in Tropical Countries*, chap. *Hydropower Generation in Tropical Countries*.

112 Sibélia Zanon, "Dam-building spree pushes Amazon Basin's aquatic life closer to extinction," *Mongabay*, June 22, 2023, <https://news.mongabay.com/2023/06/dam-building-sprees-pushes-amazon-basins-aquatic-life-closer-to-extinction/>.

have also been shown to be more environmentally destructive than fossil fuel plants. They radiate around 1300 to 3000 grams of carbon dioxide emissions per kWh compared to a fossil fuel plant's maximum of 1200 grams of carbon dioxide emissions per kWh. This implies that the lowest amount of carbon dioxide emissions from a tropical reservoir is higher than the highest amount from fossil fuels.¹¹¹ Dams also harm migratory species in the Amazon waterways. The primary issue lies with building dams on free-flowing rivers. These rivers are essential for migratory patterns in various fish, river dolphins, and other aquatic life. The damage done by dams is so extensive that rivers without dams are being impacted. A recent study expects that the Amazon River, with no hydroelectric projects, will lose its status as a free-flowing river if all of the proposed dams are built by 2030.¹¹² Hydroelectric power is an important renewable resource for Brazil. It provides a strong energy source but comes at the cost of greenhouse gas emissions, wildlife implications, and social issues. Other renewable sources had to be considered to replace hydroelectric power. At the time, wind power showed high levels of promise in reversing the



Wind farm in Santa Catarina, Brazil

Credit: Josue Marinho

negative effects of hydropower.

In 2021, the Brazilian government announced that wind power became the third-largest source of energy in the country. The 20 gigawatt supply accounted for nearly 10 percent of all domestic electricity.¹¹³ Experts estimated that Brazil can generate 143 gigawatts of wind power if the country invests heavily in the resource. Around 85 percent of wind power comes from the Northeast of Brazil. Dryland and wind patterns make it possible to build many efficient wind farms in this region. It is also important to note that an estimated 200,000 jobs will be created by Brazil's wind power initiatives.¹¹⁴ Wind power is an important part of the renewable energy market in Brazil, and is more sustainable than hydropower. However, after a few years, solar power was able to take over as the most important renewable energy in Brazil.

Solar power is currently the fastest-growing sustainable energy market in the country. In 2023, the solar output of Brazil made it the sixth-largest producer of solar energy. Solar now produces more energy than wind power. One government program that incentivized solar allowed users to “sell” some of their surplus energy. For every watt of power that a consumer contributed to the national grid, they would see compensation in their electricity bills. This legislation was rolled back since solar power started to grow very quickly. Regardless, solar power remains a very attractive choice for consumers in Brazil.¹¹⁵ Solar power is also being proposed as a way to reach consumers who are not connected to the national electricity grid. The Light for All Program was relaunched by the Brazilian government in 2023 to achieve this goal. The program has benefitted 17.2 million people since its creation in 2003. It is expected to last until 2028 to best reach remote areas of the Amazon.¹¹⁶ The creation of government initiatives to bring electricity to rural

and remote areas is essential in pushing the use of renewable energy. For example, bringing solar power to a rural village might reduce their reliance on diesel generators. It will be important for the government to support such initiatives and find new ways to grow the renewable energy market. The movement from hydropower to wind power to solar power shows how well Brazil's government has been at adapting to new challenges regarding renewable energy. Now, their focus has shifted to supporting economic growth in the Amazon rainforest. The most recent data points to “bioeconomies” as the best way to support sustainable use in the rainforest.

The U.S government defines a bioeconomy “as the share of the economy based on products, services, and processes derived from biological resources (e.g., plants and microorganisms).”¹¹⁷ It also expects that bioeconomies around the world will contribute around USD four trillion to the global economy in the next ten years.¹¹⁸ The use of bioeconomies in the Amazon rainforest has so far been on a smaller scale. They are more focused on implementing sustainable practices rather than producing large amounts of products. Another focus for these small-scale bioeconomies is transitioning to sustainable energy.¹¹⁹ One example of a company with a sustainable bioeconomy in the Amazon is Natura. Natura is a cosmetics company in Brazil that launched a line of products sourced from local Amazon communities. The company indirectly helped conserve more than two million hectares of rainforest by partnering with local communities. In another example, brands in Paris are using traditional rubber tappers to produce rubber for their shoes. This has given the rubber-tapping community the chance to regrow in a time when synthetic rubber is very popular.¹²⁰ By focusing on sustainable production practices, bioeconomies can keep local communities alive

113 “Brazil's wind energy production hits a record in 2021,” Government of Brazil, March 29, 2022, <https://www.gov.br/en/government-of-brazil/latest-news/2022/brazil-wind-energy-production-hits-a-record-in-2021>.

114 Juliana de Almeida Yanaguizawa Lucena and Klayton Angelo Azevedo Lucena, “Wind energy in Brazil: an overview and perspectives under the triple bottom line,” *Clean Energy* 3, no. 2 (June 2019): 69–84, <https://doi.org/10.1093/ce/zkz001>.

115 Kevin Damasio, “Solar power is booming in Brazil. Can it be a boom for all?”

116 “Light for All Program: About the Program,” Ministry of Mines and Energy, accessed July 10, 2024, <https://www.gov.br/mme/pt-br/destaques/Programa%20Luz%20para%20Todos/sobre-o-programa>.

117 Marcy E. Gallo, *The Bioeconomy: A Primer* (Washington D.C.: Congressional Research Service, September 19, 2022): 1, <https://crsreports.congress.gov/product/pdf/R/R46881>.

118 Gallo, *The Bioeconomy: A Primer*: 1.

119 Francisco de Assis Costa, Carlos Nobre, and Carolina Genin. *Bioeconomy for the Amazon: Concepts, Limits and Trends for a Proper Definition of the Tropical Forest Biome* (Washington D.C.: World Resources Institute, June 20, 2022), <https://www.wri.org/research/bioeconomy-amazon-concepts-limits-and-trends-proper-definition-tropical-forest-biome>.

120 David Biller, “Support grows for sustainable development, a ‘bioeconomy,’ in the Amazon,” *Associated Press*, August 24, 2023, <https://apnews.com/article/brazil-amazon-rainforest-sustainable-development-bioeconomy-412a0138de1b8356073a8cfa315d3ec0>.

while producing quality products. However, many of these practices are still small-scale. There is not much effect seen on large scales yet.

The largest and most recent bioeconomy plan in Brazil is the state of Pará's 2022 Bioeconomy plan. Pará is located in the North of Brazil. It is home to vast amounts of the Amazon Rainforest and the lower half of the Amazon River. It is the second largest state in Brazil, with Amazonas being the largest. Around 8.5 million people live in Pará, and the state does not have any major road networks.¹²¹ Pará estimates that it can sell around USD 120 billion of products through its bioeconomy. There are three goals that it has. First, the plan promotes the use of inclusive technologies and scientific research. The state hopes to use this to advise other sustainability projects. Next, it aims to preserve cultural heritage. Doing this will allow Pará to maintain the rights and traditions of the locals. Finally, the state is going to invest mainly in sustainable businesses.¹²² The results of Pará's bioeconomy plan are still not evident. However, initial results, such as with Natura's rubber tapping investments, show early signs of promise for Pará's bioeconomy. The state of Amazonas is also developing a bioeconomy plan with the help of the United States Agency for International Development.¹²³

Sustainable development of the Amazon Rainforest has always been a priority for the Brazilian government. While it initially promoted destructive practices, recent years have shown the dedication of the country's policies and people to preserving the rainforest. Perhaps the biggest indicator of this is the inclusion of conservation in the country's constitution.¹²⁴ Brazil must now turn its attention to more modern sustainable development efforts. The use of bioeconomies and renewable energy will be key to turning the tide against

harmful practices. However, they must also be accompanied by effective legislation. Brazil's government must listen to various organizations and work together with the companies and people that it serves to create fair, and economically viable policies that ensure the country's future growth.

Indigenous Peoples and Local Communities

It is believed that people started living in the Amazon region between 32,000 - 39,000 years ago.¹²⁵ When native people first began using the region, they created short-living situations. They would live in a particular area in the Amazon for roughly 4-5 years and utilize the region's natural resources such as local animals and healthy soil. Then they'd move to another area of the forest and start over. This took place in forests and rivers on the border between Brazil and Venezuela.¹²⁶ Through the process of fishing, growing their crops, and domesticating their food, they expanded to a population of 29,000. This made them one of the largest native tribes in the region.¹²⁷ Unfortunately, their great society would later come to hurt them as other people would try to take advantage of what they had built.

One of the first groups to challenge their right to land was European explorers. These explorers wanted to find new land and make it their own. They wanted to take the land's resources without concern for the natives originally living in the region. Amazonian people were challenged to overcome the struggles that New World citizens brought with them, specifically disease and warfare. Ultimately, European exploration reduced native populations in the Americas by over 95 percent.¹²⁸ Today, only around one million native people live in the Brazilian Amazon¹²⁹

121 "Pará and the Secrets of the Rainforest," *Aventura do Brasil*, May 10, 2021, <https://www.aventuradobrasil.com/blog/para-and-the-secrets-of-the-rainforest/>.

122 *State of Pará Bioeconomy Plan* (Government of Pará, Brazil: November 2022) <https://www.semas.pa.gov.br/wp-content/uploads/2022/12/STATE-OF-PAR%C3%81-BIOECONOMY-PLAN-vs.INGLES.pdf>.

123 David Biller, "Support grows for sustainable development, a 'bioeconomy,' in the Amazon."

124 Damasceno, et al, 17, https://climatepolicyinitiative.org/wp-content/uploads/2017/06/Evolution_of_Land_Rights_In_Rural_Brazil_CPI_FinalEN.pdf.

125 "Amazon People." WWF. Accessed July 21, 2024. https://wwf.panda.org/discover/knowledge_hub/where_we_work/amazon/about_the_amazon/people_amazon/.

126 "Amazonia's People Domesticated Crops on 'Forest Islands' 10,000 Years Ago: Study." *Mongabay Environmental News*, May 8, 2023. <https://news.mongabay.com/2020/07/amazonias-people-domesticated-crops-on-forest-islands-10000-years-ago-study/#>.

127 In the amazon rainforest, an Indigenous tribe fights for survival | OHCHR. Accessed July 21, 2024. <https://www.ohchr.org/en/stories/2022/08/amazon-rainforest-Indigenous-tribe-fights-survival>.

128 Peoples of the Amazon

129 "The Amazon Rainforest Was Once a Human Success Story. It Could Be Again." *VICE*, September 9, 2019. <https://www.vice.com/en/>

The Amazon's native people have played an important role in protecting the environment for thousands of years. Natives, such as those in the Guarani and Ticuna tribes, the two largest Indigenous tribes in Brazil, fight to preserve their home from invasive species, people, and action.¹³⁰ They help protect 24.5 gigatons of carbon which in turn helps prevent climate change and maintains the region's diverse plant species.¹³¹ According to NASA, many groups in Indigenous-managed territories protect some of the most carbon-rich parts of the Amazon.¹³² Modern-day research suggests that lands managed by Indigenous people have lower deforestation rates than similar lands managed by other forest users, such as non-governmental organizations.¹³³ A strong possibility for this may be that forests outside of community protection are being lost to commercial farming and cattle ranching.¹³⁴ Additionally, many extractive industries contribute to the loss of forests. These are industries that take raw materials from the earth, like

gold or cobalt. Given this information, it is evident that forest areas that are legally managed by Indigenous communities are more protected and have lower deforestation rates.

There are many threats to Amazon's Indigenous people. For example, criminal action and deforestation. A recent report by the World Wildlife Fund found that 33 people were killed protecting the Amazon in 2019 alone.¹³⁵ The biggest cause of the 300 killings in the Amazon over the past decade was due to illegal logging.¹³⁶ Illegal logging is done because large areas of land are needed to grow soy, palm oil, or beef. This causes criminals to clear land and illegally cut down trees in the region. These criminals then use the cleared land to mine for minerals. Officials believe there have been over 20,000 illegal miners working in the region.¹³⁷ This process releases toxic mercury into the environment and waterways. In recent years, this has harmed tribes drinking from these contaminated streams. Additionally, the poor mining practices

article/gzyym/the-amazon-rainforest-was-once-a-human-success-story-it-could-be-again.

130 Michael Krämer und das Aventura do Brasil Team. "Guarani and Ticuna – The Largest Indigenous Tribes in Brazil." The Largest Indigenous Tribes in Brazil | Aventura do Brasil. Accessed July 21, 2024. <https://www.aventuradobrasil.com/blog/guarani-and-ticuna--the-largest-Indigenous-tribes-in-brazil/>.

131 The role of Amazonian Indigenous peoples in ... Accessed July 21, 2024. <https://www.theamazonwewant.org/wp-content/uploads/2023/01/PB-Indigenous-en.pdf>.

132 "Indigenous Communities Protect the Amazon." NASA. Accessed September 11, 2024. <https://earthobservatory.nasa.gov/images/151921/Indigenous-communities-protect-the-amazon>.

133 "Indigenous Communities Protect the Amazon."

134 "Indigenous Communities Protect the Amazon."

135 Peoples of the Amazon

136 "Brazil Analyzing Violence against the Amazon's Residents." Human Rights Watch, March 28, 2023. <https://www.hrw.org/news/2020/05/26/brazil-analyzing-violence-against-amazons-residents>.

137 In the amazon rainforest - OHCHR

Amazonian protestors from an Indigenous organization

Credit: Gert-Peter BRUCH



used by miners have increased the spread of malaria cases in the Amazon, decreasing native populations.¹³⁸

At the beginning of 2021, illegal groups of miners destroyed around 200 hectares of forest.¹³⁹ This has also led to the spread of diseases and malnutrition. In many Yanomami villages, illegal miners set up their camps in search of gold. As a result, Yanomami children are dying from malnutrition and malaria.¹⁴⁰ The diseases spread by miners have also left many Yanomami adults too unwell to hunt or fish. This is because they rely entirely on the forests and rivers for food.¹⁴¹ Water pollution and environmental destruction from the mines have made the problems worse.

Brazil's government has tried to prevent the threat of crime and deforestation in recent years. The 1998 Environmental Crime Law stated that criminals would be punished for harming the environment. This included cutting down, shipping, buying, or selling timber in protected areas.¹⁴² Six years later Brazil instated their Action Plan for the Prevention and Control of Deforestation in the Legal Amazon. Though this wasn't a specific law, this was an important plan to help limit deforestation in the region.¹⁴³ A little while after this plan was passed, Ecuador created a new constitution in 2008. This was the first constitution to recognize the rights of nature. More specifically, this constitution recognized the importance of the Amazon and that it must be conserved as much as possible.¹⁴⁴ These plans and laws depict countries' growing realization that the Amazon and native tribes need to have better legal protection. This sentiment is shared by the United Nations. The UN supports increased rights for Amazon's natives. The organization showed their support for these tribes during COVID-19 when their South American delegates,

particularly Brazil, Columbia, and Peru, called for increased access to tests and treatment for people in the region.¹⁴⁵

When Lula was elected in 2023, he pledged to eliminate illegal mining. More than 1000 unwell Indigenous people were evacuated from the Yanomami territory.¹⁴⁶ In February 2023, Brazil's Justice Ministry announced an "offensive" against the miners. Videos emerged on social media of miners fleeing from the territory. Around the time this offensive took place Justice Minister Flavio Dino said he expected 80 percent of the illegal miners to have left within the first week of February.¹⁴⁷

Overall, the Amazon natives have undergone several threats to their land. From their origins in the territory over 30,000 years ago to today, they have had to overcome European conquest, frequent criminal activity, and failed government protection measures. There are over 1 million Indigenous people in the region living in fractured communities, many of which are endangered due to the threats discussed previously.¹⁴⁸ Something must change if natives want to continue to grow their rich history in the Amazon.

Organized Crime in the Rainforest

Conserving the Amazon and protecting its native populations is a duty of the government of Brazil. The government also must tackle crime and other illicit activities inside its borders. Crime in the Amazon is no exception. The rainforest is home to crimes such as illegal mining operations, wildlife trafficking, and drug trafficking. Recent news even shows evidence of violence against journalists and Indigenous tribes. It will be essential for the government to understand how illegal acts in the rainforest have evolved, and use those trends to mitigate

138 Butler, D. "The Impact of Deforestation on the Amazon's Water Cycle." *Proceedings of the National Academy of Sciences of the United States of America*, 2003. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11210384/>.

139 "Holding up the Sky: Saving the Indigenous Yanomami Tribe in Brazil's Amazon." Al Jazeera. Accessed September 11, 2024. <https://www.aljazeera.com/program/witness/2024/4/18/holding-up-the-sky-saving-the-Indigenous-yanomami-tribe-in-brazils-amazon>.

140 "Holding up the Sky: Saving the Indigenous Yanomami Tribe in Brazil's Amazon."

141 "Holding up the Sky: Saving the Indigenous Yanomami Tribe in Brazil's Amazon."

142 César Muñoz. "Rainforest Mafias." Human Rights Watch, March 28, 2023. <https://www.hrw.org/report/2019/09/17/rainforest-mafias/how-violence-and-impunity-fuel-deforestation-brazils-amazon>.

143 GPA | Brazil | Implementing Prevention and control policies ... Accessed July 21, 2024. https://transparency-partnership.net/sites/default/files/brazil_gpa_long_0.pdf.

144 Ecuador First to Grant Nature Constitutional Rights." *Capitalism Nature Socialism* 19, no. 4 (2008): 131-133. <https://www.tandfonline.com/doi/pdf/10.1080/10455750802575828>.

145 UNSDG | UN urges increased support to Indigenous people in the Amazon region. Accessed July 21, 2024. <https://unsdg.un.org/latest/announcements/un-urges-increased-support-Indigenous-people-amazon-region>.

146 "Holding up the Sky: Saving the Indigenous Yanomami Tribe in Brazil's Amazon."

147 "Holding up the Sky: Saving the Indigenous Yanomami Tribe in Brazil's Amazon."

148 "Peoples of the Amazon"

those actions.

Loss of diversity in the Amazon caused by fires and the various criminal actions has increased since the Bolsonaro administration took charge from 2019-2022. During Bolsonaro's time in office, criminals felt more comfortable pursuing criminal action in the region. This was intentional, as Bolsonaro relaxed many policies that would make it easier to try criminals in the region. The administration and various politicians even went as far as to sometimes reward poor climate treatment.¹⁴⁹ They've done this by pushing to open native lands for commercial and mining use.¹⁵⁰ Although he promised to help reduce deforestation in the region, he has done quite the opposite. In 2021, he reduced the country's environmental budget by 24 percent.¹⁵¹ He also has cut vast amounts of senior staff running the Brazilian Institute of Environmental and Renewable Natural Resources. Without replacing these people with qualified leaders, he's let these jobs remain unfilled. This reduced the staff population, decreasing the organization's ability to protect the environment from criminal action.¹⁵² Additionally, this administration has done nothing to increase the competency of the police protecting the area. In a study organized by Human Rights Watch, they found that the Brazilian police department rarely visits the crime scene where Amazonian killings occur or conducts an autopsy on the victim.¹⁵³ Without the police conducting proper reports on people thought to have committed illegal activity in the region, there is no real threat to people violating these rules.¹⁵⁴

There are many reasons why the police have long failed to ensure the safety of the Amazon. One explanation ties to their long-standing relations with local political groups.¹⁵⁵ Local crime groups try to develop connections with political figures that benefit both parties.¹⁵⁶ Many of these groups might be the ones responsible for causing the deforestation harming the region. Another possibility for the poor operation of the police is that they are biased against native Amazonian populations. For centuries, many rulers of the Amazon have disliked the native tribes in the region, as they have posed a barrier to their idea of advancement. From 1965-1985, Brazil was ruled by military control. During this period a report revealed widespread violations to Indigenous peoples even going as far as to mention the "genocidal and unpunished actions of the Brazilian state."¹⁵⁷ In the years following, presidents would attempt to convert the Amazonian natives to adopting their culture. Those who resisted would have their land taken by the government.¹⁵⁸ As we move closer to the modern day, native people were disliked as their presence stopped the government and businesses from building infrastructure and expanding in the region. For decades, people have wanted to build on the Amazon's land, but native populations have opposed these projects, as many of them will destroy native homes.¹⁵⁹ As these populations have gained more rights and freedoms in recent years, they have had more leverage to oppose new building projects. Native villages even halted an oil expansion plan in 2022 by protesting it due to the impact it would have on their community.¹⁶⁰ In tandem, this has created more friction

149 Gabriel Cardoso Carrero, Cynthia S. Simmons, and Robert T. Walker. "The Great Amazon Land Grab – How Brazil's Government Is Clearing the Way for Deforestation." *The Conversation*, May 8, 2024. <https://theconversation.com/the-great-amazon-land-grab-how-brazils-government-is-clearing-the-way-for-deforestation-173416>.

150 Roy, Diana. "Deforestation of Brazil's Amazon Has Reached a Record High. What's Being Done?" *Council on Foreign Relations*, August 24, 2022. <https://www.cfr.org/in-brief/deforestation-brazils-amazon-has-reached-record-high-whats-being-done>.

151 "Bolsonaro Slashes Brazil's Environment Budget, Day after Climate Talks Pledge." *The Guardian*, April 24, 2021. <https://www.theguardian.com/world/2021/apr/24/bolsonaro-slashes-brazils-environment-budget-day-after-climate-talks-pledge>.

152 Muñoz, César. "Rainforest Mafias." *Human Rights Watch*, March 28, 2023. <https://www.hrw.org/report/2019/09/17/rainforest-mafias/how-violence-and-impunity-fuel-deforestation-brazils-amazon>.

153 Cases of Eusebio Ka'apor, Isaias Guajajara, Assis Guajajara, Genesio Guajajara, and Davi Mulato Gavião.

154 Human Rights Watch interview with Paulo de Tarso Oliveira, federal prosecutor in the state of Pará Santarém, May 2, 2019.

155 Human Rights Watch interview with Francisco Gonçalves da Conceição, Maranhão's Secretary of Human Rights and Social Participation, São Luis, June 4, 2018.

156 Julia Lins Franciotti, Rachel Sodré. "Special Issue on the Targeting of Local Officials: Brazil." *ACLEDDATA*, July 6, 2023. <https://acleddata.com/2023/06/22/special-issue-on-the-targeting-of-local-officials-brazil/>.

157 "Relatório de 1968 Que Mostra Extermínio de Aldeias É Encontrado." *SISEJUFÉ*, February 5, 2020. <https://sisejufe.org.br/noticias/relatorio-de-1968-que-mostra-exterminio-de-aldeias-e-encontrado/>.

158 Portela, Laura Pérez. "Indigenous Peoples, Public Policies and Elections in Brazil." *IWGIA*. Accessed July 21, 2024. <https://www.iwgia.org/en/brazil/4990-Indigenous-peoples,-public-policies-and-elections-in-brazil.html>.

159 "Amazon Indigenous Groups Oppose Infrastructure Projects." *Amazon Watch*, January 18, 1998. <https://amazonwatch.org/news/1998/0118-amazon-Indigenous-groups-oppose-infrastructure-projects>.

160 "Indigenous Brazilians Push Back Against a State Oil Drilling Plan." *VOA Learning English*, July 27, 2023. <https://learningenglish.voanews.com/a/Indigenous-brazilians-push-back-against-a-state-oil-drilling-plan/7582032.html>.

between governments and native peoples. This history of the government's disdain for natives and their secret relationships with crime organizations gives them two reasons to not impose harsh restrictions on crime in the region.

One of the biggest criminal activities in the Amazon is deforestation practices. Illegal logging, a common cause of deforestation, was first criminalized by the Forest Code of 1965. In this text, the Brazilian government required all private lands to have a certain amount of their property set aside for conservation. These areas were known as Permanent Protection Areas (PPAs) and Legal Reserves (LRs). The primary issue stemmed from the government of Brazil not enforcing this early environmental law.¹⁶¹ As a result, many landowners ignored the requirements for maintaining a conservation area on their land and deforested it anyway. The change came around the 1990s, after the passing of Brazil's Constitution of 1988. However, it was too late at this point. The year 1995 saw a peak in deforestation in the Amazon Rainforest at 29,100 square kilometers of forest lost. Experts believe that a significant portion of this is due to illegal logging.¹⁶²

The practice of illegal logging occurred and currently occurs, in many different ways. One common method is through forgery. Companies will often forge documents with incorrect information about the quantity or type of wood that they are exporting. It is also common to misrepresent the area where the wood was extracted. For example, a company might attain a logging permit for one area of land and then extract wood from a nearby area. It's this type of permit fraud that is responsible for the decline of the timber species.¹⁶³ Then, they might tell officials that the wood is from the area for which they obtained

a permit.¹⁶⁴ Other times, improper logging will happen when a party does obtain a proper permit, though they were issued it through corrupted means.¹⁶⁵ This ties back to the relationship many South American countries' governments have with local criminal groups.

Another threat to the Amazon is fires. They have been threatening the Amazon for decades, though there have been more forest fires in the past 5 years than ever before. On August 22nd, 2022 there were 3,358 fires recorded in the Amazon.¹⁶⁶ This set a record for fires reported in the region within a 24-hour timeframe. This string of fires led to 2.2 million hectares of land being burned that year.¹⁶⁷ A similar occurrence happened 3 years prior in 2019, when several fires burned an area roughly the size of New Jersey.¹⁶⁸ This increase in fires is consistent with the time in which Bolsonaro took leadership.¹⁶⁹ Amazonian fires aren't naturally occurring as they are in California. They start intentionally by individuals, most often in association with deforestation efforts. 85 percent of the fires starting in 2019 had been on land deforested within the 12 months prior.¹⁷⁰

Another concern to the region is crime directly harming Indigenous populations. Mining is an example of an illegal activity in the region that has negatively impacted the health of Indigenous peoples. Stagnant puddles of water occurring during mining practices were a breeding ground for mosquitoes. This increased the malaria cases, harming nearby tribes.¹⁷¹ Additionally, domestic violence and sexual assault are very common in the region. Amerindian tribes are over two times more likely to experience both sexual and physical violence¹⁷² Sexual violence has been a large concern for

161 Sustainability Challenges of Brazilian Agriculture

162 *Oxford Environmental Science*, s.v. "Deforestation in the Brazilian Amazon," last modified September 26, 2017, <https://doi.org/10.1093/acrefore/9780199389414.013.102>.

163 "Logging Permit Fraud Threatens Timber Species in Brazilian Amazon." *Oregon State University News*, July 27, 2023. <https://today.oregonstate.edu/news/logging-permit-fraud-threatens-timber-species-brazilian-amazon>.

164 Elena Chaboteaux, "THREATS TO THE AMAZON RAINFOREST: ILLEGAL TIMBER LOGGING," Earth Restoration Service, last modified June 11, 2021, <https://www.earthrestorationservice.org/blog/timber-logging-in-the-amazon-rainforest>.

165 Stopping illegal logging | initiatives | WWF. Accessed July 22, 2024. <https://www.worldwildlife.org/initiatives/stopping-illegal-logging>.

166 AFP, Le Monde with. "Brazil's Amazon Records Worst Day for Forest Fires in 15 Years." *Le Monde.fr*, August 26, 2022. https://www.lemonde.fr/en/environment/article/2022/08/26/wildfires-in-brazil-s-amazon-hit-15-year-high_5994837_114.html.

167 2022 Amazon fires tightly tied to recent deforestation, *New Data Show*. Accessed July 22, 2024. <https://news.mongabay.com/2022/11/2022-amazon-fires-tightly-tied-to-recent-deforestation-new-data-show/>.

168 Service, *Purdue News*. "Deforestation Drove Massive Amazon Rainforest Fires of 2019." *Purdue University News*. Accessed July 21, 2024. <https://www.purdue.edu/newsroom/releases/2020/Q4/deforestation-drove-massive-amazon-rainforest-fires-of-2019.html>.

169 "2022 Amazon fires tightly tied to recent deforestation"

170 wfca_teila. "What Is the Relationship between Deforestation and Forest Fires?" *WFCA*, March 2, 2024. <https://wfca.com/wildfire-articles/deforestation-and-forest-fires/>.

171 Peoples of the Amazon

172 "Violence against Native Peoples." *Association on American Indian Affairs*. Accessed July 21, 2024. <https://www.indian-affairs.org/>

women and children of Amazonian tribes, and people of the Yanomami tribe have even spoken out against it.¹⁷³ This abuse has worsened with the drug trade increasingly disrupting the region. In addition, this illegal trade has worsened the pace of deforestation.¹⁷⁴ Though cocaine is native to the Andean region, in the 1950s and 1960s the drug trade came over into parts of the Amazon basin for the first time.¹⁷⁵ Since then, Brazil has become the second largest consumer of cocaine, after the United States. The limited government action against crime and poverty in the region makes it attractive to both sell and consume drugs in the region.

Criminal activity has been a long-standing element of Amazonian culture. With no clear incentives to improve the police's half-hearted effort to stop crime and a government benefiting from crime groups, criminal activity in the region is very common. Though with pressures on climate change increasing and society wanting more reform, there are more eyes on South American governments, particularly that of Brazil, than ever before. If criminal activity in the Amazon continues to rise, the Amazon might cease to exist as deforestation and destructive activities will further harm the growth of species and alter the region's climate patterns to an irrecoverable state.

The Forest Code and Other Protective Policies

Brazil's various conservation projects, sustainable use initiatives, and Indigenous rights laws have shown great promise for the country's future. Both government and non-governmental organizations have been essential in creating positive change in the Amazon. It is now important to analyze the various laws and plans that Brazil has put in place to legally protect its part of the rainforest. These legal documents are imperative to creating strong foundations for future programs. The

legal actions by the government have been subject to various changes, and understanding their history will be essential to creating strong legal precedents for the future.

Brazil's legal protection of the Amazon started with the creation of the Forest Code in 1934. This Forest Code focused on regulating logging and the exploitation of natural resources in the Amazon. It also limited farmers by allowing them to use only 25 percent of the land that they bought. This was one of the earliest efforts at conservation in Brazil.¹⁷⁶ In 1965, the country passed the second version of the Forest Code which contained much stronger policies to fight against resource exploitation. This Forest Code was the first to establish Protected Areas in the Amazon Rainforest.¹⁷⁷ However, these first attempts at protecting the Amazon were largely ineffective. One reason is that the government was more focused on protecting the resources rather than the forest. For example, Brazil's military government started a practice of handing out land to miners and farmers in the 1970s and framed it as a matter of "national security".¹⁷⁸ Regardless, the early Forest Codes established important precedents for future policies. The Forest Code of 1934, for example, created important preservation areas in Brazil. They are known as Permanent Preservation Areas (PPAs) and Legal Reserves (LRs). The main difference between the two is that PPAs are areas of land that cannot be exploited for economic purposes, while LRs just need to preserve a certain percentage of the natural vegetation on their land.^{179, 180} These two areas worked together to form the legal basis of the early Forest Codes. However, the government could not properly enforce the early Forest Codes due to a lack of power against large corporations. This comes as a result of the government's general policy to hand out land to the corporations they were meant to regulate. There would need to be a massive change before conservation became a serious concern for Brazil.

violenceagainstnatives.html.

173 Peoples of the Amazon

174 Lílíana M., Karina M. Sanchez, and Dolores Armenteras. "Deforestation and Coca Cultivation Rooted in Twentieth-Century Development Projects." OUP Academic, September 28, 2016. <https://academic.oup.com/bioscience/article/66/11/974/2754290>.

175 Romero, Simon. "Drug Trade Transforms an Amazon Outpost." The New York Times, December 11, 2014. <https://www.nytimes.com/2014/12/11/world/drug-trade-transforms-an-amazon-outpost.html>.

176 Joana Chiavari, Cristina Leme Lopes, and Lourdes de Alcántara Machado, *Sustainability Challenges of Brazilian Agriculture* (Switzerland: Springer 2023), 295-296, https://doi.org/10.1007/978-3-031-29853-0_15.

177 Chiavari, et al, *Sustainability Challenges of Brazilian Agriculture*.

178 The Great Amazon Land Grab

179 Jean Paul Metzger, Mercedes M.C. Bustamante, Joice Ferreira, et al, "Why Brazil needs its Legal Reserves," *Perspectives in Ecology and Conservation* 17, no. 3 (July 2019): 91, <https://doi.org/10.1016/j.pecon.2019.07.002>.

180 "Permanent Preservation Area," Coffee&Climate Toolbox, accessed July 18, 2024, <https://toolbox.coffeeandclimate.org/tools/permanent-preservation-area-ppa/>.

In 1988, the seventh and most recent Constitution of Brazil, known as the 1988 Constitution, was adopted. This document restructured the entire government and aimed to give more power to the people that the prior government did not previously recognize. One of the major focuses of this new constitution was to effectively regulate different economic areas, and in granting the liberty of expression to citizens and journalists.¹⁸¹ Brazil's Constitution of 1988 is also known for its unprecedented focus on conservation. It was the first constitution to deal with the matter of conservation throughout the constitution, rather than as a throw-away clause.¹⁸²

The new constitution also did well to address many of the pressing issues of the time. For example, activism groups in the 1970s made it their goal to secure the rights of Indigenous people. The 1988 Constitution did this for the first time in Brazilian history and even named Indigenous populations as the first and rightful owners of the land in Article 231. It also named these lands as officially Protected Areas. The government then handed over the responsibility of demarcating lands to the Ministry of Justice.¹⁸³ The inclusion of conservation and Indigenous policies within Brazil's Constitution of 1988 marked a key turning point in how the country would approach the Amazon Rainforest. It sent a clear message that the enforcement of past policies, such as the Forest Code, would be much more strict going forward. The policy that acted more as a recommendation became an important part of the government's framework for conservation. It also helped that Brazil was a signatory to the 1989 International Labor Convention no.169 on Indigenous and Tribal Peoples Rights.¹⁸⁴ This convention is the only international document that legally binds its signatories to uphold the rights of

Indigenous populations. Under it, Indigenous peoples can develop how they see fit and enjoy human rights without discrimination.¹⁸⁵ More importantly, this action showed the international community that Brazil would be dedicated to protecting its rainforest.

Brazil was able to use its 1988 Constitution to reduce the unsustainable use of the Amazon, even if only for a short period. However, the 1990s brought a different kind of resource to the market in Brazil: soybeans and cattle farming. Data indicates that every year, the amount of planted pasture in the Cerrado region increased by about 5 percent between 1975 and 1996. The only other land use with more growth in that period is fallow.¹⁸⁶ Fallow is used to help replenish the nutrients in the region so that it is usable for future crops.¹⁸⁷ These practices in the 1990s made it clear that the Brazilian population was not ready to fully embrace the conservation policies laid out by its constitution. These sentiments were also reflected in some elements of Brazil's government. President Fernando Henrique Cardoso signed Decree 1775 in the year 1996, which allowed local corporations to appeal the borders, formally known as demarcations, made around Indigenous territories. It particularly benefited logging, mining, and farming companies.¹⁸⁸ The overall consensus by Brazilian observers in the 1990s was that the government included clauses about conservation and Indigenous protections due to political pressure. There was no intention to uphold the Indigenous protections.¹⁸⁹

The 2000s started a critical transition of conservation and Indigenous protections in government policies. For example, the creation of the National System of Conservation Units played a key role in unifying the already presented Protected

181 Igor Utsumi, "Introduction to the Brazilian Constitution," *The Brazil Business*, last modified July 22, 2014, <https://thebrazilbusiness.com/article/introduction-to-the-brazilian-constitution>.

182 Damasceno, et al, 17, https://climatepolicyinitiative.org/wp-content/uploads/2017/06/Evolution_of_Land_Rights_In_Rural_Brazil_CPI_FinalEN.pdf.

183 Symphony Chau, "Constitutional land rights for Indigenous people in Brazil," *SDG16*, June 6, 2023, <https://www.sdg16.plus/policies/constitutional-land-rights-for-Indigenous-people-in-brazil/>.

184 Chau, "Constitutional land rights for Indigenous people in Brazil."

185 Peter Bille Larsen and Jérémie Gilbert, "Indigenous rights and ILO Convention 169: learning from the past and challenging the future," *The International Journal of Human Rights* 24, no. 2-3 (January 29, 2020), <https://doi.org/10.1080/13642987.2019.1677615>.

186 Sergio Margulis, *Causes of Deforestation of the Brazilian Amazon* (Washington D.C: The World Bank, 2004), <https://documents1.worldbank.org/curated/en/758171468768828889/pdf/277150PAPER0wbwp0no1022.pdf>.

187 "Fallow," Merriam-Webster, accessed July 18, 2024, <https://www.merriam-webster.com/dictionary/fallow>.

188 Turner Terrence, "Brazilian Presidential Decree 1775 Poses Threat," *Cultural Survival*, March 25, 2010, <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/brazilian-presidential-decree-1775-poses-threat>.

189 Georgia O. Carvalho, "The politics of Indigenous land rights in Brazil," *Bulletin of Latin American Research* 19, no.4 (October 2000), [https://doi.org/10.1016/S0261-3050\(00\)00032-2](https://doi.org/10.1016/S0261-3050(00)00032-2).

Areas, Legal Reserves, and Permanent Protection Areas.¹⁹⁰ This action was supported a few years later with the creation of the Amazon Regions Protected Areas Program. This agency would act as logistical and management support for the conservation units already present. Both programs would go on to be some of the most impactful conservation efforts ever made.¹⁹¹ They also serve as important indicators for Brazil's views towards conservation. The creation and support of these programs show how the Brazilian government in the early 2000s started to view conservation as a matter of national importance, not just a political move.

One of the most important results of this era in Brazilian policymaking was the creation of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm). This plan would be the main driver for all of Brazil's Amazon-related moves from 2004 onwards. The plan is led by thirteen different ministries in the government and was initially coordinated by the President of Brazil. In its first phase, the implementation of the PPCDAm led to better environmental enforcement, monitoring, and support for future conservation efforts in the country. Ministries were able to charge USD 3.9 billion in fines between 2004 and 2008 for environmental infringements such as logging or overuse of the land. Ministries also created a fast and reliable detection system under the PPCDAm, known as the Real-Time Deforestation Detection System (DETER).¹⁹² DETER is led by Brazil's National Institute for Space Research and uses satellite imagery to alert agencies whenever a new clearing larger than 3 hectares is created in the forest.¹⁹³ Between 2009 and 2014, the PPCDAm was able to bring together ministries and law enforcement agencies to create an effective option for

tackling crimes in the rainforest.¹⁹⁴ Overall, the PPCDAm marked a huge shift in the Brazilian government's view towards environmental policy. It united different ministries under a shared purpose and ensured that the government had the teeth to enforce all of the policies it made in the past. For example, the creation of the Rural Environment Registry (CAR) gave the government a way to properly enforce past environmental legislation.¹⁹⁵ However, it soon became apparent that more updated environmental legislation was necessary to combat modern environmental challenges.

One way that the country did this is by creating a new Forest Code in 2012. This new Forest Code uses the CAR as a monitoring system for environmental regulation and reinforces the ideas of the old Forest Code, namely the allocation of APPs and LRs.¹⁹⁶ The new addition is that the 2012 Forest Code charges medium to large landowners with the responsibility of restoring any excessively deforested land. The law specifically states that if the owners illegally deforested their land before 2008, they would need to either recover the land or donate an equivalent area of land to the government for restoration purposes. Their cases of illegal deforestation would also be forgiven. Landowners with APPs would not be able to donate the land and must restore the required area within twenty years.¹⁹⁷ Brazil also ensured that landowners would be incentivized to join the registry. Among other things, landowners would be looking at lower fines and more leniency regarding infractions. Altogether, researchers found that the benefits of joining the new system outweighed the costs of staying out of it. A 2013 survey found that 57 percent of areas eligible for registration with CAR were registered. Out of those not registered, 30 percent stated that they would

190 Ministry for Environment and Climate Change, "National System of Nature Conservation Units (SNUC)."

191 *Amazon Region Protected Areas Program: The world's largest tropical forest conservation initiative*, (Brasilia, Brazil: Global Environment Facility, January 2018).

192 *Environmental and Social Assessment of Brazil's Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm)*, (New York: United Nations Development Programme, August 2018), <https://www.undp.org/sites/g/files/zskgke326/files/migration/br/ESA-Brasil-Final.pdf>.

193 Herton Escobar, "Brazilian president attacks deforestation data," *Science* 365, no. 6452 (August 2, 2019), <https://doi.org/10.1126/science.365.6452.419>.

194 *Environmental and Social Assessment of Brazil's Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm)*, (New York: United Nations Development Programme, August 2018).

195 *Environmental and Social Assessment of Brazil's Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm)*, (New York: United Nations Development Programme, August 2018).

196 Frederico Machado and Kate Anderson, *Brazil's new Forest Code: A guide for decision-makers in supply chains and governments* (Brasilia: World Wildlife Fund, 2016): 20, https://files.worldwildlife.org/wwfmsprod/files/Publication/file/4jqvtete38_wwf_brazils_new_forest_code_guide.pdf.

197 Machado, et al, *Brazil's new Forest Code: A guide for decision-makers in supply chains and governments*, 20.

only register if forced to do so by the government.¹⁹⁸ These statistics indicate the general approval of Brazil's 2012 Forest Code from the landowners that it affects. It aims to enforce past legislation and uses both incentives and punishments to achieve its goals. However, it is not without its faults.

One of the biggest criticisms of the Forest Code of 2012 is that it removed the protected status of around 15 million hectares of forest. This is a result of the new law drastically reducing the required amount of protected land in Legal Reserves from 80 percent to 50 percent. The effects of this new policy include around 2 gigatons of carbon being released into the atmosphere.¹⁹⁹ It is also important to compare the conservation of private lands, which the Forest Code governs, and public lands. Research shows that deforestation rates were substantially higher in private lands between 2003 and 2020.²⁰⁰ This data implies that stricter regulations will be needed on private lands before effective conservation is measured. The 2012 Forest Code also faced severe legal opposition from conservative lawmakers. Although the Supreme Court of Brazil ruled in favor of the constitutionality of the 2012 Forest Code, conservative lawmakers feel that the code gives too much power to lawmakers from rural areas. They feared that rural lawmakers would forgive any illegal deforestation infractions that occurred before 2012, similar to how they forgave any illegal deforestation that occurred before 2008.²⁰¹

After 2012, Brazil's Amazon Rainforest saw an increase in deforestation, but it was not due to a lack of environmental protection. The implementation of the Forest Code, ARPA, and other agencies provided a strong legal indication that the country was moving towards a more environmentally protective era. The actual actions indicate otherwise. For example, logging companies will often overestimate the

timber that they need to collect on government forms and allow illegal logging companies to use their land. In other cases, local governments will give out excessive permits or fraudulent permits after documents are submitted illegally.²⁰² These illegal logging operations run the risk of destroying ecosystems and do not abide by the regulations put out in legal documents such as the Forest Code. Regulations in Brazil are often circumvented and even if illegal actions are detected, data shows that only 24 percent of the cases incur fines. Out of these, only 5 percent of the fines are even paid due to logistical and technical problems with government collections agencies.²⁰³ If Brazil truly wishes to end deforestation and ecological damage in the Amazon, it will need to unify its government and provide adequate support for regulatory agencies. The country will need to ensure that the policies it creates are not circumvented and ignored. However, these circumventions were not as destructive to the Amazon as President Jair Bolsonaro's rollbacks.

President Bolsonaro took office on January 1, 2019, as a conservative leader in Brazil. His policies centered around ensuring the economic stability and growth of Brazil. This meant that environmental efforts in the Amazon would suffer under his watch. His support for policies that allowed miners to exploit Indigenous lands and make environmental licensing easier made him very popular among those who thought current environmental regulations were excessive.²⁰⁴ Important legislation, like the Forest Code, was ignored under President Bolsonaro. They were even rolled back in some cases. It was also common for his government to ignore environmental disasters, such as the forest fires of 2019 and 2020. Bolsonaro even accused research institutions of trying to hurt Brazil's international reputation by publicly releasing

198 Andrea A. Azevedo, Raoni Rajão, Marcelo A. Costa, et al, "Limits of Brazil's Forest Code as a means to end illegal deforestation," *Proceedings of the National Academy of Sciences* 114, no. 29 (July 3, 2017), <https://doi.org/10.1073/pnas.1604768114>.

199 Claire Asher, "Brazil's New Forest Code puts vast areas of protected Amazon forest at risk," *Mongabay*, March 4, 2019, <https://news.mongabay.com/2019/03/brazils-new-forest-code-puts-vast-areas-of-protected-amazon-forest-at-risk>.

200 Ramon Felipe Bicudo da Silva, Daniel de Castro Victoria, Fábio Ávila Nossack, et al, "Slow-down of deforestation following a Brazilian forest policy was less effective on private lands than in all conservation areas," *Communications Earth & Environment* 4, no.111 (April 11, 2023), <https://doi.org/10.1038/s43247-023-00783-9>.

201 Asher, "Brazil's New Forest Code puts vast areas of protected Amazon forest at risk."

202 William D. Carvalho, Karen Mustin, Renato R. Hilário, et al, "Deforestation control in the Brazilian Amazon: A conservation struggle being lost as agreements and regulations are subverted and bypassed," *Perspectives in Ecology and Conservation* 17, no.3 (July 2019), <https://doi.org/10.1016/j.pecon.2019.06.002>.

203 Carvalho, et al, "Deforestation control in the Brazilian Amazon: A conservation struggle being lost as agreements and regulations are subverted and bypassed."

204 Camilo Rocha, Marcia Reverdosa and Rodrigo Pedroso, "Deforestation is accelerating in Brazil as Bolsonaro's first term ends, experts say," *CNN*, September 20, 2022, <https://www.cnn.com/2022/09/20/americas/brazil-bolsonaro-deforestation-term-intl-latam/index.html>.

their data. Some of his other actions included defunding the Ministry of the Environment and other important government agencies.²⁰⁵ In 2021, the former president was accused of Crimes against Humanity by an Austrian environmental organization known as AllRise. The organization claimed that Bolsonaro's actions have led to severe loss of life and that his policies have endangered the world's population.²⁰⁶ Jair Bolsonaro's presidency was a step backward for environmental policy in Brazil. It severely aggravated the lack of attention the government was already giving to its regulatory duties. Furthermore, the government's anti-activism stance severely injured the relationship that it was building with activists and Indigenous rights organizations.

With the election of President Lula, activists hope to see more support from the Brazilian government. In his first term between 2003 and 2010, Lula supported conservation efforts and was able to reduce deforestation in the rainforest.²⁰⁷ This can be seen in the creation of the PPCDAm and other regulatory agencies. Overall, Lula hopes to focus on creating green economies and working with neighboring countries, such as Chile and Colombia, to improve Brazil's environmental presence.²⁰⁸ He aims to reverse the destructive policies of President Bolsonaro.

Brazil has a long history of supporting environmental conservation and Indigenous rights, whether it is for political gain or not. While these policies have had periods of failure, they have led to an overall net positive in the country. Future Brazilian governments must now use the legal precedent of Brazil to create policies that will be popularly supported and constitutionally allowed. They must also ensure that these policies are also supported by the agencies carrying them out.

Without effective administration, the status of the Amazon Rainforest in Brazil is at serious risk.

Current Status

Emerging Technologies for Conservation and Crime Identification

Human activity is a direct threat to the Amazon. Some of the most serious examples include deforestation, illegal mining, and forest fires. Many of these threats have intensified as of late. For example, in 2022, one in five killings of land defenders worldwide took place in the Amazon.²⁰⁹ Such attacks were very common in the part of the Amazon in Brazil's territory.²¹⁰ Additionally, in the first quarter of 2023, 867 sq km of rainforest was destroyed.²¹¹ This marks the second largest land area to be damaged in the Amazon over the past 17 years.²¹² Similarly, there has been an increase in illegal drug trading and mining in the Amazon in recent years. Due to these frequent attacks, new tools have been created to help challenge these threats.²¹³ These tools range in their focus, from deforestation to illegal activity to forest fires. They are part of Brazil's new initiatives to preserve the Amazon.

To conserve the Amazon, deforestation must be addressed. To this end, experts have been developing new methods of spotting illegal logging before it's too late. Various communities in Brazil's Amazon region started to use drones to improve their surveillance capabilities.²¹⁴ It also helps in documenting illegal forest degradation in the area. Members of the Uru-Eu-Wau-Wau Indigenous territory use these drones to help track illegal deforestation in their land.²¹⁵ Additionally,

205 Ines Eisele, "How has the rainforest fared under Bolsonaro?" *Deutsche Welle*, October 2, 2022, <https://www.dw.com/en/how-has-the-amazon-rainforest-changed-under-jair-bolsonaro/a-63211783>.

206 "Brazil's Bolsonaro accused of 'crimes against humanity' at ICC," *France24*, December 10, 2021, <https://www.france24.com/en/live-news/20211012-brazil-s-bolsonaro-accused-of-crimes-against-humanity-at-icc>.

207 Jake Spring, "Brazil's Green New Deal: Lula promises environmental policy overhaul," *Reuters*, October 27, 2022, <https://www.reuters.com/world/americas/brazils-green-new-deal-lula-promises-environmental-policy-overhaul-2022-10-27/>.

208 Spring, "Brazil's Green New Deal: Lula promises environmental policy overhaul."

209 "Crimes against the Climate: Violence and Deforestation in the Amazon." International Crisis Group. December 8, 2023. <https://www.crisisgroup.org/latin-america-caribbean/brazil-colombia/crimes-against-climate-violence-and-deforestation-amazon>.

210 "Crimes against the Climate"

211 "Crimes against the Climate"

212 "Crimes against the Climate"

213 Custodio, Janiele, and Hernan Abeledo. "Drone-Based Environmental Emergency Response in the Brazilian Amazon." *Drones* 7, no. 9 (2023): 554. <https://www.mdpi.com/2504-446X/7/9/554>.

214 Nicolás Vargas-Ramírez, and Jaime Paneque-Gálvez. "The Global Emergence of Community Drones (2012–2017)." *Drones* 3, no. 4 (October 6, 2019): 76. <https://doi.org/10.3390/drones3040076>.

215 "The Global Emergence of Community Drones (2012–2017)"

Brazilian firefighters and the armed forces are using them to support emergency response operations.²¹⁶ Using drones in the Amazon forest has many advantages. Firstly, drones are small and flexible. They can be placed in a variety of locations without requiring major infrastructure investments. Secondly, drones would allow first responders and park rangers to gather information more safely.²¹⁷ This is because drones can fly to dangerous environments that would otherwise be inaccessible to humans.

Another tool used in the fight against deforestation is the “Curupira”. Named after a creature from Brazilian folklore, the “curupiras” are boxes that are designed to hug trees and remotely send out danger signs.²¹⁸ These boxes are equipped with sensors and software that recognize the sounds of various tools, including chainsaws and tractors.²¹⁹ These tools’ use is associated with deforestation. The system identifies the threat and sends a remote communication to authorities to intervene.²²⁰ This new system has various advantages over

other forms of communication. For example, while satellite analysis can provide precise information, it is only provided after the fact.²²¹ Wireless sensors like the “curupiras”, on the other hand, can transmit data up to a kilometer away.

Similar to the rise in deforestation over recent years, criminal activity, specifically illegal mining and drug trading, has also jumped in the Amazon region.²²² Mapping tools have been a good way to fight against this. One up-and-coming platform in this field is GeoRadar. Made in 2022, GeoRadar is being used to gather social and spatial data on environmental crimes. This information is then to be used by Brazilian lawyers to increase the consequences criminals face for crimes against the Amazon.²²³ Limited punishments for environmental offenders have been a long-standing issue for Amazon. Criminals are often not charged because they are rarely caught and it’s difficult to gather proper evidence against them due to staffing shortages. Mapping tools like GeoRadar provide a chance to change this.²²⁴ Another mapping tool aiding the Amazon was

216 “The Global Emergence of Community Drones (2012–2017)”

217 “The Global Emergence of Community Drones (2012–2017)”

218 Matteo Cavallito. “Sensors and Ai Fight Deforestation in the Amazon Rainforest.” Re Soil Foundation, October 24, 2023. <https://resoilfoundation.org/en/innovation-technology/sensors-ai-amazon-deforestation/>.

219 “Sensors and Ai Fight Deforestation in the Amazon Rainforest.”

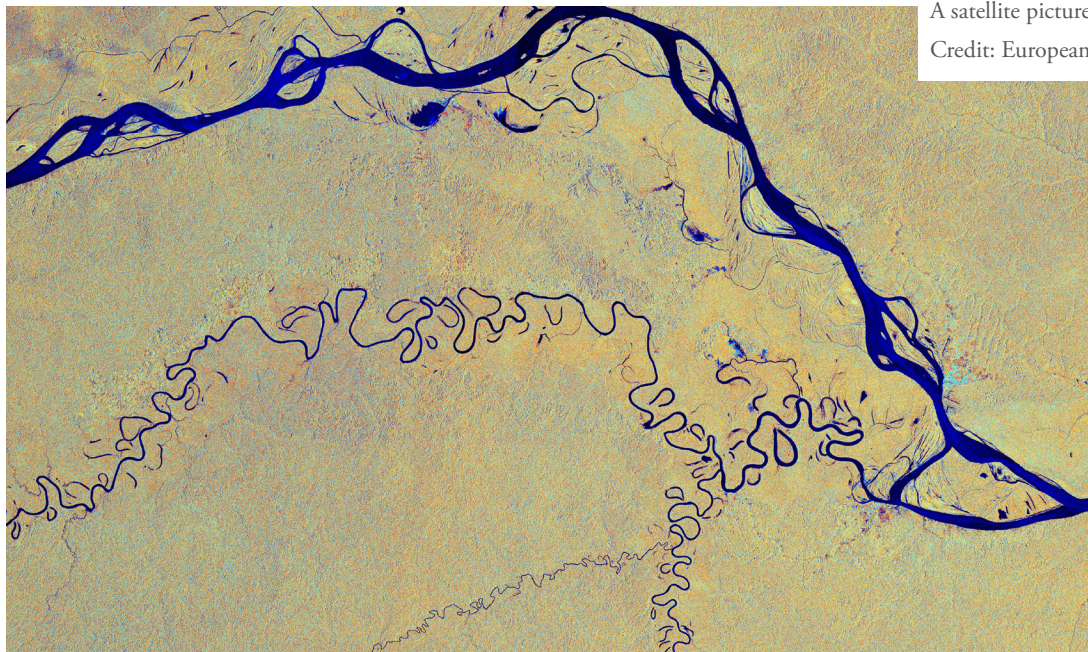
220 “Sensors and Ai Fight Deforestation in the Amazon Rainforest.”

221 “Sensors and Ai Fight Deforestation in the Amazon Rainforest.”

222 “Crimes against the Climate”

223 Mares, Dennis. “New Technologies to Map Environmental Crime in the Amazon Basin (commentary).” *Mongabay News*, April 4, 2024. <https://news.mongabay.com/2024/04/new-technologies-to-map-environmental-crime-in-the-amazon-basin-commentary/>.

224 Phillips, Tom, and Jake Spring. “Inside the Fight to Save Brazil’s Amazon: ‘There’s No Plan B’.” *The Washington Post*, August 20, 2022. <https://www.washingtonpost.com/world/interactive/2022/brazil-amazon-deforestation-enforcement/>.



A satellite picture of the Amazon Rainforest
Credit: European Space Agency

launched by Brazil’s Ministry of Justice and Public Security: Brazil MAIS. Created in 2021, this program uses satellite data to provide a spatial understanding of crimes in the Amazon.²²⁵ So far, this program has been used in over 120 operations to protect the Amazon and has been very helpful in criminal activity.²²⁶

To deal with forest fires, new tools have been made to aid firemen in their work. In July of 2023, the “Fire Dashboard” has been available to countries that have territory in the Amazon.²²⁷ This is a web-based platform created by Brazil’s Ministry of Defense. The dashboard provides information on fires and burn-offs in real-time. The system combines geospatial information, satellite images, and data from a “severity-level” indicator. The Fire Dashboard helps firefighters get to the scene of a fire quickly. It also provides the opportunity to share decision-making based on the patterns of fires and burn-offs that occur in areas monitored by the Fire Dashboard. What this means is that Amazon countries can communicate the severity of their fires with each other more effectively.²²⁸

Finally, the use of AI has been an effective tool against deforestation. PrevisIA is an AI platform created by researchers at Imazon, which is an environmental nonprofit.²²⁹ It focuses on preventing deforestation. In 2021, Imazon began establishing partnerships with authorities across the Brazilian region of Triunfo do Xingu, a conservation area within the Amazon.²³⁰ This is because PrevisIA pinpointed Xingu as the conservation area with the highest risk of deforestation in 2023. While the area is protected by law, it has long been subject to the development of illegal activities, including unauthorized mining, logging, and general land grabbing. In the past, researchers used to look through thousands of satellite images to see whether they could spot new roads caused by illegal

deforestation.²³¹ With PrevisIA, an AI algorithm automates the mapping. This allows for much quicker analysis, and, in turn, more frequent updates.²³² In Brazil and Colombia, Project Guacamaya was started by several organizations, including the CinfonIA Research Center and Microsoft AI for Good Lab.²³³ This project uses AI models to monitor deforestation ten times faster than manual analysis. The AI models use satellite imagery, on top of modified AI models from existing projects within Microsoft for camera trap analysis.²³⁴ In general, AI has been utilized in various ways to help combat deforestation. However, it is important to note that it has not been used as extensively as other tools, in part because of its recentness.

Emerging technologies have played an integral part in the conservation of the Amazon. From the use of tree-hugging communicators to artificial intelligence, it is evident that many are trying to find solutions to problems of deforestation and illegal mining, among others. However, these issues are ever-prevalent. The question of how useful these technologies are must be asked. It is important to recognize these technological benefits and flaws so that future advancements can be made that address these issues, thus allowing greater conservation efforts to be made.

Amazon Carbon Credits

Conservation of the Amazon Rainforest is a top-most priority for both Brazil and the world. Ensuring the future livelihood of the rainforest is key to making sure that its resources, wildlife, and native populations are protected. Brazil has taken considerable steps to encourage conservation of the region, such as through the establishment of Protected Areas. These are places in the forest in which the government has banned all economic activities. Another conservation strategy that the

225 Mares, Dennis. “New Technologies to Map Environmental Crime in the Amazon Basin (commentary).” *Mongabay News*, April 4, 2024. <https://news.mongabay.com/2024/04/new-technologies-to-map-environmental-crime-in-the-amazon-basin-commentary/>.

226 “New Technologies to Map”

227 Nelza Oliveira. “Brazilian Tool Helps Amazon Countries Fight Forest Fires.” *Diálogo Américas*, September 15, 2023. <https://dialogo-americas.com/articles/brazilian-tool-helps-amazon-countries-fight-forest-fires/>.

228 “Brazilian Tool Helps Amazon Countries Fight Forest Fires.”

229 Matteo Cavallito. “Artificial Intelligence Challenges Deforestation in Brazil.” *Re Soil Foundation*, July 4, 2023. <https://resoilfoundation.org/en/articles/artificial-intelligence-deforestation/>.

230 Jill Langlois. “Could Ai Save the Amazon Rainforest?” *The Guardian*, April 29, 2023. <https://www.theguardian.com/technology/2023/apr/29/could-ai-save-amazon-rainforest-artificial-intelligence-conservation-deforestation>.

231 “Could Ai Save the Amazon Rainforest?”

232 “Could Ai Save the Amazon Rainforest?”

233 Elliott Smith. “AI May Hold a Key to the Preservation of the Amazon Rainforest.” *LATAM*, September 6, 2023. <https://news.microsoft.com/source/latam/features/ai/amazon-ai-rainforest-deforestation/?lang=en>.

234 “AI May Hold a Key to the Preservation of the Amazon Rainforest.”

country uses is satellite enforcement. This uses imagery to warn the government about any overly deforested areas.²³⁵ One of the more modern conservation programs, in both Brazil and around the world, is the Carbon credit program.

Carbon Credits, also known as Carbon Offsets, are tradable certificates that help fund conservation projects. They are primarily used to keep carbon dioxide emissions out of the atmosphere. For each metric ton of carbon dioxide that a project keeps out of the atmosphere, they earn one carbon credit.²³⁶ Some typical projects that earn carbon credits are reforestation, renewable energy, and certain sustainable agricultural practices.²³⁷ These projects can then sell their carbon credits on specialized markets. Buyers can then “retire” the carbon credits that they bought and claim responsibility for the metric ton of carbon emission that the project saved.²³⁸ Through this market system, conservation projects remain adequately funded while consumers acquire goods that they can use for their benefit. It is a mini-economy that relies on the economic principle of supply and demand, where the projects are supplying carbon credits according to market demands.

The demand for carbon credits often comes from large companies that are trying to meet their environmental obligations according to their host country’s laws. These obligations are often ones to go “net zero”. This means that the company in question takes as much carbon out of the atmosphere as it puts into the atmosphere.²³⁹ For example, an oil company might buy carbon credits to offset the emissions that it releases into the air as part of its mining operations. Oil and car companies are among the most popular purchasers of carbon credits. Between 2020 and 2022, they were responsible for over three-fourths of the offsets used by the top fifty carbon

credit purchasing companies. Between these companies, over thirty-eight million carbon credits were purchased, which is equivalent to thirty-eight million tons of carbon dioxide emissions removed from the atmosphere. This is equal to the annual emissions of Kenya and Ethiopia combined. Shell, Volkswagen, and Chevron were the top purchasers overall in this period.²⁴⁰

With so many companies purchasing so many carbon credits, the market is inevitably in a period of high growth. Reports indicate that one-hundred forty-six million credits were retired in 2022. This is double the amount of credits used in 2019.²⁴¹ Experts predict that the market will grow at a compounded rate of 39.5 percent each year between 2024 and 2030.²⁴² Carbon credits have the potential to be revolutionary tools for change. With so many companies demanding more and more credits, funding for emissions-saving projects is abundant. Organizations can more easily start new projects and ensure their long-term sustainability through carbon credit programs.

Carbon credits seem like a great initiative at face value. However, recent reports point to their overall ineffectiveness and inefficiency as a major weakness in the system. One of the reasons is due to inaccurate reporting and measuring challenges. The carbon credits system relies on accurate reporting to function, but institutional-level overreporting is causing inaccurate data to be released. The primary culprit here is the Reduction of Emissions from Deforestation and Forest Degradation Program (REDD+) concept. REDD+ projects are present worldwide and operate with and without the government.²⁴³ It is important to note that REDD+ is a set of guidelines, not an international body or program. Recent research has found that REDD+ projects tend to overestimate

235 Orion McCarthy, “6 ways Brazil is saving the Amazon,” *HowToConserve*, last modified September 4, 2015, <https://howtoconserve.org/2015/09/04/saving-the-amazon/>.

236 Olafur Pall Torfason, “How Do Carbon Credits Work,” *Carbon Registry*, last modified January 6, 2024, <https://www.carbonregistry.com/blog/how-do-carbon-credits-work>.

237 Angelo Gurgel, “Carbon Offsets,” *MIT Climate Portal*, last modified November 8, 2022, <https://climate.mit.edu/explainers/carbon-offsets>.

238 Torfason, “How Do Carbon Credits Work.”

239 Johnny Wood, “What does net zero emissions mean and how do we get there?” *World Economic Forum*, November 9, 2021, <https://www.weforum.org/agenda/2021/11/net-zero-emissions-cop26-climate-change/>.

240 Josh Gabbatiss, “Analysis: How some of the world’s largest companies rely on carbon offsets to ‘reach net-zero,’” *CarbonBrief*, September 27, 2023, <https://interactive.carbonbrief.org/carbon-offsets-2023/companies.html>.

241 Gabbatiss, “Analysis: How some of the world’s largest companies rely on carbon offsets to ‘reach net-zero.’”

242 *Carbon Credit Market Size, Share & Trends Analysis Report By Type (Compliance, Voluntary), By Project Type (Avoidance/Reduction Projects, Removal/Sequestration Projects), By End-use, By Region, And Segment Forecasts, 2024 - 2030* (San Francisco: GrandView Research 2023), <https://www.grandviewresearch.com/industry-analysis/carbon-credit-market-report>.

243 Thales A. P. West, Jan Börner, Erin O. Sills, et al, “Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon,” *Proceedings of the National Academy of Science* 117, no. 39 (September 14, 2020), <https://doi.org/10.1073/pnas.2004334117>.

the amount of deforestation and destructive practices in a forest. One reason for this overestimation is due to the high baseline of deforestation reported by site managers in REDD+ projects. Therefore, even if slightly lower deforestation rates are recorded, they seem larger when compared to the inflated value reported by site managers. As a result, more carbon credits can be generated by conservation projects than they are offsetting. This happens even after intensive, independent auditing is performed before credits are released to the market. Furthermore, REDD+ projects that produce carbon credits in the Brazilian Amazon have been shown to have minimal effect. One study showed that only four out of twelve studied project sites had lower deforestation rates according to historical baselines.²⁴⁴ Carbon credits projects also run into the issue that many projects focus on avoiding carbon emissions, not removing them from the air. One reason for this is the high and unreasonable price that organizations would need to pay for carbon-capture projects.²⁴⁵ There are also administrative challenges and the inability of proper analysis to be done on the effectiveness of projects due to misreporting.²⁴⁶ Overall, the implementation of carbon credits projects can still be optimized. By encouraging unbiased and well-informed reporting, as well as proper auditing mechanisms, carbon credits have the potential to be very effective.

After considering both the positives and negatives of carbon credits, the Brazilian government decided to enact proper regulatory legislation for its carbon credits projects. The Brazilian Greenhouse Gas Emissions Trading System would be the second major emissions trading system (ETS) in Latin America after Mexico's ETS.²⁴⁷ This legislation would establish a carbon credits program within Brazil that would allow Brazilian companies and deforestation programs to

trade carbon credits, similar to European and Asian models. It also establishes different types of tradable assets, such as the Brazilian Emissions Quota that allows the owner to emit one ton of carbon dioxide.²⁴⁸ In short, Brazil's ETS would operate on a "market cap" system. Each year, the Brazilian government sets an emissions cap and then informs each company as to how much it can emit over the year. Then, companies would be able to use the voluntary carbon credits market to offset their emissions as they see fit.²⁴⁹ This new bill holds great promise for the future of Brazil's conservation efforts. It would create a new funding source for various government and independent programs, and encourage companies to invest in these efforts.

However, the new bill is not without its flaws. Other than common challenges that carbon credit projects have; environmentalists are concerned with the starkly right-wing stance the bill takes. More specifically, there is no mention of livestock and agriculture in the bill. This is especially notable due to the large amount of emissions that beef production and unsustainable agriculture create in the country.²⁵⁰ Other concerns surround accountability and auditing, similar to other carbon credit programs. This bill will be important for Brazil as it prepares to meet its 2030 goals. The country aims to reduce greenhouse gas emissions by 37 percent by 2025 and 50 percent by 2030.²⁵¹ Brazil will need to overcome the initial failures of its proposed emissions trading system and work with the local government to ensure its success as a significant way to meet its goals.

In the meantime, however, Brazilian carbon credits projects will have to trade with international sources. The first occasion of jurisdictional carbon credit sales occurred between 2022 to 2023. In this deal, the Swiss company Mercuria committed

244 West, et al, "Overstated carbon emission reductions from voluntary REDD+ projects in the Brazilian Amazon."

245 Philip W. Boyd, Lennart Bach, Richard Holden, et al, "Carbon offsets aren't helping the planet — four ways to fix them," *Nature* 620, (2023): 947-949, <https://doi.org/10.1038/d41586-023-02649-8>.

246 Kenneth Richards and Krister Andersson, "The leaky sink: persistent obstacles to a forest carbon sequestration program based on individual projects," *Climate Policy* 1, no. 1 (2001): 50, <https://doi.org/10.3763/cpol.2001.0105>.

247 Matt Sandy and Juliana Horta, "Brazil races to launch carbon market ahead of COP30," *Eco-Business*, July 17, 2024, <https://www.eco-business.com/news/brazil-races-to-launch-carbon-market-ahead-of-cop30/>.

248 Renata Amaral, Manuela Demarche, and Alexandre Jabra, *WHAT YOU NEED TO KNOW ABOUT THE PROPOSED BRAZILIAN CARBON MARKET* (Sao Paulo: Trench Rossi Watanabe 2024): 2, https://insightplus.bakermckenzie.com/bm/attachment_dw.action?attkey=FRbANEucS95NMLRN47z%2BeeOgEFCt8EGQJsWJiCH2WAWuU9AaVDeFglosrDzUghbw&nav=FRbANEucS95NMLRN47z%2BeeOgEFCt8EGQbuwypnpZjc4%3D&attdocparam=pB7HEsg%2FZ312Bk8OIuOIH1c%2BY4beLEAekfPgzH%2FIKI%3D&fromContentView=1.

249 Sandy, et al, "Brazil races to launch carbon market ahead of COP30."

250 Michael Pooler and Bryan Harris, "Brazil to launch regulated carbon market," *Financial Times*, December 29, 2023, <https://www.ft.com/content/0a7b017a-c54e-48e8-8c86-0654ed63979b>.

251 "New Research Reveals Brazil's Climate Financing Challenges and Suggests Potential Solutions," *World Economic Forum*, August 23, 2023, <https://www.weforum.org/press/2023/08/new-research-reveals-brazils-climate-financing-challenges-and-suggests-potential-solutions/>.

to acquiring over 200 million carbon credits from the state of Tocantins in Brazil. These credits will be generated between 2016 and 2032. State official Marli Santos estimates that this deal is worth over USD two billion.²⁵² With this deal comes the establishment of a REDD+ program in Tocantins. This was the first state-led REDD+ program in the country. Both organizations agreed to the involvement of outside experts to ensure the greatest accountability standards.²⁵³ This international collaboration between Tocantins and Mercuria serves as an example of what productive work can accomplish. In the space of a year, both organizations were able to invest heavily in conservation efforts, set up sustainable auditing, and finance the future of carbon credits in Tocantins. Expanding this scheme to a national scale would be a substantial task for the government. However, encouraging individual projects to reach out to international partners has a lot of potential. The main consideration that the national government will need to make is whether or not these programs are being run effectively and with adequate supervision.

Inadequate supervision, however, can lead to misreporting and international scandal. A prime example of this occurred in May of 2024. Two of the largest carbon credit producers in the Brazilian Amazon Rainforest were caught selling fake credits to large brands such as Nestle, Spotify, and Toshiba.²⁵⁴ In a report published by the Center for Climate Crime Analysis (CCCA), these two groups were found to have been laundering timber through the lands that they are meant to protect.²⁵⁵ The groups that the CCCA analyzed, known as Unitor and Fortaleza Ituxi, are in charge of 140,862 hectares of land and are tasked with avoiding 660, 598 metric tons of carbon dioxide every year through sustainable logging efforts. In their findings, the CCCA found that over 4,200 truckloads of wood had been misreported and that they were actually from another area of the forest under strict, no-logging restrictions. The Federal

Police of Brazil performed an independent investigation after this report and arrested five individuals, as well as multiple property seizures, throughout the country. The final tally indicated that over 500,000 hectares of land were seized by the two groups.²⁵⁶ This operation was known as “Greenwashing”, and led to one of the top carbon credit verifiers in the world, Verra, suspending the accounts of all involved individuals.²⁵⁷

Land grabbing and illegal reporting have occurred before in Brazil, most notably in 2023 when multiple operations were busted for fraudulent carbon credit trading. Further scandals involve the use of local communities in carbon credit schemes without transparency or fair pay.²⁵⁸ While evidence shows that carbon credit projects are extremely prone to errors, constant monitoring will be key to mitigating the negative effects of carbon credit programs. The Federal Police’s Greenwashing operation has also influenced other carbon credit groups to maintain better standards. Combined with the Brazilian Greenhouse Gas Emissions Trading System that is currently in development, Brazil has a strong future in carbon credits. These credits provide an excellent form of funding and institutional support while achieving key goals for the government. Now, the task lies in finding ways to maintain integrity within carbon credits and find ways to integrate them into other conservation efforts.

Recent International Cooperation to Preserve the Amazon

The Amazon rainforest is incredibly important to the international community. Due to its massive size, as well as the effect that deforestation in the region has on global warming, the Amazon proves to be a seminal piece of the World’s climate. Given this, the issues plaguing the Amazon are felt on an international level, along with the responsibility to fix the situation.

252 Tatiana Bautzer, “Mercuria among firms vying for Tocantins carbon credits in Brazil,” *Reuters*, October 19, 2022, <https://www.reuters.com/markets/carbon/mercuria-among-firms-vying-tocantins-carbon-credits-brazil-2022-10-18/>.

253 “Mercuria Energy Leads the Way in Voluntary Carbon Credit Sales with Tocantins, Brazil,” Mercuria, last modified June 5, 2023, <https://mercuria.com/mercuria-energy-leads-the-way-in-voluntary-carbon-credit-sales-with-tocantins-brazil/>.

254 Fernanda Wenzel, “Brazil police raid Amazon carbon credit projects exposed by Mongabay,” *Mongabay*, June 7, 2024, <https://news.mongabay.com/2024/06/brazilian-investigators-raid-amazon-carbon-credit-projects-exposed-by-mongabay/>.

255 Fernanda Wenzel, “Top brands buy carbon credits from suspected scam operation in the Amazon,” *Sumauma*, May 21, 2024, <https://sumauma.com/en/grandes-marcas-compram-creditos-de-carbono-de-esquema-suspeito-na-amazonia/>.

256 Wenzel, “Brazil police raid Amazon carbon credit projects exposed by Mongabay.”

257 Wenzel, “Brazil police raid Amazon carbon credit projects exposed by Mongabay.”

258 Katy Watson, “Carbon credits - land grab or the Amazon’s future?” *BBC*, August 8, 2023, <https://www.bbc.com/news/world-latin-america-66435166>.

A major international event pushing for more climate action in the Amazon is the annual United Nations Climate Change Conference (UNFCCC). The COP conference has been held annually since the first UN Climate Agreement in 1992.²⁵⁹ These conferences are intended for governments to agree on policies related to temperature rise and climate change. COP28 took place between November and December of 2023 in Dubai. At this event, five policy briefs were released that called for the urgent protection of the Amazon rainforest from becoming a desert.²⁶⁰ These policy briefs, published by the Science Panel for the Amazon (SPA), provided insights into what drives the Amazon's destruction, as well as solutions for securing the basin's sustainable future. The reports warned that more than three-quarters of the Amazon rainforest has been losing its resilience. One of the SPA briefs noted how deteriorating democracy, illegal land appropriation, drug trafficking, and other illicit activities continue to plague Brazil, among other South American countries. Another SPA brief notes how countries in the Amazon region often prioritize infrastructure for mining, energy, and agriculture, while neglecting the needs of local populations. The brief also notes how over 90 percent of Amazon deforestation happens within 4 miles of existing roads, indicating that any new investment in transportation infrastructure comes with strong regulation that avoids any further forest loss.²⁶¹

Many members of the World Wildlife Fund that attended COP28 noted how many countries expressed their conservation concerns. Specifically, they highlighted the importance of tackling environmental crimes like illegal deforestation via-nature based solutions.²⁶² Multiple countries

pledged USD 700 million to the Loss and Damage fund.²⁶³ This fund, set up by the United Nations, was designed to provide support for vulnerable nations facing climate-related challenges.²⁶⁴ Similarly, Norway donated USD 50 million to Brazil's Amazon Fund, which was reopened by Lula.²⁶⁵

One of the ways that Brazil's government interacts with the international community is through the Amazon Fund. Formed by Germany and Norway in the summer of 2008, the Amazon Fund aims to attract donations for the combating of deforestation in the Amazon, and for its sustainable use.²⁶⁶ In 2023 alone, the fund received USD 640 million in new pledged donations from developed nations.²⁶⁷ Of that total, USD 500 million was committed by the United States over five years. Since Lula took office in 2023, deforestation in Brazil's Amazon has fallen to its lowest rate since 2018.²⁶⁸ From 2019 - 2022, however, deforestation rates surged back up under Lula's predecessor, Jair Bolsonaro. During this period, Bolsonaro relaxed environmental protections and encouraged mining and logging in the Amazon. He also dissolved the Amazon Fund steering committee, responsible for choosing sustainable projects to finance. Bolsonaro did this because he argued that the Amazon forest was an "internal affair."²⁶⁹ After this was done, Germany and Norway suspended their donations, the latter of which contributed USD 1.2 billion to the Amazon since 2004.

When Lula took office, he promised to reactivate the country's environmental focus. Germany immediately pledged a USD 38 million donation to the fund, signaling the fund's return.²⁷⁰ Today, Brazil continues to seek donations for the Amazon Fund, yet has accomplished many initiatives using

259 "What Is the UNFCCC and the COP?" What is the UNFCCC and the COP? - Climate Leaders. Accessed September 9, 2024. <https://web.archive.org/web/20090327142028/http://www.climate-leaders.org/climate-change-resources/india-at-cop-15/unfccc-cop>.

260 Dimitri Selibas. "Science Panel Presents COP28 with Blueprint for Saving the Amazon." Mongabay Environmental News, December 13, 2023. <https://news.mongabay.com/2023/12/science-panel-presents-cop28-with-blueprint-for-saving-the-amazon/>.

261 "Science Panel Presents COP28 with Blueprint for Saving the Amazon."

262 Lauren DeVilla. "COP28: Takeaways for the Amazon." Amazon Conservation Association, December 19, 2023. <https://www.amazonconservation.org/cop28-takeaways-for-the-amazon/>.

263 "COP28: Takeaways for the Amazon."

264 "COP28: Takeaways for the Amazon."

265 Jake Spring. "COP28: Norway Gives \$50 Mln to Brazil Amazon Fund as Deforestation Falls | Reuters." Reuters, December 11, 2023. <https://www.reuters.com/business/environment/cop28-norway-gives-50-mln-brazil-amazon-fund-deforestation-falls-2023-12-11/>.

266 "Amazon Fund." Fundo Amazonia. Accessed September 9, 2024. <https://www.fundoamazonia.gov.br/en/home/>.

267 Lisandra Paraguassu, and Anthony Boadle. "Amazon Fund for Rainforest Received \$640 Million in New Pledges in 2023 | Reuters." Edited by Sam Holmes. Reuters, February 1, 2024. <https://www.reuters.com/sustainability/climate-energy/amazon-fund-rainforest-received-640-mln-new-pledges-2023-2024-02-01/>.

268 "Amazon Fund for Rainforest Received \$640 Million in New Pledges in 2023 | Reuters."

269 Sarah Brown. "US Pledges Amazon Fund Donation, Renewing Hope for the Rainforest." Mongabay Environmental News, February 15, 2023. <https://news.mongabay.com/2023/02/us-pledges-amazon-fund-donation-renewing-hope-for-the-rainforest/#>

270 "US Pledges Amazon Fund Donation, Renewing Hope for the Rainforest."

the donations. In January 2024, Brazil moved ahead with the creation of a new international security center in Manaus that will bring together Amazon nations in policing the forest.²⁷¹ It is called the Center for International Police Cooperation (CCPI) and is scheduled to be up and running this year. It is financed by around USD two million from the Amazon Fund alone.²⁷² The center's focus will be on fighting drug trafficking, smuggling, as well as deforestation and other environmental crimes.²⁷³

While not as wide-reaching as the UNFCCC, the Amazon Cooperation Treaty Organization (ACTO) acts as another international organization that promotes the sustainable development of the Amazon forest. The ACTO's member states are Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela.²⁷⁴ In August 2023, the ACTO held the 2023 Amazon Summit in the Brazilian city of Belém. Along with ACTO's member states, many companies, Indigenous associations, and NGOs were invited by Brazil to participate.²⁷⁵ During the forum, members of the ACTO approved resolutions that aimed at stopping crime in the Amazon. The organization activated a commission on Public Security and Cross Border Crime.²⁷⁶ Additionally, a Center for International Police Cooperation in the Amazon was established.²⁷⁷ The headquarters was in Manaus, Brazil. Towards the end of the summit, a survey produced by the World Wildlife Fund pointed out that there are around 4,000 illegal mining sites in the Amazon.²⁷⁸ It was believed that 150 tons of mercury were dumped per year in the region.

The WWF representative recommended that the ACTO members control the gold production chain and its effects on environmental mercury emissions. Moreover, the states should identify and measure mercury pollution events. Finally, the representative recommended implementing measures that reduce the risks of mercury contamination in vulnerable Indigenous populations.²⁷⁹ When the summit ended, the member states drafted and passed the Belém Declaration. This declaration was focused on reducing illegal logging in the Amazon.²⁸⁰ It also gave a rough roadmap to follow for protecting Indigenous populations. However, the eight Amazon nations failed to agree on a common goal for ending deforestation.²⁸¹ Nevertheless, Brazil announced its plan to eliminate deforestation by 2030.²⁸²

Given the lack of consensus on deforestation, it is evident that many countries had different opinions on how to use the Amazon.²⁸³ Historically, governments have viewed the Amazon as an area to be colonized. Moreover, this is done with little regard for sustainability or the rights of its Indigenous people. For example, Colombia's left-wing president, Gustavo Petro, has a continuing campaign to end new oil development in the Amazon. At the summit, he also spoke about finding ways to reforest pastures, which cover much of Brazil's mainland. Other Amazon countries entirely rejected these ideas. Lula himself refrained from taking a definitive stance on oil, despite presenting himself as an environmental leader. At the summit, Brazil weighed whether or not to develop a large offshore oil rig near the northern part of the Amazon

271 Joe Lo. "Amazon Donor-Funded Office Will Tackle Rainforest Crime." Climate Home News, January 23, 2024. <https://www.climatechangenews.com/2024/01/23/amazon-nations-to-tackle-rainforest-crime-together-in-donor-funded-new-office/>.

272 "Amazon Donor-Funded Office Will Tackle Rainforest Crime."

273 "Amazon Donor-Funded Office Will Tackle Rainforest Crime."

274 "Presidente Nicolás Maduro Envío Mensaje Para El Saneamiento y Recuperación Del Amazonas." Noticias Barquisimeto, August 8, 2023. <https://www.noticiasbarquisimeto.com/presidente-nicolas-maduro-envio-mensaje-para-el-saneamiento-y-recuperacion-del-amazonas/>.

275 "Presidente Nicolás Maduro Envío Mensaje Para El Saneamiento y Recuperación Del Amazonas."

276 Fabiano Maisonnave, and David Biller. "Governments Are Gathering to Talk about the Amazon Rainforest. Why Is It so Important to Protect?" AP News, August 6, 2023. <https://apnews.com/article/amazon-summit-belem-brazil-rainforest-climate-deforestation-da53fb81d371017f01a2aebf56110a32>.

277 Pedro Scartezini. "Countries of the Amazon Cooperation Treaty Vow to Combat Transnational Crime." Diálogo Américas, January 25, 2024. <https://dialogo-americas.com/articles/countries-of-the-amazon-cooperation-treaty-vow-to-combat-transnational-crime/>.

278 "Amazon Has More than 4,000 Illegal Mining Sites, Shows Acto Study with WWF-Brazil." WWF, August 22, 2023. <https://www.wwf.org.br/?86681%2FAmazon-has-more-than-4000-illegal-mining-sites-shows-ACTO-study-with-WWF-Brazil>.

279 "Amazon Has More than 4,000 Illegal Mining Sites, Shows Acto Study with WWF-Brazil."

280 Ahhyeon Yu. "Get to Know the Belém Declaration Signed by the Amazon Countries at the Summit." OTCA, November 14, 2023. <https://otca.org/en/get-to-know-the-belem-declaration-signed-by-the-amazon-countries-at-the-summit/>.

281 "Get to Know the Belém Declaration Signed by the Amazon Countries at the Summit."

282 "Get to Know the Belém Declaration Signed by the Amazon Countries at the Summit."

283 "What Did Amazon Nations Agree Upon at the Summit in Brazil?" Al Jazeera, August 9, 2023. <https://www.aljazeera.com/news/2023/8/9/what-did-amazon-nations-agree-upon-at-the-summit-in-brazil>.

River.²⁸⁴ These contentions reveal that there are large global difficulties in forging an agreement to combat climate change. The 2023 summit was only the fourth time the ACTO met in the group's existence, and they demonstrated that they are not fully aligned on key issues.

The international community's relationship with Amazon is complex. However, since Lula entered office, Brazil has promoted an environmental stance that was missing from 2019-2022, when Bolsonaro was the president. As a result, international cooperation has been fruitful. For example, the ACTO met for the first time in fourteen years. Also, the Amazon was discussed heavily at COP28. Moreover, the Amazon Fund was reopened, and donations flooded in, allowing new initiatives to flourish. However, common consensus is not guaranteed. Even at the 2023 ACTO summit, there was no clear agreement on the topic of deforestation. This shows that the international community does not entirely agree on the issue of climate change. Now, more than ever, it is important for international agreements and cooperation.

Bloc Analysis

Points of Division

The complex and dynamic situation in Brazil's Amazon Rainforest lends itself to many different points of view within the Cabinet. The cabinet needs to recognize where such differences occur, to be able to understand how to work to form groups best suited to tackle common goals. These divisions entail social relations, economic development, and international cooperation, all targeted toward the improvement of Brazil and its citizens.

The current administration in Brazil has placed the improvement of Indigenous rights as one of its priorities during its term. Therefore, the point of division on social relations mainly surrounds the priority that the Cabinet should give to Indigenous and local communities. For example, the Ministry

of Human Rights is entirely dedicated to preserving and improving human rights in the country, including Indigenous rights and lands.²⁸⁵ On the other hand, the Ministry of Science and Technology might see certain parts of Indigenous land as necessary for scientific research. This puts both ministries in conflict with each other over the recognition of protected lands. While ministries are not likely to be divided over the protection of Indigenous and local communities, they are more likely to be divided over the level of interaction and invasiveness on behalf of the government.

The division over social matters is also accompanied by the division over economic development. This division focuses on how Brazil obtains its resources, and how such resources are used. Brazil has traditionally used the Amazon to help sustain its economy through agriculture, mining, logging, and other destructive practices.²⁸⁶ With the current administration's focus on conservation, conservation-focused ministers are calling for increased protection against these practices. Economically-focused ministers are worried about a collapse in the Brazilian economy if such protections are granted, and are likely to push back on such measures. It is important to find collaboration between two opposing stances to maximize the economic potential while preserving the environment.

Finally, the matter of international cooperation and involvement in the country will be an important point of division. This can take the form of forums, non-governmental organizations (NGOs), working groups, or even direct intervention by another government. The amount of freedom that the government of Brazil gives to other countries will determine the future of its policies and cooperation with neighboring states. Some ministries, such as humanitarian ones, might benefit from increased NGO cooperation while economic ministries might be hindered by this international presence. Cabinet members will need to consider how international involvement can help or hurt their tasks as a ministry to succeed in their goals.

The points of division within the Cabinet of Brazil will be

²⁸⁴ "What Did Amazon Nations Agree Upon at the Summit in Brazil?"

²⁸⁵ "Brazil 2023," Amnesty International, accessed August 2, 2024, <https://www.amnesty.org/en/location/americas/south-america/brazil/report-brazil/>.

²⁸⁶ Bruna Alves, *Contribution of the Legal Amazon area to Brazil's Gross Domestic Product (GDP) in 2002 and 2016, by industry sector*, (Statista, December 2018), <https://www.statista.com/statistics/1044320/brazil-legal-amazon-area-share-gdp-sector/>.

important matters of debate that will shape the country's future. Cabinet members should carefully evaluate the importance of each point to their stance on creating productive policies. They should also consider any opposition to their stance that they may face from other members or outside actors as they find ways to create a cooperative environment within the Cabinet.

Members Focused on Conservation

The constant threat of global warming has resulted in more world leaders taking firmer stances to preserve the environment. Nowhere is this more prevalent than in the Amazon Rainforest, the largest rainforest in the world, with over 5.5 million square kilometers. Additionally, the Amazon is responsible for one quarter of all the CO₂ absorbed by the land on Earth. However, in recent decades, this value is 30 percent less than what it was in the 1990's, adding the emphasis on finding a solution.²⁸⁷ If damage to the rainforest were to continue, carbon would flood the air, important species would be lost, and drought in the region would worsen.²⁸⁸ The Brazilian government sees this concern, at least in part, as they began a USD 1.1 billion investment program in March 2024 in which they will partner with France to improve the health of the Amazon.²⁸⁹

The bloc with an emphasis on environmental conservation will consist of ministers who are in the best position to enact positive change. One such example is the Minister of Environment, who in 2023 stated that they will be implementing a new department focused on combating deforestation and fires. Additionally, they spoke about the importance of preserving the Brazilian biomes, particularly the Indigenous peoples and traditional communities.²⁹⁰ Many nonprofits and groups in favor of climate activism would like to see Brazil take more steps to protect the Amazon. These include the World Wildlife

Fund and the Amazon Watch. Additionally, the United Nations, an organization that has been wishing to reduce illegal tree-cutting activities in the Amazon for many years, would like to see a larger focus on aiding the rainforest.²⁹¹

The bloc's goal will be to help the Brazilian government meet its mission for the protection of the Amazon within its borders. This means stopping deforestation, saving protected species, putting forth bills that limit building on, and utilizing the Amazon region for economic activity. Members of this bloc believe that the Amazon is best used, not to advance the interests of any one party, but rather to benefit the world through steady growth. If any one group were to use its resources for personal gain now, they'd be jeopardizing the long-term benefits the forest can provide the world if it was conserved. However, the need to begin to conserve the region is time-sensitive because the forest is reaching a tipping point. If forest loss exceeds 40 percent, the Amazon will turn into a much drier region and have additional effects across the world.²⁹² This bloc must not let this happen.

Members Focused on Economic Development

The members of this bloc are focused on maintaining or improving the economic benefit created by the Amazon rainforest. They understand the contribution of the rainforest to the Brazilian economy and know that stopping all economic activity would greatly reduce the economic power of Brazil. Members of the bloc understand the historical link between activity, such as mining and logging, in the region and the positive impact that they have had on Brazil's GDP.²⁹³ They also recognize the current administration's focus on improving conservation efforts in the region. The bloc should work to ensure the economic safety of the country while new

287 "Amazon Deforestation and Climate Change." n.d. <https://education.nationalgeographic.org/resource/amazon-deforestation-and-climate-change/>.

288 Jane Marsh, "What Will Happen if We Lose the Amazon," *Globe-Net*, 2015, <https://globe-net.com/what-will-happen-if-we-lose-the-amazon/>.

289 Ueslei Marcelino, "Brazil, France launch \$1.1 bln program to protect Amazon rainforest," *Reuters*, March 27, 2024, <https://www.reuters.com/sustainability/sustainable-finance-reporting/brazil-france-launch-1-1-bln-investment-program-focused-amazon-rainforest-2024-03-26/>.

290 "Marina Silva Takes Over Brazil's Ministry of Environment With a New St." n.d. <https://www.wwf.org.br/?84580/Marina-Silva-takes-over-Brazils-Ministry-of-Environment-with-a-new-structure-and-a-department-to-combat-deforestation>.

291 Natasha Vizcarra, "U.N. science panel releases initial findings of upcoming overview of the Amazon," *Think Landscape*, August 31, 2021, <https://thinklandscape.globallandscapesforum.org/54277/u-n-science-panel-releases-initial-findings-of-upcoming-overview-of-the-amazon/>.

292 Ayesha Tandon, "Drying of Amazon could be early warning of 'tipping point' for the rainforest," *CarbonBrief*, October 4, 2023, <https://www.carbonbrief.org/drying-of-amazon-could-be-early-warning-of-tipping-point-for-the-rainforest/>.

293 Rafael Feltran-Barbieri, Bruno Felin, and Alex Simpkins, "Ending Deforestation in the Amazon Can Grow Brazil's GDP — but That's Not the Only Reason to Do It," *World Resources Institute*, June 19, 2023, <https://www.wri.org/insights/zero-amazon-deforestation-can-grow-brazil-gdp>.

conservation policies are put in place.

One important member of this bloc is the Minister of Integration and Regional Development. This ministry is tasked with creating regional development projects that allow Brazil's poorest regions to build strong infrastructure.²⁹⁴ Another goal that they have is to create equal opportunities around the country.²⁹⁵ One recent change the ministry has recently made is the transfer of the National Water and Sanitation Agency from the Ministry of the Environment and Climate Change to its control. This change was made by Congress to encourage the development of Brazil's waterways over their conservation. This action was notably opposed by President Lula.²⁹⁶ One takeaway from this is that members of this bloc will find their political allies in Congress and not in the Office of the President. This is a result of Lula's stark left-wing, conservationist policies clashing with the developmental agenda of the right-wing Congress.²⁹⁷ Therefore, members of the economic development bloc must find ways to cooperate with conservation and humanitarian members to ensure that their policies are supported in the Cabinet.

An alternative approach that members of this bloc might take is to look for international support. One organization that will be important is the Group of 20 (G20). This forum brings together twenty countries with the strongest economies and creates a space to share ideas about economic and social development. Brazil is the current G20 President and is hosting the summit in November of 2024. The economic policies that are produced from this summit will have serious implications for economic and developmental power in Brazil.²⁹⁸ By working with international organizations, the members of this bloc can find innovative ways to influence developmental policy in Brazil. Although the current administration might not directly support the members of this bloc, they will play an important role in ensuring the financial stability of Brazil.

Members Focused on Humanitarian and Social Development

This bloc differentiates itself from the conservation bloc by focusing on the human element of the situation in the Amazon. Its main goal will be to protect the rights of Indigenous and local populations in the Amazon. This bloc is also in a unique position relative to the other blocs in this Cabinet. It will need to work with the conservation bloc on some matters, such as policies on Indigenous lands and practices. It will need to work with the economic bloc on other matters, such as developing local communities and bringing projects to these underdeveloped areas. It will also need to pursue projects that secure the rights of its constituents.

The Minister of Indigenous People is an example of a member of this bloc. This ministry was created in 2023 by President Lula as one of his first actions in office. His primary motivation was to reduce the negative effects of former President Bolsonaro on the native population.²⁹⁹ While initially praised, the creation of this ministry has yet to produce substantial results in the country. Indigenous populations have even protested against the government's inaction in recent months. They are primarily concerned with the lack of Indigenous territory created by the current government.³⁰⁰ The rights of Indigenous and local communities have recently been receiving unprecedented levels of recognition in the country. New ministries, such as the Ministry of Indigenous Peoples, must find ways to prove themselves and deliver on their promises. One method through which they can accomplish their goals is through international outreach. Since their goals are largely uncontroversial in the scope of UN statutes and international goals, finding support overseas might allow these new ministries to give their policies a more solid footing.

Another important member of this bloc is the Director-General of the Federal Police of Brazil. The Federal Police

²⁹⁴ *Investment Attraction for Regional and Integration Development Initiatives* (Brasilia: Ministry of Integration and Regional Development, 2023), 2, https://www.gov.br/mdr/pt-br/aceso-a-informacao/portfolio_projetos_midr.pdf.

²⁹⁵ *Investment Attraction for Regional and Integration Development Initiatives*.

²⁹⁶ André Faria Mendonça, "Brazil: threat to Indigenous peoples persists," *Nature* 619, no. 465 (2023), <https://doi.org/10.1038/d41586-023-02302-4>.

²⁹⁷ Mendonça, "Brazil: threat to Indigenous peoples persists."

²⁹⁸ "G20: Brasil 2024," G20, accessed July 31, 2024, <https://www.g20.org/en>.

²⁹⁹ Daniela Rebello, "Brazil's First-Ever Ministry of Indigenous Peoples Launched Amid a State of Emergency," *North American Congress on Latin America*, February 22, 2023, <https://nacla.org/brazils-first-ever-ministry-Indigenous-peoples-launched-amidst-state-emergency>.

³⁰⁰ Fabiano Maisonnave, "Frustrated with Brazil's Lula, Indigenous peoples march to demand land recognition," *Associated Press*, April 25, 2024, <https://apnews.com/article/brazil-Indigenous-rights-brasilia-march-lula-land-3d486dbb94144931601429aff1ac76ec>.

of Brazil is responsible for enforcing major laws within the country, including airport security and white-collar crimes relating to government services.³⁰¹ One recent example of a case that involved the Federal Police's intervention is the Amazon Carbon Credits scandal.³⁰² The impact of the Federal Police in the Amazon will largely surround addressing crime and other enforcement issues. The utilization of this unique power by the Federal Police is another way for new, humanitarian-focused ministries to establish their power within the government. Their collaboration can result in effective ways to police the Amazon, protect the local communities from police and corporations alike, and enhance the standing of this bloc.

A key roadblock to the success of these members is the opposition of Congress to these policies. The right-wing majority in Congress consists of powerful members of the agribusiness and development sectors. They oppose policies that will give more protection to land that could be used for economic gains.³⁰³ Members of this bloc must find ways to implement their policies in the face of such opposition. One important ally they will have been the President, as he emphasizes the addressing of human rights as a major goal for his presidency in recent times.³⁰⁴ Cooperation with other blocs will also be key to utilizing shared powers that can create substantial change in the country. The necessity for the success of this bloc is growing each day, and its members must deliver.

Committee Mission

Brazil's Cabinet of Ministers is the main advisory body to the President of Brazil within the executive branch of government. It currently consists of thirty-seven ministries and other senior advisory members to the President. This committee will be simulated with a maximum of 21 of those ministries. Each member of the Cabinet was appointed by the President and given all powers relevant to their office. This includes

supervision and action over the agencies that fall within their jurisdiction. Congressional approval is not necessary for a Cabinet appointment to be made.³⁰⁵ The Cabinet being simulated will consist of members whose powers are most relevant to the situation in the Amazon. It also includes a few non-governmental organizations whose contributions are deemed to be critical to various situations in the rainforest. Many cabinet members in this committee will also have powers that affect Brazil outside of the scope of the rainforest. It will be critical for members to ensure that they are using their powers concerning the Amazon in this committee, otherwise, many critical missions will fail.

This committee will only be allowed to directly influence the Amazonian regions within its borders. Brazil's Legal Amazon consists of 502 million hectares of land, which is made up of nearly 60 percent of the total Amazon rainforest, the Cerrado savanna, and the Pantanal wetlands.³⁰⁶ Within this land, different ministries will have different objectives. For example, the Ministry of Mines and Energy will have a more economic focus as compared to the Minister of Science and Technology. It will be especially important for different ministries to find ways to cooperate and diplomatically approach solutions that are beneficial for both Brazil and the Amazon rainforest.

The Cabinet also has the power to communicate with international organizations and governments. One example of this power is if the Cabinet decides to request a report from a non-Brazilian company logging in Brazil. Another example might be to propose international solutions that serve to mutually benefit Brazil and other nations regarding the rainforest. It must be noted that this power should be used with precaution. Although it is important to be a world player, the matter of managing the situation in the Amazon is almost uniquely Brazilian. Other organizations and bodies might pass legislation or propose actions for the preservation of the Amazon. However, the Cabinet of Brazil should be primarily

301 "Legal basis of the organisational structure and competences," Ministry of Justice and Public Security, last modified July 30, 2024, <https://www.gov.br/pf/pt-br/aceso-a-informacao/institucional/base-juridica-da-estrutura-organizacional-e-das-competencias>.

302 Fernanda Wenzel, "Top brands buy carbon credits from suspected scam operation in the Amazon," *Sumauma*, May 21, 2024, <https://sumauma.com/en/grandes-marcas-compram-creditos-de-carbono-de-esquema-suspeito-na-amazonia/>.

303 Maisonnave, "Frustrated with Brazil's Lula, Indigenous peoples march to demand land recognition."

304 Maisonnave, "Frustrated with Brazil's Lula, Indigenous peoples march to demand land recognition."

305 Pedro Canário, "Brazil's Lula Announces Final Ministers and Congressional Leaders," *Bloomberg Linea*, December 29, 2022, <https://www.bloomberglinea.com/english/brazils-lula-announces-final-ministers-and-congressional-leaders/>.

306 Marek Hanusch, *A Balancing Act for Brazil's Amazonian States - An Economic Memorandum* (Washington DC: World Bank Group, May 2023), <https://www.worldbank.org/en/country/brazil/publication/brazil-a-balancing-act-for-amazonian-states-report>.

focused on managing the affairs of Brazil before looking beyond its borders for international help or involvement.

Confronting the issue of the Amazon rainforest is not an easy task. However, President Lula da Silva has set a clear conservationist policy within the government.³⁰⁷ Therefore, it is the constitutional duty of this Cabinet to ensure that this major policy objective is addressed. It is almost certain that the problems within Brazil's Amazon will not be corrected over a short period. However, the past actions of the Brazilian government and other organizations have shown that strong leadership can create massive change over long periods. One clear example of this is the revolutionary impact that the Amazon Regions Protected Areas Program has had on conservation within the Amazon.³⁰⁸ Overall, This Cabinet will be faced with both immediate emergencies and long-term problems. However, it also has the potential to effectively address these emergencies and create well-researched solutions that will help Brazil attain its conservation goals in years to come.

³⁰⁷ David Shortell, “‘The Amazon is speaking for itself’: Brazil President Lula puts climate and inequality at the center of UN address,” *CNN*, September 19, 2023, <https://www.cnn.com/2023/09/19/americas/lula-unga-2023-brazil-intl-latam/index.html>.

³⁰⁸ “ARPA Program: Project Description,” Brazilian Fund for Biodiversity, accessed June 30, 2024, https://www.funbio.org.br/en/programas_e_projetos/arpa-program/.

Committee Representatives

NB: Because of the rapidly evolving situation in Brazil, changes in the cabinet are possible. If your representative is removed from their position, you should research their replacement instead. For example, if the Minister of Defense is dismissed, the delegate assigned to represent the Minister of Defense should research and plan to represent the incoming Minister of Defense.

Attorney General of Brazil: Jorge Messias

Jorge Messias is a seasoned attorney nominated by President Luiz Inácio Lula de Silva to become the Attorney General for Brazil in 2023.¹ He first got into law through his time studying at the Federal University of Pernambuco. Early in his career, Messias served as the prosecutor in the Central Bank of Brazil and the Brazilian Development Bank. More recently, he's been serving as the prosecutor of National Finances since 2007. Additionally, he served as the sub-chief for judicial affairs of the Chief of Staff under President Rousseff. Messias, as Attorney General of Brazil, is currently in charge of advising the Executive Branch and representing Brazil's government in legal matters.² Through his duties, he most often collaborates with the Judicial branch, private attorneys and lawyers, and the prosecutor's office. In regards to the Amazon Rainforest, he'd be in charge of determining the relationship companies and the government must have with the environment.

General Coordinator of the Coordinating Body of Indigenous Organizations of the Amazon Basin: Fany Kuiru Castro

Fany Kuiru Castro is the Coordinating Body of Indigenous Organizations of the Amazon Basin's (COICA) first woman leader. She comes from the Uitoto people of Colombia.³ Before taking on this role, Castro graduated as a lawyer from Universidad del Rosario in Colombia and focused on cases concerning women's and territorial rights. The biggest challenge for Fany Kuiru Castro is the fragmentation of COICA. In her view, the organization has not been able to grow to significant power due to this fragmentation. Even during her appointment, another Indigenous COICA member tried to claim leadership of the organization. He was largely ignored, but it still speaks to how individual tribes split into factions during the election cycles of COICA. Castro says that she aims to unite COICA before the next election cycle by utilizing her connections within disparate groups, such as women, the elderly, and the young.⁴ Overall, Castro's role in this Cabinet is to be a voice for the Indigenous people and ensure that their voices are heard. With equal importance, she has the opportunity to unite COICA and bring it to the world stage with her presence on this Cabinet.

Director-General of the Federal Police of Brazil: Andrei Rodrigues

Director-General Andrei Rodrigues has only recently become a prominent public figure. His role in the Federal Police of Brazil puts him in a unique position to influence both domestic and international policy within Brazil. One of his biggest goals is to enforce stricter regulations against transnational crime. Along those lines, he aims to provide support for other nations in fighting crime. In 2023, Rodrigues became the Secretary-General for Ameripol. The goal of this organization, made up of twelve countries, is to fight trafficking and drug crimes in the Americas. It is poised to be the third-largest police bloc in the world.⁵ In the domestic scene, Rodrigues is largely supportive of President Lula's policies. At the start of 2024, he called for large government support

¹ "Jorge Messias." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/Jorge_Messias.

² "Attorney General of the Union (Brazil)." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. [https://en.wikipedia.org/wiki/Attorney_General_of_the_Union_\(Brazil\)](https://en.wikipedia.org/wiki/Attorney_General_of_the_Union_(Brazil)).

³ Johana Fernanda Sánchez Jaramillo, "The leader of the largest Amazonian Indigenous organization, now divided, believes that women can unify it," *GlobalVoices*, April 5, 2023, <https://globalvoices.org/2023/04/05/leader-of-largest-amazonian-Indigenous-organization-now-divided-believes-that-women-can-unify-it/>.

⁴ Sánchez Jaramillo, "The leader of the largest Amazonian Indigenous organization, now divided, believes that women can unify it."

⁵ Carolina Pimentel, "Brazil, 12 other countries establish police organization," *Agencia Brasil*, October 11, 2023, <https://agenciabrasil.ebc.com.br/en/geral/noticia/2023-11/brazil-12-other-countries-establish-police-organization>.

towards protecting the Yanomami Indigenous tribe's rights.⁶ In his words, "Police action is not enough. It must be followed up with social services, health and education."⁷ Overall, Andrei Rodrigues has an important job as the enforcer of many executive policies for Brazil. However, he also knows the importance of international cooperation and social action that support his work.

Minister of Agrarian Development and Family Farming: Paulo Teixeira

In 2023, politician, lawyer, and professor Paulo Teixeira became the Minister of Agrarian Development and Family Farming.⁸ He gained interest in politics at the University of Sao Paulo where he got a Master of Science in Constitutional Law. His previous appointments include serving as the state deputy twice and becoming the municipal secretary of Habitation and Human Development in Sao Paulo. He was later elected as a federal deputy in 2006 and was reelected into parliament in 2010. As the Minister of Agrarian Development and Family Farming, he is currently tasked with supporting the country's agrarian development and addressing rural poverty. He is well known for promoting more effective family farming practices.⁹ Additionally, he wants to use his position to help combat the climate crisis. The politician has been very vocal in international realms ensuring that the Latin opinion is heard and respected. This was very clear in the lead-up to the 2024 G20 meeting, as he was vocal about stimulating family farming.¹⁰

Minister of Agriculture and Livestock: Carlos Favaro

Minister Favaro has spent much of his career around the topic of agriculture. Before taking political office, he held key leadership positions in various Soybean and corn-producing associations. He was then appointed as the deputy governor in the state of Mato Grosso, and also held the position of Secretary of State for the Environment of Mato Grosso during this time.¹¹ Minister Favaro then turned his attention to national politics. He was appointed as a substitute Senator for Mato Grosso in 2020, and then formally elected as a Senator until 2027. Minister Favaro was announced as the Agriculture Minister under President Lula's government in December of 2022.¹² One of the minister's policy positions is to defend the production of agriculture against conservation cuts. For example, he spoke against the European Union's (EU) rules that banned the import of agricultural products from places of Brazilian deforestation.¹³ The reasoning behind this statement is that while products might be sourced near areas of deforestation, the farmers themselves did not commit any environmental crime. The minister suggested that Brazil look to other trading partners in light of this action by the EU.¹⁴ Minister Favaro will be an important figure in ensuring that the Brazilian economy is not hurt by drastic conservation measures.

Minister of Communications: Juscelino Filho

Minister Filho is one of the more controversial figures in the Cabinet. He began his career as a doctor and businessman,

6 Ricardo Brito and Anthony Boadle, "Brazil must take action to protect Amazon's Yanomami permanently, police chief says," *Reuters*, January 10, 2024, <https://www.reuters.com/world/americas/brazil-must-take-action-protect-amazons-yanomami-permanently-police-chief-says-2024-01-10/>.

7 Brito and Boadle, "Brazil must take action to protect Amazon's Yanomami permanently, police chief says."

8 "Paulo Teixeira (politician)." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. [https://en.wikipedia.org/wiki/Paulo_Teixeira_\(politician\)](https://en.wikipedia.org/wiki/Paulo_Teixeira_(politician)).

9 "Paulo Teixeira, Minister of Agricultural Development in Brazil, Highlights Need to Stimulate Family Agriculture." *Inter-American Institute for Cooperation on Agriculture*. August 24, 2024. <https://iica.int/en/press/news/paulo-teixeira-minister-agricultural-development-brazil-highlights-need-stimulate-family>.

10 "Brazilian Minister of Agricultural Development Paulo Teixeira Sees IICA Playing Critical Role." *Inter-American Institute for Cooperation on Agriculture*. August 24, 2024. <https://iica.int/en/press/news/brazilian-minister-agricultural-development-paulo-teixeira-sees-iica-playing-critical>.

11 "Carlos Henrique Baqueta Fávaro," Ministry of Agriculture and Livestock, accessed August 22, 2024, <https://www.gov.br/agricultura/pt-br/composicao/ministro-e-staff/carlos-henrique-baqueta-favaro>.

12 "Carlos Henrique Baqueta Fávaro," Ministry of Agriculture and Livestock.

13 Ana Mano, "Brazil official defends progress on protecting forests, blasts EU ban," *Reuters*, August 7, 2023, <https://www.reuters.com/business/environment/brazil-official-defends-progress-protecting-forests-blasts-eu-ban-2023-08-07/>.

14 Mano, "Brazil official defends progress on protecting forests, blasts EU ban."

specializing in radiology.¹⁵ He then was involved in politics as a federal deputy for the state of Maranhao, where he was reelected three times. In the Chamber of Deputies, he served many important roles but notably defended policies that combatted piracy and encouraged Brazilian audiovisual media. Minister Filho also was involved in budgetary and social service committees during his time as a deputy.¹⁶ However, after being appointed the Minister of Communications, he has faced corruption and bribery allegations twice. One of the more startling occurrences was when he was alleged to have taken an Air Force plane to go to a horse auction.¹⁷ Minister Filho's position as a center-right wing politician also puts him in a unique spot to advocate for more conservative policies in this Cabinet.¹⁸ These include ideas that stress development over conservation. Overall, the minister is in a remarkable position to act as the public-facing arm of this Cabinet, and he should use these powers to support the Cabinet while incorporating his agenda into the actions of the Cabinet.

Minister of Defense: Paulo Mucio Monteiro

Brazilian civil engineer and politician, José Múcio Monteiro, has been Brazil's Defense Minister since 2023.¹⁹ With a distinguished career in both military and governmental positions, Monteiro has been instrumental in shaping national security policies and fostering international defense partnerships. Previously, Monteiro was Minister and president of the Federal Court of Audits and Minister of Institutional Relations. As the Ministry of Defense, he oversees three major components – the Army Command, the Navy Command, and the Air Force Command.²⁰ Among the many agencies operated by the Ministry of Defense are the National Civil Aviation Agency, the Infraero, and the Superior War School. He's in charge of creating a defense policy for Brazil and frequently connects with both international organizations as well as high-up Brazilian military officials as part of his regular duties.

Minister of Development, Industry, Trade and Services: Geraldo Alckmin

Geraldo Alckmin is both a physician and politician and is currently serving as the Vice President of Brazil.²¹ He initially studied in medical school though he gradually assumed a more political career. He has cycled through several governmental positions before his 2023 appointment as Minister of Development, Industry, Trade, and Services. This includes being the mayor of Sao Paulo for two terms starting in 2001. During this time he was known for investing in large, state-led initiatives that would improve access to education and healthcare. As the Minister of Development, Industry, and Trade and Services, he's in charge of overseeing the Brazilian National Bank for Economic and Social Development and the National Institute of Metrology, Quality and Technology.²² Additionally, Alckmin chairs the Chamber of Foreign Trade. This chamber consists of 7-ministers of State that are tied to the Presidency.

Minister of Education: Camilo Santana

Minister Santana comes from a political background, mainly surrounding the state of Ceara. In previous years, he was governor of the state and was elected senator in October of 2022. His role in the state has helped boost educational rankings for schools

15 "Juscelino Filho," Ministry of Communications, accessed August 23, 2024, <https://www.gov.br/mcom/pt-br/composicao/ministro>.

16 "Juscelino Filho," Ministry of Communications,

17 Ricardo Brito, "Brazil police accuse Lula minister of corruption, sources say," *Reuters*, June 12, 2024, <https://www.reuters.com/world/americas/brazil-police-accuse-lula-minister-corruption-sources-say-2024-06-12/>.

18 Brito, "Brazil police accuse Lula minister of corruption, sources say."

19 "José Múcio." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/Jos%C3%A9_M%C3%BAcio.

20 "Ministry of Defence (Brazil)." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. [https://en.wikipedia.org/wiki/Ministry_of_Defence_\(Brazil\)](https://en.wikipedia.org/wiki/Ministry_of_Defence_(Brazil)).

21 "Geraldo Alckmin." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/Geraldo_Alckmin.

22 "Ministry of Development, Industry, Trade and Services." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/Ministry_of_Development,_Industry,_Trade_and_Services.

in Ceara.²³ One of the policies that made this successful was the Literacy Program at the Right Age policy, which helped schools in Ceara with the education of fifth graders and older. Minister Santana aims to bring similar policies to the national stage.²⁴ His biggest goal is to boost literacy rates at a basic level and make sure that children are literate at the appropriate time. One of the ways he aimed to do this was by meeting educational secretaries from each state and creating a working group that addresses stagnation in education across the country.²⁵ Minister Santana plays an important role in the pathway to education and conservation literacy in Brazil. By influencing the new generation through education, the Cabinet has a strong way to encourage that their policies are maintained in the future. Furthermore, Minister Santana has the opportunity to work with the Cabinet and, as an example, encourage more environmentally-conscious education in schools.

Minister of Environment and Climate Change: Marina Silva

Minister Silva is an Amazon activist and prominent environmentalist in Brazil. She has served under President Lula as his environment minister in the past as well. Notably, many agribusiness and development-focused lawmakers have shown resentment for Silva due to her actions under Lula's 2003 to 2010 presidency.²⁶ It is also important to note that Silva resigned in 2008 as Lula turned his focus towards supporting agriculture during his second presidential term.²⁷ After her resignation, Minister Silva became a critic of President Lula and his political party. She only reconciled with Lula after mutual agreements that Bolsonaro had to be defeated.²⁸ One of Minister Silva's policy goals is to emphasize the use of locally produced renewable energy over fossil fuels. She also wants to show how conservation can have a positive impact on the global economy.²⁹ Minister Silva's role in the Cabinet will be important as her ministry is the chief conservation arm of the Brazilian government. While she has many enemies, her allies are equally important in providing political and logistical support for her policies.

Minister of Finance: Fernando Haddad

Fernando Haddad is a lawyer, scholar, and politician. He has a deep knowledge of both economic policy and finance. He was previously the Minister of Education in Brazil and the chairman of the Workers' Party.³⁰ He was known for creating several advancements in Brazil's high school exam system but also wound up in many controversies during his term. Additionally, he served as mayor of Sao Paulo and lost a campaign for presidency against President Bolsonaro. On January 1st, 2023, Fernando stepped up as Brazil's minister of finance. In this position, he's in charge of overseeing national economic policy, managing the country's finances, and ensuring economic stability as the country grows. This is especially important regarding the Amazon because he is one of the major players determining the allocation of the state's money and deciding where to devote efforts to protecting the region³¹. This can be seen with his proposed Ecological Transformation Plan in 2023.

Minister of Fishing and Aquaculture: André de Paula

André de Paula is a Brazilian lawyer and politician. In 2023, he became the Minister of Fishing and Aquaculture. Before this

23 Ana Paula Castro, "Future Minister of Education, Camilo Santana says that basic education will be a priority focus," *Globo*, last modified December 12, 2022, <https://g1.globo.com/politica/noticia/2022/12/22/futuro-ministro-da-educacao-camilo-santana-diz-que-educacao-basica-sera-foco-prioritario.ghtml>.

24 "Camilo Santana takes over the Ministry of Education," Ministry of Education, last modified July 27, 2023, <https://www.gov.br/mec/pt-br/assuntos/noticias/2023/janeiro/camilo-santana-assume-o-ministerio-da-educacao>.

25 Paula Castro, "Future Minister of Education, Camilo Santana says that basic education will be a priority focus."

26 Fabiano Maisonave, "Amazon rainforest defender Marina Silva named Brazil's new environment minister," *PBS*, December 29, 2022, <https://www.pbs.org/newshour/world/amazon-rainforest-defender-marina-silva-named-brazils-new-environment-minister>.

27 Maisonave, "Amazon rainforest defender Marina Silva named Brazil's new environment minister."

28 Maisonave, "Amazon rainforest defender Marina Silva named Brazil's new environment minister."

29 Christiana Figueres, "Marina Silva," *TIME*, April 17, 2024, <https://time.com/6965185/marina-silva/>.

30 "Fernando Haddad." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/Fernando_Haddad.

31 "Support Grows for Sustainable Development, a Bioeconomy in the Amazon." *KFOR*. August 24, 2024. <https://kfor.com/news/national/ap-us-news/ap-support-grows-for-sustainable-development-a-bioeconomy-in-the-amazon/>.

position, he was a regional chairman of the Social Democratic Party and a member of the Chamber of Deputies for Pernambuco. He first got interested in political life as a student, when he joined the Democratic Social Party in 1982. As minister of Fishing and Aquaculture, he is tasked with reporting directly to the President of Brazil in formulating policies and guidelines for the development and promotion of fishing and aquaculture.³² One of his biggest goals in this position is to support the creation of public policies to defend fishermen's rights to gain income through their work.³³

Minister of Health: Nísia Trindade

Nísia Trindade is very influential in shaping the health policies of Brazil. In her academic career, she was an acclaimed researcher and became a member of the World Academy of Sciences for the progress she made in helping developing countries.³⁴ She previously was chairwoman of the Oswaldo Cruz Foundation for six years before ending her term in 2023. It was that same year she became Brazil's Minister of Health. Trindade made history by taking this position as she was the first woman to become Minister of Health. Additionally, she has ties to the WHO as she was endorsed by their director-general, Tedros Adhanom Ghebreyesus, for the position. In this role, she is in charge of implementing Brazil's health policies and helping the country in times of crisis. During her time as chairwoman of the Oswaldo Cruz Foundation, she was very helpful in ensuring the distribution of Covid-19 vaccinations.³⁵

Minister of Human Rights: Silvio Almeida

Silvio Almeida, the Brazilian lawyer, politician, and professor, became the Minister of Human Rights in 2023.³⁶ Almeida has a Master's in Political and Economic Law and is a Doctor of Philosophy and General Theory of Laws. He first began law in 2000 where he practiced primarily business and human rights law. From there he transitioned to becoming a professor and even taught in the United States at Duke University. He is also part of several human rights organizations. This includes his position as a chair of the Luiz Gama Institute, an organization devoted to the juridical defense of minorities. He is well known in the media as he writes in *Folha de S. Paulo*, a popular Brazilian newspaper. As Minister of Human Rights, Almeida has spoken out against hate speech against minority groups and wants to protect Indigenous populations' rights.³⁷ He has been very influential in protecting the Yanomami people, a people who currently inhabit the Amazon rainforest.

Minister of Indigenous Peoples: Sônia Guajajara

Sônia Guajajara is a prominent figure in Indigenous and human rights within Brazil. She was born in the Arariboia Indigenous Territory.³⁸ Minister Guajajara has received many international awards for her conservation efforts and was even named as one of *Time* magazine's 100 most influential people in the world. In her words, she was "born an activist."³⁹ Her activism revolves mainly around the recognition of Indigenous people and their history within Brazil. In 2018, she made history as the first Indigenous woman to run for vice president of Brazil.⁴⁰ The Ministry of Indigenous Peoples is a new ministry under President Lula, and

32 "Ministry of Fishing and Aquaculture (Brazil)." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. [https://en.wikipedia.org/wiki/Ministry_of_Fishing_and_Aquaculture_\(Brazil\)](https://en.wikipedia.org/wiki/Ministry_of_Fishing_and_Aquaculture_(Brazil)).

33 "André de Paula Takes Over the Ministry of Fisheries and Aquaculture." *Ground News*. August 24, 2024. <https://ground.news/article/andre-de-paula-takes-over-the-ministry-of-fisheries-and-aquaculture>.

34 "Nísia Trindade Lima." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/N%C3%ADsia_Trindade.

35 "Nísia Trindade Lima Will Be First Woman to Head Brazilian Ministry of Health." *Fiocruz*. August 24, 2024. <https://portal.fiocruz.br/en/news/nisia-trindade-lima-will-be-first-woman-head-brazilian-ministry-health>.

36 "Silvio Almeida." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/Silvio_Almeida.

37 "In Geneva, Silvio Almeida Affirms Brazil's Commitment to International Human Rights Treaties." *Conectas*. August 24, 2024. <https://www.conectas.org/en/noticias/in-geneva-silvio-almeida-affirms-brazils-commitment-to-international-human-rights-treaties/>.

38 Fabiana Reinholz and Katia Marko, "Sônia Guajajara: Indigenous women in Brazil leading in the fight for justice (part 1)," *No Borders*, June 16, 2020, <https://nobordersnews.org/2020/06/16/sonia-guajajara-Indigenous-women-in-brazil-leading-in-the-fight-for-justice/>.

39 Reinholz and Marko, "Sônia Guajajara: Indigenous women in Brazil leading in the fight for justice (part 1)."

40 Reinholz and Marko, "Sônia Guajajara: Indigenous women in Brazil leading in the fight for justice (part 1)."

Minister Guajajara is the first head of this ministry. She is responsible for all matters related to Indigenous peoples, including public education and the preservation of their lands.⁴¹ Her role in this cabinet will focus on the humanitarian situation within the rainforest. Her prior experiences will be key in helping to build her new ministry from the ground up.

Minister of Integration and Regional Development: Waldez Góes

Minister Goes has made a significant contribution to conservation and agriculture development within Brazil. He began his political career in the 1990s in the state of Amapá.⁴² Then, between 2003 and 2018, Minister Goes served as the Governor of Amapá four times. His main policy goals were to create public infrastructure, develop rural areas, and expand social programs. One of his most notable achievements is the creation of the Governor's Task Force on Climate and Forestry. This task force joined together states from Brazil, the United States, Mexico, and Indonesia to cooperate in greenhouse gas-reducing actions.⁴³ His role as the Minister of Integration and Regional Development is to ensure water, civil, and regional development in Brazil. Minister Goes is also responsible for areas in civil protection and defense.⁴⁴ One of his earliest policy focuses was ensuring water security in northeastern Brazil. One such project was the Oiticica Dam. His federal support guaranteed water supply for eight cities in northeastern Brazil.⁴⁵ Minister Goes will play an important role in ensuring the security of resources and land for the Brazilian people.

Minister of Mines and Energy: Alexandre Silveira

Alexandre Silveira is an expert in the energy and mining sector. He gained that knowledge through several appointments and time working for government officials. Before his political career, Silveira was a police chief.⁴⁶ He first gained his experience in the energy industry by working for the National Department of Infrastructure in 2003. He later transitioned into a more legislative role and became a federal deputy in 2007. He remained in this position for four years before becoming the Secretary of State for Health in 2014. His last title before assuming his current title, Minister of Mines and Energy, was the Senator. Currently, Alexandre Silveira is in charge of managing the state's energy needs and ensuring they are creating sustainable practices in the process. Oftentimes energy usage and environmental damage are two ends of the same stick. Silveira has worked to reduce this correlation as the Minister of Mines and Energy.

Minister of Science and Technology: Luciana Santos

Luciana Santos has a heavy background in technology policy and research. She is a Brazilian engineer and politician and has been serving as the Minister of Science and Technology since 2023.⁴⁷ Other leadership positions she's held include leader of the Communist Party of Brazil 2015. She also served as the mayor of Olinda and vice governor of Pernambuco from 2019-2023. As Minister of Science and Technology, one of her biggest goals is to increase access to scientific research and development.⁴⁸ In

41 Edson Krenak, "Sonia Guajajara Appointed First Minister of Newly Created Ministry of Indigenous Affairs in Brazil," *Cultural Survival*, January 6, 2023, <https://www.culturalsurvival.org/news/sonia-guajajara-appointed-first-minister-newly-created-ministry-Indigenous-affairs-brazil>.

42 "Waldez Góes assumes the position of Minister of Integration and Regional Development," Ministry of Integration and Regional Development, last modified March 1, 2023, <https://www.gov.br/mdr/pt-br/noticias/waldez-goes-assume-cargo-de-ministro-da-integracao-e-do-desenvolvimento-regional>.

43 "Waldez Góes assumes the position of Minister of Integration and Regional Development," Ministry of Integration and Regional Development.

44 "Waldez Góes assumes the position of Minister of Integration and Regional Development," Ministry of Integration and Regional Development.

45 "Water security: Waldez Góes inspects progress in the works of the Oiticica Dam, in Rio Grande do Norte," *Brasil 61*, August 1, 2024, <https://brasil61.com/n/seguranca-hidrica-waldez-goes-vistoria-avanco-nas-obras-da-barragem-de-oiticica-no-rio-grande-do-norte-pmdr232216>.

46 "Alexandre Silveira." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://en.wikipedia.org/wiki/Alexandre_Silveira.

47 "Luciana Santos (politician)." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. [https://en.wikipedia.org/wiki/Luciana_Santos_\(politician\)](https://en.wikipedia.org/wiki/Luciana_Santos_(politician)).

48 "Minister of Science, Technology, and Innovation: Knowledge Generated Worldwide Should Be Shared." *G20*. August 24, 2024. <https://>

regards to the Amazon, she is very vocal that the government needs to prioritize climate protection initiatives.⁴⁹ This connects to her job duties as she is responsible for coordinating science, technology, and innovation activities across all of Brazil.⁵⁰ Additionally, she is in charge of finding funding for scientific research, checking in with research facilities across the country, and interpreting climate change data to see how well Brazil is helping protect the Amazon.⁵¹

Minister of Tourism: Celso Sabino

Celso Sabino, lawyer and politician, is the current Minister of Tourism of Brazil. However, he has had many government positions before this.⁵² In 2010, he was elected as an alternate state deputy in Belém. In March 2012, he took over as State Secretary of the Secretariat of Labor, Employment and Income. In this position, he received much recognition for improving efficiencies in the job and connecting citizens with new jobs. As Minister of Tourism, Sabino is currently responsible for Embratur, the Brazilian Tourist Board.⁵³ Additionally, he's very influential in forming the National Secretariat of Tourism Policies and ensuring Brazilian tourism maintains a certain quality. As Minister of Tourism, Sabino has a vested interest in improving ecotourism and has spoken out about the need to protect the Amazon region. Through tourism Sabino promotes jobs and brings revenue into the country.

Secretary-General of the Brazilian Biodiversity Fund: Rosa Lemos de Sá

Rosa Lemos de Sa's experience with Protected Areas is unmatched. She studied Wildlife Management and Ecology up to the PhD level, focusing on the impact of hydroelectric dams on biodiversity in the Amazon.⁵⁴ She then joined the World Wildlife Fund-Brazil (WWF-Brazil) for ten years at the start of her career before moving on to more conservation-based projects. During her time at WWF-Brazil, she even became the Director of Conservation between 2003 and 2006.⁵⁵ As the Secretary-General of the Brazilian Biodiversity Fund (FUNBIO), Dr. de Sa is in charge of financing projects such as the Protected Areas program. Her role as the financial support behind these conservation projects is key to building sustainable and effective conservation programs. One of her biggest challenges is ensuring adequate funding in the face of instability. FUNBIO suffered severely during President Bolsonaro's term but is being given adequate attention under President Lula.⁵⁶ Dr. de Sa's involvement in this Cabinet will shape the future of conservation and its funding in Brazil. Both as a leader of FUNBIO and as a conservationist, she has an important point of view that will adequately inform Cabinet members about the feasibility and effectiveness of their actions.

United Nations Environment Programme Representative in Brazil: Alberto Pacheco Capella

Alberto Pacheco Capella has had a long and successful career in the United National Environmental Programme (UNEP). He received his college education in Venezuela and Switzerland, focusing on financial banking and environmental science.⁵⁷ He then worked in the UNEP Latin American Regional Office. Later, he served as the Special Assistant to the Assistant Secretary-

www.g20.org/en/news/minister-of-science-technology-and-innovation-knowledge-generated-worldwide-should-be-shared.

49 "Amazon Area Under Alert for Deforestation Down 46% from August 2023 to July 2024." *Agência Brasil*. August 24, 2024. <https://agenciabrasil.ebc.com.br/en/geral/noticia/2024-08/amazon-area-under-alert-deforestation-down-46-aug-jul>.

50 "Ministry of Science, Technology and Innovation (Brazil)." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. [https://en.wikipedia.org/wiki/Ministry_of_Science,_Technology_and_Innovation_\(Brazil\)](https://en.wikipedia.org/wiki/Ministry_of_Science,_Technology_and_Innovation_(Brazil)).

51 "Ministry of Science, Technology and Innovation." *Web Summit*. August 24, 2024. <https://rio.websummit.com/appearances/wsr24/923679b6-a18b-4b7a-87f5-c13ad277340d/ministry-of-science,-technology-and-innovation/>.

52 "Celso Sabino." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. https://pt.wikipedia.org/wiki/Celso_Sabino.

53 "Ministry of Tourism (Brazil)." *Wikipedia: The Free Encyclopedia*. Last modified August 24, 2024. [https://en.wikipedia.org/wiki/Ministry_of_Tourism_\(Brazil\)](https://en.wikipedia.org/wiki/Ministry_of_Tourism_(Brazil)).

54 "The Past, Present & Future of the Amazon Region Protected Areas (ARPA) Program," World Wildlife Fund, accessed August 23, 2024, <https://www.worldwildlife.org/pages/the-past-present-future-of-the-amazon-protected-areas-program-arpa>.

55 "The Past, Present & Future of the Amazon Region Protected Areas (ARPA) Program," World Wildlife Fund.

56 "Rosa Lemos: "We will never have a forest economy if we only surround and preserve," *World Resources Institute*, August 31, 2017, <https://www.wribrasil.org.br/noticias/rosa-lemos-jamais-teremos-uma-economia-florestal-se-so-cercarmos-e-preservarmos>.

57 "Alberto Pacheco Capella takes over representation of the United Nations Environment Programme in Brazil," United Nations Environmental Programme, last modified January 15, 2024, <https://www.unep.org/pt-br/noticias-e-reportagens/comunicado-de-imprensa/alberto-pacheco-capella-assume-representacao-do>.

General and Deputy Executive Director of the UNEP. In 2023, he became the representative of UNEP's Subregional Office for the Southern Cone of Latin America.⁵⁸ At the beginning of 2024, Capella was appointed to be the representative for the UNEP in Brazil.⁵⁹ Capella's history in financial services, as well as within the UNEP, will be invaluable to the conservation mission of the Cabinet. He already has had a significant impact by supporting Brazil's implementation of an international convention regarding organic pollutants.⁶⁰ Capella's involvement with the Cabinet will be key in achieving UN support and advice on any enacted policies.

58 "Alberto Pacheco Capella takes over representation of the United Nations Environment Program in Brazil," United Nations Environmental Programme.

59 "Alberto Pacheco Capella takes over representation of the United Nations Environment Program in Brazil," United Nations Environmental Programme.

60 "Brazil updates plan for reduction and elimination of Persistent Organic Pollutants," Ministry of Environment and Climate Change, last modified February 2, 2024, <https://www.gov.br/mma/pt-br/brasil-atualiza-plano-de-implementacao-da-convencao-de-estocolmo-sobre-poluentes-organicos-persistentes>.

Research and Preparation Questions

Your dais has prepared the following research and preparation questions as a means of providing guidance for your research process. These questions should be carefully considered, as they embody some of the main critical thought and learning objectives surrounding your topic.

Topic A

1. How will you work with Indigenous peoples and ensure that their rights are not infringed upon?
2. How will you navigate political opposition within the government? What compromises or concessions might you be able to make without causing significant damage to the Amazon?
3. What makes each cabinet member's position unique? How can they use those powers and current initiatives to contribute to comprehensive solutions in committee?
4. Where has Brazil succeeded and failed in complying with international agreements on climate change? What is preventing the country from meeting these standards?
5. What specific strategies are you utilizing to ensure that the Amazon maintains its biodiversity? What are the major obstacles to achieving this goal?
6. What role do you envision Indigenous people taking in the protection of the forest? How do you expect to implement this plan?
7. Which, if any, past initiatives have helped maintain the Brazilian economy while also improving sustainability measures? How can they be adapted or improved upon going forward to maintain economic stability through various conservation initiatives?

Important Documents

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The National High School Model United Nations Conference (NHSMUN) is a project of IMUNA, a non-profit organization formally associated with the United Nations Department of Global Communications (UNDGC). IMUNA is dedicated to promoting global issues education through simulation.

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