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The artwork in this book does not seek to illustrate its content but rather to hold a conversation with it. Josias's delicate indigenous ink sketches are not simply there to decorate the text; they are part of the book's content, showing another restless, unfinished vision of a future. Here, the illustrator and authors come together in an attempt to balance reason and empathy. The birds trace a bold, daring path, one that tries to provoke the reader to read and pay attention to more than one story at once: the one in the letters and the one in the traces. The way they occupy these pages reflects the possibility of a space that can be filled in different ways, by different visions, and at different times. It is important to look beyond the lines, beyond the most obvious spaces on a page, and seek possible connections with what lies between the lines, with what is in the margins and in the text as a whole.

# Foreword

*Mônica Sodré*[1]

"The future isn't like it used to be:" so goes a famous line from the 1980s Brazilian song 'Índios', written by Renato Russo, a critique of our process of colonization, based on material accumulation and exploitation. The struggle of the colonizers marks the beginning of the disassociation between man and nature on this side of the tropics, by attributing to men the exclusivity of the creation of value, while considering nature an externality, an obstacle to be removed.

More than 500 years have passed since then and undeniable advances have been achieved in all areas. And yet, the worldview that places man and nature on opposing sides is still here. The world has also changed during this time.

The climate issue has risen to the top of the economic and political agenda, no longer a merely environmental issue and more and more a matter of economics and development, dictating the paths taken by geopolitics and international trade. The technological revolution has brought new challenges to our democracy, harming the capacity to distinguish between truth and falsehood and making relationships built around trust more and more fragile, both between different people and between people and institutions. In turn, that advance has enabled increases in agricultural productivity without degrading new areas, as well as the development of biotechnology and Nature-based Solutions (NbSs) and will soon also enable the emergence of new technologies, some not even dreamt up yet.

[1] Executive Director of the Political Action Network for Sustainability

From blockchain[2] to artificial intelligence (AI), which is becoming part of everyday life, new possibilities are opening up that will help to combat the climate emergency, with AI facilitating better fire monitoring, more energy-efficient buildings, and the creation of new materials with a low carbon footprint that draw CO2 from the atmosphere. For a country that is rich in socio-biodiversity, one of the world's biggest food producers and among the world's largest producers of life, a unique opportunity is emerging for Brazil to reposition itself in the global market as a solution creator moving beyond the present extractive model, with its pronounced asymmetries in earnings and inequality in their distribution, and its historical role as an exporter of agricultural and mineral commodities.

Given all this, how can we imagine a new future that is so radically different from the old one? What political gambles and choices should we be making today if we want to change the way things are going? How do we address the past while acknowledging its importance without letting it imprison us? What questions should we be making for our country? What new institutionalities should be supporting it? What should we be concerned about?

These are some of the reflections guiding *Concerns of a Contemporary Brazil and its Perspectives on The Climate, Digital-Technological and Biological Ages*, a collective effort and first publication by members of the Arapyaú Institute's Fellows Programme, conceived as civil society's contribution to Brazil at the precise moment when our hopes for tomorrow are being renewed and a new political window of opportunity is opening up in front of us. This book's common thread is not only the authors' accumulated intellectual, professional, and lived experiences but also their concerns about the unknown, the unseen, and the places that can only be reached if new pathways are forged.

[2] Blockchain is a technology for recording transactions that supplies a safe and transparent system, eliminating the need for a centralizing authority. It is already widely used and has the potential to democratise access to financial services, promote transparency in governments and organisations and, furthermore, facilitate information exchange between parties without the need for intermediaries.

The book, which we hope will invite contributions from readers as well as periodic revisits in light of further viewpoint revisions and developments, is more than a dialogue with reality. It is, above all, a deep dive into the questions and choices that should be made if we want a different reality. It arrives just as we witness the cycle of stability that birthed the new Republic wearing off, giving way to the greatest threats the regime has seen since the 1960s. This makes the book a valuable contribution to our democracy.

It also offers contributions from civil society, precisely from the standpoint of the loss of legitimacy of States and governments, one of the origins of the crisis within the democratic regime itself, and the awareness that governments alone are no longer capable of giving answers to the world's and people's problems. In this context, it understands and assumes the forefront among the new political roles demanded from civil society to discuss, identify, and provide these solutions and answers, which cannot and must not be the exclusive to representative fora — like the new dimensions of environmentalism, the relationship with philanthropy, which includes strengthening it to become more strategic, the new relationships with the private sector, originating from in the ESG agenda, and also a new time in democracy, with a pledge to preserving and improving it, especially in the context of a world where the weight and importance of truth and facts appear to be diminishing.

Good books broaden horizons.

May all our horizons be broadened.

# Introduction

What matter and spirit make up a country? This book wagers that it is indeed possible to aspire to a democratic, just, inclusive, and sustainable country. Not just because new ideas and new desires are emerging all over the place but above all because it is possible to unite different standpoints by proposing pathways towards solutions for Brazil in a future that is rapidly approaching. In Brazil's immense territory, which has given shelter to so many people over the course of history, diversity determines our contemporary identity and is a symbol of this society's strength. Brazil's heterogeneity of thought and multiplicity of peoples, languages, biomes, cultures, behaviours, styles, and generations enrich it and give it an identity it should be proud of. Diversity is resilience and requires audacity.

This book is the result of a combination of visions. It comes from a joint work between fields of expertise that do not often interact, such as indigenous thought and agribusiness or local experience and global governance. It brings a contemporary discussion to the maturing of agendas and contributes to contextualising issues in which the authors—Arapyaú Institute's Fellows—outline distinct professional trajectories, highly relevant for Brazil.

The authors identify short-term tensions and understand that it is possible to process them and forge paths towards solutions that can be put into action without future setbacks. This work was born from nothing less than an intergenerational encounter that seeks to expand the horizons of political thinking about the Brazil of the future, as well as arrive at a better understanding of our country's role and its place in the world. Without claiming to draw definitive conclusions, it is presented as an unfinished discussion that aims to

raise concerns among readers on the environmental-climate issue, the modernisation of the Brazilian State, the challenges of the relationship between the economy and nature, and contemporary ways of viewing our indigenous people. This sharing of ideas for discussions with the future is done from the standpoint of strengthening Brazilian democracy and addressing its challenges.

The road towards a desirable development process will not be found by importing models from other countries or different realities. Brazil must set its own pathways, rooted in valuing its singularities and its diversity of alternatives, in harmony with global agendas around climate, biodiversity, human development, and the respect for and consolidation of civil and human rights. To this end, anxieties and the defiant stare at the status quo must come to the core of these political discussions and outline ambitious, pragmatic frameworks to build collective solutions.

What does it mean to be contemporary? Among many possible meanings, a contemporary society is guided by clarity regarding its role in the world, by a new ethics regarding human beings and nature, and displaying democratic spirit, which values different forms of knowledge, conviviality, and coexistence with mutual respect, through the responsible exercise of freedoms and responsibilities.

This book offers roadmaps and propositions for some of the many concerns Brazilian society must address in the coming years and invites the reader to make a series of reflections over the course of its chapters.

The first chapter discusses the changing world, in which the emergence of a new world order is marked by environmental and climate imbalances, geopolitical tensions, and much uncertainty, as well as democracy becoming more fragile. In this context, Brazil appears to be a country with many alternatives that require boldness and pragmatism to address how to transition its development while remaining aligned with contemporaneity. The country's insertion in the global scene ensures its future, unencumbered by its past.

To link Brazilian reality to the global scenario and given the need to reinsert the country into the geopolitical climate game,

one must address the desire to be a common, unified nation. The second chapter focuses on this issue, from the standpoint of several Brazilian public players who must participate in (re)building institutionalities and public governance spaces. It lays the base for the challenges of contemporary relationships with society that the future will determine for the unfinished Brazilian State.

Along these lines, the third chapter is dedicated to demystifying and bringing together strategic agendas surrounding rural food production. In light of foreign trade disputes and domestic pressures, the most intelligent way for Brazil to overcome its challenges is to consolidate itself as a global food, nutritional, and climate security leader by eliminating deforestation and having nature as an ally.

By tackling the intimate relationship between conservation and biodiversity and food and nutritional security, the economy will be able to grow around new bases, inspired by Nature-based Solutions.

In this vein, the fourth chapter brings with it a new frontier of knowledge, making conceptual reflections and highlighting opportunities in the near future. It proposes a revision of values and a new ethical framework in which the mere exploitation of nature becomes unacceptable. But none of this is news to indigenous people. Many solutions sought by humanity have long been part of their ancestral way of thinking.

The fifth chapter seeks to describe the perspective of indigenous people, according to which the earth does not belong to them; rather, they belong to it and it is blended in with their own being. Caring for their territory and themselves is the same thing, and it is no coincidence that nature is more protected in Indigenous Lands than in any other part of Brazil. Rebuilding the bond between man and nature, so that society can grow with and not against it, has proved itself to be the great challenge of the 21st century, hence the relevance of the indigenous way of life in the construction of a contemporary Brazil, through the biodiversity and climate agendas.

As indigenous people gain centrality in societies around the world, including Brazil, they begin to participate in building solutions and take on co-responsibility in facing global issues. This leads

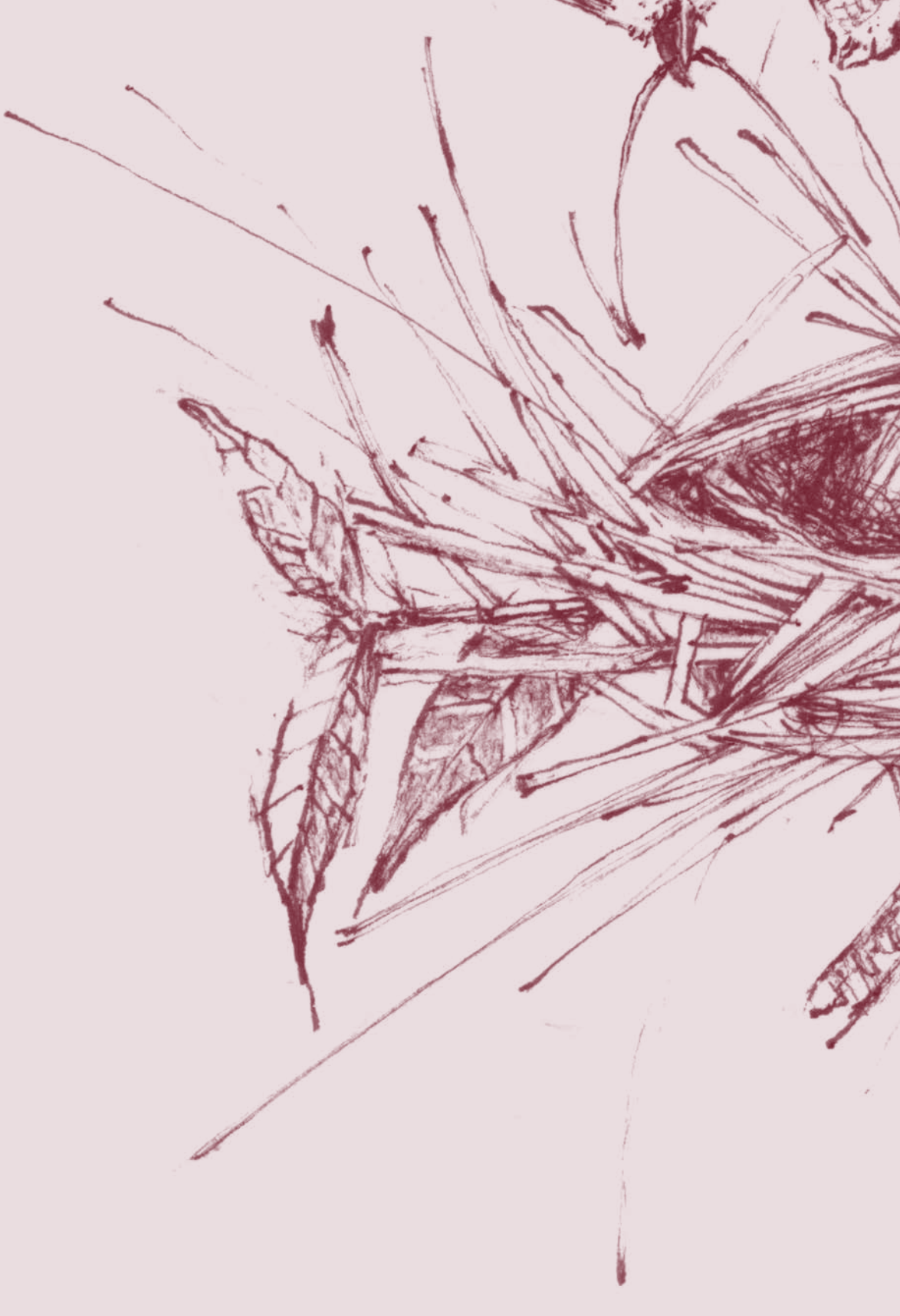
the reader back to the book's first chapter, returning to the geopolitical climate outlook and the global importance of Amazonia for the future of Brazil and the world. The Amazon places Brazil in the world, and it is precisely there that Brazil's future emerges.

All these concerns contain their own dynamism and the capacity to interconnect, finding points of synergy beyond natural divergences. The richness of the conversation between the authors lies precisely in the complexity of this network and, especially, in the stray points that the reader will be able to tie to new thoughts, in the continual, thought-provoking task of rethinking the Brazil we wish to see and which demands engagement and action from all of us in the present. We cannot "buy" any more time, there is no further margin for delay. Strengthening Brazilian democracy creates political spaces to do this.

We are grateful for all the contributions we have received and the people who inspired the arguments laid out herein.

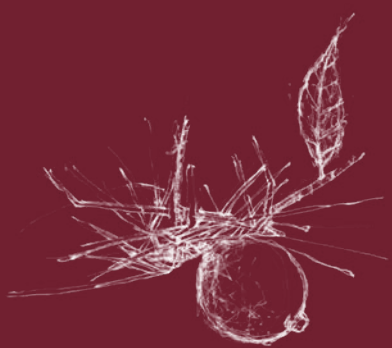
Let's get things started!

Happy reading.



CHAPTER 1

# The Climate-Environmental Agenda: Brazil as Part of the World



## The new political imagination in contemporary Brazil

The world is currently experiencing the uncertainties of the post-pandemic era, the war currently taking place in Ukraine, the climate emergency, and, particularly in the West, the crisis in democracy. The 21st century has been marked by global crises,[3] punctuating vulnerabilities in humanity's present and future, as well as allowing a new multipolar order to emerge, with two superpowers, the US and China, exercising the dominions of geopolitical polarization.

The international context demands that we reckon with global tensions at the same time as we address structural transformations in society: life in the digital/technological era, the transition towards sustainability, the strengthening of multilateralism, the threat to democracy, and the drastic advance of poverty and social inequalities in the world. Nonetheless, it is worth gauging to what extent these issues are in the political agenda of Brazil and Brazilians.

It all comes together to form a picture that requires Brazil to better understand the current times, what is actually happening, and the implications of the changes taking place. We need to know how to formulate and offer society a wide-ranging, strategic vision with respect to the international interests surrounding us to discuss them, have greater control over their demands and restrictions, and adopt robust processes for managing expectations and building common interests.

[3] Global crises punctuate the present century: 9/11 (2001); the financial crisis and its ramifications for international trade (2007-2008); the Covid-19 pandemic (2020); and the worsening of the climate crisis, with a change in status to climate emergency.

The world has an optimistic, pragmatic stance towards Brazil. After a period marked by political regression and the erosion of its public institutions, Brazil is resurging with an ambition to reinsert itself into the international context, guided by the fight against climate change and the loss of biodiversity and by the strengthening of its democratic regime and its efforts to promote peace. We are witnessing the international community of developed countries express particular interest in the vitality of Brazilian democracy and the possibility of reclaiming its role in environmental-climate diplomacy. The pragmatism, however, is revealed in the still timid pathways towards rekindling dialogue and strategy renewal in international partnerships with the country.

Rebuilding a central place in the world for Brazil requires, from its society as much as from its public and private institutions, a commitment to strengthening democracy and an objective political sense of agreement about what we are as a people and what we want as a nation. The *Brazil is Back*[4] approach demands clarity regarding why, with whom and its role and its place in the world. Therefore, we need a project for the country that overcomes the latent need for repair and consecration, the short-termism of Brazilian public policy and the belief in (or illusion of) the "country of the future."

The crux of the matter is that, if *the future is back in Brazil too*, then how can we overcome our troubled recent past and address the urgency of our current priorities? A national project requires that domestic interests be aligned with contemporaneity, with the rest of the world and with the demand for an established State. The recognition that the Brazilian State is yet to be rebuilt, just as its relationships with society, seems essential for dealing with its institutions today and moving forward into the future. We know that the political patchwork of Brazilian state bureaucracy is fragile and weak, something that has

[4] A reference to President Lula's speech at the UN conference on climate change (COP27) in November 2022.

often made it the hostage of political-institutional arrangements that are circumstantial and vulnerable to going backwards.

In this context, it is strategic to recognise that our institutions are not unshakable. It is essential to go well beyond mechanisms for containing the erosion of institutional skills and capacities, to enable more diversity in its bureaucracies and to better understand the role/power of citizens. A new relationship between Brazilian society and the government and state becomes an essential condition for the strengthening of democracy, for bringing public management up to date and for behaving proactively rather than reactively. For the Brazilian people to understand their country, it is imperative that the institutional and digital worlds properly scrutinize democracy.[5]

Brazil must determinedly occupy itself with the future and overcome a political culture of repeating what has already been tried. In other words, addressing the future no longer involves linear projection or a return to the past. Such behaviour is extemporaneous for challenging processes that disrupt nature and democracy, to which the international community is currently exposed and to which it will also be in the future. Ultimately, the world of today and the one to come are both surrounded by political instability and a rupture with nature.

The crisis of democracy, particularly evident in the West, is concurrent with the triple planetary crisis.[6] Until quite recently, liberal democracy reigned absolute, despite its shortcomings.[7]

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[5] GAETANI, F.; LAGO, M. *O Estado em um mundo em mudança: reflexões sobre a gestão pública contemporânea no Brasil.* Rio de Janeiro: Editora FGV, 2022.

[6] According to the UN, the triple planetary crisis can be characterised by climate change, loss of nature and biodiversity and pollution and waste (UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP). Triple Planetary Crisis: Forging a New Relationship Between People and Earth. *UN Environment Programme,* [no date]. Available at https://bit.ly/45oLqrS. Accessed on 8 May 2023).

[7] In the last 100 years, the world has experienced the greatest expansion of liberty and political rights in the history of humanity. With the adoption in 1948 of the Universal Declaration of Human Rights, the world opened up to liberal democracy. Today, almost 60 percent of countries in the world are democratic (WALTER, B. F. How civil wars start: And how to stop them. *Crown*, 2022).

Societies were committed to the democratic form of government and there was fair belief in their dominance and that little would change in years to come. Then, the future arrived and disillusionment with politics took other forms and dynamics, with the unforeseen emergence of a populist movement that could yet usher in a populist era, putting the very survival of liberal democracy in check.[8]

In the tropical dominions of Brazil, it is important to remember that our democracy is very young. Brazil has an authoritarian tradition, with spasms of democracy. However, Brazilian democracy matters to Brazilians and to the world. Thus, it is key for the country to be equipped with greater transparency and less corruption, robust, business-friendly environments, and more positive attitudes towards providing solutions for society to address the environmental-climate crisis. The country's opportunity to address the climate and democracy binomial as it resumes its political, economic, and social normalcy seems unmistakeable.[9]

The process of the progressive fracturing of the relationship between man and nature started to be exposed internationally 50 years ago, at the time of the Stockholm Conference. The climate issue[10] was not an object of international discussion, unlike pollution and the (inefficient) use of natural resources. In turn, our current age reveals an intensification of the crisis with nature and with the planet. The international debate references the survival of mankind

[8] MOUNK, Y. *The People vs. Democracy: Why Our Freedom Is in Danger and How to Save It*. Harvard: Harvard University Press, 2018.

[9] Speech by Mônica Sodré at an exhibition at the Dom Cabral Foundation on the establishment of the Global Agroecological Centre. São Paulo, 29 Mar 2023.

[10] The concept of climate change, already a topic of discussion among specialist scientists, had not reached the level of political maturation necessary to be on the agenda at an international conference (RICUPERO, R. À sombra do apocalypse: depoimento pessoal sobre 50 anos de causa Ambiental. Rio de Janeiro: *CEBRI*, 2022). It entered international and global currency 20 years later, at the Rio '92 conference, around the time the United Nations Framework Convention on Climate Change (UNFCCC) was adopted.

in the Anthropocene,[11] highlights the climate emergency as a challenge of planetary proportions, and makes explicit the urgent need for a connection between global and local.

This planetary crises scenario exposes the insufficiencies of the international governance system for changing direction and implementing transformative and effective solutions. We can no longer delay a change in the way we think, encouraging mutual agreement and acting and making others act. What we are witnessing today are timid advances considering the huge challenges of decarbonizing the global economy and the contradictions in addressing short-term choices and their impacts on the future.

*What we are witnessing today are timid advances considering the huge challenges of decarbonizing the global economy and the contradictions in addressing short-term choices and their impacts on the future.*

The new age is characterised by uncertainty and by being riddled with crises that are interlinked with the visible vectors of present decisions. There is no longer any space in the global political dialogue for a belief that the timid changes currently being enacted will bring about a world that is less vulnerable to climate change and the crisis with nature. We need to stop editing the truth in the short term and make more responsible decisions in the present. With this in mind, the necessary political alliance with the international community will have to be daring in the way it addresses the future in the present. Considering the urgency of the present, it is necessary to act and impel others to act towards contemporary visions of well-being and of societies that are less exposed to risks.

[11] The Anthropocene, a concept that is still incipient and open in the scientific discussion, refers to a new geological era that is already underway and that will bring an end to the relative stability of climate that allowed the development and lifestyles we know. In this new era, the degree of human intervention in nature reaches deeper biogeochemical levels, provoking instability in the entire Earth system: geosphere, biosphere, anthroposphere and technosphere (JUNGES, F.M. Antropoceno: uma reflexão sobre a nova era geológica e as implicações ambientais, socias e políticas. *Revista de Geopolítica*, v. 12, n. 3, p. 54-67, 2021; VEIGA, J. E. *Sustentabilidade: a legitimação de um novo valor.* São Paulo: SENAC, 2019).

The current context lays bare complex questions, predominantly understood by groups of specialists, opinion-makers, and a few politicians with national reach. Hence, it is urgent for Brazil to include this subject in the political agenda of both Brazilians and of public and private institutions. The environmental-climate agenda needs to leave its enclaves and adopt a narrative of mobilization and intergenerational engagement that is relevant to the lives of Brazilian people. It requires that the current tone of tragedy be replaced with one of challenges and solutions that the country can implement in the approaching future.

It is urgent and necessary for Brazil to process its conflicts and interests so that it can free up the present and the future. It must take ownership over the roads it has gone down, for better or for worse, and make peace with itself as a people, as a society, and as a nation. It also needs to stop delaying making the choices that will lead the country to a better economic, environmental, and social position, one of future well-being in which the values of its democracy are universally accepted once again and its freedoms are protected. Brazilian society must rid itself of the illusion that the past can be edited and overcome its short-termism.

Brazil must learn how to address dissent and divergences laid bare by its territorial, economic, environmental, and social asymmetries. A country taken hostage by truth editing and the fake and partially fake has no role or position in the world's future. Furthermore, it becomes hostage of its past in the present. It is urgent to move beyond the period in which fear erased Brazil from the world and disarm the mechanisms that promote destructive mass alienation.[12] This comeback will be slow, painful and full of conflict, but it will be moving in the right direction, towards a better and more just future.[13]

Understanding its role and place in the contemporary world will demand from Brazil a vision and a national project, as well as

[12] Eugênio Bucci reflects on this theme in 'Desinformação e pane política,' *Revista Brasileira*, n. 114, 2023.

[13] GAETANI, F.; LAGO, M. *O Estado em um mundo em mudança: reflexões sobre a gestão pública contemporânea no Brasil.*

an innovative political stance regarding global, regional, national, and subnational perspectives. It will require national and international leadership in a context in which the decarbonisation of the global economy is already a reality. It will demand that we address conflicts, vulnerabilities, and risks, while assuming the country's uniqueness. Brazil has alternatives but lacks daring, ambition, and a sense of ownership. This agenda involves climate-environmental and social issues, the renewing its democracy, and a careful reading of the rest of the world, as explored in the next section.

## The world order in transition: a picture of uncertainties and possibilities

As previously mentioned, the world is changing and the international political order is in a state of transition. New geopolitical and economic realities are currently emerging. Thus, there is a combination of political, territorial, economic, commercial, technological, social, and environmental tensions. The game of international power involves vulnerabilities, risks and uncertainties, in particular regarding relationships between developed countries and emerging economies.

The multilateral system of governance has proven to be insufficient and inefficient to address the magnitude of problems of global/planetary order. The indisputable delay in advancing more quickly towards a fairer and more sustainable world makes the political relationships between governments and societies more fragile. We are, therefore, talking about a system that gives little in exchange, costs dearlyand demands reform and rearrangement in the present, while always keeping the future in sight.

Incredulity and distrust are increased, especially among new generations and in the developing world. Humanity shrinks, becomes lesser, disenchanted with politics and displeased with governments. In this sense, a lack of trust affects the stability of democracy in political systems, opens up space for the emergence of populism and delegitimises the existing mechanisms of international cooperation.

The urgent need for reforms in the system and in the mechanisms of international cooperation, along with political myopia in addressing conflicts of interest, expose the difficulties governments have in acting on the triple planetary crisis. The worsening of the crisis with nature has been consolidated in the last 30 years, even after the global scientific and diplomatic consensus reached at the Rio 92 conference, where it was agreed that the problem was real and serious, and would affect everybody asymmetrically and in an unjust way.

Although the common vision regarding the problem may have been adopted since then, the necessary and urgent action has happened in a way that has been unjust, insufficient and unco-ordinated, with territorial, financial, social and technological asymmetries.[14] In this scenario, environmental and climate problems continue to grow in scale and complexity. The way in which parties have acted and incited others to act has sown low trust and a lack of credibility in both developed and developing countries as regards the achievement of common objectives and results.

The dispute over which values determine a 'green aesthetic' defines the intergenerational interests and conflicts expressed in the search for a future that is less uncertain and less exposed to the emerging risks of the crisis in nature. In addition, it outlines new interests in international cooperation that make emerging green economies and the achievement of green deals viable. Common sense would be to simultaneously press for the neutralization of greenhouse gas emissions and the decarbonization of the global economy, as well as making urgent adaptations to the impacts of climate change.

If, on the one hand, global society lacks solutions that will actually lead to tackling climate change and the adoption of ways of producing goods and life that are reconciled with nature, on the other hand, it

[14] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC). *Climate Change 2022: Impacts, Adaptation, and Vulnerability.* Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Edited by H.-O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, and B. Rama]. Cambridge; New York: Cambridge University Press, 2022. 3056 p. DOI: 10.1017/9781009325844.

reveals complex national pictures, characterized by short-term tensions and local visions disassociated from global demand.

In Brazil, the connection between issues and the construction of innovative, motivational narratives for the changes needed are weak, fragile, and far removed from citizens' everyday life, and are not the main concern of lawmakers. The environmental-climate agenda lacks the breadth, power of assembly, and mobilisation to translate itself into a contemporary political and economic force.

The issue is still predominantly guided by interest groups, notably environmentalists, scientists and opinion formers, as well as traditional and social media. It is still framed largely in the language of problem, threat and risk, while leaning towards tragedy and climate fatalism, making it incapable of engaging with society in a broader and more inclusive way.

On the other hand, it seems opportune to observe that the climate emergency is already guiding a change of vision and is mobilizing political momentum among the country's younger generations, who connect more easily with other societies on the planet. Notably, the environmental-climate issue is still not present in the country's political agenda, despite being a geopolitical reality in other parts of the world. The priority given to the topic by the Federal Government will serve to confer a different political status onto it, allowing time to prepare and the election of new political leaderships, as well having an opportune influence on modernizing the Brazilian political parties.

The asymmetries between countries and the weakening of mutual trust relationships are also exacerbated by the complex dynamic of international cooperation in the provision of shared technological solutions and funding. In turn, the solutions prescribed by science demand boldness and a profound change in economic mentalities. Necessary and urgent advances are made without technological innovation, efficient use of natural resources, redesigning of national and international dynamics of funding and trade, and production and consumption behaviours, as well as lifestyles guided by well-being and sustainability.

In summary, the triple planetary crisis forces countries to place the environmental-climate matter at the centre of discussions and

grows in importance, exerting ever greater influence over power relationships.[15] Global geopolitics then also considers the interests of the climate agenda. Brazil is a key country for climate geopolitics, especially because of the Amazon Rainforest's role as a crucial climate regulator for the planet.[16] We must also not overlook the country's close to 8,500 km of coastline and the importance of the South Atlantic. Few countries in the world have the opportunity we possess to promote economic growth and social inclusion with nature as an ally. Growing with nature (no longer against it) and social and political inclusion defines the challenge faced by the world, and especially Brazil, in the 21st century.

## The roaring 2020s and the green challenge

The transformation of the global economy, guided by decarbonization and efficient use of natural resources, especially water, as well as the emergence of an age which is led by nature (the Bioage) must change the world as we know it. In the 2020s, the environmental-climate transition faces the challenge of dealing with short-term tensions and political and social pressure for the neutralizing emissions and the transformation of processes of sustainable development.

However, the international cooperation system has proven itself to be inadequate, asymmetrical, and inefficient for addressing the challenges imposed by the environmental-climate crisis. The mistakes of the past, along with the current insufficient responses, mould the context of learning and reflection.[17] Narrow solutions for interconnected crises, short-term pressure in the increasing demand for natural resources, and a short window to address the depletion

[15] DALBY, S. The Geopolitics of Climate Change. *Political Geography*, v. 37, p. 38-47, 2013; STERNER, B.; BATEMAN, I. *et al*. Policy Design for the Anthropocene. *Nature Sustainability*, v. 2, p. 14-21, 2019.

[16] GATTI, L. V. *et al*. Amazonia as a Carbon Source Linked to Deforestation and Climate Change. *Nature*, n. 595, p. 388-393, p. 2021.

[17] SCHWAB, K. Global Challenges Require New Governance Model. *Project Syndicate*, Jan 4, 2022. Available at: https://bit.ly/3WrIYwD. Accessed on: 9 May 2023.

of these resources evidences an imminent change in how humanity defines value and manages and uses nature.

We need international governance that truly enables a sustainable, equitable trajectory in mankind's relationship with nature and provides a role and a place for the countries of the Global South. The Northern Hemisphere is still yet to explore innumerable agendas for increasing socio-biodiversity, since these societies have to reckon with socio-economic, environmental and political realities that are markedly different from those in the Global South.[18] These political movements must seek a contemporary vision of leadership, one not just based in the field of environmental and territorial activity, since the challenges of the future are guided by the planet's capacity (or lack of capacity) to keep producing life.

The challenging context requires unblocking the sustainability agenda, particularly the Sustainable Development Goals (SDGs) and the 2030 agenda. It requires establishing an innovative process for discussing planetary frontiers; building a consensus with a view towards adopting a common agenda, guided by science and centred around global common goods;[19] and recognizing that countries and societies are interconnected by nature. It seems essential that the global governance system should be driven by common interests rather than beliefs or a lack of beliefs. These movements demand creativity and political leadership, scarce assets in the world of the present.

The necessary action, integrated and coordinated between sectors and constituencies,[20] is imposed by the formation and tightening of networks of interests driven by direct action and national, regional, and global solutions. For the international system to be remodelled and steered towards the 21st century, it is necessary for people to

[18] MARQUES, T. H. N.; RIZZI, D.; FERRAZ, V.; HERZOG, C. P. Soluções baseadas na Natureza: conceituação, aplicabilidade e complexidade no contexto latino-americano, casos do Brasil e Peru. *Revista LABVERDE*, v. 11, n. 1, p. 12-49, 2021.

[19] Essentially, the planetary resources which humanity shares.

[20] Specific groups or sectors that share common interests or are involved in certain issues. They can be organizations, institutions, communities or specific cohorts of the population.

focus on ways of living and living together, with science and nature as strategic pillars for political and economic action.

Efforts towards reforming the multilateral system are held up by the lack of change in the international order and other cooperation dynamics that expose the complexity of political dialogue between countries and societies. The prospect of a leadership from the South is an urgent call for diversity and new pathways that lead to inclusive multipolarity and the strengthening of democracy. In all honesty, it may require spaces beyond the old domains of geopolitics, allowing more room for the expression of soft power[21] and the interests and values of new generations.[22]

Nevertheless, efforts to modernise and reinvigorate the multilateral system can be evidenced by movements demanded by member countries, in a recognition that humanity is at a historical inflection point. The Covid-19 pandemic generated a sense of urgency about the choice to be made: a breakdown or a breakthrough, as the 'Our Common Agenda' report highlights. This report, published to mark the UN's 75th anniversary, seeks to initiate a new moment of multilateralism, [23] and is permeated with a sense of urgency. It presents 12 commitments,[24] aligned with the UN's Sustainable Development Goals (SDGs), which seek to regain humanity's trust and solidarity to build a better, safer, and more sustainable way of life.

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[21] This is the power to influence through political, cultural or ideological means.

[22] ABDENUR, A.; TEIXEIRA, I.; WAGNER, J.; ABRAMOVAY, P. *Clima e estratégia internacional: novos rumos para o Brasil*. Preface by Celso Amorim. São Paulo: Cipó, 2022.

[23] UN report, 'Our Common Agenda,' which proposes an integrated response to global challenges. *United Nations,* 10th Sep. 2021. Available at https://www.un.org/en/content/common-agenda-report/ Accessed on:18 May 2023.

[24] The 12 commitments proposed by the UN secretary general, 'Our Common Agenda', are: (a) leave no one behind; (b) protect our planet; (c) promote peace and prevent conflicts; (d) abide by international law and ensure justice; (e) place women and girls at the centre; (f) build trust; (g) improve digital cooperation; (h)upgrade the UN, with new spaces of governance and social inclusion; (i) ensure sustainable international funding; (j) boost partnerships; (k) listen to and work with youth; (l) be prepared (to respond to complex global crises).

The rekindling of global solidarity is central for the joint work pathway to display the contemporary momentum of international cooperation. To this end, the same UN report emphasises that these are times of renovation and proposes a sequence of summits aimed at reforming the Bretton Woods system,[25] for a realignment of the social contract and the unlocking of the sustainability agenda, as well as a summit to discuss the future. These processes are also guided by the consensus around the end of the "infodemic" and by observing the role of science in guided decision-making and ensuring the integrity of public information.

*The rekindling of global solidarity is central for the joint work pathway to display the contemporary momentum of international cooperation.*

These challenges add to the need to build complementary metrics that truly reflect economic prosperity, progress, and well-being and go beyond the consolidated Gross Domestic Product (GDP) index. They also create an urgent need to address the trade-offs of short-term cycles and to re-establish new long-term practices and intergenerational commitments.

All these renovation and robust multilateralism pathways are guided by the possibility of a more effective, united, and efficient UN, with its foundations in real networks and which is dedicated to finding solutions for the global crises while remaining focused on people and the planet. It is worth highlighting that, despite the intrinsic importance of these proposals, the political debate around the emergence of the global crises exposes dilemmas which capture old problems in the way power is exercised by the UN itself and by its global dominions when faced with new contexts.

Against this background, relocating the multilateral system appears to lack political and institutional frameworks that would

[25] Designed to establish a stable and predictable international monetary order in the post-war period, it established the International Monetary Fund and the International Bank for Reconstruction and Development (IBRD).

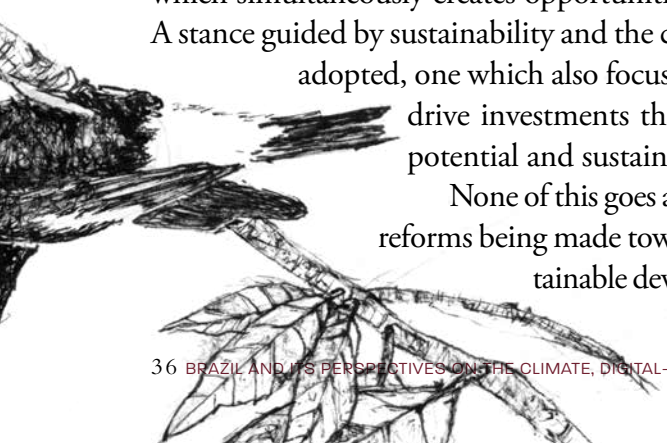
allow for a frank and profound reflection on the multidimensionality of the vulnerabilities and the real choices to be made that will enable societies less exposed to risks; our vulnerabilities must be at the centre of the debate.

The challenges surrounding the world and the multilateral system are upon us. The mentality around negotiation and decision-making appears to have fallen hostage to geopolitical contexts that pose a threat to any structured changes that might truly lead, in the short term, to strategic possibilities for transforming the global economy.

From another angle, the international financial system's failure to address and mitigate the effects of the current global crises determines the urgency of its reform towards alignment with a more inclusive and sustainable development. Reforming this is clearly essential to unleash funding that will foster the transition of the global economy. Furthermore, it is worth underlining a critical element of this challenge, which is the Global South's fragile access to the governance of international finance. Prioritization demands a vision alignment, convergence of interests, and scaling up long-term investments in sustainable, resilient, inclusive development.

We need to take another look at the mandates and trajectories of multilateral development banks and put in place a new arrangement between the public and private funding systems. This process must be guided by alternative pathways that have the potential to be large-scale and do not perpetuate the current domains of power, which have failed to generate trust and credibility among the international community, particularly with regards to the North-South relationship. Identifying alternative, innovative funding routes is a challenging move which simultaneously creates opportunities and addresses adversity. A stance guided by sustainability and the climate emergency must be adopted, one which also focuses on the matter of how to drive investments that will promote countries' potential and sustainable growth.

None of this goes a single step further without reforms being made towards a more ambitious sustainable development agenda or indeed



without motivation from those political actors who can operate as deal makers. What agreements are necessary for providing concrete solutions to the challenges of developing and low-income countries, such as public debt, inflation, and enabling public and private funding? How does one accelerate the implementation of the 2030 Agenda in those countries or encourage G7 and G20 countries to be creative and promote new narratives centred around solutions, such as in the international trade system or access to technology and education?

The multilateral system demands new commitments, more steadfastness from friends of the UN, more support and new, transparent narratives of common interests and shared trajectories. It is important to ensure that the UN is a provider of solutions and to this end it must take the lead in making the necessary changes. That requires addressing the uncertainties of the transition and sharing a collective intelligence guided by goals and results, while adopting for that purpose a daring process of changing narratives and redefining values. Actions must be proactive and based around clear objectives, not merely corrective: they must recognise mistakes, redefine values and create the possibility for a future.

In the current century, the convergence of the climate and digital-technological eras with the emerging biological one also heralds the growth and ageing of the global population as a part of a challenging outlook for alternative trajectories in the field of inclusive and resilient sustainable development. The ageing population is a result of a demographic transition resulting from longer lives and smaller families, as well as a testament to civilizational progress. At the same time, if we take the long-term view, ageing has an ever-increasing effect on economic, health, and education systems and is reflected in the growing demand for provision of welfare from governments and societies.

In a unique and meaningful way, the ageing population reveals the challenges countries face with providing the longevity benefits against a backdrop of abysmal inequality. We know that poverty levels in the oldest age brackets affect particularly women, who participate less in formal work markets and have lower salaries and

shorter careers. Therefore, economic insecurity unequivocally affects the gender agenda, making the struggle against the differences between men and women all the more complex.

The problem of an ageing population lays bare yet another dimension of the challenge of building sustainable societies for people of all ages. How to ensure sustainable development and security for older populations, given that the emergence of the care economy collides with increasing fragility of food, water, and climate security, not to mention global public health? The availability of natural resources to meet a growing demand for environmental resources and services is a key factor for the future.

This global picture of connected crises and issues determines the complexity not only of the problems to be faced but also that of the solutions guided by the green agenda. Overcoming a culture of privileges—which exacerbates environmental, social, and economic asymmetries between societies—defines the responsibility of powerful elites for making changes and lays bare the challenges of redefining the foundations of the global discussion on environmental and social matters.

Addressing the environmental-planetary crisis requires a different worldview and an innovative and robust political agreement around converging interests and co-responsibilities. The challenge of a social and environmentally secure world has the climatic transition and the confrontation of inequalities as its starting point.

Addressing the trade-offs of phasing down and phasing out in the choice of trajectories for decarbonisation goes beyond the agendas for energy transition, industry, and land and water usage, demanding strategic vision and an agreement on trajectories that permit inclusive economic growth.

Looking at the climate and biological transition, it is important to face the emergency afresh, but it is also essential to know how to address the discontinuity of the present scenario. In other words, interrupting tropical rainforest deforestation does not ensure the reduction of social inequalities among all those directly affected by climate insecurity at the same time and in the same proportion.

Therefore, the transition towards a new relationship between humanity and nature must make broader responses more viable, ones that connect narratives and allow people to engage. Such responses must also offer choices led by an ambition to transform and by a commitment to not going backwards.

## Brazil: which destiny will the country choose?

Current efforts towards reforming the international system also fall on the member countries as individual entities, with their interests and focus led by the conditions of the present and of the future. Modern arrangements to prompt cooperation go beyond traditional interests such as trade and access to innovation. These arrangements are also turned towards combining agendas with a view to climate, food, and energy security, the efficient use of natural resources, confronting inequality, access to physical and digital-technological infrastructure, and protecting nature, among other interests. In this context, the countries that stand out are those with a diplomatic, legal, and business tradition, holders of environmental assets, providers of solutions, trust and solidarity and are careful in the way they exercise co-responsibilities.

The world is experiencing a moment of optimism and hope regarding Brazil, particularly regarding how it will address the global environmental-climate, social, and democratic crises. There is hope for a country capable of providing resilient strategies, guided by an understanding of the risks of its development trajectory. Climate geopolitics grants Brazil a key, strategic role, notably regarding the Amazon, since the climate security of the planet depends on its conservation and restoration, as science has already demonstrated.

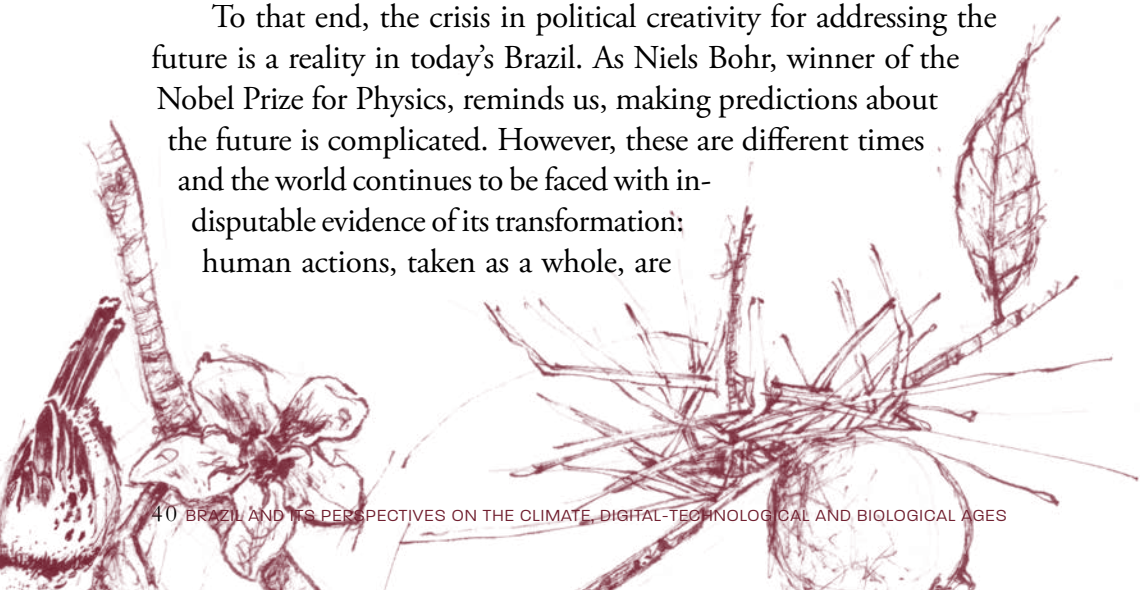
Brazil possesses unique features (the Amazon, a continental coastal zone on the South Atlantic; the Pantanal) and a range of alternatives for growth allied with nature. Although it is, according to Nasa, the country that produces most of the life on the planet, our society has to contend with much uncertainty and a lack of knowledge, as well as being exposed to recurring steps backwards in its process of development. Thus, Brazil experiences unjustifiable

bottlenecks regarding the environmental-climate agenda and its implications for democratic representativeness and social justice. We lack a sense of daring rooted in an ambition for structured development that is permanent rather than sporadic or reactive, guided by lower exposure to risks and additional costs.

Despite having at its disposition many possibilities and alternative pathways for progressing in the decarbonisation of the economy, the country fails in the political and institutional dimension of the environmental-climate agenda, which does not really exist as a political priority. In other words, the debate surrounding this challenge is not very people-based, representative, equitable, or transparent, nor is it oriented towards the future, so as to promote engagement and commitment on the part of Brazilians and their leaders. Links with future generations are still fragile or insufficient.

Brazil is thus undergoing a singular moment in relation to the environmental-climate agenda: a global political will for more coming together bilaterally, regionally and multilaterally and a cautious, mistrustful distance from local political leaders and society. These challenges demand rekindling bilateral, regional, and multilateral dialogue and the country is actively seeking to reinsert itself on the international stage, since this agenda includes one of the pillars of its national interests. This requires structured (not reactive) proactivity, long-term commitment and realistic ambitions for economic transformation and social advances.

To that end, the crisis in political creativity for addressing the future is a reality in today's Brazil. As Niels Bohr, winner of the Nobel Prize for Physics, reminds us, making predictions about the future is complicated. However, these are different times and the world continues to be faced with indisputable evidence of its transformation: human actions, taken as a whole, are



causing changes on a planetary scale, and the consequences of these actions play out in the long term.[26] Brazil will have to address time and the intergenerational outlook in other ways, with creative and contemporary dynamics in public-private relationships, the communication between State and society, in new institutional routines and in the way it interacts with the world.

This complex context demands strategic, consensual vision, along with an objective understanding of its role and place in the world, so as to also promote political engagement from society and its democratic political forces. It is a matter of establishing a dialogue that is no longer with the past but with the future, from a perspective that is purposeful, sound, innovative, and all encompassing. Although the country possesses its own alternatives and singularities, such as its environmental and climatic assets, its greatest political challenge resides in its ability to have a bold, audacious vision and to operate in converging networks of interests by making soft power the structuring element of its re-entrance into the national stage.

This challenge must not simply be restricted to the federal Executive Power. What is needed is an articulation of the federal relationships and the roles of the Legislative and Judiciary powers. To that end, Brazil must let the past be the past and understand the importance of forging a new relationship with society and bringing its public institutions up to date. It must be a finished, efficient, open, transparent, and modern state that is allied with the future. The run of the good ideas that have brought us so far must be observed. Other good ideas must be given space to take us further, with more equity, competitiveness, and democracy.

So, what is going unnoticed by Brazilian society? The complex picture of interlocking crises in current times reveals a civilizing disruption, with a multiplicity of environmental, political, and cognitive drifts. This scenario demands the urgent transmutation of humanity in its relation to nature and the planet. It is also relevant

[26] OLIVEIRA, L. A. Tecnodiretrizes: formas, impactos, horizontes. *Revista Brasileira*, n. 114, p. 103, Mar. 2023.

to understand the complexity of the challenge of aligning Brazilian perspectives, interests, and agendas with developed countries and emerging economies, from the environmental-climate prism.

Which contexts can be influenced by the return of Brazil to the international stage and how can this resonate in the country? The problem has not been assimilated and no solution has been presented. It is true that there is a clear call from the environmental-climate agenda. But the conditions for a dialogue with the future are not coordinated nor do they exist as yet in the country's political imagination.

The future is still not clear in current Brazil, though a certain political will is hinted at by some segments of society and some leaders. What is missing is ownership of an innovative, challenging development process, guided by a decarbonised economy, robust trajectories of human and social development, and a nature that is protected and valued. In other words, a process guided towards a better country in the future, less exposed to risks and with more longevity and happiness.

*The future is still not clear in current Brazil, though a certain political will is hinted at by some segments of society and some leaders.*

The renegotiation of mankind's relationship with nature defines the present emergency and gives a taste of what is to come. The political and institutional dimension of the environmental-climate agenda demands that we overcome the current sense of tragedy in favour of real engagement and commitment from Brazilian society. The Amazon must go beyond the political imagination of the agenda set by the international community. What is necessary is to have a more precise understanding of its importance for Brazil. The Amazon standing and Brazil standing for its people and the world.

Subnational players act, through regional or theme-based consortiums, in a way that is still ineffective and poorly coordinated. The legal system finds the agenda by means of climate litigation and society advances in leaps and bounds under the umbrella of climate justice and political and social inclusion. Democracy and our Constitution dictate the political and legal spaces in which

other narratives can be acted out, driven by connected themes and commonly understood ideas. New generations come together, align with each other and influence pronouncements on social media and by opinion-makers about the climate emergency and "pushing the problem further into the future". The pieces are moved, albeit randomly, and the Amazon becomes part of the political imagination of interest groups without a solution guided by the premises of common, converging interests, and with a longer-term perspective.

This is the time to make important, structural, bold, and innovative choices, guided by inclusive, resilient solutions. These choices must also be guided by ambition for our democracy, strengthened in the present and future. The years 2023, 2024, and 2025 delineate the time and the platforms Brazil and its society have to internally and externally agree on what they want from this agenda and how they are going to live in, and alongside, the future. Brazil holds the Amazon Summit in 2023, presides over the G20 in 2024 and must host the UN Climate Change Conference (COP 30), that will mark ten years since the Paris Agreement.

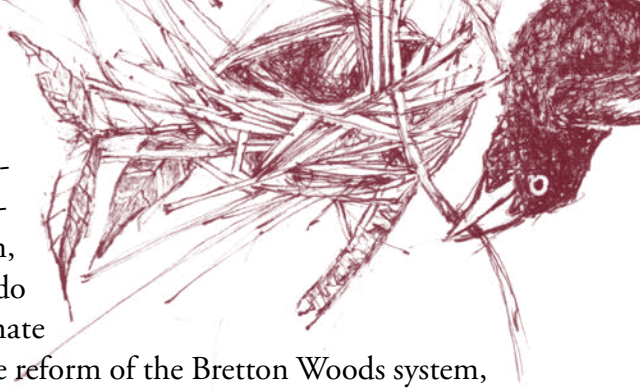
The Amazon Summit brings the voice of regional cooperation and an important rekindling of co-ordinated dialogue between Brazil and its Amazonian neighbours. This will stimulate a learning process about how we can and must act, in a more streamlined way, with a strategy of regional integration and addressing climate change that will be inclusive, fairer and decarbonised.

The country's traditional peoples have a singular and contemporary expression in driving forward economic, social, and human development, science and traditional knowledge in the emergence of new economies and nature-based Solutions. Expressing Brazil's unique goods in the protection of nature and the conservation of biodiversity demands boldness from Brazil and its neighbours in accelerating the Bioage, with nature as an ally in creating inclusive economic growth and bringing the future to the brand-new present. Growth alongside nature forms, in the diversity of cultures and forms of knowledge in the Amazon region, one of the pillars of the protection of the Amazon basin and sustainable development in the region.

The country needs to overcome short-termism on the climate and distorted views of the importance and magnitude of the environmental-climate agenda. The challenges relate to inclusive and fairer development trajectories in which Brazil seeks to be a main player. But seeking convergence from other societies' visions on the question of climate change is a complex matter. The world is guided by an ambition to move beyond fossil energy, a problem that encompasses both developed and emerging countries, notably China, India and South Africa. For us, the difficulty does not chiefly reside in the field of energy transition, since our energy and electric matrices confer another level of challenge onto the country. Brazil's priority is land use, that is, overcoming deforestation in the Amazon and the *Cerrado* and decarbonizing tropical Brazilian agriculture in an inclusive and sustainable fashion.

Thus, the way that Brazil enters the international climate debate is different from the rest of the world, because of its renewable matrix and its alternative options for making advances in bioenergy, green hydrogen, and in other renewable sources. The political and economic dimension of the Brazilian climate agenda refers to nature, not to a dependence on fossil fuels, as in the rest of the world. This unique perspective instigates and inspires the country to innovate in conversations with the international community and to look for guidelines which allow the convergence of interests into such distinct and defiant visions. Aside from this, it shows a society which must turn towards the world in solidarity and affirmation regarding what challenges us and what mobilises us.

Given all this, the presidency of the G20 in 2024 must lead to a better organization of positions and dispositions. Promoting a structured conversation that connects priorities—such as confronting poverty, starvation, and inequalities; valuing biodiversity; and technological, water, food and energy security—instigates interests, mobilization and engagement from other emerging countries. It would appear to be no trivial task to enable this kind of climate agenda in G20 and unleash successive structured conversations in the multilateral system of climate governance.



One of the most mentioned topics in the global debate around multilateralism, the G7 and the G20, has to do with the international climate funding agenda. But will the reform of the Bretton Woods system, which is already underway, create more room for the Global South countries in the governance of the emerging system of multilateral development banks? This possibility is especially interesting for the G20 countries and Brazil's presidency must lead to promising and co-ordinated visions of dialogue and an assertion of interests, in a strategic repositioning aimed at rebuilding trust and credibility in North-South relations.

Brazil's presidency will furthermore be able to lean on innovative arrangement of the T7-T20, a partnership of think tanks from the G7 and G20 countries, lending support in matters of technical, institutional, scientific, and technological content to Brazil's presidency and promoting continuity in the most pressing themes to be driven by the countries in the ambit of the political-institutional arrangements which organise the G20's processes. It is a strategic opportunity for engaging actors and discussing visions that welcome a diversity of schools of thought on the urgency of global problems. This space will be able to promote dynamic convergences of dialogue with the arrangements of the C-20 (civil society), F-20 (philanthropy) and the B-20 (Business).[27]

Hosting COP-30 moves beyond national and regional Amazonian interests, without losing sight of the role in climate security that the world's biggest tropical rainforest confers onto the country. COP-30, in 2025, draws an end to 10 years of the Paris Agreement. What pathways will Brazil, one of the leading countries in the Agreement's construction, negotiation and achievement, adopt towards a strategic international mobilization in the decade of 2025-2035?

[27] The T20 in Brazil will have IPEA, FUNAG and CEBRI as pillar-institutions of the advisory process to the G-20 in Brazil.

The importance of bilateral relationships, notably with countries promoting the trajectories which led the world to Paris, demands reassessment and a sense of ambition as guidelines for the conversations that will play out in the decade ahead.

The challenges of the environmental-climate agenda model the limits and new frontiers of Brazil's development. Brazilian solutions cover greater productivity, economic alternatives and, in part, recognizing a real additional cost which involves compensation for emissions to conserve nature. The international community demands clarity concerning the quantity of carbon to be allocated for this purpose and the details of the funding strategy; that is, how much is taken on fiscally and how much should be supported by the cost of the global reduction in emissions and shared responsibility.

This is one of the axes of the possibilities for future public and private, international and domestic investment in Brazil but it seems advisable to have figures or sums around which there is widespread agreement. Defining what the country really requires in terms of additional resources for the protection of the Amazon (and the Cerrado) increasingly seems to be the trillion-dollar question. It is urgent that we be clearer as to how we provide "removals by sinks"[28] and what amounts will be involved, as a global benefit to meet goals of global temperature maintenance versus the domestic needs to generate economic and social benefits.

It could be a unique opportunity to translate the legacy of COP15, the UN Biodiversity Conference, into the trajectories of climate security, efficient use of natural resources, and the preservation of nature and unique goods. The contemporary approach expected from Brazil must make it clear that new values are emerging, guided by an innovative relationship between humanity and nature, while also meeting the needs of the country's development. Finally, although global recognition of these themes may have been consolidated at Rio-92, the transformation approved by the climate

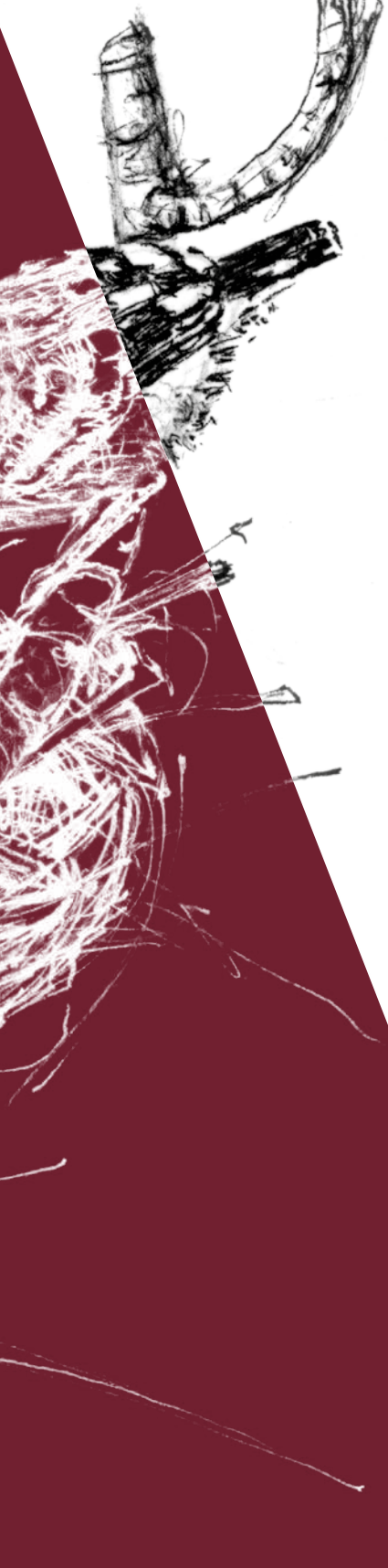
[28] Natural or technological processes that absorb and retain greenhouse gases from the atmosphere.

and biodiversity regimes could actually happen in the Brazil of 2023-2025. It is there that the world's unconscious optimism towards Brazil could transform realities and outlooks.

It seems strategic for us to have a distinguishing brand, a contemporary identity of our country and its reinsertion into the global scene. To this end, it is urgent to rearrange the political relationship with science and deal geopolitically with pressing agendas relating to planetary borders, common resources, and heritages and their derived co-responsibilities. It seems relevant to build affirmative and coherent positions on themes which lay the foundations for the agenda's global-planetary dimension.

Besides, the associated political and economic interests that do not converge with the solution-led visions and ambitions must be exposed and addressed. Climate justice is, above all, social justice, an opportunity to address asymmetries in civil, human and environmental rights which have, thus far, led us to be incomplete as a society.

Brazil's place in the trajectory of the climate and biological eras is not a minor one. However, it must have ambition if it really wants to seize its destiny. It needs to go beyond short-term thinking and polarizations guided by nihilism, ignorance, and regression. The leadership expected by contemporary global society is not analogical but rather aligned with nature and the digital-technological world. So, bring on the future, with freedoms, creativity, inclusion, well-being, nature, knowledge—and with those suntanned people displaying their values and responsibilities for a healthier planet and a more developed, democratic, fairer, happier world. Why not?



CHAPTER 2

# Brazilian Public Agenda's Governance

## What does Brazil want to be when it grows up?

No country renounces its possibilities for growth. However, qualifying what kind of development is desirable for a nation is a considerable challenge. Do we Brazilians have the capacity and the audacity to create a common vision for a better country in the future? In what way do we want to be a part of the world? Obviously, in a country as unique as ours, there are a wide variety of approaches and ways of thinking that can create conflict and even antagonism. But we need to find a core that binds us together to create a national project, and that demands a capacity for dialogue and building between different sectors of society.

Though the scenarios are unclear, society needs to develop the capacity to envision itself in the future. As touched on in the previous chapter, a series of destabilising events on the domestic and international stage occurred in a short space of time. All of that eclipsed the attention that should have been paid to the 2030 Agenda, developed by the UN which, in 2015, launched the 17 Sustainable Development Goals (SDGs), instrumental for lending support to medium- and long-term national agendas.

The confluence of crises, such as the Covid-19 pandemic, climate change and wars, made a visible impact on food and nutrition, health, education, the environment, peace and security, also affecting the trajectory of the SDGs.[29] These setbacks prevented cumulative

[29] UNITED NATIONS. *The Sustainable Development Goals Report 2022*. New York: United Nations, 2022. Available at: https://bit.ly/3q0vFag. Accessed: 12th May 2023.

learning on a national scale around the topic of sustainability, always hard to insert into the Brazilian public discussion, forever troubled by short-term priorities.

As protecting nature gains political strength because of its capacity to reduce risks, generate riches and create solutions for global problems, the country finds itself with a chance to lead the discussion in the globe's southern axis. This has been called the Green Global south, a concept geared towards an economic resurgence under a new vision of development that reconciles natural with social capital, as well as opening up a strategic and innovative possibility of rekindling Brazilian leadership.[30] Precisely because of its conciliatory characteristics, this point of view implies engagement from diverse sectors of society and reinforces the importance of a multidisciplinary approach and democratic processes in forming the public agenda.

And yet, more than three decades after the Constituent Assembly, Brazil has found itself fractured, polarized, and suffering from the closure of democratic spaces and spaces for social participation, such as the councils that were killed off at the start of the Bolsonaro government. Although the National Environment Council (Conama), for example, was already in a weakened position, its destruction was unthinkable, and yet it occurred under Jair Bolsonaro in May 2019 without much reaction at the time from Brazilian society in general. Aside from the reduction from 21 seats for civil society to 4, the end of the Ministry of Health's participation was considered one of the gravest aspects of the decision, given that the defining the parameters for the environmental quality of air and water, for example, is directly linked to health.

The realignment of socio-environmentalism is an urgent need. It must happen in a participatory way, from an outlook that considers the environment as a possibility for development and, more than this, as a matter of geopolitical importance, in which the climate

[30] ABDENUR, A.; TEIXEIRA, I.; WAGNER, J.; ABRAMOVAY, P. *Clima e estratégia internacional: novos rumos para o Brasil.* São Paulo: Plataforma Cipó, 2022. Available at: https://climainternacional.plataformacipo.org/wp-content/uploads/2022/11/Clima-e-estrategia-internacional-COP27.pdf. Accessed on: 12 May 2023.

agenda converges with that of innovation, connecting the future to the demands of the present, with growth and social inclusion.

The discussion around an agenda for the future has happened in countries like Germany, the US and China, while Brazil has still not managed to do so from the point of view of the national imagination. There are, certainly, initiatives in the field of green economics and ESG,[31] but they have not been planned cohesively, as part of a national framework of sustainable development, despite this topic being the object of varying propositions on the part of organised civil society and academia community (*see box*).

**The political and academic debate is alive** and present in Brazilian civil society, as well as being expounded in different publications from significant authors and initiatives. Some of them are:

The book *Muito além da economia verde* (*Far beyond the green economy*) published in 2012, the year Brazil hosted the Rio+20 conference. Its author, Ricardo Abramovay, is a senior professor on the Environmental Science Programme at the University of São Paulo (IEE-USP). The work takes a long-term view of Brazil and considers social debate to be a fundamental part of this process.


The publication *Clima e estratégia internacional: novos rumos para o Brasil* (*Climate and international strategy: new pathways for Brazil*) is the result of consultations with 70 actors from different sectors. The work highlights roadmaps towards a strategy that links climate action to inclusive and sustainable development, as well as putting forward a defence of multilateralism and a global governance that is fair and effective. This is an initiative from the Cipó platform, in partnership with the Perseu Abramo Foundation.


[31] ESG stands for the environmental, social and governance criteria used to evaluate and influence the performance and sustainability of an organisation or sector.

The series of notebooks containing proposals from the Climate 2030 initiative proposes alternatives for sustainable development, based on decarbonisation of the economy, justice and social inclusion. ■

Brazil might even be deceiving itself. In one article in which they carry out a detailed evaluation of Brazil's self-image around climate between 1989 and 2019, the authors Matias Alejandro Franchini and Eduardo Viola from the University of Brasília (UnB) concluded that, in almost the whole of this period, the Brazilian authorities inculcated a "climate myth," a distorted self-image which exaggerated Brazil's characteristics in its three dimensions: power, commitment and leadership. The false idea of a trade-off between environmentalism and development still strongly persists in the country—facilitating the polarization since, given this choice, society will opt for growth at any cost.[32]

One example is the framing of the Amazon as a dichotomy, as if the only options were 'sanctuary' or predatory occupation. When polarized in this way, the risks of choosing the second option are high, ignoring the diversity of economic opportunities presented by the diverse Amazonian mesoregions, as shown by the Four Amazons network: cities, converted areas, transition areas, and conservation areas. Each one presents completely different socioeconomic possibilities.[33]

This picture demands that domestic leaders from different sectors understand the contemporary world in the ambit of an irreversible productive restructuring towards the low carbon economy

[32] FRANCHINI, M. A.; VIOLA, E. Myths and Images in Global Climate Governance, Conceptualization and the Case of Brazil (1989-2019). *Revista Brasileira de Política Internacional*, v. 62, n. 2, 2019.

[33] The framework was developed by the Amazon Concertation, a network which brings together more than 400 leaders, including businessmen, researchers, artists and representatives of civil society and government, with a goal of finding ways of increasing quality of life for the Amazonian population, while establishing the region as a great liquid remover of carbon emissions. See https://concertacaoamazonia.com.br/en/what-we-are/4-amazons/

and its inexorable digitalization. This would imply a structural reconfiguration of industrial parks in the ways they produce, consume and obtain energy, as well as efficient use of natural resources.

Some exceptions exist. In the more progressive wings of agribusiness, there are signs that environmental concerns are beginning to be incorporated into business, including by observing the deleterious effects of climate change in the field. A study published in 2021 by *Social Responsibility Journal*[34] showed that companies in this sector have increased transparency surrounding their socio-environmental impact as a result of being perceived by society in an increasingly negative light.

The financial sector has also sensed the winds of change, blown by central banks the world over, especially with the ESG wave, which proposes connecting environmental, social, and corporate governance criteria to investment decision-making and lending. Finance and its new instruments can and must be one of the levers of transformation.

The first challenge the leaders face is bringing these political dynamics into a wider discussion about Brazil's sustainable development. Development is too broad a topic to be restricted by the environmental perspective *in the narrower sense*. Still all too self-referential, it ends up adopting the 'happy loser' stance, in which it loses battles but is strengthened in the eyes of its peers, its conscience clear for having played its part, while the problems of society and the environment remain unresolved. On the other hand, it is inconceivable for sectors such as energy, mining, transport, industry and agriculture to continue to ignore the environmental issue, treating it as a nuisance that only brings additional costs.

*it is inconceivable for sectors such as energy, mining, transport, industry and agriculture to continue to ignore the environmental issue, treating it as a nuisance that only brings additional costs.*

The framing of this discussion begins, therefore, in a converging movement which includes situating the environmental agenda in the

[34] LOVEJOY, T. E.; NOBRE, Carlos. Amazon tipping point. Science Advances, v. 4, n. 2, p. eaat2340, 2018.

context of development, calling upon it to take responsibility for creating solutions. It also falls upon the environmental agenda to understand governance as an instance in which the government interacts with multiple interest groups, with other actors from civil society, the private sector, the scientific community and the international sphere as being jointly responsible for advancing sustainable solutions to paralyzing impasses. New outlines involving sectors that use land can overcome the polarization between the productive sectors and the environment.

Laid out in a friendly and didactic way, knowledge based in lessons learnt by indigenous peoples,[35] traditional and *quilombola* populations and the academic community can be of great help when made available to society. One example from the academic community was the concept introduced by Carlos Nobre and Thomas Lovejoy about the Amazon's tipping point, whereby once a certain amount of forest has been degraded or destroyed, the ecosystem can enter a cycle of self-destruction, leading to an irreversible change in the climate and the landscape on a long-term, global scale, like a domino effect on the planet.[36]

## Vertebration of the different *Brazils*

Though necessary, it is no easy task to build a vertebration, that is, a conversation that forms part of a unifying and wide-ranging backbone, with greater interlinking between the urban and rural *Brazils*, between the local and the federal. The challenge is characterized by the fact that the federal dynamic treats themes as separate rather than overlaid.[37] In the current debates, for example, no one has managed to use, in the same sentence, the words 'solid waste' and 'deforestation of the Amazon', or 'circular economy' and 'forest management'.

[35] Later in this book, we share other reflections on the contributions and the context of indigenous peoples.

[36] LOVEJOY, T. E.; NOBRE, Carlos. Amazon tipping point. *Science Advances*, v. 4, n. 2, p. eaat2340, 2018.

[37] This dynamic is reflected in specialised maps for logistics, transport, mineral reserves, indigenous populations, protected areas, water resources, public lands, biodiversity hotspots, *quilombola* territories, populational concentrations, etc.

It is as if Brazil were cut through by different divisions, fragmenting its common project. But these dividing lines are more imaginary than real. For example, in agriculture, those adopting good practices in accordance with the environment must think of themselves as being as much a part of the agenda of combating deforestation as that of the circular economy and the reduction of carbon gas emissions. Fundamentally, they are the same agendas, although the way they are organized in the field of public policy making and socioeconomic dynamics makes them appear as if they sit in opposing camps.

An executive coordination effort, to be rolled out by the centre of the government, is vital for these matters to be addressed as a whole and for the natural conflicts of different visions to be processed and overcome by permanent dialogue. We must also heed the urgency of rebuilding convergent decision-making processes and dynamics, guided by building a resilient relationship based around mutual trust.

The international experience, like the energy efficiency agenda in Germany,[38] reveals vertebrated pathways that are particularly guided by the climate agenda. In Brazil, however, the environmental agenda is compressed into natural resources, related to land use, and urban life. The urban agenda—which dialogues more easily with the European agenda—tends to be affected by local, metropolitan, and state-wide structures, while the natural resources agenda falls into the federal sphere. In other words, in the field of governance too, the context that prevails here is one of fragmentation instead of coordination.

The management of the Covid-19 pandemic in Brazil was emblematic in how it showed the importance of a central command for controlling crises like the health emergency brought about by the virus. In the absence of ministerial leadership, the crisis was tackled by subnational courts and institutions such as the Oswaldo Cruz Foundation (Fiocruz), whose resilience was a decisive factor in the nationwide vaccine rollout. Brazil saw the negative role national

[38] SCHRÖDER, M. *et al. The KFW Experience in the Reduction of Energy Use in and $CO_2$ Emissions from Buildings: Operation, Impacts and Lessons for the UK.* London: UCL Energy Institute; University College London; LSE Housing and Communities; London School of Economics, 2011.

leaders can play when they undermine scientific approaches to public health and the environment. According to a study by the Getúlio Vargas Foundation (FGV), denialist approaches to climate change opened the way for the subsequent denial of Covid-19's seriousness.[39]

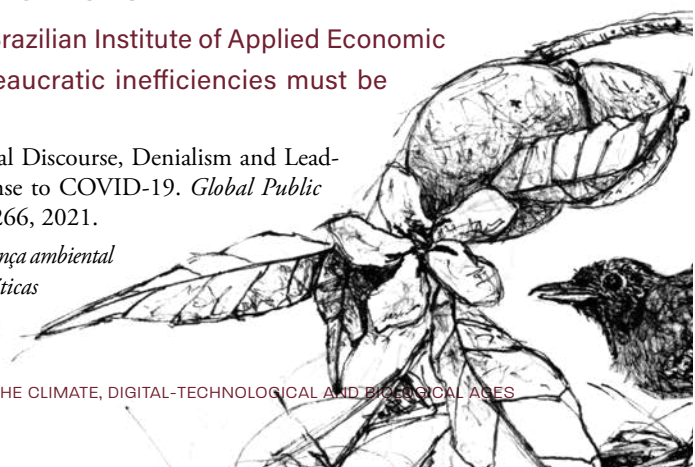
## The need to (re)build new institutionalities

To respond to the challenges mentioned so far—converging different actors around the topic of development, agenda vertebration and coordinated management—new institutionalities become necessary, something which demands the building or rebuilding of governance spaces. With governance as the keyword in this conversation, it will be necessary to build a combination of 'building blocks' to create an enabling agenda that can generate opportunities.

First and foremost, there is no environmental agenda without the presence of the State. In its absence, it becomes difficult to build institutionalities. In this sense, there are very tangible and immediate tasks, such as reviving the National Environment System (Sisnama), so as to endow it with more international robustness and rebuild Conama on new foundations. The structure of environmental governance in Brazil involves different levels of power, policy groups, programmes, international agreements, institutions and a direct relationship with civil society and the media. When these skills are deficient, the action is not always efficiently coordinated by the State (*see box*).

### BUREAUCRATIC INEFFICIENCIES

According to the Brazilian Institute of Applied Economic Research (Ipea),[40] bureaucratic inefficiencies must be



[39] FONSECA, E. M. *et al.* Political Discourse, Denialism and Leadership Failure in Brazil's Response to COVID-19. *Global Public Health*, v. 16, n. 8-9, p. 1251-1266, 2021.

[40] MOURA, A. M. M. (Org.). *Governança ambiental no Brasil: instituições, atores e políticas públicas*. Brasília: Ipea, 2016.

repaired in light of the fact that there still persists, in many agencies of Sisnama, a "red-tape culture" focused on processes (such as handing out environmental licences) and not on outcomes that relate to improving environmental quality. The inherent complexity of environmental issues does not just demand the development of environmental institutions in the narrower sense, in other words, the institutions that make up Sisnama.

> It is essential to have reasonable articulation and communication between the excessive number of institutions whose policies affect the environment. In Brazil and elsewhere, the agencies responsible for environmental policies (ministries) frequently become bureaucratic islands, isolated from other agencies that affect the environment. In such a way, there exists a tendency among other ministries to assume that it is not their job to concern themselves with the environmental question.

The institute also points out that

> environmental organs are rarely powerful enough to influence most of the economic decisions that significantly impact the environment. The environmental field suffers particularly from conflicts between public and private interests. Very often, the "rivalry" happens between governmental institutions themselves, from different arms of the government. In arenas such as Conama, in which institutions from the government, the productive sector and civil society all participate, it could be noted that interests are very often not just conflicting but frankly opposed and irreconcilable

New institutionalities demand contemporary bureaucratic dynamics which enable the clear, objective identification of shared interests in the trajectories towards achieving Brazil's ambitions for sustainable development. ■

A second observation is that there are more complex problems demanding regional and decentralized systems of governance, whose solutions in turn require international or subnational interlocution. In these contexts, the promotion of political-institutional spaces dedicated to bilateral dialogues with multiple interest groups (in the public and private sectors and in civil society) demands different public management dynamics. For example, the transversality needed to address the Pan-Amazon, a region that takes in nine Amazonian countries, goes beyond national, regional and sectoral governments, requiring an even greater interlinking of institutions, their decision-making and consolidation processes, credibility and trust together with interest groups. This picture can also be observed in subnational dynamics and the dynamics of strengthening the federal system in Brazil. Among the new political realities established to deal with these challenges are the consortia of governors of the Legal Amazon and the Northeast, as well as Governors for the Climate.

It is therefore necessary to have arrangements that come closer to, rather than repel, each other; governance with traction and engagement, not bureaucracies that drain energy from the region's social capital; and governments with transversality between countries, levels of government, economic sectors, areas of society and fields of knowledge. The dynamism desired will come from negotiating and processing conflicts, inevitable given the growing struggle for power and resources, as well as rebuilding mutual confidence between parties. To guarantee the stability of the new institutionalities, it is important they are equipped with efficient mechanisms to preserve their skills in the face of political changes, thus avoiding going backwards.

Many of the solutions required are not to be found on the shelves. They need to be conceived and built with a contemporary perspective on the tools of Brazilian environmental policies and the decentralization of their public management as a starting point. However urgent it is to rehabilitate and scrutinize environmental organs after the dismantling they have endured, especially since 2019, the environmental agenda needs more of a nudge, that is,

policies of incentivization and induction which modify the behaviour of people and institutions on the local level.

Considered the world's largest REDD+[41] experiment, the Amazon Fund is taken as a successful example of how to encourage activity that is both conservationist and income-generating. Authors such as Jacques Marcovitch[42] argue that to end deforestation, the State must go further and revive programmes such as this one.[43] In operation for 10 years, the fund financed experimental and innovative projects, aimed at reducing deforestation, mitigating greenhouse gas emissions and developing the Amazon region. It even helped to improve monitoring systems in Brazil's other biomes and financed work by scientific institutions in diverse statal prefectures and secretaries, as well as projects in riverine, indigenous and extractive communities, among others.[44]

Solid use of command and control brings instant and important results in the fight against environmental crime. The challenge of promoting economic growth and social inclusion with nature as an ally requires going beyond action that is exclusive to the State. It is important to make advances in the use of economic instruments that can show themselves to be more efficient in building permanent solutions for inclusive and sustainable development.[45] It is necessary

[41] REDD+ is an incentive developed in the ambit of the United Nations Framework Convention on Climate Change (UNFCCC) to financially reimburse developing countries for their results in reducing greenhouse gas emissions arising from deforestation and degradation. The incentive takes into account the role played by the conservation of forest carbon stocks, sustainable rainforest management and increasing forest carbon stock. See https://bit.ly/3Ws1Xan.

[42] MARCOVITCH, J.; PINSKY, V. Bioma Amazônia: atos e fatos. *Estudos Avançados*, v.34, p. 83-106, 2020.

[43] The fund was created in 2008 and suspended in 2019, the year Jair Bolsonaro assumed the presidency.

[44] Close to R$3.4 billion was received in donations from the governments of Norway (94%) and Germany (5.7%) as well as resources from Petrobras. Until the end of 2019, there were 103 projects in its portfolio, of which 27 had been concluded. Only R$1.86 billion of the full amount had been spent.

[45] According to Martorelli, there are four major groups of economic instruments: taxes (including duties and fines), subsidies, negotiable licences and reimbursable deposits.

to sketch out complementary forms to guide environmental policies more efficiently—clearly not just in the context of the Amazon—and which permit the sharing of responsibilities between the public and private sectors and society.

## Where does the future point to?

In the attempt to build a common future, some factors are crucial. One of them is technology. Almost everything we are experiencing is a recurrence—except for technology, which has the magic power of disrupting the present. Technology moves things up several levels and changes how we think, the way solutions are implemented and the functioning of the human brain.

To exemplify this, MapBiomas was created in 2015 using collaborative monitoring and an open code, elevating a series of discussions about scrutinizing deforestation in the Amazon, as well as covering up holes in monitoring changes in soil use in the Atlantic Rainforest, the Cerrado, the Caatinga, the Pantanal and the Pampa. The network innovates by working with NGOs, the public sectors, universities and private companies organized by transversal biomes and themes such as pasture, agriculture and coastal zones.

Technology is also capable of changing realities when it expands into Brazil's most isolated locations, taking them out of digital blackout and into contemporary life. A connected Amazon, for example, changes the universe of possibilities for the region, in terms of social, economic and cultural aspects and access to basic civil rights.[46]

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They can be applied in the full range of environmental sectors, such as water pollution, air quality, waste management and fertilizer, car and battery use, among others. (MARTORELLI, E. B. *Análise das operações de arrendamento mercantil no Brasil.* 2015. 89 f. Dissertation (Masters in Business Administration)—University of Brasília, Brasília, 2015).

[46] According to the National Household Survey (PNAD), while the percentage of domiciles with broadband internet in the Amazon is 58.5 percent, in Brazil as a whole it is 77.9 percent. The percentage with 3G or 4G internet access in urban areas is 68.7 percent (against 70.7% in Brazil) and in rural areas the difference is starker: 25.1 per-

Digital transformation is a speedy, implacable process that opens up a front for positive outcomes and this needs to be picked up by the radar of the development agenda. The 21st century is marked by the convergence of the climate and the digital-technological eras.

Another potentially transformative factor that inspires hope is the mobilization of younger generations around new behaviours and lifestyles—ones that reject plastic and have different visions of consumerism, guided by the circular economy and respect for nature. Generational transformations are intensifying conflicts, and that's good news. This section of youth has positioned itself—and acted—decisively on environmental matters, cultivating better values than the previous generation. No wonder: the future belongs more to them than it does to older generations.

**FUTURE GENERATIONS**

Led by the UN Development Programme (UNDP) and Oxford University, the biggest global research project ever carried out on the environment heard the views of 1.2 million people, including 500,000 under 18s, in 50 countries. Published in 2021, the result shows that, for close to 70 percent of under-18s, changes in the climate are a global emergency, compared to 65 percent of 18-35s, 66 percent of those aged 36-59 and 58 percent of over-60s.[47]

As a movement, Fridays for Future was born in 2018, inspired by the solitary protest of the young Swede Greta Thunberg, then 15. With her parents' permission, Thunberg staged a three-week-long protest in front of parliament against the lack of action to contain climate change—on the eve of the elections.

cent versus 35.5 percent (SAFATLE, A. Como ampliar a conectividade na Amazônia. *Página 22*, São Paulo, 12 Jul. 2022. Available at: https://bit.ly/3Wqf380. Accessed on: 12 May 2023).

[47] UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP). *The Peoples' Climate Vote*. UNDP, 2021. Available at: https://bit.ly/3IzLTgV. Accessed on: 18 May 2023.

The posts she put up on her social media mobilised more young people around the globe.

Currently, the movement is active in more than 7,500 cities across every continent, organizing regular events such as 'Climate strikes'.

The goal is to exert moral pressure on politicians, so that they draw up concrete plans against the climate crisis, based in science. "We are on strike because we care for our planet and for each other. We have hope that humanity can change, avert the worst climate disasters and build a better future," Fridays for Future says, claiming to be independent from political parties and business interests.[48]

In Brazil, the Youth Atlas is the biggest platform containing data and evidence about young people. It highlights the new interests of these youths, whose more active role demands participation mechanisms and collectively building public policy.[49] ■

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Another big factor in the environmental turn, already mentioned in this chapter, is the financial sector, following efforts in Basel,[50] where the Bank of International Settlements (BIS) is located. International focus on the climate emergency increased the availability of resources for the green agenda. Changes resulting from the central banks have had a big influence on the concept of the Green Swan,[51] propelling the whole ESG agenda from the global

[48] WHO We Are? Fridays for Future. Available at: https://bit.ly/45vcLZf. Accessed on: 18 May 2023.

[49] ABOUT the Atlas. *Atlas das Juventudes*, 2022. Available at: https://atlasdasjuventudes.com.br/sobre-o-atlas/. Accessed on: 12 May 2023.

[50] Basel III began being introduced in Brazil in March 2013, after resolutions by the National Monetary Council (CMN) and the Central Bank of Brazil (BCB). It is made up of a grouping of international financial regulations developed by the Bank of International Settlements (BIS), aimed at increasing resilience and security in global financial systems. (OLIVEIRA, G. C.; FERREIRA, A. N. Basel III: concepção e implementação no Brasil. *Revista Tempo do Mundo*, v. 4, n. 1, p. 115-146, 2018).

[51] The image of the Green Swan has been evoked to represent uncertainties of a physical, social and economic order associated with the climate changes that involve chain reac-

financial nerve centre. Without credit there are no riches and these segments are beginning to offer funding for productive restructuring towards a low-carbon economy—if only because many companies also understand that the cost of inaction is greater than that of action, including reputational damage and the risk of being isolated in the global market.

## The development agenda's reconfiguration map

The Strategy Unit was founded In the United Kingdom in 2006 by then prime minister Tony Blair, its mission being to endow the head of government with the capacity to make long-term plans and work with strategic policies. The unit was created after an audit of sorts called 'Governing for the future' and until 2010 it identified the need for a strategic department to focus on co-ordinated actions.[52] In Brazil, the challenge of thinking about the future is negatively affected by the pronounced antagonism of the short-term agenda. One of Brazil's greatest challenges is turning the game around and proposing pathways for its development that are guided by contemporaneity, not by its past and present.

It is necessary to recover the possibility to think about the future through a reset of the State's structures, always keeping in mind the opportunities offered by technology and the necessary interlinking of different forms and levels of governance. As the long-term view is re-established, it becomes necessary to tend to institutional courts that address the present (like Sisnama or Conama); look after regional development (as in the case with the Amazon); and create

tions, bringing about the unexpected. It is an allusion to the black swan, a representation created by the philosopher and writer Nassim Taleb for a rare and surprising event with a large impact, negative or positive, on the national or global economy. (AWAZU, P. B. *et al. The Green Swan-Central Banking and Financial Stability in the Age of Climate Change*. Paris: BIS; Banque de France, 2020).

[52] GREAT BRITAIN. Parliament. House of Commons. Committee on Public Administration. *The Ombudsman in the Age of Information: Sixth Report of Session 2001-02.* London: The Stationery Office, 2002; INSTITUTE FOR GOVERNMENT. Strategy Unit: R.I.P. *Institute for Government Blog*, 23 Jun, 2010.

innovative and transversal governance frameworks (as is potentially the case with the Amazon Council).

One innovative governance framework would be a Special Department for the Climate Emergency. This proposal, originating within the Arapyaú Fellows' Programme together with the Amazon Concertation network, came together with other similar ones, supporting proposals for a new presidential mandate in 2023.[53] It was based around the idea that the discussion on climate, a theme of growing relevance in the geopolitical arena, has long ceased to be restricted to the environment: it is, above all, about a discussion on development and productive restructuring and, therefore, must bypass the whole of government (*see box*).

### ON THE INITIAL PROPOSAL FOR A SPECIAL DEPARTMENT FOR THE CLIMATE EMERGENCY

Productive restructuring towards a low carbon economy covers topics with distinct complexities and horizons—such as energy transition, regional development and international projection. Low carbon economy, circular economy, and bioeconomy are some of the topics on the agenda, and they all point towards a new model of development rooted in greater efficiency of natural and energy resources, one that conserves nature and extends the life cycles of planetary resources.

This new governance, therefore, becomes necessary to promote the concertation of the agenda's new actors in Brazil, such as the Economy, Agriculture, Science and Technology, Mines and Energy and National Integration portfolios, as well as the Department of Strategic Affairs, the National Economic and Social Development Bank (BNDES), the National Congress, and subnational governments, reviving the Federal Compact in doing so.

[53] CHIARETTI, D. Secretaria do Clima ganha força como sugestão para próximo governo. *Valor Econômico*, 20 set. 2022. Available at: https://bit.ly/44Farhk. Accessed on: 12 May 2023.

It also falls to this department—or climate constituency—to enter into dialogue with the finance and private sectors. It is not just a case of an institution that defends environmental legislation, but one that has the capacity to regulate and influence regulations on the climate topic that originate in Brasília.

Currently, there is no institutional locus with these attributions. Hence the need to create a State department that can be named Special Department for the Climate Emergency with the function not only of organizing the government's policies in this field, but also instrumentalizing Brazil's repositioning in the climate arena, allowing Brazil's reinsertion in the international context and the reviving of its leadership. Besides, it is a tool through which the climate agenda aims to operate politically in the new government.

In previous governments, there was a commission from the Civil House which addressed the topic, but it was growing weaker and weaker. Brazil needs to act out another role in the international sphere, without being linked to the monopoly of Itamaraty (Ministry of Foreign Affairs), which often carries out international politics using a worldview from the 1950s and 60s and eventually linked to the dynamic of diplomatic routes. Additionally, this is an issue for the first rung of government to address.

Considering this, the proposal is that the department has ministerial status, that is, direct access to the president, and is endowed with a streamlined, fluid structure with a small staff and a transitory nature. The president of the Republic can create it.

From the perspective of discussions with productive sectors, specialists and opinion-makers, as well as a section of civil society, the challenge of climate governance in Brazil exceeds the scope of environmental governance. It demands an innovative political dialogue with power to bring together and manage interests together with economic sectors, both domestic

and international, as well as adopting solutions which lead to addressing social inequality and the regional challenges of development. The climate discussion's scope is not circumscribed to the decision-making processes of the Executive Power, also encompassing private and public federal relationships and the Legislative and Judiciary powers. The challenges imposed on Brazil by the climate issue transcend national outlooks on development, involving their interests and their responsibilities for insertion into the modern-day international world. ■

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Luckily, the era in which putting governance of the big national themes on the agenda depended exclusively on the initiative or the assent of the Federal Executive is over. Increasingly, Brazilian society seeks to act to achieve public policies aimed at sustainable development, social and political inclusion and at strengthening its democracy. This requires innovative public governance models, as well as favouring a proactive and co-ordinate Brazilian society's actions in its dialogue with the public sector. This new political context is an essential condition for advancing the implementation of short and long-term actions, aimed at permanent, irreversible solutions, with nature as an ally in development.

One of Brazil's biggest challenges in a new man-nature relationship involves the land use agenda. As well as the urgent need to end deforestation, contemporary Brazil demands innovation and audacity around economic activity associated with food production, the efficient use of natural resources, the protection of its biodiversity and the reduction of social and technological asymmetries. On the other hand, it is important to observe the proposal-based behaviour of Brazilian civil society in promoting new pathways and solutions to its shared responsibility in food and nutritional security in Brazil and the world.

Since 2019, initiatives such as the Amazon Concertation network have sought to enable the chairing of motions and political dialogue to advance innovative pathways towards development in the Amazon, reconciling nature protection and demands for economic

*There is no way to advance this immense challenge of protecting the world's biggest tropical forest without proposing new economies that have nature as their ally.*

growth and human development. There is no way to advance this immense challenge of protecting the world's biggest tropical forest without proposing new economies that have nature as their ally. On the other hand, it is becoming urgent to restore nature's functions in the consolidated use of occupied territories, whose economic activities are guided by other vocations such as food production and the exploitation of minerals and forest resources.

The next chapter discusses Brazil's role in domestic and global food and nutritional security, as well as the challenges of reconciling production with environmental protection in the context of decarbonizing the Brazilian economy.

CHAPTER 3

# Food Production Challenges in Brazil in the Climate Age

## Mapping out the industry

Expressed in the singular, as if it were a homogenous entity, the term 'agribusiness' does not convey its immense diversity or the challenges of large-scale food production. Behind the force that is responsible for a significant chunk of GDP and protects Brazil from economic crises and oscillations lie a myriad of interrelated actors and activities in a complex chain of production (*see box*). Understanding this heterogeneity is Brazil's first step towards dismantling the myths surrounding the relationship between agricultural production and sustainability that prevent Brazil from acting more strategically, be it to promote development in national territory, be it to exercise a greater leading role in the arena of international trade.

To begin with, understanding the variety of contexts in Brazil's food chains relativises preestablished concepts concerning the rural producer. In the first place, the size of rural properties in Brazil varies from an average of 16 hectares in the Northeast to 725 in the Midwest.[54] Furthermore, the discussion on food production must move beyond the dichotomy between large scale commodity producers and small producers using no technology. Technology is not exclusive to the larger producers, and very often the small ones

[54] The average size of rural properties in Brazil varies significantly—Mid-West: 725 hectares; North: 531 hectares; Southeast: 33 hectares; South: 26 hectares; Northeast: 16 hectares (INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA (IBGE). *Censo Agropecuário 2017: resultados definitivos*. Rio de Janeiro: IBGE, 2019).

use even more technology than their bigger counterparts, as is the case with oil, coffee, and more recently cocoa.

Another aspect which relativizes the segmentation between small and large-scale producers is the aggregation of the small ones into production networks which can become large and competitive, such as the milk cooperatives in the South and the coffee ones in the Southeast. Additionally, the geographical localization of production, especially regarding the big cities, bestows a greater market value onto artisanal and small-scale production, such as vegetable and fruit farming in the area surrounding the city of São Paulo, artisanal cheeses in Minas Gerais for the South-eastern market, and fruit in regions close to the big North-eastern cities such as Salvador and Recife.

### AGRIBUSINESS PRODUCTION STATISTICS

The agricultural chain employs 15.1 million people in 5 million agricultural establishments—of which 77 percent are focused on family agriculture[55] and account for 23 percent of all Brazilian production. In 2022, the agribusiness sector accounted for 24.8 percent of Brazilian GDP (5.8 percent of which is generated directly from activity carried out on rural properties).[56, 57]

In 2022, agribusiness's trade balance closed with a surplus of US$142 billion.[58] In addition to impressive figures regarding job creation, food production and income generation, Brazilian agribusiness is booming in the international trade. A study by

[55] Conceptualised following Decree no. 9,064, from 31 May 2017.

[56] BRITO, M. Os desafios do agronegócio brasileiro. *In*: BRAGA, C. A. P.; PAIVA, P. T. A. (org.). *Produtividade e o futuro da economia brasileira*. Belo Horizonte: Fundação Dom Cabral, 2021. p. 95.

[57] CENTRO DE ESTUDOS AVANÇADOS EM ECONOMIA APLICADA (CEPEA- USP). GDP of Brazilian agribusiness. 2023. Available at: https://bit.ly/42YjfhA. Accessed on: 26 Apr. 2023.

[58] BRASIL. Ministry of Agriculture and Livestock. Exportações do agronegócio fecham 2022 com US$ 159 bilhões em vendas. *Gov.br*, 17 Jan. 2023. Available at: https://bit.ly/3BLZr59. Accessed on: 26 Apr. 2023.

the Brazilian Agricultural Research Corporation (Embrapa) calculates that exports in the sector increased from US$20.6 billion to US$96.9 billion between 2000 and 2019, especially soya, meat, corn, cotton and forest products.[59] In 2022 it beat the record for exports, reaching US$159 billion.[60] Brazil is the world's largest producer of soya,[61] star item on the Brazilian exports agenda, and the third largest of bovine meat. A recent study by Brazilian authors[62] pointed out that close to 12 percent of global soya is planted in the Brazilian Cerrado and 10 percent of all bovine meat in the world comes from there. ■

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On the international food security agenda, Brazil is a major player, thanks to its agricultural production and its policies to combat starvation and malnutrition, despite all the setbacks. This is an agenda involving diverse factors, such as poverty, inequality, climate change, access to water and sanitation, agricultural practices and increases in productivity, food waste, unhealthy diets, and infrastructural and logistical problems.

For the coming decades, the view on Brazil's role in the international food security agenda is uncertain. On the one hand, Brazil has the potential to increase food production and contribute to global food security, especially with the adoption of more sustainable agricultural practices and innovative technologies. On the other hand, it faces all the challenges mentioned in this agenda. In addition, there is the direct or indirect impact of some production in the biomes, which leads common sense to view agribusiness as

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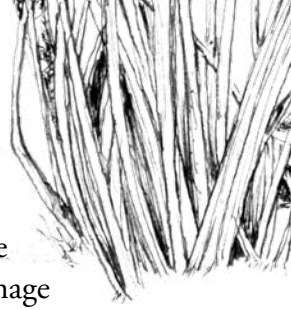
[59] CONTINI, E.; ARAGÃO, A. O agro brasileiro alimenta 800 milhões de pessoas. Brasília: Embrapa, 2021. Available at: https://bit.ly/3OgXnt5. Accessed on: 20 Apr. 2023.

[60] BRAZIL. Ministry of agriculture and Livestock. Exportações do agronegócio fecham 2022 com US$ 159 bilhões em vendas.

[61] EMBRAPA. Soja. Dados econômicos. Available at: https://bit.ly/420arXx. Accessed on: 20 Apr. 2023.

[62] RODRIGUES, A. A. et al. Cerrado Deforestation Threatens Regional Climate and Water Availability for Agriculture and Ecosystems. *Global Change Biology*, v. 28, n. 22, 2022.



an environmental villain. Given the complexities of the sector, the conclusion cannot be binary.

The undeniable, out of control deforestation in the Amazon during Jair Bolsonaro's government resulted in damage to the international reputation of Brazil as a whole, with social impacts on the full range of productive chains. However, export agribusiness has apparently not yet reported big economic losses as a result. Since the last decade, sales have been increasing in volume and in profit, and production and export records are continually being broken.

*The undeniable, out of control deforestation in the Amazon during Jair Bolsonaro's government resulted in damage to the international reputation of Brazil as a whole, with social impacts on the full range of productive chains*

This scenario must not go on much longer, for various reasons. Firstly, the growing evidence of climate risk as a threat that can cause economic losses and affect production negatively is added to the increasingly frequent uncertainties surrounding environmental conditions across the planet. Secondly, worldwide decarbonization in productive chains directly affects Brazil in the need to act with urgency and in the short term on its changes in food production. Then there is the demand for sustainably produced food, with biodiversity protection and water security, a growing demand in global food consumption markets. Thus, the climate reality creates challenges for food and nutritional security in Brazil and the rest of the world.

## The future of Brazilian agriculture and the barriers to be overcome

As changes in the climate become more pronounced and the global population continues to grow, it is inevitable that the agriculture of the coming decades will alter current production patterns. The transition to a low-carbon economy requires efficient use of natural resources, aimed at adopting new agricultural practices and

technologies that will assure a reconciliation of agriculture with natural regeneration and conservation. When we consider this group of possibilities, which current barriers does Brazil need to overcome?

Agriculture exerts pressure on the environment. According to MapBiomas,[63] in 2021, 66 percent of the country was covered by native vegetation.[64] In that year, agriculture occupied 62 million hectares—three times more than in 1985. And forestry went from 1.5 million hectares to almost 9 million hectares mapped in 2021—a 598 percent expansion over that period.[65] At the same time, the capacity to produce more food with fewer inputs (measured by the total output of agriculture factors) also quintupled between 1975 and 2020.[66]

However, while the majority of agricultural production in Brazil is free from deforestation, a sizeable portion acts as the "rotten apples of agribusiness,"[67] as it is put in a publication in *Science* magazine, something with wide international repercussions. The study revealed that just 2 percent of rural properties in the Amazon and Cerrado are responsible for 62 percent of all potential illegal deforestation. This small but highly destructive portion of the sector "contaminates" close to 20 percent of soya exports and at least 17 percent of meat exports from both biomes to the European Union.

Additionally, deforestation is not always immediately linked to livestock farming. In the Amazon biome, nearly 55 million hectares have become pasture. Of that total, 19 million suffer intermediary

[63] MapBiomas is an initiative by the Climate Observatory's Greenhouse Gas Emissions and Removals Estimation System (SEEG/OC) and is produced by a collaborative network of cocreators formed of NGOs, universities and technology companies, organised by biomes and transversal themes.

[64] MAPBIOMAS. Pastagem: ocupação e uso da terra—Coleção 6. Fact sheet, Oct. 2021.

[65] MAPBIOMAS. Mapeamento anual de cobertura e uso da terra—Coleção 7. Fact sheet, Oct. 2022. Available at: https://bit.ly/3IzTzzI. Acessed on: 20 Apr. 2023.

[66] BRITO. Os desafios do agronegócio brasileiro, p. 95.

[67] RAJÃO, R. *et al*. Maçãs podres do agronegócio brasileiro. *Science*, v. 369, n. 6501, p. 246-248, 2020.

degradation and 4.6 million present with severe degradation.[68] In other words, seeking to occupy land, very often by land-grabbing, is an important engine for deforestation (*see box*).

### LAND-GRABBING, VIOLENCE AND SOCIAL VULNERABILITY

For land-grabbing to "mark territory", the forest is knocked down, the most precious wood is sold and the rest burnt to form pasture. These areas may or may not be used for crop and livestock farming after they have been occupied. As they await the day when the ownership of the land is eventually legalised, fully aware that the State lacks real power to monitor the process, the deforesters and land-grabbers profit from the land's value and real estate speculation.

As well as land-grabbing, some of the deforestation in the Amazon can still be attributed to the acts of loggers and illegal prospecting amidst an aggravation of what has come to be called organized environmental crime, involving a network of illegal activities that include the trafficking of drugs, weapons and animals. From 2005 onwards, the region's statistics for violence overtook the national average, and today the murder rate is 70 percent greater than the one for Brazil as a whole. This situation also negatively affects investments in the forest economy.[69]

Another factor that further complicates the picture is the deforestation occurring on the fringes, out of sight of society, such as that which happens in rural settlements and on the land of small-scale producers and riverine communities, exposing the challenges of social inequality in Brazil. How can we criminalize people who cut down trees to make an allotment so they can survive? Faced with such grey areas, how do we draw the line between the land-grabber who deforests in a way that is criminal and those who do it because

[68] MAPBIOMAS. Pastagem: ocupação e uso da terra.

[69] SERRAO, E. Um plano de desenvolvimento para as diversas Amazônias. *Página22*, 30 Aug. 2022. Available at: https://bit.ly/3BSHQsc. Accessed on 20 Apr. 2023.

they need to, given a lack of help on the State's part? Furthermore, situations of social vulnerability can be incorrectly interpreted to justify avoidance of fines and regularization of land ownership. ■

Another challenge of global agribusiness lies in increasing productivity to meet the growing demand for food without placing pressure on natural systems such as native vegetation, promoting economic gains with social inclusion while still addressing the effects of the climate crisis. The United Nations Food and Agriculture Organisation (FAO) estimates that changes in the climate and extreme events will be the main threats to food security across the world. From 2020 to 2023, the number of people experiencing food insecurity more than doubled. Currently, more than 900 million people in the world are in a condition close to starvation.[70]

As such, the agribusiness debate entails a discussion on development. But to find convergence and move forward, it is first necessary to identify the constraints and impasses that still divide Brazilian society, as if production and conservation were irreconcilable and as if environmental protection, in turn, prevented social advance, when it is precisely the opposite.

It is deforestation that generates poverty and low social progress. The Amazonian cities where deforestation has increased most in recent years have the worst placings on the Amazon Social Progress Index (IPS), based on an international methodology and carried out in Brazil by the Amazon Institute of People and the Environment (Imazon). 2021's IPS results also showed that conditions in the Amazon are deteriorating.[71] This instrument was developed by the Washington-based Social Progress Imperative organisation and only analyses social and environmental indexes. As for the relationship

[70] WORLD FOOD PROGRAMME. A Global Hunger Crisis. Available at: https://www.wfp.org/global-hunger-crisis. Accessed on: 18 May 2023.

[71] For example, in the ranking of the 772 municipalities listed, Altamira and São Félix do Xingu, world leaders in rainforest destruction, appear at numbers 509 and 513.

between economic and environmental indexes, that is, production and conservation, it is worth analysing what's been happening in the Cerrado (*see box*).

### ALERT FROM THE CERRADO, OUR BREAD BASKET

A hugely relevant agricultural frontier, as well the home of a great deal of diversity and water sources, the Cerrado is responsible for producing 12 percent of global soya and 10 percent of all the bovine meat exported in the world. At the same time, it is home to more than 12,000 plant species and more than a thousand vertebrate species—many of which are only found in the region. It is also home to important water basins, such as São Francisco, Tocantins-Araguaia and Paraná.

In the last 15 years the biome has suffered an unprecedented increase in average temperatures as a result of deforestation, reaching highs of up to 3.5°C in portions of the biome.[72] As well as being hotter, the region, which traverses nine Brazilian states and the capital, has become drier. The combination of these effects has a fatal result for agricultural and livestock production: less rain.[73]

The analysis, published by Ariane Rodrigues together with other authors in *Global Change Biology*, showed that previously forested regions in the Cerrado which gave way to plantations and pasture have endured the most critical damage. In cities in western Bahia and northern Minas Gerais, where temperatures are already high, the average jumped from 31.8 to 33.9°C in the period surveyed. At the same time, the average annual fall in the volume of water pumped into the atmosphere was as much as 44 percent. ■

[72] RODRIGUES. Cerrado Deforestation Threatens Regional Climate and Water Availability for Agriculture and Ecosystems.

[73] Ibid.

The states that make up Brazil's new agricultural frontier, known as MATOPIBA, which covers Maranhão, Tocantins, Piauí and Bahia, have been experiencing increasing and incremental losses of their vegetation cover and exposure to hotter and drier days. Seen to be potential territory of expansion for cultivation of crops such as soya, MATOPIBA also contains the largest remaining area of the Cerrado. Despite the fact that the effects of changes in the region's climate were already being felt, creating uncertainties in the region's rain patterns, by 2019 close to 916,000 km² in native vegetation was deforested to give way to pasture (31%), soya (9%), sugarcane (2%) and other crops.[74]

Similar impasses are repeated in other Brazilian biomes, even though Brazil has had lengthy discussions and passed laws and plans aimed at protecting nature and sustainable food production. One of the pre-existing pathways is the Low Carbon Agriculture Plan (ABC Plan). A public policy established in 2010, its goal is to promote the reduction of emissions from agriculture, increasing the efficiency of natural resource use and the resilience of systems of production and rural communities.[75, 76] The plan predicts the incorporation of sustainable technologies into the productive process with the goal of making production more efficient, reducing environmental harm and greenhouse gas emissions. The implementation of these goals is timid in pace.[77]

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[74] Ibid.

[75] The ABC Plan is made up of seven programmes: Recovery of Degraded Areas; Integration of Crops, Livestock, and Forest (ILPF) and Agroforestry Systems (SAFs); Biological Nitrogen Fixation (FBN); Planting of Commercial Forests; Treatment of Animal Residues; and Adaptation to Climate Change. BRAZIL. Ministry of Agriculture, Livestock and Food Supply. *Plano Setorial de Mitigação e de Adaptação às Mudanças Climáticas para a Consolidação de uma Economia de Baixa Emissão de Carbono na Agricultura: Plano ABC.* Brasília: Ministério da Agricultura, Pecuária e Abastecimento, 2012).

[76] WANDER, A. E.; TOMAZ, G. A.; PINTO, H. E. Uma avaliação formativa do Plano ABC. *Revista de Política Agrícola*, v. 25, n. 3, p. 62-72, 2016.

[77] BANCO NACIONAL DE DESENVOLVIMENTO. Crédito Rural: desempenho operacional. *BNDES*. Available at: https://bit.ly/3OwWH36. Accessed on: 26 Apr. 2023.

Examples such as the Forest Code and the ABC Plan should be employed as strategic tools in the achievement of food and nutritional security goals in Brazil. Unfortunately, what is being observed is the postponement of their implementation and any effective commitment from Brazilian agriculture to produce food in line with solutions to the climate crisis. The slow progress in these two cases harm Brazil's strategic action on the global stage regarding food security and fighting starvation.

### FOREST CODE

Approved more than ten years ago by the National Congress after a lengthy debate, the Forest Code (Federal Law n°12.651/2012) is still a source of dispute among producers, the scientific community and environmentalists, facing difficulties in its implementation.


The book *Código florestal e compensação de reserva legal: ambiente político e política ambiental*[78] analysed the political and legislative processes that substituted the old Forest Code (Federal Law 4.771/1965) for the new one in 2012 and shows that private interests have ended up causing the reduction of the offset area and establishing that 50 percent of the species used in these compensation spaces were exotic (and not native). The study also shows that other factors were important in this context, such as the government's position and the formation of partisan coalitions, especially in the National Congress.

One of the results of Isabela Kojin Peres's doctoral thesis at the University of São Paulo (USP) is the finding that, although the environmental issue has become more popular, winning space on governmental agendas, there is a prevalent discourse in which the

[78] CUNHA, P. R. *Código florestal e compensação de reserva legal: ambiente político e política ambiental.* São Paulo. Annablume. 2017.

environment appears to be an externality and even an obstacle to Brazil's economic development. [79] ■

For Brazil not to be marginalised in the new political, economic, and trade contexts that are emerging internationally, it is of the utmost importance to control and end deforestation, as well as conform with legal and political environmental and agricultural national laws. The challenge goes beyond the political will of stakeholders or involved players.

The reality that is forming calls for a demonstration of compliance and transparency, demanding efficient and robust advances built around permanent solutions from public and private governance. The bringing together of common interests, market-based solutions, social benefits and joint responsibilities defines the scope of agriculture's transition in the response to the climate crisis.

Without due pressure from rural landowners, solutions that have been tried tested in different countries, such as carbon markets or payments for environmental services, will not take on the economic might and scale that will make Brazilian agriculture adopt them.

Competitivity and productivity in food production in Brazil are affected by a variety of challenges such as precarious infrastructure, lack of technological innovation, the impact of informal employment and pay, work analogous to slavery, and regional differences in education and income for the rural farm worker. However, Brazilian agriculture has unique characteristics and solutions for making advances in the context of the climate and digital-technological eras. It will be necessary to work simultaneously on the different parts of this equation.

[79] PERES, I. K. *Conflitos nas políticas ambientais: uma análise do processo de alteração do Código Florestal Brasileiro.* 2016. 195 f. Dissertation (master's in applied Ecology)—Escola Superior de Agricultura "Luiz de Queiroz", University of de São Paulo, Piracicaba, 2016.

## From an international perspective: the need for an evolutionary revolution

Food production and the protection of nature play a central role in the international cooperation agenda and they can call on Brazil as a key-actor in the achievement of food and nutritional security goals in the world. In this context, international systems have widened the interests of cooperation in Brazil, with a view to promoting sustainable agricultural practices, biodiversity protection, and climate security.

On the other hand, pressure is growing from the international community and the global market for food production systems that are deforestation-free, healthier and which use natural resources efficiently. Multilateral environmental and trade agreements determine other dynamics of cooperation between countries and welcome new behaviours from consumer markets (*see box*). The strategic perspective is one of seeking to reconcile the triple planetary crisis and building new lifestyles associated with wellbeing and societies less vulnerable to climate risk. The challenge is to produce food with nature as an ally.

### CLIMATE CHANGE AND TRADE AGREEMENTS

It can be said that the European vision guiding the trade policies is essentially environmental and climate-oriented in nature, as shown by the letter sent to the government of Brazil in September 2020 by the Amsterdam Declarations Partnership, a group formed by Germany, Denmark, France, Italy, Holland, Norway, and the United Kingdom.[80] In the document, also signed by Belgium, the countries were ready to limit deforestation in the chains of agricultural products sold in Europe. Although they

[80] SILVA, D. Em carta a Mourão, países europeus dizem que desmatamento dificulta negócios com o Brasil. *G1*, 16 Sep. 2020.

defend the concept of climate justice,[81] they avoid mentioning the socioeconomic effects of these boycotts on the fragile populaces of a developing country.

Two years later, in September 2022, the European Parliament approved a bill[82] banning the sale of products originating from deforested areas anywhere in the world, which will seriously affect Brazil since it includes several Brazilian commodities such as soybeans, corn, coffee, beef and pork, chicken and lamb, wood, cocoa, rubber, and paper. The European Parliament's bill demands that companies who put products into the EU market also carry out due diligence to weigh up the risks in their supply chain in terms of human rights and the specific rights of indigenous people. The final version of the law was approved by the European Parliament but it still needs to be ratified by the bloc's member-countries.

The United States took a similar initiative in October 2022. Diverse governmental agencies opened public consultations to define trade restrictions on commodities coming from areas deforested since 2020, which could affect 10 percent of Brazilian exports to the North American market.[83]

In parallel, the process to ratify the Mercosur-EU agreement remains on the back burner. It took almost 20 years of negotiations before the trade agreement was signed in 2019

[81] 'Those who, historically, benefitted from and were able to develop because of greenhouse gas emissions accumulated in the atmosphere to this day can't share the responsibility for the harm and impacts of climate change with others.' (LOUBACK, A. C. (co-ord.). *Quem precisa de justiça climática no Brasil?* Brasília: Gênero e Clima; Observatório do Clima, 2022. p. 32. Available at: https://bit. ly/3q6JXWM. Accessed on: 18 May 2023).

[82] EUROPEAN PARLIAMENT. Climate Change: New Rules for Companies to Help Limit Global Deforestation. Sep. 13, 2022. Available at: https://bit.ly/43ajnKO. Accessed on: 18 May 2023.

[83] MOREIRA, A. EUA dão passo para barrar produtos de desmatamento. *Valor Econômico*, 21 Oct. 2022. Available at: https://bit.ly/3IBDrhd. Accessed on: 26 Apr. 2023.

but the ratification process is complex.[84] The European Union was having internal discussions on how to add proposals they considered essential in the environmental sphere, mainly to do with the huge increase in deforestation in the Amazon under Jair Bolsonaro's government,[85] but no actual progress was made. ■

Thus, the international perspective which emerges is to treat the climate and environmental crises in their economic, social, and technological contexts, connecting agendas previously driven in their own, isolated contexts. One of the most illustrative situations of this change in political and economic behaviour involves the relationships and interests that determine the dynamics of international trade. This topic is of special interest for Brazil, not only because of its capacity as a food producing-exporting country but also because it has strategic biodiversity and natural resources.

The challenges placed on the Brazilian trajectory are not limited to deforestation-free food production and the use of environmentally sustainable technologies. Brazil needs to make advances in the new dynamics of and the space for cooperation around international trade. To do so, it must move beyond its current isolation from the main international trade treaties, such as the Regional Comprehensive Economic Partnership (RCEP), considered the world's largest trade agreement.[86] Historically (and mistakenly), the country uses the negotiated, bilateral and bureaucratic route[87] when faced with

[84] BALTENSPERGER, M. *et al.* The European Union-Mercosur Free Trade Agreement: Prospects and Risks. *Bruegel*, 2019.

[85] NATIONAL INSTITUTE FOR SPACE RESEARCH (INPE). Taxas anuais de desmatamento na Amazônia Legal (1988-2021). *TerraBrasilis*, 2021. Available at: https://bit.ly/3IxYKQF. Accessed on: 20 Apr. 2023.

[86] The agreement covers 15 countries: the members of the Association of Southeast Asian Nations (ASEAN), as well as China, Japan, Australia, South Korea and New Zealand.

[87] WORLD BANK GROUP. *Doing Business in Brazil.* WBG, 2020. Available at: https://bit.ly/42Z5P4W. Accessed on: 20 Apr. 2023.

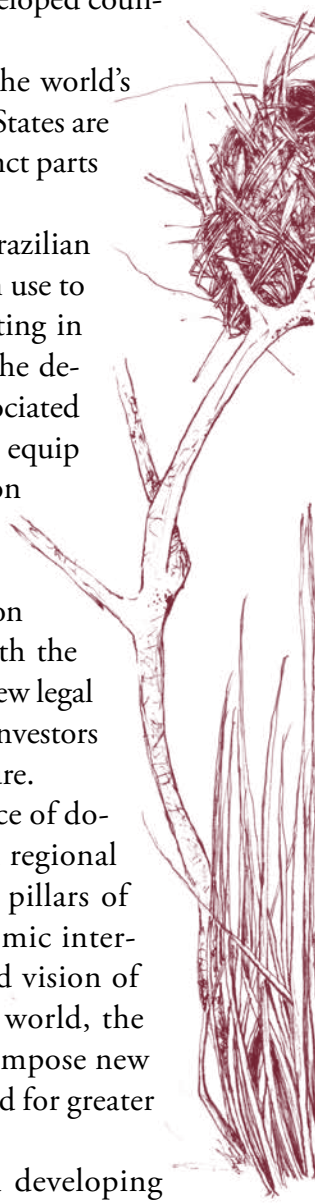
more wide-ranging trade integration treaties with developed countries in relevant markets.[88]

It is fitting, then, to note that Brazil is one of the world's main food exporters. China, Europe, and the United States are its main foreign markets, very often interested in distinct parts of the same production, as is the case of meat.

The global demand for food is growing and Brazilian tropical agriculture has a strategic role and place it can use to meet this challenge. The exporting companies operating in Brazil have been under increasing demand to meet the demands of international markets for foodstuffs not associated with natural destruction. This has motivated them to equip themselves to make the transition towards a low carbon economy. At the same time, the transition requires progressive changes in regulation and business models, in the use of traceability technologies in all food production and transparent access to information, associated with the chain of production. On the other hand, it demands new legal regulatory arrangements that enable legal security for investors and buyers and competitiveness in Brazilian agriculture.

In the context of international trade, the defence of domestic interests makes strategic use of bilateral and regional cooperation agreements. This has been one of the pillars of Brazil's search to reconcile the balance of its economic interests with political independence and a consolidated vision of Brazilian external policy. However, changes in the world, the crisis with nature and the digital technological era impose new dynamics for the convergence of interests and the need for greater integration and cooperation.

This context can allow greater unity between developing countries and emerging economies, allowing them to fight poverty,



[88] RIOS, S. P.; VEIGA, P. M. *Abertura comercial: a reforma necessária (mas não suficiente) para a retomada do crescimento econômico.* Centro de Estudos de Integração e Desenvolvimento, 2021. Available at: https://bit.ly/3pSCiMc. Accessed on: 20 Apr. 2023.

reduce inequalities and adopt fairer terms of trade internationally.[89] For this to happen, it is necessary to widen the possibilities of cooperation guided by new visions and food production technologies, as well as a strategic focus on new green economies.

There are enormous opportunities to be seized in the field of tropical biodiversity. Forest-compatible products such as cocoa, black pepper, palm, mango and pineapple could significantly shift the agenda of Brazil's food exports, while conserving the Amazon and promoting social inclusion. But when you take a look at a list of 60 Amazonian products with these attributes, you see that they represent a negligible 0.18 percent of the global forest product market, which moves US$159 billion per year, according to research by Salo Coslovsky, associate professor at New York University.[90] Brazil loses to countries like Guyana, Bolivia, Ecuador, Ivory Coast, Costa Rica, Uganda, and Vietnam, all of which have more challenging socioeconomic conditions.

In parallel to the growth of agricultural and livestock exports, it is worth noting that the '*Made in Brazil*' image is sustaining damage. Despite the internal complexities of agribusiness and the attempts that have been made to meet sustainability criteria, from the outside all people see are the alarming deforestation rates.

Although Brazil has developed solid legislation on environmental information, water and waste management, and biodiversity, more efforts are needed to translate these legal arrangements into effective practices for promoting sustainability, according to the Organization for Economic Cooperation and Development (OECD).[91] According to a report by the organization, Brazil has a

[89] ABDENUR, A.; TEIXEIRA, I.; WAGNER, J.; ABRAMOVAY, P. *Clima e estratégia internacional: novos rumos para o Brasil*, p. 82.

[90] AMAZÔNIA 2030. *Oportunidades para exportação de produtos compatíveis com a floresta na Amazônia brasileira*. Belém: Amazônia 2030, 2021. 104 p. Available at: https://bit.ly/42ZTBt7. Accessed on: 26 Apr. 2023.

[91] ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD). *Evaluating Brazil's Progress in Implementing Environmental Performance Review Recommendations and Alignment with OECD Environment*

far-reaching, consistent legal framework for the conservation and sustainable use of biodiversity.

However, the increase in deforestation and other intense pressures on Brazil's natural riches demand more effort at every level of government in order to implement these requirements. Economic tools for protecting biodiversity are used, such as Payments for Environmental Services and biodiversity compensations, though not always efficiently. It is time for Brazil to overcome its past and look towards its future. Environmental laws must function in practice, as a credible and integral regulatory system, an ally of sustainable food practices. The case of Indonesia illustrates a potential trade consequence of uncontrolled deforestation (*see box*).

*It is time for Brazil to overcome its past and look towards its future.*

### THE CASE OF INDONESIA: CONSEQUENCES OF UNCONTROLLED DEFORESTATION

A developing country with tropical forests that supplies commodities like cellulose and palm oil, Indonesia underwent a situation similar to what Brazil is experiencing and could yet face. When the Indonesian government loosened its command and control and attacked the work of environmental organisations, deforestation and slash-and-burn agriculture shot up. The international reaction was a ban on *Made in Indonesia* products, giving the whole country a negative image. Cellulose exports, for example, were suspended by Europe and the US.

Facing international pressure, there was an emergency course correction. Deforestation for palm oil cultivation in Indonesia, Malaysia and Papua New Guinea fell in 2021 and reached

*Acquis*. Paris: OECD, 2021. Available at: https://bit.ly/3OyT0Kg. Accessed on: 27 Apr. 2023.

its lowest level since 2017, according to an analysis by Chain Reaction Research (CRR).[92] Researchers attribute the decline in deforestation especially to a growing number of companies that have adopted policies of no deforestation, according to a survey. But there have also been changes in public policy, such as a moratorium on granting licences to plantations in primary forest areas.[93]

Currently, deforestation in Indonesia stands at 10 percent of the Brazilian rate, switching the focus on the "environmental villain" to Brazil. How to explain on an international level that deforestation in the Amazon is shooting up again because Brazilian environmental law is not fulfilled and the Brazilian state cannot enforce its power and control mechanisms? ■

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Our self-image as a "splendid cradle" is an illusion. As already mentioned, aside from tensions in foreign markets, Brazil is also exposed to an unpredictable climate which is already affecting production by reducing growth in crop yield.[94] Deforestation in the Amazon reduces the flow of so-called flying rivers, generated by evapotranspiration in the forest and which reach the Central-Southern portion of Brazil as rain, irrigating the fields.[95] Furthermore, this condition poses environmental risks for Brazilian farmers, making food production even more vulnerable, adding to an already critical reality of a

[92] CISNEROS, E.; KIS-KATOS, K.; NURYARTONO, N. Palm Oil and the Politics of Deforestation in INDONESIA. *Journal of Environmental Economics and Management*, v. 108, p. 102453, 2021.

[93] JONG, H. N. Deforestation for Palm Oil Falls in Southeast Asia, but Is It a Trend or a Blip? *Mongabay*, Mar. 23, 2022. Available at: https://bit.ly/3OxJDKR. Accessed on: 20 Apr. 2023.

[94] PONTES, N. Geada e mudanças climáticas ameaçam café brasileiro. *DW*, 17 Aug. 2021. Available at: https://bit.ly/421mi7F. Accessed on: 20 Apr. 2023.

[95] NOBRE, A. D. *O futuro climático da Amazônia: relatório de avaliação científica.* São José dos Campos: INPA, 2014.

lack of agricultural security. This picture contrasts with other food-producing countries which adopt security mechanisms and large subsidies to protect rural producers.[96]

Once Brazil has an impressive amount of natural riches and biodiversity and is a large food producer, it seems evident that a more intelligent path for Brazil is to globally consolidate itself as a key player in the agri-environmental field. This strategic positioning permits food production in Brazil to have nature as an ally and reduce its vulnerability to climate risk, as well as promoting practices resilient to the uncertainties associated with the nature crisis. This reorientation must allow the emerging demands of the most diverse international markets to be met, as well as protecting tropical Brazilian agriculture from geopolitical oscillations that impact the international market.

There is an opening for making this move that is ready to be filled by Brazilian society. The new generations, 100 percent digital, are better informed than previous generations and more alert to products coming from systems aiming at greater balance between production and conservation, with social criteria. Among the examples of regenerative agriculture applied in Brazil are Integration of Crops, Livestock, and Forest (ILPF) and agroforests. Between 2005, the total area of ILPF in Brazil increased significantly, going from 2 million hectares to 17.4 million.[97]

In this sense, private companies' policies of traceability and for tackling deforestation are a part of greater efforts to transition to a decarbonized and socially just economy. Such policies are taken up internally by large food-producing companies, as well as by the bigger storage companies, with technologies such as geospatial monitoring, blockchain and big data, as well as policies of inclusion for small producers, provided they adhere to sustainability

[96] BUAINAIN, A. M.; VIEIRA, P. A. Seguro Agrícola no Brasil: desafios e potencialidades. *Revista Brasileira Risco e Seguro*, v. 7, p. 39-68, 2011.

[97] EMBRAPA. Rede projeta 3,5 milhões de hectares com sistemas de ILPF até 2030. *Embrapa*, 2021. Available at: https://bit.ly/43DKG0r. Accessed on: 20 Apr. 2023.

criteria, as is the case with Marfrig[98] and JBS.[99] However, advances in the Brazilian livestock farming industry could be greater if the rules of cattle traceability regarding sanitary aspects also embraced environmental aspects (*see box*).

### PUBLIC POLICIES FOR TRACEABILITY IN LIVESTOCK FARMING

The Brazilian Bovine and Bubaline Identification and Certification System (Sisbov), created to meet the sanitary demands of the European market, foresees individual traceability for animals with optional implementation, removing some of the measure's effectiveness. Many animals enter the system just 90 days before slaughter/shipping, which does not ensure the animal's traceability from birth, preventing the identification of animals reared in recently deforested areas.

The Animal Transit Guide (GTA), an official document required for animal transport in Brazil, with key traceability information such as origin and destination,[100] is self-declared and may not contain all the information. Aside from this, the government does not permit the GTA to do environmental monitoring, since that would open up data on producers and their properties for agencies such as the Federal and State Revenue Services and the Public Prosecutor's Office. The implementation of the General Personal Data Protection Act created related difficulties since it prevents access to information. According to representatives of Transparency

[98] Marfrig, a Brazilian company that is a global leader in hamburgers and one of the world's largest beef producers, even integrates a Corporate Sustainability Index licence from the Brazilian stock market (B3) (MARFRIG. Marfrig Verde +. Available at: https://bit.ly/3BQR3S8. Accessed on: 20 Apr. 2023).

[99] JBS 360. Escritórios verdes. Available at: https://jbs360.com.br/escritorios-verdes/. Accessed on; 27 Apr. 2023.

[100] BRAZIL. Habilitar-se para emissão da Guia de Trânsito Animal (GTA). Available at: https://bit.ly/3MvJo0d. Accessed on: 20 Apr. 2023.

International Brazil and Trase, a transparency initiative that uses data on sustainability in the global market, in 2022 the National Agrarian Settlement and Reform Institute's Land Management System restricted the identification of landowners, using an erroneous interpretation of the LGPD (General Data Protection Law).[101] ■

## Pathways towards convergence

How will Brazil be able to address international pressure, meet growing demand for food as the population grows and become attuned to global trends, such as the transition to cell-based or plant-based proteins?[102,103] The global challenges of increasing productivity suggest increasing the range of low-carbon foods and finding more, while simultaneously reducing waste—currently, a third of what is produced is lost. To this end, (bio)technological innovation is needed, along with advanced management systems, the capacity to adapt to climate change, consumer education and, as a backdrop, knowing how to address conflicts.

In a world as heterogeneous as the world of food production, we cannot expect consensus. Multiple interests and worldviews prevent a unified alignment. On the other hand, the changes observed by consumers are already a reality that dictates access to markets, cascading down the entire chain of production. Structural

[101] MORGADO, R.; REIS, T. Restrição no acesso a dados prejudica imagem do Brasil. *Valor Econômico*, São Paulo, 24 Oct. 2022. Available at: https://bit.ly/3JYURoP. Accessed on: 27 Apr. 2023.

[102] According to the FAIRR initiative, which brings together global investors with US$68 trillion in shares, sales of plant-based meats surpassed US$5 billion and plant-based milks reached almost US$ 18 billion. This hub predicts that the market for meat alternatives will represent between 10 and 45 percent of the total by 2035.

[103] TZIVA, M. *et al.* Understanding the Protein Transition: The Rise of Plant-based Meat Substitutes. *Environmental Innovation and Societal Transitions*, v. 35, p. 217-231, 2020.

changes are necessary in all industries, as well as in food production in the field.[104]

Another part of this context is the buy-in from the financial world, which is progressively adopting environmental, social, and governance (ESG) criteria when granting credit and making investment decisions.[105] The norm is to reduce exposure to risks and take advantage of the opportunities that surge from carbon efficient activities, that is, activities that produce more with fewer carbon emissions. This top-down movement demands transformations in the production process, with the solid application of science and technology, fundamental for decarbonization, climate change adaptation and increasing productivity (avoiding the advance of the agriculture frontier).

There are also multiple possibilities for side-by-side gain, be that in movements towards regenerative agriculture, which generates carbon credits, or in supporting biodiversity protection projects.[106] Industry companies can buy biodiversity credits to demonstrate their pledge to mitigating nature-related risks, while innovative entrepreneurialism is capable of supplying solutions for overcoming obstacles to market expansion, as shown in a paper from the WEF.[107]

Biotechnology is invariably highlighted as a pathway to sustainable agriculture and is also associated with industrial usage, which includes the production of enzymes, biofuels, biodegradable materials, and renewable chemical products. There are important research fronts, such as the use of biofungicides in the biological

[104] BRITO, M. O agro e a revolução evolutiva. *AGFeed*, 1º May 2023. Available at: https://bit.ly/45s2X2u. Accessed on: 12 May 2023

[105] KPMG. *The Impact of ESG Disclosure*. Sept. 2019. Available at: https://bit.ly/427iqlj. Accessed on: 18 May 2023.

[106] WORLD ECONOMIC FORUM (WEF). *Biodiversity Credit Market: Securing a Sustainable Future for Business and Nature*. 2022.

[107] WORLD ECONOMIC FORUM (WEF). *Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes*. 2022. Available at: https://bit.ly/3MSBq2X. Accessed on: 20 Apr. 2023.

control of blights and diseases; the use of nitrogen fixing bacteria and mycorrhizae to improve plant productivity; the development of plants and animals improved with conventional genetic enhancement techniques; and genetic modification[108] (*see box*).

### BRAZILIAN BIOTECHNOLOGY

It is felt that Brazilian agricultural biotechnology has undergone big advances in the last few decades, especially in the development of genetically modified cultures, including soya, cotton, and corn, which since 2013 has placed Brazil in second place in the rankings of the countries with the largest cultivated area of this kind, one study points out.[109] Biotechnology can help to increase agricultural output by applying molecular knowledge on the function of genes and the regulatory functions involved in tolerance and stress, development and growth, effectively 'designing' new plants.

Although agricultural biotechnology is highlighted as a promising route for facing up to challenges, ethical and sociocultural concerns must be addressed to guarantee general trust and acceptance from the public. Authors[110] suggest developing ethically and socially responsible solutions, relevant for people from different cultural and social origins, and transmitted to the public in a convincing and direct manner. The evolution of these products in the value chain is also highly important, with innumerable opportunities to be developed by agroindustry.

[108] FALEIRO, F. G.; ANDRADE, S. R. M.; REIS JUNIOR, F. B. (ed.). *Biotecnologia: estado da arte e aplicações na agropecuária*. Planaltina, DF: Embrapa Cerrados, 2011.

[109] FIGUEIREDO, L. H. M. *et al.* An Overview of Intellectual Property within Agricultural. *Biotechnology in Brazil. Biotechnology Research and Innovation*, v. 3, n. 1, p. 69-79, 2019.

[110] HARFOUCHE, A. L. *et al.* Promoting Ethically Responsible Use of Agricultural Biotechnology. *Trends in Plant Science*, v. 26, n. 6, p. 546-559, 2021.

There is also a frontier of technological knowledge to explore in the production of bioenergy in Brazil. That, for example, is what the FAPESP Programme for Bioenergy Research (BIOEN)[111] does, by supporting projects such as the functional analysis of genes involved in sugar cane photosynthesis, increasing sucrose content, analysing the biosynthesis of cell walls and obtaining plants which display tolerance to drought, among others. ■

In this sense, the concept of agriculture aligned with the principles of the new green economies, which seek to link economic development to environmental preservation and social justice, is gaining strength. The adoption of agroforestry practices, for example, can generate additional income for producers through the sale of carbon credits, while the production of organic and sustainable food can win over consumers who are more and more conscientious and prepared to pay more for quality foodstuffs produced without deforestation or human rights violations.

According to Brazil's Ministry of Agriculture, Livestock and Food Supply, the area destined for organic production in Brazil grew by 20 percent between 2018 and 2019, and the sale of organic foods moved close to R$4 billion in 2020. The local food movement, known as 'farm-to-table', has also been going from strength to strength in many different countries as a way of promoting local production and reducing the carbon footprint of food products.

The government can also play an important role in inducing regenerative agriculture as a buyer, incentivizing producers to adopt more sustainable practices and promoting a range of healthier and more ecologically responsible foods. There are already examples of Brazilian cities with buying criteria that prioritize organic and

[111] FAPESP. FAPESP Bioenergy Research Program. Available at: https://fapesp.br/en/bioen. Accessed on: 27 Apr. 2023.

agroecological products from local producers in their public-school meal menus, such as São Paulo.[112]

A still incipient concept but one which has gained prominence in light of the fragilities in food chains exposed during the Covid-19 pandemic, is urban agriculture. It encompasses the practice of activities related to farming livestock and crops in urban environments, including communal plots, school gardens, productive farms, ranches, and aquaponic and hydroponic systems in urban areas. Although it may come to play an important role, there is still a lack of understanding about its efficiency, necessary policies for taking advantage of its potential and solutions to overcome several of its challenges. [113]

Brazil not only has all the natural attributes that will allow it to seize the opportunities offered by these markets, it also has immense advantages in relation to other countries. This is because it still maintains significant portions of native vegetation and an immensity of areas in which it is possible to promote forest restoration, which can generate credits based on averted deforestation and degradation and carbon capture. These natural areas still serve as water pumps, protect the soil, promote pollination, and preserve biodiversity. If kept alive, they create benefits not just for the country but also the world, through environmental services that can be monetized.

For this to happen, however, Brazil will have to address the challenge of institutional building, modernization and transparency of the government agencies, such as the Forest Service, the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the National Indigenous People Foundation (Funai) and Incra—as highlighted in chapter 2 of this book. Brazil needs to

[112] Law n°16.140/2015 makes it obligatory for 30 percent of the resources for school meals to be destined to buying food from family farms and/or from rural family entrepreneurs, prioritizing local and sustainable production.

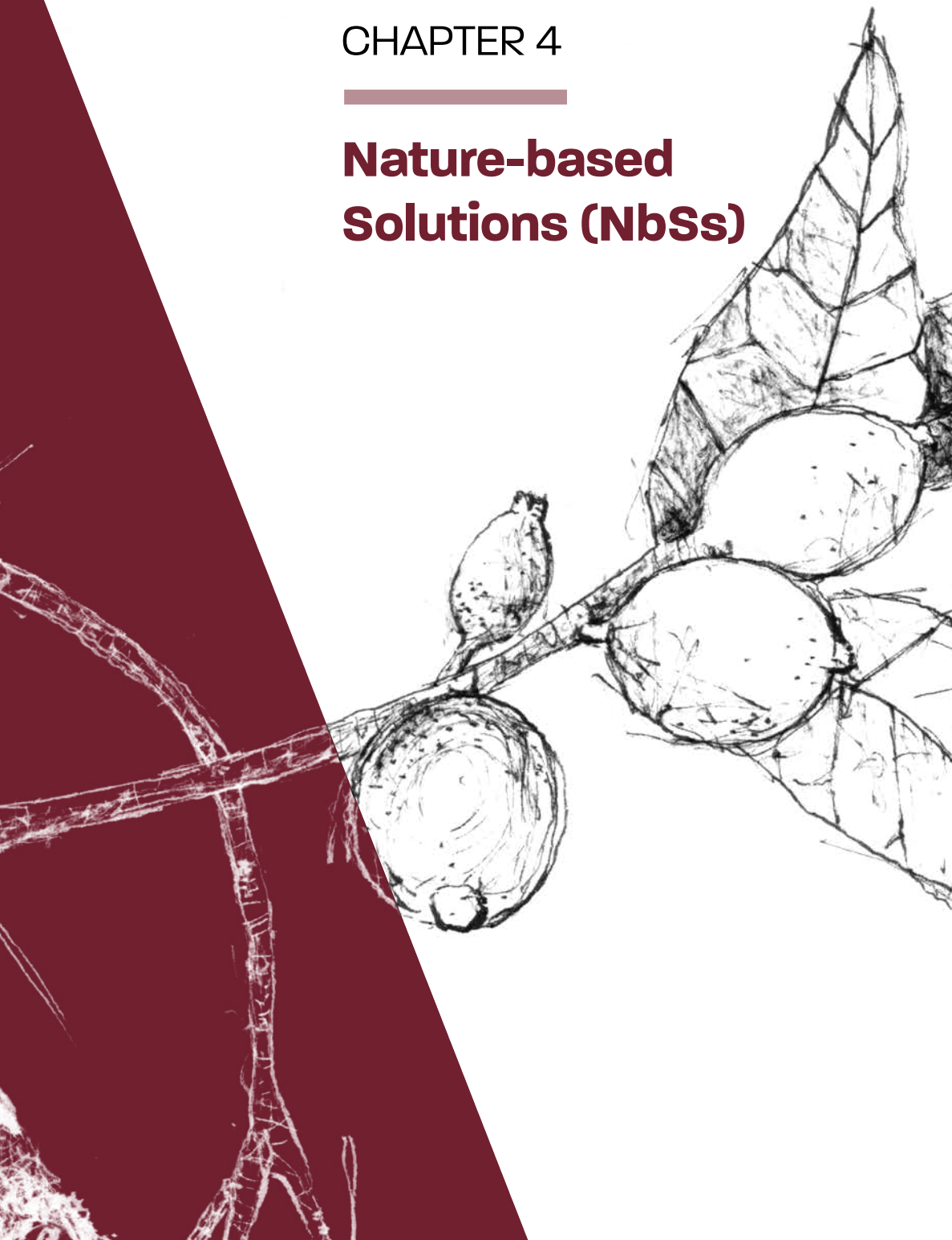
[113] UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP). *Urban Agriculture's Potential to Advance Multiple Sustainability Goals*. Nairobi: UNEP, 2016. Available at: https://bit.ly/423k9sb. Accessed on: 20 Apr. 2023.

identify effective constraints in land regularization processes. Even more, Brazil needs to reconcile itself with the double identity that is in its genesis: a country that is both agricultural and forest covered. Only then will *Made in Brazil* be a triumph.

This discussion on land use changes has extreme strategic importance in the search for pathways towards development that do not resort to deforestation but have nature as an ally. In this sense, the relationship between biodiversity and food and nutritional security is crucial for Brazil.

CHAPTER 4

# Nature-based Solutions (NbSs)



## A strategic opportunity

What else but an intelligence developed over billions of years might have the answers for the environmental problems human beings have caused? Over this unimaginable period of time, nature has found evolutionary pathways by means of a complex attempt, error, correction, and adaptation process and by accumulating an incommensurable body of knowledge. Modern-day societies must drink from this fountain of knowledge to resolve the issues that put human survival itself and life on earth at risk. These issues are: climate change, mass species extinction, unsustainable exploitation of natural resources, desertification, and the accelerated increase in waste and pollutants, among so many other problems generated in the brief history of humanity—especially since the Industrial Revolution.

The current environmental crises make it obvious that humanity must transition its economic models and relationship with the planet's environmental limits. In this context, countries rich in biodiversity and in natural resources, such as Brazil, are challenged to play a more daring part in their development trajectories. The crucial stimulus is to grow economically with political and social inclusion and with nature as a strategic ally. Thinking about new pathways towards a socially inclusive development will depend more and more on biodiversity and environmental services.

Contrary to the instrumentalist vision the use of the word 'solutions' might suggest—using nature as a tool—the arrival of Nature-based Solutions (NbSs) calls for a profound realignment between mankind and the environment by altering the very type of

relationship. This change presupposes a revision of values and a new ethical framework in which the mere exploitation of nature becomes unacceptable. Although they do bring desirable pragmatic solutions, NbSs go further by creating opportunities to elevate humanity to a new level of civilization.

The leap to this new level consists in moving from the current industrial civilization, based around the linear transformation of natural resources into products and waste, to a civilization centred around reconnection with nature and circular processes of production and consumption. Instead of being a source of domesticable economic resources, nature goes back to being a partner of the human being. The change might unveil another development paradigm, with a capacity for transformation on every level of society and wide geopolitical repercussions.

Countries with prodigious environments, like megabiodiverse Brazil, have the potential to show the world new routes to development, with nature as their main ally. Transposing the concept of Nature-based Solutions (*see box*) to the practice of a new socioeconomic model that reduces inequality could make Brazil take an overdue and long-awaited leap towards becoming the "country of the future" we have heard so much about.

If we truly are heralding an age of bioeconomy, the chances of Brazil taking on a prominent position on the world stage grow enormously. This will require discussions around establishing an economic model built on new foundations, with improved indexes capable of incorporating the value of nature into its metrics, or else the creation of new ones.

The change in the way we understand nature, from a readily available and inexhaustible resource to a close relative of humanity, must delimit the knowledge of the new generations and prepare them to put a new world order into practice, while at the same time seizing opportunities for employment and income created by this new economy.[114]

[114] Currently, almost 75 million people already work in Nature-based Solutions, but another 20 million positions can be created that will tackle challenges such

## DEFINITIONS OF NbSs

Although it is not new, the term *Nature-based Solutions (NbSs)* is still in the process of being defined. According to the International Union for Conservation of Nature (IUCN), NbSs are actions to protect, sustainably manage, and restore natural or modified ecosystems by addressing social challenges such as climate change, water and food security, or natural disasters. These actions, however, need to be addressed in an efficient and adaptive way, as well as providing wellbeing for humanity and protecting biodiversity.

NbSs can be grouped into three main groups. In the first instance, they're considered to be solutions that cause little or no modification to existing ecosystems, resulting in the preservation or increase of environmental services in protected areas such as Units of Conservation, national parks and salt marshes in coastal areas. In the second instance, they increase the functionality, genetic diversity, resilience and services available for lending by ecosystems or landscapes, such as ecological restoration in fountainhead areas and the use of techniques such as agroforests. The third corresponds to the creation of new ecosystems where nature is no longer present, very often associated with blue and green infrastructure, like gardens and bodies of water which can, for example, make use of vegetation to absorb rain water, reduce urban heat and promote biodiversity. In the South American context,

as climate change, disaster risk and water and food security. Investing in policies which support NbSs would generate significant employment opportunities, particularly in rural areas, according to the *Decent Work in Nature-based Solutions* report, launched at the 15th UN Biodiversity Conference (COP150) by the International Labour Organization (ILO), the United Nations Environment Programme (UNEP) and the International Union for Conservation of Nature (IUCN) (INTERNATIONAL LABOUR ORGANIZATION; THE UNITED NATIONS ENVIRONMENT PROGRAMME. *Decent Work in Nature Based Solutions*. ILO; UNEP; IUCN, 2022. Available at: https:// bit.ly/3MQRNNa. Accessed on: 18 May 2023).

the first two kinds of NbSs have a heightened importance and still represent a great potential for being implemented as public policies.[115]

It is hoped that NbSs will integrate strategies that consider climate change and biodiversity loss and, at the same time, support sustainable development. It is still necessary to consider local communities and their wishes when implementing projects, especially in regions where land ownership rights are weaker. Rights violations can prevent the success and sustainability of interventions.

NbSs can reduce social vulnerability in at least three ways: less exposure to climate risks; reduction in sensitivity and adverse impacts; and building adaptive capacity. Restoring and protecting coastal ecosystems, for example, can protect communities against floods and storms; forest restoration and protection can improve water security and reduce the risk of floods, soil erosion and landslides; nature-based agriculture, such as agroforestry, can increase the resilience of food supplies to blights, disease and weather extremes; in cities, NbSs can contribute to flood mitigation and thermal comfort.

In contrast with many engineering solutions, they have the potential to address the challenges of mitigation and climate adaptation at a relatively low cost, while also offering several additional benefits to people and nature. Planting trees and increasing green space in cities can help with urban cooling and flood reduction, while at the same time storing carbon, mitigating air pollution and bringing recreation and health benefits. ■

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[115] MARQUES, T. H. N.; RIZZI, D.; FERRAZ, VICTOR; HERZOG, C. P. Soluções baseadas na Natureza: conceituação, aplicabilidade e complexidade no contexto latino-americano, casos do Brasil e Peru.

In the international context, climate change takes most of the focus and investments. Although climate is more present on the energy agenda than ecosystem protection, forest and ocean conservation has come to be seen as key for achieving global climate equilibrium. Ideas about possible combinations of environmental commitments beyond the low carbon economy, such as biodiversity protection, are being consolidated in a wide range of forums all over the planet, integrating this discussion into those surrounding food security, energy transition and social justice.

Viewed in this light, NbSs have the potential to be a connector of agendas, in particular the need to share innovations and technologies. The report published by UN Trade and Development (UNCTAD)[116] in 2020 shows how, since the Industrial Revolution, the sharing of innovation and technology actually caused an increase in social inequality, all the while crossing new environmental frontiers.[117] Therefore, new solutions must be conceived of in a way that guarantees inclusion and greater equity, notably by incorporating ancestral knowledge into scientific learning.

*Therefore, new solutions must be conceived of in a way that guarantees inclusion and greater equity, notably by incorporating ancestral knowledge into scientific learning.*

Like few other countries, Brazil can bring all three of the elements of which NbSs must be composed to the table: climate, biodiversity, and the social aspects, considering the sociocultural richness of the peoples who live in and protect the forests (*see chapter 5*). To this end, it must take the lead on discussions around socio-biodiversity which the Northern Hemisphere has still not explored, since the term NbSs was invented in countries with

[116] UNCTAD. *Technology and Innovation Report 2021*. Geneva: United Nations, 2021.

[117] PERSON, L. *et al.* Outside the Safe Operating Space of the Planetary Boundary for Novel Entities. *Environmental Science & Technology*, v. 56, n. 3, p. 1510-1521, 2022. DOI: 10.1021/acs.est.1c04158.

socioeconomic, environmental and political climates and realities somewhat different from those found in the Global South, such as in Latin America.[118]

## Opportunities and challenges of NbSs in the forest economy

The example of cocoa in Southern Bahia (*see box)* serves to illustrate the many NbSs possible in Brazil. Although each NbS must be under the umbrella of bioeconomy, not all bioeconomic activity can be considered an NbS, which stand out because they of necessity present a conservation model that is allied to social development.

### THE CASE OF COCOA IN SOUTHERN BAHIA[119]

In the early 1950s, cocoa was the third most exported product in Brazil and the first in the state of Bahia. However, over the following decades, production was affected by a series of crises, among them the disease known as "witches' broom disease" (*moniliophthora perniciosa*), with profound negative socioeconomic impacts in the region. Brazil went down to sixth place in the global producer rankings, with 5 percent participation, and to this day it has not reached its former levels of production. [120]

[118] MARQUES, T. H. N.; RIZZI, D.; FERRAZ, VICTOR; HERZOG, C. P. Soluções baseadas na natureza: conceituação, aplicabilidade e complexidade no contexto latino-americano, casos do Brasil e Peru. *Revista LABVERDE*, v. 11, n. 1, 2021.

[119] WAACK, R. S.; VILARES, P.; FERRAZ, T.; GOMES, R.; WEISS, R. L.; AHMAR, V. *Estudo de caso sobre produção sustentável no Sul da Bahia-Brasil*. São Paulo: Arapyaú Institute, 2022, Presented at COP15 in December 2022.

[120] CHIAPETTI, J. *O uso corporativo do território brasileiro e o processo de formação de um espaço derivado: transformações e permanências na Região Cacaueira da Bahia*. 2009. 205 f. Thesis (PhD in Geography)—São Paulo State University, Rio Claro,2009. p. 190. Available at: http:// hdl.handle.net/11449/104368. Accessed on: 24 Apr. 2023.

Currently, close to 80 percent of producers in southern Bahia are small-scale or family agriculture,[121] many of them beneficiaries of agrarian reform, with an extremely low average monthly income.[122] It is estimated that 78 percent of cocoa-producing establishments in the region use *cabruca* methods, in which the cocoa plants grow in the shade of species native to the Atlantic Rainforest, favouring ecosystemic environmental services. The method also permits more than one variety to be grown alongside each other, contributing to the producers' subsistence as well as playing a huge part in maintaining a healthy biome.

Among the strategies being developed in the region is that of adding value to production in a market that has so far been commoditized. One of the main initiatives of this kind was the creation of the Cocoa Innovation Centre (CIC). Among the CIC's great merits is the development of criteria, methods and technologies for gauging the quality of cocoa beans. Consequently, there was a surge in chocolate producers using better quality beans and charging a premium for this raw material—up to twice the value for production. And since 2019, Brazil has returned to the International Cocoa Organization's (ICCO) list of high-quality cocoa-producing countries.

To complement this, the difficulty of accessing credit and getting technical assistance was identified. A pilot project in the region launched the first Agribusiness Receivables Certificate (CRA) for cocoa in Brazil, structured using a blended finance model which mixes resources from market investors with that of philanthropic organizations. The credit is linked to technical assistance and made its way to producers who, on average,

[121] On average, 11 hectares of cocoa are planted per establishment (CHIAPETTI, J.; ROCHA, R. B.; CONCEIÇÃO, A. S.; BAIARDI, A.; SZERMAN, D.; VANWEY, L. *Panorama da cacauicultura no território litoral sul da Bahia: 2015-2019*. Ilhéus: Instituto Floresta Viva, 2020).

[122] REIS, S. T.; SOARES, N. S.; REGO, L. J. S. Conformação da produção de cacau no Sul da Bahia com a legislação florestal brasileira. *Gaia Scientia*, [S.l.], v. 14, n. 4, 2020. DOI: 10.22478/ufpb.1981-1268.2020v14n4.52812. Available at: https:// bit.ly/3oplQlP. Accessed on: 24 Apr. 2023.

increased their gross income by 39 percent in the first year of the programme alone, mainly because of increases in productivity. For those producing quality cocoa, the average income increase was 59 percent. The operation having been a success, a second, more ambitious CRA cycle was developed, initially approved using a blended finance edict by the National Economic and Social Development Bank (BNDES), in forest bioeconomy.[123]

Advances having been gained by both the chain and the producers, the local ecosystem is widening its search for forms of measuring and valuing ecosystemic benefits. In a link with the international agenda, possibilities for Payment for Ecosystemic Services related to carbon, water, and biodiversity are currently being investigated. ■

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To be considered an NbS, it is not enough to simply avoid generating negative externalities, as bioeconomy recommends; positive externalities must also be present. Externalities are indirect effects caused by processes to do with the production, financing and marketing of goods and services that can be felt by society and by individuals who are not directly involved.[124] By definition, the NbS must be nature positive, that is, add value to the natural component.

Bioeconomy already covers the entire value chain guided by advanced scientific knowledge and by the search for technological innovations in the application of biological and renewable resources in industrial processes, with the aim of generating circular economic activity and collective social and environmental benefits.[125] But this is just one possible definition (*see box*).

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[123] CHIAPETTI, J.; ROCHA, R. B.; CONCEIÇÃO, A. S.; BAIARDI, A.; SZERMAN, D.; VANWEY, L. *Panorama da cacauicultura no território litoral sul da Bahia: 2015-2019*, p. 63.

[124] KENTON, W. Externality: What It Means in Economics, With Positive and Negative Examples. *Investopedia*, Dec. 31, 2022. Available at: https://bit.ly/3opk3gH. Accessed on: 18 May 2023.

[125] SCHOR, Tatiana *et al.* [Correspondence]. Addressee: Hamilton Mourão. São Paulo, 15 May 2020. Available at: https://bit.ly/3K3fLmH. Accessed on: 18 Jul. 2023.

## THE MANY DEFINITIONS OF BIOECONOMY

This expression began to be used in the late 1960s to describe an economic order that recognizes the biological basis of almost all economic activities. Nicholas Georgescu-Roegen, a Romanian mathematician and economist who proposed a theory aimed at creating an ecological and socially sustainable economy, liked the term and integrated it into his studies from 1970 onwards. A key component in the use of the term 'bioeconomy' by Georgescu-Roegen was his concern that unlimited growth would not be compatible with the basic laws of nature.[126]

The European commission understands bioeconomy as

> the production of renewable biological resources and their conversion into vital products, ranging from food and feed to bio-based products and bio-energy. As such, the core of the EU bioeconomy encompasses agriculture, forestry, fisheries, food processing, and parts of the energy, chemicals and biotechnology sectors.[127]

In Brazil, the National Industry Confederation (CNI) defined the term in 2013 as the result of a revolution in innovations in the field of biological sciences.

> It is related to innovation, to development and to the use of biological products and processes in the field of industrial biotechnology, human health and agricultural and livestock productivity.[128]

[126] BIRNER, R. Bioeconomy Concepts. *In*: LEWANDOWSKI, I. (ed.). *Bioeconomy*. Cham: Springer, 2018. p. 17-38.

[127] SILVA, M. F. O.; PEREIRA, F. S.; MARTINS, J. V. B. A bioeconomia brasileira em números. *BNDES Setorial*, n. 47, p. 277-332, Mar. 2018. p. 285. Available at: https://bit.ly/3q6qJRk. Accessed on: 18 May 2023.

[128] Ibid.

The Amazon Concertation initiative, by presenting pathways towards sustainable development in the region, also interprets bioeconomy from the starting point of local reality (see following summary table). ■

## Concept of bioeconomy in the Amazon[129]

| | Sociobioeconomy | Forest-based bioeconomy | Agribioeconomy |
|---|---|---|---|
| **Based on** | Sociobiodiversity | Forest management | Commodity production |
| **Currently predominant activities** | Extractivism, neo-extractivism, subsistence agriculture and fishing | Forestry in native forests | Planted forests and commercial agriculture |
| **Human intervention level and volume produced** | Low | Medium | High |
| **Relation to biodiversity** | High dependence and high contribution towards its maintenance | Medium dependence | Low dependence on biodiversity. Monoculture-based plantations contribute little, when not threatening biodiversity |
| **Relation to climate change** | Compatible with maintenance of CO2 stock<br><br>High resilience to effects of climate change | Compatible with maintenance of CO2 stock. | Low resilience to effects of climate change<br><br>Substituting petrol and fossil-based materials can reduce emissions but increase pressure on the environment |

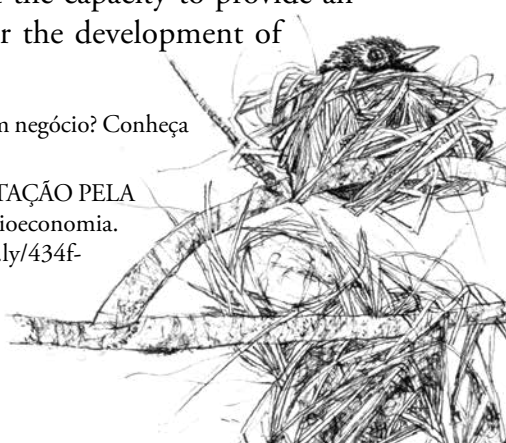
[129] Adapted from: UMA CONCERTAÇÃO PELA AMAZÔNIA (Org.). *Uma agenda pelo desenvolvimento da Amazônia.* São Paulo: Instituto Arapyaú, 2022. 99p.

For the socioeconomic opportunities and challenges of NbSs to be mapped in an agricultural and forest-covered country like Brazil, it is necessary to identify the bioeconomies spread out across the landscape according to the level of human intervention in nature. According to the World Resources Institute, from a landscape perspective, it is not possible to establish dividing lines nor to differentiate between parts of a single forest, but there are gradual transformations into which different typologies fit depending on how they are managed.[130]

Activities along the (agro)forest continuum go from permanent preservation of enormous untouched forest, at one end, to monocultures of native or exotic species, at the other, passing through the silvicultural enrichment of degraded areas, restoration of converted areas with biodiverse planting and by the planting of long cycle exotic species, eventually combined with native ones. Each one of these situations offers possibilities and difficulties inherent to development of technology and generating jobs and income.[131]

But it is in the most preserved landscapes of the forest continuum that we find the greatest technological, economic and financial challenges, which will not be dealt with without significant investments in innovation, science and technology, security in the institutional environment and recognition of externalities on the part of the financial sector. Only thus will it be possible to develop, for example, the great potential of natural fibres among many other forest activities.

The sector for Brazilian natives species found in forests is still characterized by small-scale projects that are geographically dispersed and barely connected to organizations from the economic world. Governments in general have not had the capacity to provide an efficient institutional environment for the development of



[130] WRI BRASIL. Plantar florestas nativas é um bom negócio? Conheça 4 modelos. *WRI Brasil*, 9 Feb. 2019.

[131] GRUPO DE BIOECONOMIA DA CONCERTAÇÃO PELA AMAZÔNIA. O valor da diversidade para a bioeconomia. *Página22*, 1 Feb. 2021. Available at: https:// bit.ly/434f-CXr. Accessed on: 18 May 2023.

large-scale businesses involving the planting of native forests, while the connections between big buyers and the fragmented strip of indirect suppliers of their raw materials are weak. Even agroforestry activities face problems in scaling up.

The co-ordinated mobilization of production chain co-ordinators could integrate different links that currently are hardly connected at all. This also involves a good co-ordination between philanthropy, impactful investors and the financial mainstream. In a publication from Chatham House, when the domestic and international chain of production is taken as a whole, the incorporation of NbSs into the supply chain is exposed as an important strategy for sustainable development.[132]

For externalities to be internalized in the productive activities of the forestry and agricultural sectors, innovations in technology, production systems, management practice and investment will be necessary. The value of Nature-based Solutions lies in taking on externalities, a practice that depends largely on participation from the financial sector.

*For externalities to be internalized in the productive activities of the forestry and agricultural sectors, innovations in technology, production systems, management practice and investment will be necessary.*

In this sense, transformations are already underway. Even though the financial agents do not have access to all the metrics and indexes they need to weigh up and define investment decisions relative to natural assets, there are clear signs of an inevitable transition from a fossil fuel economy to a low-carbon one.

At COP21, the historic Climate Conference at which the Paris Agreement was signed, the then Executive Secretary of the UN Framework Convention on Climate Change, Christiana Figueres, stated: "The signal is above the noise." What she meant by this was

[132] THROP, H. *et al*. How Forest Bioeconomies Can Support Nature-based Solutions. London: Royal Institute of International Affairs, 2023. Briefing Paper. Available at: https://doi.org/10.55317/9781784135539. Accessed on: 24 Apr. 2023.

that, despite the back and forth of energy transition, the trend was pointing towards a low-carbon emission world.[133]

The noise can still be heard today, when ESG investment firms adopt ambiguous stances and increase their exposure to fossil energy, given the increase in petroleum prices, as happened in 2022, but without losing sight of the new low carbon frontiers, even if they don't exactly know how to evaluate them from a financial perspective of risk and opportunity. This is where a role opens up for investment analysts, seeking ways of attributing a value to environmental services and elements of biodiversity that lend more precision to decision making.

It is no easy task. NbSs, unlike in the carbon market, have no metrics that are easily definable or understood. Carbon is measured in tonnes; not so biodiversity. The majority of the positive externalities—or rather, the internalization of the socioenvironmental benefits of NbSs—is not monetizable the way carbon credits are, though it does recognize that their value may be a trend.

This is what has been happening, for example, regarding the so-called premium carbon. In this case, the carbon market platform, which has already entered the mainstream, is used to add values such as biodiversity conservation. A carbon credit which prevents or reduces emissions and still conserves an area's biodiversity comes to be worth more than a common credit not associated with biodiversity. That distinct credit gets an overprice, which does not mean "tons of biodiversity," rather that the credit is endowed with a superior environmental quality.

The qualification is connected to the reputation and branding of the organizations involved. It is the same as judging the branding of a large company—it is not something that is measured in quantifiable units but in value. It is already becoming clear that playing a game involving high externality production will not prevail and will cost dear. Even more so, negative externalities are moving from the field of moral passives to the field of legal passives, which foresees taxation and punishments, as

[133] SAFATLE, A. COP 21: em meio ao ruído, o sinal é claro. *Página22*, 5 Dec. 2015. Available at: https://bit.ly/45itPlc. Accessed on: 18 May 2023.

already demonstrated by the growth of climate litigation.[134] Migrating from the moral hazard to a legal hazard leads the investment analysts to consider greater provisions for risk. Unable to escape this accountability, they are forced to address the value of negative externalities and, consequently, that of positive externalities as well.

Efforts to insert these values into economic models are already moving trillions and trillions of dollars. There is an increasing flow of money fueling the circular economy, bioeconomy and technologies focused on climate change, with the result that billions are already being channelled towards Nature-based Solutions.[135, 136] Essentially, such resources originate from entrepreneurial organizations, philanthropic capital and governments.

Because of greater exposure through the internet and social media of social and environmental impacts to the scrutiny of public opinion, it has become less and less acceptable for an organization or a government to carry out its activity and leave negative externalities for society to resolve, or "pay the piper," in the expression used by Carlos Eduardo Frickmann Young, a student of environmental economics.[137] This way of thinking has also moved governments and multilateral agencies to include accounting for externalities in policies to address climate issues, such as the European Green New Deals and decisions made by president Joe Biden.[138, 139]

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[134] KOKKE, M.; WEDY, G. Litigância climática no plano internacional: análises comparativas. *Revista dos Tribunais*, v. 110, n. 1023, p. 39-58, Jan. 2021.

[135] UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP). *State of Finance for Nature.* UNEP, 2022. Available at: https://bit.ly/3q4NncG. Accessed on: 15 May 2023.

[136] According to the World Economic Forum report, *Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes*, biodiversity credits are ways of unblocking financial flow towards NbS, with fair and equitable engagement from the guardians of biodiversity, particularly indigenous people and local communities.

[137] SAFATLE, A. Os responsáveis pelo pato. *Página22*, 1 Sep. 2014. Available at: https://bit.ly/432Sfxz. Accessed on: 15 May 2023.

[138] EUROPEAN COMMISSION. *European Commission Communication: The European Green Deal* [COM(2019) 640 final]. Brussels: European Union, 2019. Available at: https://bit.ly/3BVKDB2. Accessed on: 15 May 2023.

[139] THE WHITE HOUSE. ICYMI: Week of Climate Action from the Biden-Harris Administration. 16 Sep. 2022. Available at: https://bit.ly/3BWlh6k. Accessed on: 15 May 2023.

There are strong indications, therefore, that NbS finances must be a combination of direct and secondary investments, with coordinated participation between commercial banks, development agencies, impact funds, family and institutional investors, insurance companies and philanthropy. This recipe will probably require incentive and subsidy programmes, advocacy power, access to markets, and the management skills in highly complex environments.

This demands a combination of different expectations for returns, tolerance of risk, establishment of correlations with other kinds of asset, maturation deadlines for enterprises and new approaches to sharing benefits. The development of markets for NbS goods and services is a process that can be placed within the energy and food transitions, already in full flow.

William Deming (1900-1993), management consultant, came up with one of the corporate world's most emblematic sayings: "If you can't measure something, you can't manage it; if you can't define something, you can't measure it; if you can't understand something, you can't define it; where there is no management there is no success." But to solve problems it is necessary to go beyond the participation of the financial market, governments and companies in the development of this framework.[140,141]

There is a background discussion when talking about NbSs: is monetizing the only way of recognizing value? How would it be possible, for example, to insert the cultural richness of indigenous peoples into a spreadsheet? To differentiate price from value seems to be one way out, considering the maxim that most of what people value in life is not monetized.

Between anti- and pro-monetization currents, the fact is, civilization's next evolutionary step is an intense and intimate reconnection with nature. This reconnection will not necessarily occur

[140] KILL, J. *Economic Valuation and Payment for Environmental Services Recognizing Nature's Value or Pricing Nature's Destruction?* Berlin: The Heinrich Böll Foundation, 2015.

[141] SUKHDEV, P. Costing the Earth. *Nature*, v. 462, n. 7271, p. 277-277, 2009.

through the market or by selling natural assets, which is not to say these elements can't be part of the equation.

There are some points of reflection that are still not concluded and into which it is necessary to delve deep—especially for Brazil, which has a vocation like few countries in the world but has still not clearly defined its position on the topic nor how it will put its immense potential to work.

## The enabling agenda

While markets, governments, companies and multilateral agencies act around NbSs, each in their own way, a governance arrangement must be sought that can catalyse the synergies between different actors. International governance that links climate and biodiversity agendas is still on the ground. Existing mechanisms such as the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CDB), the Intergovernmental Panel on Climate Change (IPCC), the Science Based Targets Initiative (SBTi),[142] and the more recent Science Based Targets for Nature (SBTN) are connected in a fragile, barely articulated and confused way with traditional initiatives such as the FAO and their forest fronts.

More than seeking a new formal governance mechanism amongst this alphabet soup, a coordination effort that contemplates these and other initiatives is important. The discussion on global governance models for NbSs indicates that initiatives for coordination must start from a vision of common goods and the human relationship with nature.[143]

[142] The SBTi is a global initiative aimed at building a scientific base capable of guiding carbon emission reduction programmes across the world, having as its objective the fulfilment of the Paris Agreement: to limit global temperature rises to no more than 1.5°.

[143] FLORESTAS e as Soluções baseadas na Natureza: um complexo jogo de variáveis. *Página22*, 16 Aug. 2022. Available at: https://bit.ly/3MS8Q1C. Accessed on: 5 May 2023.

In addition to how to format this framework, there are also challenges related to monitoring. The evolution of NbSs, as with all emerging activities, depends on having instruments available that allow them to evolve. To this end, three fronts rise up: technology, transparency and certifications. The first group, the technological group, includes spatial monitoring of land use, carbon sensors (soil and atmosphere), water sensors, mineral sensors, mineral technology and biodiversity-related technology, sanitation, and vegetable physiology. These hard technologies are associated with blockchain systems, NFTS, cryptocurrencies and other "metaversal" elements. In the field of transparency, it is necessary to perfect metrics and indexes, produce and disseminate primary data and create and make consolidated information more widely available, making advances in accountability and integrated reports.

In a field that is still uncertain, ambiguous, under-regulated and volatile, the role of independent certification comes up as a risk-mitigating factor and a way of leveraging credibility between different organizations involved with NbSs. To this end, the role of the Forest Stewardship Council (FSC) and initiatives such as Verra and The Gold Standard for carbon cannot be understated.[144]

Specifically in Brazil, how can we make the NbS agenda viable? Outside of all the challenges of global organization, there are domestic idiosyncrasies, beginning with the need to establish a national project, that is, a vision in dialogue with the future, on the national development stage (*see more in chapter 2*). Beginning with this image-objective, there must be coordination between different kinds of governance, different incentivization tools such as rural and forest credits, and legal frameworks such as the Forest Code, local governments and the part played by individual states. Governance of land use in Brazil continues to

[144] Ibid.

be confused, a situation that requires greater clarity regarding the role of federal entities.

The keyword seems to be convergence, be it between the constituent powers, or between the rural and urban agendas which divide Brazil and make any attempt at concertation more challenging. Unlike European countries, for example, where the environmental agenda is fundamentally urban and post-industrial, Brazil has an ambidextrous agenda. There is greater support for sustainability in urban centres where there is less nature and more anthropized space. At the same time, there is greater resistance to environmental policy where there is more nature.

This paradox will have to be addressed using two vectors: the political and the technological. In the technological dimension, there is the development of biotechnology and green chemistry, which Brazil must promote in consonance with the Bioage, taking advantage of the strong pull innovation exercises over the private sector and over philanthropy, which plays a crucial part in incentivizing entrepreneurialism.

Aside from this, a sociobiodiverse Brazil will have to learn to apply traditional and ancestral knowledge to technological development. This is a recognition that comes from one of Brazil's best scientists, Carlos Nobre—the only Brazilian scientist elected to the Royal Society, one of the oldest and most prestigious societies dedicated to promoting scientific knowledge in the world, in 2022. According to him, it is not possible for science to be based solely around the conventional knowledge of white, Western societies.

It is also not only a case of incorporating traditional knowledge while ignoring elements linked to human rights and environmental limits. The case of açaí exploitation using child labour is an example of what not to do, just like prostitution involved in Brazil nut exploitation, or the use of wild animal parts in traditional Chinese medicine. This is because NbSs are not a mere instrumental process, but a new paradigm for a relationship with life in all its dimensions.

As for the political vector, another key factor for implementing the NbS agenda in Brazil, any steps forward will depend on Brazil's

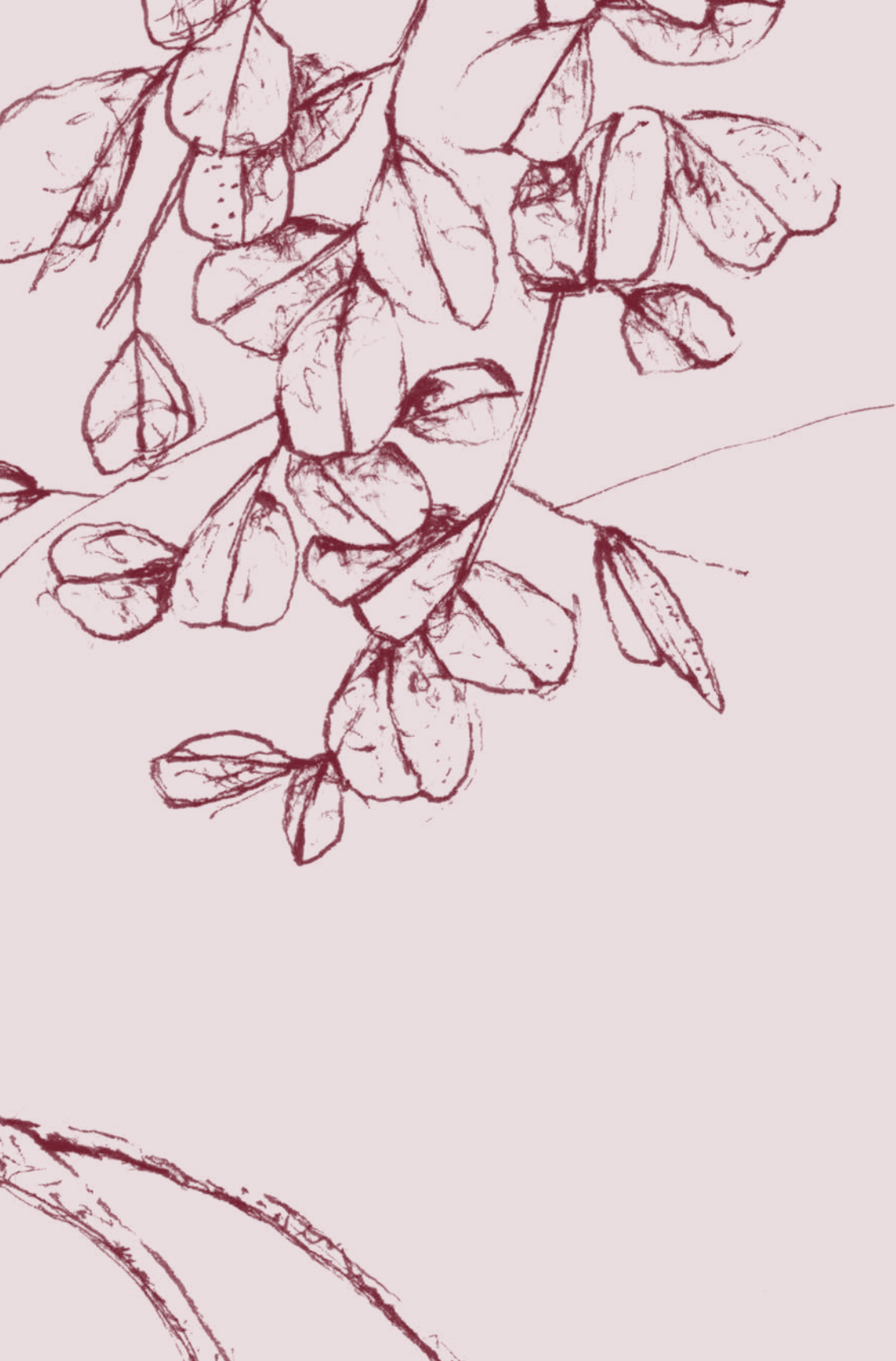
ability to bring together the parts of a country torn apart after a virulent ideological campaign like the one we have witnessed since 2018. Disinformation propelled by hatred attempted to relegate the sustainability agenda to the ghost of the left, as if it was not a standard and necessity for all of humanity, independently of one's own political-ideological orientation.[145]

The desirable strengthening of institutionality originated in 2023 brings with it the conditions for reviving the capacity for dialogue between differing sides—following the example of nature itself, in which living beings evolve through a continual process of competition and mutual cooperation to find solutions.

Over the last 500 years, Brazil has mercilessly exploited nature and still continued to produce life, as if it would never have to settle the bill. Now, the Amazon constitutes the last natural border where it is possible to revert this historical choice that leads to collapse. In this immense open-air laboratory, Brazil can propose a model that reconciles economic growth with conservation, restoration, people living good lives and the wisdom of adding knowledge from nature, materialized in technological solutions that have been practiced by indigenous people for thousands of years. That way, it will also manage to reconnect the past and future.

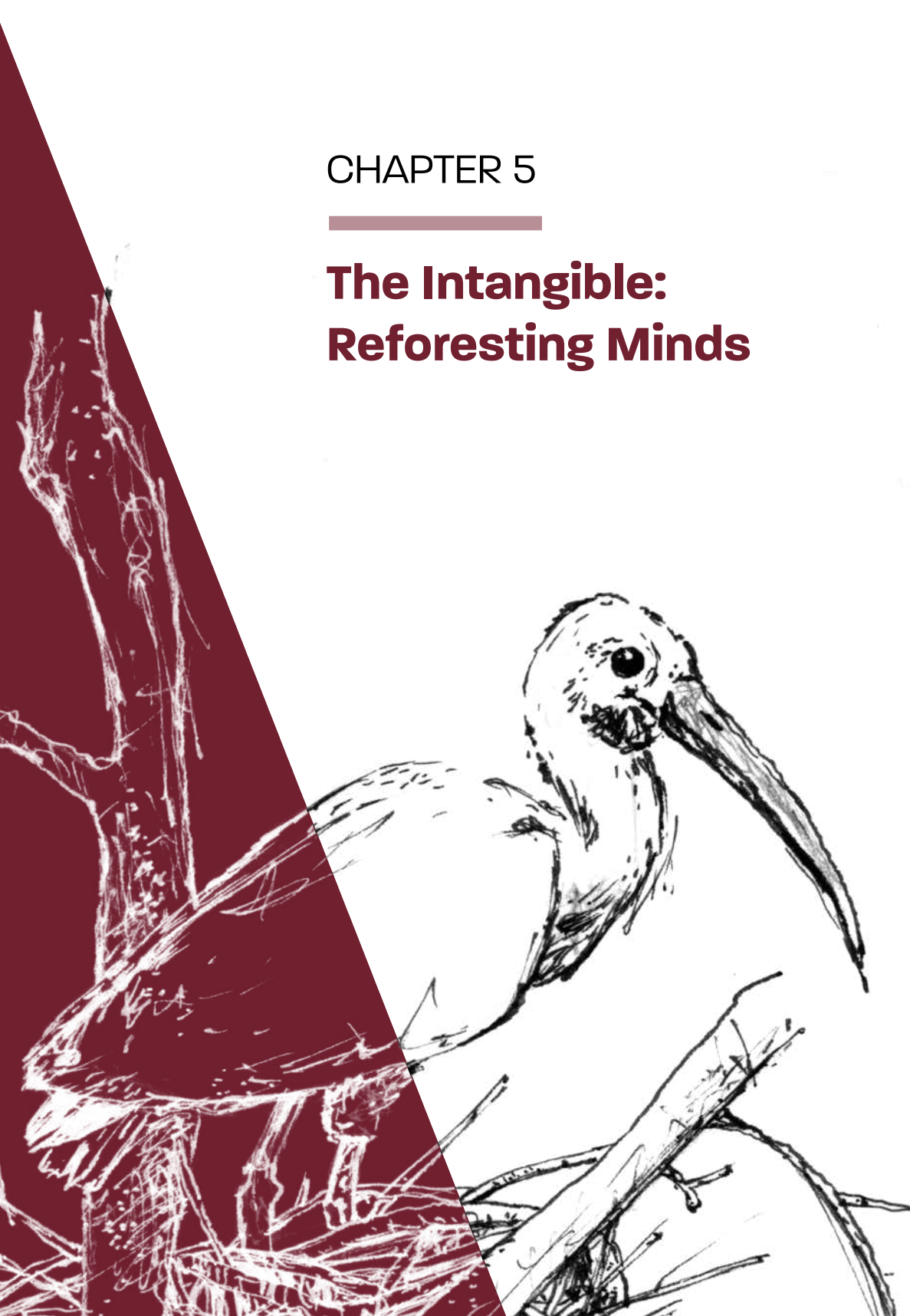
*Now, the Amazon constitutes the last natural border where it is possible to revert this historical choice that leads to collapse.*

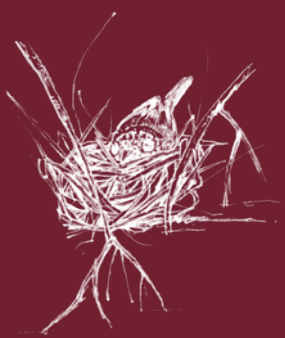
[145] REDE DE AÇÃO POLÍTICA PELA SUSTENTABILIDADE (RAPS). RAPS e Amazon abrem discussão com nova pesquisa sobre votação de deputados da Amazônia na Climate Week NYC 2022. *Raps*, 23 Sep. 2022. Available at: https://bit.ly/434boz7. Accessed on: 5 May 2023.



CHAPTER 5

# The Intangible: Reforesting Minds





## Cosmovision: The whole world in every village

When a human being understands themselves to be an integral part of their habitat, they naturally tend to look after this territory rather than harm it. In the cosmovision of indigenous peoples, the land does not belong to them; they belong to it. And the land is mixed in with their own being.[146] Looking after the territory and looking after oneself are the same thing and it is no coincidence that nature is better protected in Indigenous Lands than in any other part of Brazil.[147]

Indigenous thinking proposes "opening inwards" by understanding that the protection of life on Earth is the struggle of all daily struggles. Indigenous thinking and practices are intertwined with the intangible, consisting of what is felt in connection to the whole and moved by an ancestral force.

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[146] This cosmovision, passed down orally between generations of Yanomami, is detailed in a book authored by the shaman Davi Kopenawa and the French anthropologist Bruce Albert. *The Falling Sky* is narrated by an indigenous person and discusses contact with the colonizers and its consequences, something unprecedented in Brazilian historiography. According to Yanomami tradition, they are the ones responsible for making sure the sky does not fall. In different passages in the book, Kopenawa describes moments which exemplify these situations, in which he himself and other shamans went to the spirits to maintain the equilibrium of the forest. (Kopenawa, D.; Albert, B. (Trans. Elliot, N. and Dundy, A.) *The Falling Sky: Words of a Yanomami Shaman*. Harvard: Harvard University Press, 2013)

[147] FOOD AND AGRICULTURE ORGANIZATION (FAO); FONDO PARA EL DESARROLLO DE LOS PUEBLOS INDIGENAS DE AMÉRICA LATINA Y EL CARIBE (FILAC). *Forest Governance by Indigenous and Tribal People: An Opportunity for Climate Action in Latin America and the Caribbean*. Santiago: FAO; FILAC, 2021.

Contrary to this way of thinking, the white, European, colonizing civilization imposed a model that proved to be self-destructive from the moment it pulled human beings from their habitat and separated subject and object, making nature a mere resource to be exploited by man.

Besieged by ever-worsening environmental and climate crises, with a growing impact on society and on economic relationships, today humanity is looking for solutions. But many of the answers are already to be found in indigenous thinking. Rebuilding the link between humans and nature, so that society grows *with* it and not *against* it, is proving to be the great challenge of the 21st century. Where to start—or restart?

As the indigenous leader Watatakalu Yawalapiti says: "it is not enough to reforest the forest, you must also reforest your mind, your way of thinking. Reforesting will bring us the cure." Reforesting minds— thus avoiding the need to physically reforest the biomes—is in the tonic offered by indigenous movements, propelled especially by women and young people. Charged up by digital communication, these agents have gained muscles to put into action what the Brazilian Constitution already advocated and guaranteed since 1988, as the result of a historical struggle by social movements (*see box*).

The question of gender, which has been gaining more space, is especially important for its symbolism. The indigenous woman is recognized among indigenous peoples as the primordial territory which gives birth to life, the 'biome' in which it originates, flourishes and reproduces—despite the still patriarchal forms of social organization practised by different indigenous peoples. Where it was once only the indigenous man who left the village to spread his people's voice across the world, today digital challenges allow anyone's expression to be disseminated, anywhere.

Joining personalities such as Ailton Krenak,[148] Davi Kopenawa,

[148] Philosopher, activist and environmentalist, Ailton Krenak regathers, in various essays and speeches, the worldview of the indigenous peoples of the Atlantic Rainforest and the Cerrado. Krenak is a historical leader of the indigenous movement and had a crucial role in the winning of indigenous rights in the Constituent Assembly of 1987-1988

and Daniel Munduruku, female leaders such as Sonia Guajajara, Alessandra Munduruku, Watatakalu Yawalapiti, Célia Xakriabá, and O-é Kayapó, who became chief of her village despite the patriarchalism of her own people, have become reference points for the indigenous movement.[149] Young "digital guardians of the rainforests," following the example of Txai Suruí and Alice Pataxó as well as Samela Sateré Mawé have also entered the spotlight.[150]

Spearheaded by the National Coordination of Ancestral Warrior Women (ANMIGA),[151] the Reforesting Minds movement represents a feminine call for humanity to reconnect with Mother Earth, as the only way of maintaining life on the planet. To this end, the initiative proposes we share knowledge about life and living well and cites the necessity of making these connections in the face of multiple crises: impacts of the environmental and climate emergency, pandemics, hunger, unemployment, racism, LGBTphobia, machismo. "These are the results of an unsustainable exploitative project, which pushes the whole world to a point of no return," the members say in their manifesto.

*To be reconciled with its origins and to take up its position as a megadiverse forest country, it will be fundamental for Brazil to get to know its true identity.*

To be reconciled with its origins and to take up its position as a megadiverse forest country, it will be fundamental for Brazil to get to know its true identity. It will be necessary for the country to recognize that it was conceived from a violent act between its

(KRENAK, A. Paisagens, territórios e pressão colonial. *Espaço Ameríndio*, v. 9, n. 3, p. 327-327, 2015).

149 WWF-BRASIL. Sob liderança de uma mulher, povo kayapó luta para proteger território. *WWF-Brasil*, 7 Feb. 2022. Available at: https://bit.ly/3q9qmFq. Accessed on: 12 May 2023.

150 PATAXÓ, A.; SATERÉ MAWÉ, S.; SURUÍ, T. Guardiões digitais das florestas. *Folha de S.Paulo*, São Paulo, 13 Sep. 2022. Available at: https://bit.ly/3BWjfDe. Accessed on: 12 May 2023.

151 ANMIGA. Manifesto Reflorestarmentes: Reforestation of dreams, affections, gatherings, solidarity, ancestrality, collectivity and history. *ANMIGA,* 20 OCT 2021. Available at: https://bit.ly/3MyEujk. Accessed on: 12 May 2023.

indigenous mother, represented by the land, and its European father, the invader. It falls on this country formed of a single people, socio-diverse and multi-ethnic as it is, to identify its indigenous cradle and appreciate its mother, also represented by nature.

If it fails to acknowledge and respect its inception, how will Brazil get anywhere as a nation? And how will it be able to define the responsibilities of each citizen in the way it conducts sustainable development?

It falls not only on the indigenous peoples to protect nature and conserve the forests, nor only to all Brazilians, who own 60 percent of the planet's tropical forests. It is understood that the responsibility is shared globally, considering that climate change crosses borders and affects the whole world. But as the indigenous peoples gain a central role, they begin to participate in the joint building of solutions, using as a foundation a form of thinking that is as ancestral as it is innovative.

This process of shared responsibility-taking is enriching the trajectory of the young Brazilian democracy, by elevating patterns in the agendas of rights and duties of all citizens. This also means addressing questions that were not fully resolved in the past, marked by all kinds of tensions. Such tensions are the result of an identity crisis in Brazil, where there are many minds to reforest.

### THE BRAZILIAN CONSTITUTION AND LEGAL SUPPORT FOR INDIGENOUS PEOPLES

After a long period of assassinations and repression during the military dictatorship (1964-1985), indigenous people began to fight more openly for their rights in society. The union made during the Constituent Assembly (1987-1988) resulted in the approval of the chapter aimed at indigenous peoples. With the Constitution's promulgation in 1988, they managed to ensure the right to maintain their cultures, languages, traditions and their own ways of learning.[152]

[152] BARRETO, M. R.; EITERER, E. Memórias indígenas na ditadura: cárcere e tortura no reformatório Krenak. *In*: CONGRESSO INTERNACIONAL DE HISTÓRIA,

For the first time in history, the Constitution dedicates a specific section to the protection of indigenous rights, Chapter VIII. Among the permanent and collective rights, the most significant are the recognition of social organization and customs, languages, beliefs and traditions; native rights over traditionally occupied lands; the permanent ownership of those lands; the use of the riches offered by the soil, rivers and lakes within those lands; the use of mother tongues, and their own learning methods.

This victory is due to a process of mobilization and debate, led by social organizations such as the Union of Indigenous Nations (UNI). Created in April 1980 during a seminar at Mato Grosso do Sul Federal University, the UNI brought together representatives from 15 ethnicities and had an important role in the assemblies, as well as the Missionary Council for Indigenous People, bringing together notable names such as Ailton Krenak and Álvaro Tukano. After the Assembly, however, the organ was dissolved, and other entities began to make demands in the name of indigenous peoples, such as the Brazilian Indigenous People Coordination (Apib).[153]

Another legislative accomplishment, after a long journey through the National Congress, was the 2002 approval of Convention 169 of the International Labour Organization—the first international tool to address the collective rights of indigenous people, by establishing minimum frameworks for States to follow. In particular, articles 15 and 14 of the convention set out the right to free, timely and informed consultation on decisions made by the State that can affect the lives of indigenous people.

7.; ENCUENTRO DE GEOHISTÓRIA REGIONAL, 35.; SEMANA DE HISTÓRIA, 20., 2015, Maringá. *Anais*. Available at: https://bit.ly/3q8Am1Z. Accessed on: 18 May 2023.

[153] LOPES, D. B. *O Movimento Indígena na Assembleia Nacional Constituinte (1984-1988)*. 2011. 186 f. Dissertation (Master's in Social History of the Territory)—Rio de Janeiro State University, São Gonçalo, 2011.

That is, they must be respectfully consulted on projects which might impact the usage, management and conservation of their territories. In addition, they have the right to compensation for damage and protection against eviction and removal from their traditional lands.[154]

In more recent years, however, there has not been a full implementation of the Constitution and the legal framework that was then achieved.[155] The biggest threat of a setback comes from the "timeframe", currently being reviewed by the Supreme Federal Court (STF).[156] It refers to the judgement of the extraordinary appeal filed by Funai, which disputes the Xokleng people's ownership of the Ibirama-La Klãnõ Indigenous Land in Santa Catarina.

The case discusses two opposing legal theses: the timeframe according to which indigenous people only have the right to lands they occupied on the 5th October 1988, when the Constitution was enacted; and the birth-right thesis, under which indigenous peoples have the right to their traditionally occupied territories, as set out in article 231 of the Constitution, without any limitations. It falls on the state to demarcate and protect all lands.

According to indigenous lawyers, the timeframe, while limiting the rights of indigenous communities, pardons crimes committed against these peoples, especially crimes committed during the military dictatorship, when many indigenous lands were invaded and seized. ■

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[154] DINO, N. A. Entre a Constituição e a Convenção n. 169 da OIT: o direito dos povos indígenas à participação social e à consulta prévia como uma exigência democrática. *Boletim Científico—Escola Superior do Ministério Público da União (ESMPU)*, Brasília, year 13, p. 42-43, 2014.

[155] CONSELHO INDIGENISTA MISSIONÁRIO (CIMI). Povos indígenas denunciam governo brasileiro à ONU por paralisação de demarcações e descaso frente à pandemia. *CIMI*, 27 Abr. 2021. Available at: https://bit.ly/44ndhI0. Accessed on: 12 May 2023.

[156] AMADO, L. H. E. O direito originário dos povos indígenas. *Apib*, 20 Oct. 2020. Available at: https://bit.ly/3WtWEal. Accessed on: 18 May 2023.

## Disputes beyond territories: tensions, progresses, and setbacks

The indigenous peoples were the first to be enslaved when the Portuguese landed on this continent, forming the workforce used to build sugar mills in colonial Brazil before the beginning of African slave traffic. But they resisted. Their refusal to work and fightback against the colonizers were sufficient to create the stereotype of the "lazy Indian", as a person who does not want to work, to become deeply rooted over the centuries.

What dictated the game from the beginning, however, was a clash of civilizations: it made no sense whatsoever to work to accumulate riches. For the indigenous people, riches lie not in the accumulation of goods for future use, since the future is nothing more than the present, which offers whatever is needed to feed the body and soul: rivers, plants, animals, nature, provided they have access to a protected territory.[157]

But what appeared to be a given—an immense swathe of lands with prodigious biodiversity, food and water—remains under threat. This threat is manifested in territorial issues, such as the lack of homologation of Indigenous Lands,[158] their invasion by criminal activity and the advance of the agricultural border, as well as through climate change, which di-

[157] The importance of territory for the survival of indigenous peoples is recognized by the Brazilian Institute of Geography and Statistics (IBGE): 'The relative weight of the indigenous population in the North and Mid-Western regions reaffirms their importance in how the Amazon and Cerrado biomes are used, where the dimension of the Indigenous lands constitutes a central element in the ways in which the diverse ethnic and indigenous groups that live there survive physically and culturally' (BRAZILIAN INSTITUTE OF GEOGRAPHY AND STATISTICS (IBGE) *Os indígenas no Censo Demográfico 2010: primeiras considerações com base no quesito cor ou raça*. Brasília: IBGE, 2012).

[158] In the Brazilian legal definition, Indigenous land (*Terra Indígena*, or TI) "is a portion within the national territory, inhabited by one or more indigenous communities, which after a standard administrative process, respectful of the due legal process of demarcation and homologation by Presidential Decree, is registered as property of the Union (article 20, XI of the CF/88), formally making the land for indigenous use. This being so, it is a holding for special use by the Federal Government, administratively affected by a public purpose." According to Funai, there are 680 areas registered as TIs, representing 13.75 percent of national territory—the majority of it located in the Amazon. Of that total, 443 have completed the process of demarcation, that is, they are homologated/ regularized. The other 237 are under analysis. In terms of distribution by region, the regularized TIs are mostly in the North (54%), Mid-West (19%), Northeast (11%), South (10%) and Southeast (5%).

rectly affects indigenous peoples and their survival methods. Institutional racism, a phenomenon in which indigenous peoples and culture, in the 21st century no less, are estranged from the process through which the nation is led, when they are not victims of erasure and genocide.

Estimated around 3 million individuals when the Portuguese arrived in Brazil in 1500, the indigenous population suffered a drastic reduction in the centuries that followed. In 2010, 818,000 people described themselves as indigenous, the equivalent of 0.4 percent of the population according to the 2010 Census. Preliminary data from the most recent Census, begun in 2022, suggest 1.4 million indigenous people, which would represent 66 percent growth. Even in the 2010 edition, Brazil registered 305 ethnicities and 274 languages.[159]

Authors point out that traditional historiography paid little attention to the violence suffered by these people, minimizing the system of exploitation and plunder and extermination that has lasted from the beginning of colonization to present days. "While in traditional historiography the historical leading role of the indigenous person was stifled, in anthropology—where indigenous cultures are frequently discussed—little or nothing is said about racism against indigenous peoples," says one study involving Ailton Krenak.[160]

In his book *The Indians and Civilization*, Darcy Ribeiro speaks of the violence of 'integration' and the conflict between settlers and indigenous people who "were blocking the road of expansion." He also writes that "according to the almost unanimous view of Brazilian historians and even the anthropologists who have studied the problem, the effect of this conflict would be the disappearance of the tribes or their absorption by local society."[161]

According to Milanez *et al.*, many of the difficulties indigenous people face today are directly related to the slavery of the past: "it

[159] BRAZILIAN INSTITUTE OF GEOGRAPHY AND STATISTICS (IBGE). *Os indígenas no Censo Demográfico 2010: primeiras considerações com base no quesito cor ou raça.*

[160] MILANEZ, F. *et al.* Existência e diferença: o racismo contra os povos indígenas. *Revista Direito e Práxis*, v. 10, p. 2161-2181, 2019.

[161] RIBEIRO, D. *Os índios e a civilização*. São Paulo: Global, 2017.

was repressed, it was denied, and to this day indigenous slavery on the agricultural frontiers is a constant practice, as is the case among the Kaiowá and the Guarani in Mato Grosso do Sul or the precarious labour force on Soya plantations in Mato Grosso."[162]

The writer Daniel Munduruku has, on several occasions, highlighted the national press's lack of interest in the subject as the attacks were unfolding.

> Every group affected by the fronts of expansion ended up falling victim to intensifying and damaging waves of violence, unaware that such cultural devastation formed part of the developmentalist politics sponsored by international capital and carried out by the newly created Funai. What could have been interpreted as relief for our people was, in fact, one more blow to indigenous interests.[163]

The repetition of these waves of violence can be seen in regions of Mato Grosso do Sul, where the Guarani-Kaiowá are attempting to retake their ancestral lands, from where they were expelled during the military dictatorship. In 2022, the Guapoy massacre, as the episode which left one indigenous person dead and at least nine gravely wounded became known, had huge repercussions. There is a long history in that state of conflicts between indigenous people awaiting demarcation and ranchers, which has experienced intense agricultural expansion in recent decades.[164]

In 2021 alone, one hundred murders of indigenous people were recorded in Brazil, according to Cimi's *Violence Against Indigenous Peoples Report*. When other types of violence are taken into account, including abuse of power, racism and assault, there were 355 cases.[165]

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[162] MILANEZ, F. *et al, Op. Cit.*

[163] MUNDURUKU, D. *O Caráter Educativo do Movimento Indígena Brasileiro (1970-1990)*. São Paulo: Paulinas, 2012. p. 209.

[164] PONTES, N. Em estado movido pelo agro, indígenas guarani-kaiowá tentam retomar terras. *DW Brasil*, 24 Jun. 2022. Available at: https://bit.ly/428vAie. Accessed on: 12 May 2023.

[165] MISSIONARY COUNCIL FOR INDIGENOUS PEOPLE (CIMI). *Relatório Violência Contra os Povos Indígenas no Brasil: dados de 2018*. Brasília: Cimi, 2021.

The states with the greatest number of murders of indigenous people in this period, according to data from the Mortality Information System (SIM) and the state health departments, were Amazonas (38), Mato Grosso do Sul (35), and Roraima (32). These three states also recorded the highest numbers of murders in 2020 and 2019.

According to Kum'Tum Akroá Gamela,[166] racism established by the state and sustained by several institutions requires indigenous people such as himself to prove their own existence on a daily basis. This becomes evident in everyday acts, from registering a child's birth—when the registrar refuses to register the child as indigenous—to meetings with the Funai—in which agents refer to some indigenous people as 'self-described', creating subcategories of subjectivity (*see box*).

### INSTITUTIONAL RACISM IN BRAZIL


The book *Rifles and Arrows: a Story of Bloodshed and Indigenous Resistance During the Dictatorship* investigates the historical formation of the racism established by the State and goes back to events which marked the actions of different personalities involved in the so-called indigenous question between the 1960s and the early 80s.

The author consulted secret documents made available after the end of the dictatorship, signed off by the Indian Protection Service (SPI), the Funai, the Ministry of the Interior, and the Security and Intelligence Advisory Agency (ASI), set up within the Funai as a branch of the National Intelligence Service (SNI), for example. Ultimately, the book concludes that the indigenous genocide was not merely the result of negligence but consented by the State.[167]

Even in the National Truth Commission, which investigated the crimes of the dictatorship, violence against these peoples was

[166] MILANEZ, F. *et al, Op. Cit.*

[167] VALENTE, R. *Os fuzis e as flechas: história de sangue e resistência indígena na ditadura.* São Paulo: Cia das Letras, 2017.

reduced to topic-specific texts.[168] These populations have not participated directly in making the report, which used only one indigenous person among 30 'allied' and 'intermediary' researchers. ■

This structural process results in events such as invasions of TIs and threats to isolated indigenous people, as denounced on many occasions by agencies such as Cimi.[169] Around 30 isolated groups live in the Yanomami TIs, in the states of Roraima and Amazonas; Vale do Javari, in Amazonas; Arariboia, in Maranhão; Mamoadate, in Acre; and Munduruku, Kayapó, and Ituna-Itatá, in Pará. There, invaders plunder wood, prospect, deforest, pollute the waters, kill or drive out animals and fish through hunting and make direct attacks on the lives of these people. In Vale do Javari, the monitoring and coverage of crimes that was being done by Funai worker Bruno Araújo Pereira, along with the British journalist Dom Phillips, resulted in the murder of both men in June 2022.

Institutional racism also influences tensions in the legislative field, which found a particular echo in the years of the Bolsonaro administration, which was openly opposed to the demarcation of Indigenous Lands. In Brasília, several bills to be passed into law are highlighted by leaders as dangerous for the lifestyle they wish to maintain and with the potential to violate the rights of this population, such as the Timeframe,[170] mining in Indigenous Lands,[171] making environmental

[168] Ibid., p. 339-342

[169] In the Uru-Eu-Wau-Wau TI in Rondônia, for example, deforestation by invaders doubled between 2018 and 2020 (CIMI. Ameaça de genocídio paira sobre povos indígenas isolados no Brasil. *Conselho Indigenista Missionário*, 20 Jul. 2020)

[170] Bill 490/2007 provided for the restriction of demarcations of Indigenous Lands with a basis in the timeframe thesis, or rather, it sets out that only lands occupied by indigenous peoples on the date of the promulgation of the Federal Constitution, on 5 October 1988, will be given to them. In practice, it disqualifies more than 800 still unrecognized Indigenous Lands.

[171] Bill 191/2020 allows industrial and small-scale mining, hydroelectric generation, prospecting for oil and gas and large-scale agriculture in TIs. It also removes the communities' power of veto over these decisions.

licences more flexible,[172] Land Regularization (known as the Land Grabbers Provisional Measure),[173] and the widening of the right to bear arms, which increases the firepower of invaders and organized crime.[174]

## Climate change felt in the skin

As if these acts of violence relating to their territory weren't enough, indigenous people suffer the impacts of climate change and the biodiversity crisis before other populations, insofar as they depend on a sensitively balanced environment. Alterations in the rhythms of high and low waters in rivers, for example, or in the rain cycle, interfere with access to foods such as fish, the main protein source, and flours, planted in swiddens.

In the Amazon, deforestation also alters the local microclimate. Temperature increases, one of the consequences of deforestation, have changed the way the forest functions and the lives of indigenous peoples. During the first meeting of indigenous women in the Xingu, 60-year-old Wisio Kaiabi, one of the pioneers of the women's movement, draws a link between the proximity of soya plantations and the consequent loss of trees.

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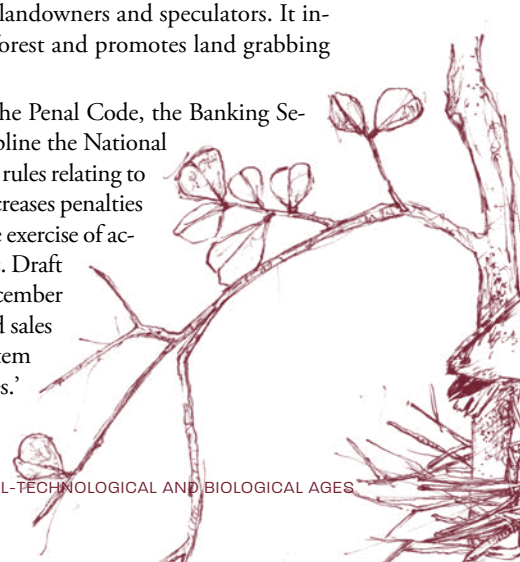
[172] Bill 3729/2004 weakens the criteria for environmental licences, removes 13 kinds of impactful activities and permits 'self-licensing' for a series of projects.

[173] Senate Bill 510/2021 (Bill 2633/2020) takes points from the original text of Provisional Measure n 910/2019, the so-called landgrabber's Provisional Measure, and proposes alterations which benefit medium and large-scale landowners and speculators. It incentivizes the occupation of new areas of public forest and promotes land grabbing and illegal deforestation.

[174] Bill 3.723/2019 'alters the Disarmament Statute, the Penal Code, the Banking Security Law and the National Security Law, to discipline the National Arms System (Sinarm), establish definitions, modify rules relating to registration, expiry dates and bearing firearms. It increases penalties and modifies the crimes' description. It regulates the exercise of activities by collectors, sporting marksmen and hunters. Draft Law 6.438/2019 'alters Law n° 10.826, from 22 December 2003, which covers the registration, ownership, and sales of firearms and ammunition, National Arms System (Sinarm), defines crimes, and details other outcomes.'



The impacts described by indigenous people are backed up by researchers' findings. When an area of forest disappears to become an agricultural field, the surface temperature rises by up to 5°C. According to the Amazon Environmental Research Unit (IPAM), this effect also increases the temperature of the air close to the surface, thus large-scale deforestation, like that which occurred in the area around Xingu, can theoretically explain the thermic sensation described by indigenous people. The disappearance of forest cover also has an impact on water production. With no trees, all the vapour they transfer to the air, through a process called evapotranspiration, disappears.[175]

In Xingu, with the changes in the climate pattern, women are now trying to relearn how to plant at the right time. The lessening and the irregularity of the rains has already caused losses in manioc, banana, sweet potato and peanut harvests. For Wisio Kaiabi, female chief of Kwaruja village, the survival of everyone is linked to the presence of the forest.[176]

In Amazonas state, in Alto Rio Negro, there are similar reports. The river's hydrological regime has been altered, in the indigenous people's perception, since the high and low waters are no longer regular. Consequently, everyday activities like fishing, hunting and agriculture, have become "a disaster."

According to the FAO,[177] the situation of indigenous people and tribal populations is urgent. Political, economic, geographical and cultural issues place the indigenous territories in check, in a

[175] The institute's study shows that the conversion of rainforest into plantations and pasture between 2000 and 2010 caused a drop in production of 35 km³. An area of forest converted into farmland causes a 33 percent reduction in evapotranspiration (SILVÉRIO, D. V. *et al.* Agricultural Expansion Dominates Climate Changes in Southeastern Amazonia: The Overlooked Non-GHG Forcing. *Environmental Research Letters*, v. 10, n. 10, p. 104015, 2015).

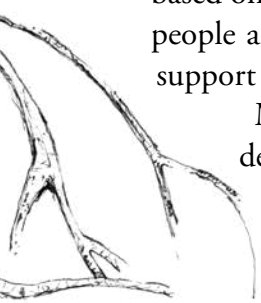
[176] RIBEIRO, M. F. A grande batalha das mulheres do Xingu. *DW*, 29 May 2019. Available at: https://bit.ly/45CT3uW. Accessed on: 12 May 2023.

[177] FOOD AND AGRICULTURE ORGANIZATION (FAO); ALLIANCE OF BIOVERSITY INTERNATIONAL; CIAT. *Indigenous Peoples' Food Systems: Insights on Sustainability and Resilience in the Front Line of Climate Change.* Rome, 2021.

picture aggravated by the Covid-19 pandemic. This scenario is directly linked to the increase in demand for food, energy, minerals and wood, as well as infrastructure projects.

Among the victims are important names among indigenous leaders, such as chief Aritana Yawalapiti, from Alto Xingu, and Paulinho Paiakan, from the Kayapó people. The death of elders represents a heavy blow for ancestral knowledge and threatened indigenous languages, as is the case with Yawalapiti. The *UNESCO Atlas of the world's languages in danger* calculates that 190 indigenous languages in Brazil are at risk.[178]

But at the same time as they find themselves among the most vulnerable groups, indigenous peoples also appear as part of the solution in efforts to contain climate change. The FAO report, based on hundreds of scientific studies, concludes that indigenous people are the best guardians of forests and request international support in protecting them.



More recently, faced with the many planetary crises, academia has gradually recognized the importance of the knowledge held by these peoples. The Science Panel for the Amazon report, for example, dedicated an entire chapter to the topic.[179] The authors point out that indigenous and local knowledge is important for conservation efforts and sustainable development. At the same time, there is a lack of appropriate recognition or internalization of the results presented by them, making the fair production of knowledge and informed decision-making on a national and international scale difficult.

Recognition of indigenous knowledge and its sophisticated contribution to building solutions unveils a new political role for these actors, even though the struggle for civil rights has not been resolved in the 30 years since the Constituent Assembly. The processing of

[178] MOSELEY, C. (Ed.). *Atlas of the World's Languages in Danger*. Unesco, 2010.

[179] SCIENCE PANEL FOR THE AMAZON (SPA). *Amazon Assessment Report 2021: Executive Summary.* New York: United Nations Sustainable Development Solutions Network, 2021.

historical and current conflicts, followed by their overcoming and the reconfiguration of new realities, opens up space for the future. But it is important that these new pathways are well-structured, in the field of governance, to avoid the repetition of a pendular movement of advance and regression, as has been witnessed in Brazilian history regarding respect for the rights and culture of indigenous people.

## The new political voice: autonomy and leading role of indigenous people

Climate and environmental governance, necessary to rebuild Brazilian leading role in the world from 2023 onwards, with the new elected government, is dependent upon the active participation of indigenous actors in the most diverse spheres of society. This participation goes from the realm of ideas to actually building and implementing policies and thus overcoming historical institutional racism.

If, in the past, the indigenous movement was essentially interested in revindicating rights such as the recognition and protection of territories, today it integrates an agenda of duties that fall on the whole of society. There are diverse fronts in which this indigenous leading role is gaining a political role and must actively participate: in academia, the (bio)economy, healthcare, public opinion, global forums, and the constituent powers such as the Legislative and the Executive branches.

One of the challenges in this route lies in allying traditional knowledge to scientific and technological research in the joint search for solutions to combat climate change, conserve biodiversity and stimulate the flourishing of the bioeconomy. Universities need to open up to the indigenous way of thinking, embracing non-Eurocentric reference points and cultures, thus reinforcing Brazil's original characteristics.

The indigenous peoples knew about the influence of the moon over the tides before western science did, for example. And they were already informing researchers about the "discoveries" of science, especially those which arose from scientific expeditions, as the

anthropologist Otávio Velho[180] points out—for whom accentuating the meanings of cultural diversities can be a good starting point in discussions surrounding science, technology and innovation in Brazil. According to him, however, this process of deepening must acknowledge that this information forms part of a true body of knowledge and that, therefore, modern Western science is merely one among many forms of knowledge.

At the same time as considering the importance of indigenous people in relation to producing knowledge to build a fairer, safer country from a climate and environmental standpoint, the indigenous people who keep the forests alive must be recognized and remunerated for the environmental services offered to balancing the climate, biodiversity, soil and water protection, and the rain cycles which all of Brazil depends on for human supplies, industrial and food production, and energy generation.

Such recognition already forms part of academic knowledge but must reach the awareness of the entire Brazilian population. This is why disseminating visions, cultures and stances from an indigenous point of view becomes so essential. The good news is that the indigenous youth, booming producers of knowledge, culture and opinions, are making themselves known. More recently, examples of indigenous people in command of the narrative have begun to proliferate, telling their people's own story.[181] Many profiles on social media stick out: Txai Suruí,[182] Alice Pataxó, Cristian Wariu, communicator for the Xavante people, and the filmmaker Kamikia Kisedje, among many others.

They have also begun making or starring in more movie productions circulating outside Brazil, projecting their villages to the

[180] CONHECIMENTOS tradicionais na Pan-Amazonia. *Cadernos de Debates Nova Cartografia Social*, Manaus, Projeto Nova Cartografia Social da Amazonia, UEA Edições, n. 1, 2010.

[181] ARAÚJO, T. Jovens indígenas abrem nova frente na luta pelos direitos dos povos originários. *#Colabora*, 10 Aug. 2022. Available at: https://bit.ly/3os4swM. Accessed on: 18 May 2023.

[182] SURUÍ, T. Demarcando o espaço indígena nas telas. *Folha de S.Paulo*, São Paulo, 22 Aug. 2022.

world, such as *The Last Forest* (2021) and *The Territory* (2022), winner of the Audience Award and the Special Jury Award at the Sundance Film Festival in 2022. In December of that same year, Brazil hosted the first Indigenous Film and Culture Festival (FeCCI), dreamt up by the indigenous filmmaker Takumã Kuikoro. The event was entirely conceived by indigenous people, centred around their audio-visual productions and with the goal of contributing to the diffusion of their films and culture.

It is politically strategic for the indigenous movement to control its own narrative, rather than let it be viewed through the eyes of indigenists and government workers, as if they were under permanent guardianship. This political inflection point, which was already resulting in the growing participation of indigenous youth in international forums, has more recently displayed its strength by means of occupying posts in the National Congress (*see box*) and in the executive since the creation of the Ministry of Native People.

*It is politically strategic for the indigenous movement to control its own narrative, rather than let it be viewed through the eyes of indigenists and government workers, as if they were under permanent guardianship.*

The gains go beyond the indigenous sphere, since they reflect a maturing of the Brazilian democratic process, holding up the understanding of diversity and respect for minorities as one of the nation's fundamental values. It also represents Brazil's encounter with itself and its original identity.

### GROWTH IN THE POLITICAL REPRESENTATION OF INDIGENOUS WOMEN

The 2022 elections heralded a big increase of indigenous women candidates. The growth, according to Apib, was 193 percent since 2014, going from 29 to 85 candidates. The growth of male candidates in this period was 80.35 percent.

This was the largest indigenous participation in elections so far. In 2022, Apib's Indigenous Campaign supported 30 candidates, men and women, representing 31 different peoples. Of the total, 12 were seeking election as federal deputies, 18 as state deputies, the majority in both categories made up of women.

In 2018, Sonia Guajajara made the PSOL's candidate list as running mate of the then candidate Guilherme Boulos, ushering in a new frontier in Brazil's presidential elections. That year Joenia Wapichana, from the Rede Sustentabilidade (Sustainability Network) party, received 8,941 votes and was elected as the first female federal deputy for the state of Roraima in 190 years of Parliament. Before her, Mário Juruna had been the first indigenous person to win a seat in the Chamber of Deputies (1983-1987). Wapichana was also the first indigenous woman to qualify as a lawyer in Brazil, at Roraima Federal University (UFRR). In 2022, she was not re-elected, but five new names were chosen for the House of Deputies, a new record.

One of them is Sonia Guajajara, executive coordinator of Apib and member of the Council of the Inter-Religious Initiative for Brazil's Tropical Forests, elected for the São Paulo wing of PSOL. Another is Célia Xakriabá, elected for PSOL in Minas Gerais. One of the highest-achieving graduates in Indigenous Education at Minas Gerais Federal University (UFMG) in 2013, her agenda involves defence of indigenous territories and actions which attenuate climate change. The indigenous politicians Juliana Cardoso (PT- São Paulo), Paulo Guedes (PT-MG) and Sílvia Waiãpi (PL-AP) also won mandates. ■

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The indigenous political movement in Brazil is not disassociated from a growing wave on the international stage. The voice of Brazilian indigenous people is added to many other indigenous voices across the globe.[183] Speakers of most of the world's 7,000 existing

[183] The UN special report on Indigenous Peoples estimates that there are more than 476 million indigenous people in 90 countries across the entire world. Distributed across 5 thousand distinct groups, they represent 6.2 percent of the global population.

languages, what indigenous people have in common is a historical link with their regions of origin before colonization and a strong link with their lands. They maintain, at least in part, distinct social, economic and political systems, with different languages, cultures, beliefs and knowledge systems.[184]

The exchange of visions, worldviews, and knowledge between all of these peoples, uniting the North-South axis, brings a richness over the interlinking of the climate question (a crisis that shows the vulnerability of life) with that of biodiversity (which affirms life). The protection of diversity—of people, of nature, of Mother Earth—lights up the way towards addressing the climate imbalance. If every indigenous group brings with it a unique worldview, then the world will find the many answers it seeks in each village.

[184] UNITED NATIONS. *Indigenous Peoples*. Available at: https://bit.ly/432eeF0. Accessed on: 18 May 2023.

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# About the authors

## Francisco Gaetani

A renowned public administrator, with a long academic and professional trajectory in several areas of the Brazilian state. Since January 2023, he has occupied the Extraordinary Secretariat for Transformation of the State, in the Ministry of Management and Innovation. In the federal public administration, he occupied the positions of National Department of Public Management, Deputy Vice Minister and Vice Minister of Planning, Budget and Management and vice minister in the Ministry of the Environment, as well as president of the National School of Public Administration. He took part in the Bank of Brazil's Administration Council, The National Economic and Social Development Bank (BNDES), the Financier of Studies and Projects (Finep), Eletronorte, the Energy Research Company (EPE) and the Porto Alegre Clinical Hospital, and he was president of the Republic Institute's Administration council. He was a fellow at the Arapyaú Institute and a member of the Amazon Concertation Council and the Competitive Brazil Movement. He is a professor at the Brazilian School of Public Administration and companies (FGV/EBAPE), at the National School of Public administration (Enap) and the Rio Branco Institute. He was a coordinator on the United Nations Development Programme (UNDP) and has worked at other organizations, such as the João Pinheiro Foundation (FJP), the Federal University of Minas Gerais (UFMG), the Minas Gerais Secretariat for Social Work and Action and the Vale do Rio Doce Company. He has also lectured at the Pontifical Catholic university of Minas Gerais (PUC Minas) and at the FJP. He holds a Master's in Public Administration and Public

Policy and a PhD in Political Science at the London School of Economics and Political Science. He recently released the book *How to Build the State in the 21st Century*, co-authored with Miguel Lago.

## Izabella Teixeira

Recognized as one of the main global authorities on environmental matters, co-chair of the UN Environment Programme's International Resources Panel (IRP/UNEP) and member of the UN-DESA's High Level Consultative Council, she is consulted by leaders around the world for strategy development. During her mandate as Brazil's Minister for the Environment (2010-2016) she had a fundamental role in negotiating the Nagoya Protocol, in the Sustainable Development Goals, the Minamata Convention and the Paris Agreement. In 2012, she was nominated to serve on the High-Level Panel of Eminent Persons to develop what became the 2030 Agenda. In 2013, as a recognition for her contribution to the reduction in Amazon deforestation, she received the 'Champions of the Earth' Global award from the UN Environment Programme, in the Political Leadership category. She is a biologist with a Master's in Energy Planning and a PhD in Environmental planning from the University of Brasília (UnB). Author and co-ordinator of a range of publications, she is co-author of this book as a fellow of the Arapyaú Institute.

## Marcello Brito

A pioneer in bioeconomy and initiatives involving representatives from different sectors of society. His history of leading networks takes in the Interstate Consortium for Sustainable Development in the Amazon, the Strategic Council of the Brazil, Climate, Forest and Agriculture coalition, the Brazilian Agribusiness Association (Abag), the Brazilian Palm Oil Producers Association (Abrapalma) and the Roundtable on Sustainable Palm Oil, among others. As a company leader, he was the CEO of Agropalma, the largest producer

of sustainable palm oil in the Americas. He is a board member of Conservation International, the JBS—Amazon Fund, among others. A graduate of Food Engineering with a master's in Business Management, he is the co-creator and technical coordinator of the Global Agro-Environmental Centre and the Global Agribusiness Academy at the Dom Cabral Foundation (FDC). As a fellow of the Arapyaú Institute, he is co-author of this book.

### Roberto Waack

Notable for his innovative and collaborative vision, he has vast experience as an executive entrepreneur and adviser. He is a board member of Marfrig, Wise Plásticos, Synergia and the Arapyaú Institute, of which he is president. In addition, he is a co-founder and member of the strategic governance nuclei of the Brazil Climate Forests and Agriculture Coalition and the Amazon Concertation. He is also a visiting fellow at Chatham House, London, and a member of the SuperBid Sustainability Committee. Over his career, he has held positions such as CEO of the Renova Foundation, founder, CEO and president of the Amata Council (a forest company in the Amazon, of which he is still a shareholder), CEO of Orsa Florestal, president of the International Council of the Forest stewardship Council, member of the International Council of the Global Reporting Initiative (GRI), the National Biodiversity Fund (Funbio) and the Brazilian Institute of Corporate Governance (IBGC), among other civil society organizations. He began his career in the pharmaceutical industry, where he reached the role of director. He is a biologist with a master's in business management and a co-author of this book. He shares his ideas and publications on his website: https://rswaack.com.br/

### Samela Saterã Mawẽ

An indigenous woman from Manaus, a member of the Sateré Mawé people, she is a widely recognized young environmental activist, with more than 100,000 followers on her Instagram profile

(@sam_sateremawe). She is part of the Fridays for the Future Brazil movement, a communicator for the Brazilian Indigenous Peoples Co-ordination and the National Coordination of Ancestral Warrior Women (ANMIGA). She also presents on Channel Reload, is a creator for the climate at NOSSAS and a member of the Association of Indigenous Sateré Mawé Women (Amism), the Movement of Amazonian Indigenous Students (Meiam) and the Amazon Concertation network. She studied Biology at the Amazonas State University. As an Arapyaú fellow, Samela is co-author of this book.

# About *Página22* and Arapyaú Institute

## *Página22*

A multimedia magazine which inspires free and plural discussion on the main issues of today and collects proposals for addressing rapid social transformation. It works in response to growing information fragmentation and casts new light on the discussion. Launched in 2006, it became a reference point for the Brazilian editorial market by anticipating the importance of the topic of sustainability. Amalia Safatle, editor of *Página22*, is also involved in systematising knowledge at various organizations and attends the meetings of the Arapyaú fellows. It was at this junction, between the Fellows, the Institute and Amália, that the opportunity to publish this book was identified.

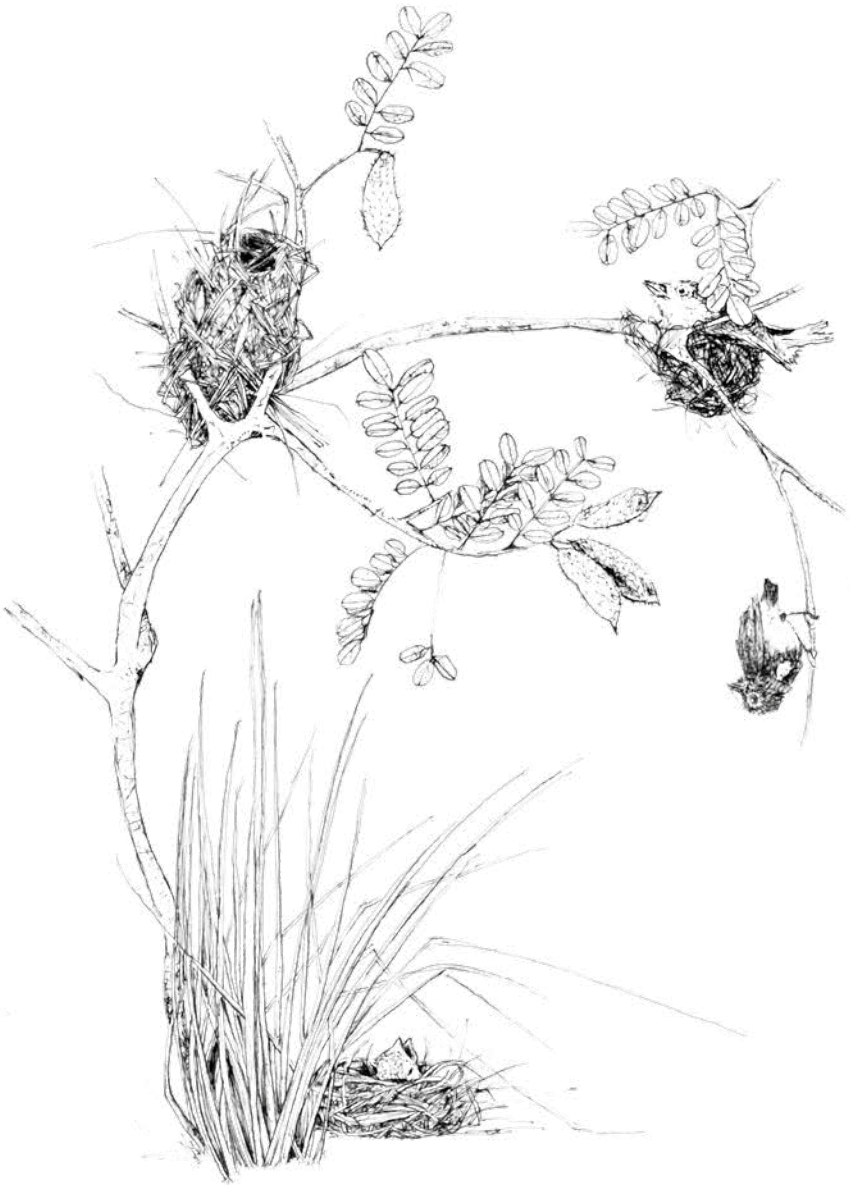
## Arapyaú Institute

A Brazilian philanthropic institute that promotes development based on valuing natural, social and economic factors. The institute mobilizes civil society, philanthropy, academia, and the public and private sectors to encourage transformative networks capable of creating scalable and systematic solutions that respond to challenges such as climate change and biodiversity loss. It believes in collaboration and diversity as the only ways to tackle these issues.

This book was developed within the Arapyaú Institute's Fellows Programme, from discussions promoted among the fellows Francisco Gaetani, Izabella Teixeira, Marcello Brito and Samela Sateré Mawé. From the institute, the group was also joined by Roberto Waack (board chairman), Renata Piazzon (director-general), Thais Ferraz (director) and Renata Loew Weiss (leadership coordinator), the last two responsible for coordinating the book. The art concept was developed by Fernanda Rennó and the illustrations that permeate the lines are by Josias Marinho Casadecaba, recognized for his contributions in the field of Afro-Brazilian literature and illustration, having won several prizes and taken part in important exhibitions in Brazil and abroad. The elaboration of the base texts was carried out by Amália Safatle, editor and cofounder of the magazine *Página22*, with previous research carried out by Nadia Pontes, winner of the IMPA journalism prize in the Scientific Communication category.

Illustrator's references for **birds**: Yellow-rumped cacique and black-crested antshrike
For **vegetation**: Genipap

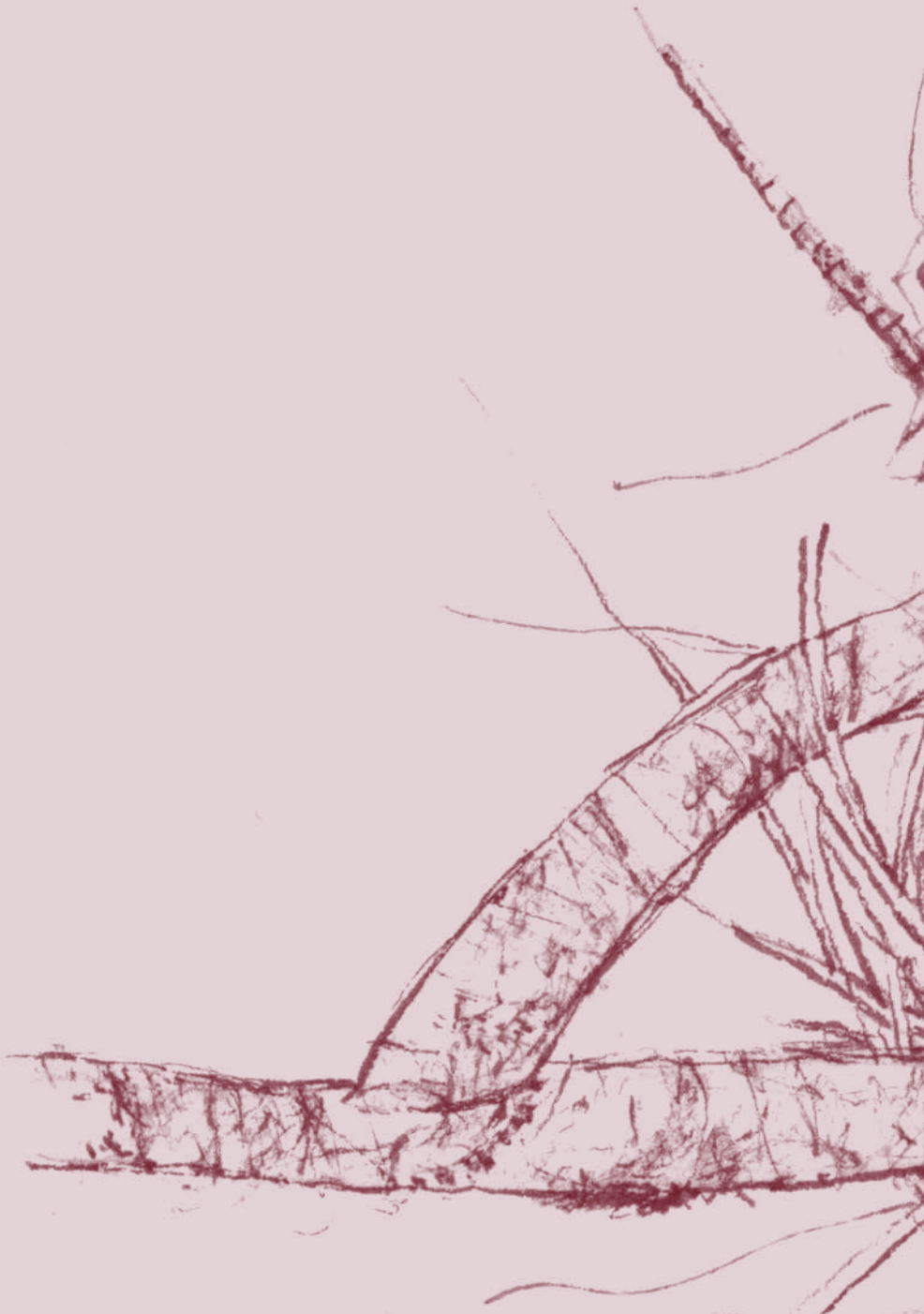
Illustrator's references for **birds**: Yellow-rumped cacique and rufous-bellied antwren
For **vegetation**: Genipap



Illustrator's references for **birds**: Fiery-capped manakin, white-fronted manakin and blue finch
For **vegetation**: Brazilwood

Illustrator's references for **birds**: Yellow-rumped cacique,
black-crested antshrike and rufous-bellied antwren
For **vegetation**: Genipap

Illustrator's references for **birds**: Scarlet ibis and blue finch
For **vegetation**: Mangrove



This book was set in Adobe Garamond Pro type and printed on
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