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# FROM LEADERSHIP TO ABANDONMENT: THE GEOPOLITICS OF FOOD AND THE ISOLATION OF BRAZIL IN THE COVID-19 PANDEMIC CONTEXT

DA LIDERANÇA AO ABANDONO: A GEOPOLÍTICA DOS ALIMENTOS E O ISOLAMENTO DO BRASIL NO CONTEXTO DA PANDEMIA DE COVID-19

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## Abstract

Agriculture is one of the main economic activities in Brazil, a major producer and exporter of food. However, the high rate of food insecurity among the national population persists, and this rate has worsened even further in the context of the COVID-19 pandemic, an event that posed challenges for the governments worldwide, as well as for global geopolitics. In addition, global climate change, a phenomenon projected by the IPCC, is causing and will continue to cause significant impacts on agricultural production. In this paper we ask: has the management of the pandemic by the Jair Bolsonaro government (2019-2022), combined with the impacts of climate change on food production in the country, led the country to the status of an international pariah, putting its role at risk as a global power in the field of food geopolitics? Our methodology involves a bibliographic review on the subject to define the main concepts we are approaching, such as food and nutritional security, global climate change, food geopolitics and leadership; and then we carried out our analysis on the position of the Brazilian government at the national and international level during the administration of Jair Bolsonaro (2019-2022), in order to verify whether the dialogue between these spheres corroborates the hypothesis that government management in relation to pandemic and agriculture, disregarding the phenomenon of global climate change, led the country to an international pariah situation.

**Keywords:** Food Security; COVID-19; Geopolitics of food; Global Climate Change; Leadership.

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## Resumo

A agricultura é uma das principais atividades econômicas do Brasil, grande produtor e exportador de alimentos. No entanto, a elevada taxa de insegurança alimentar entre a população nacional continua, e esta taxa agravou-se ainda mais no contexto da pandemia da COVID-19, um evento que tem colocado desafios aos governos do mundo, bem como a todo o mundo. Além disso, existe a mudança global do clima, fenômeno que, conforme projeta o IPCC, está causando e causará ainda mais impactos na produção agrícola do planeta. Neste artigo questionamos: a gestão da pandemia pelo governo Jair Bolsonaro (2019-2022), somada aos impactos da mudança do clima sobre a produção de alimentos no país, levou o país ao status de pária internacional, colocando em risco o seu papel como potência global no campo da geopolítica alimentar? Nossa metodologia envolve uma revisão bibliográfica sobre o tema, a fim de definir os principais conceitos abordados, como segurança alimentar e nutricional, mudança global do clima, geopolítica alimentar e liderança; e em seguida realizamos a análise sobre a posição do governo brasileiro em nível nacional e internacional durante a gestão de Bolsonaro, a fim de verificar se o diálogo entre essas esferas corrobora a hipótese de que a gestão governamental em relação à pandemia e à agricultura, desconsiderando o fenômeno da mudança global do clima, levou o país a uma situação de pária internacional.

**Palavras-chave:** Segurança Alimentar; COVID-19; Geopolítica dos alimentos; Mudança Global do Clima; Liderança.

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## 1. INTRODUCTION

Brazil is the fifth largest country on the planet and occupies an area of 8,547,403 km<sup>2</sup>. According to the 2022 Census, its population exceeds 203 million people, making it the sixth most populous country in the world (Brazil, s/d). The country is also rich in natural resources and biodiversity - according to the National Water and Basic Sanitation Agency (ANA), it has around 12% of all the fresh water available on Earth (Quantity..., s/d). Furthermore, it has the greatest biodiversity on the planet, with more than 116 thousand species of animals, more than 46 thousand species of plants, and important ecosystems, such as the largest humid tropical forest on the planet, the Amazon, and the largest floodplain on Earth, the Pantanal (Biodiversity, s/d).

Agriculture is one of the main economic activities in Brazil. It makes up around 6.6% of the country's GDP, the territory's arable area is around 664,784 km<sup>2</sup>, and in the 2019/2020 harvest, the planted area was 64.8 million hectares (Brazil, s/d). According to a report from the Ministry of Agriculture and the Brazilian Agricultural Research Corporation (Embrapa), this area is projected to increase to 85.68 million hectares in the 2028/2029 harvest, an expansion that will occur, above all, due to the recovery of degraded areas and natural pastures, mainly boosting the cultivation of cotton, rice, beans, corn, soybeans, wheat, coffee, etc (Ministério da Agricultura, Pecuária e Abastecimento, 2019).

Brazil is a major producer and exporter of food, whether grains or processed foods, such as animal protein. The evolution of Brazilian food production is related not only to the abundance of the country's natural resources but also to the incorporation of science and technology (Embrapa, 2019). After the Second World War, driven by global economic and social transformations, the country's industrialization project was also consolidated, based on ideas promoted by the Economic Commission for Latin America and the Caribbean (ECLAC), such as the diversification of exports and strengthening the internal market. As a result, there was an acceleration of the rural exodus and urbanization in the country, which, between 1950 and 1990, led to a 6% increase in food demand. Therefore, Brazilian urbanization and industrialization laid the foundations for the country's agricultural transformations (Alves *et al.*, 2008).

The 1970s and 1980s recorded the highest levels of credit ever offered by the Brazilian government to rural producers. However, the bureaucracy associated with the granting of these credits made access difficult for small producers with low levels of education, which culminated in an exclusionary process that increased inequalities, especially in the Northeast region. Regarding production for the foreign market, over the last forty years, Brazil has consolidated itself as a major food exporter (Alves *et al.*, 2008), and according to data from 2019, it feeds around 1 billion people on the planet (Embrapa, 2019).

However, food insecurity in Brazil remains a major contradiction, which is even more alarming considering the protagonism of Brazilian foods at an international level. Food Security concerns the availability, access, use, and stability of food (FAO, 2008). In Brazil, in 2020, around 116.8 million

people experienced some degree of food insecurity, 43.4 million without food sufficient, and around 19 million in a situation of severe food insecurity. When compared with previous years, data show that severe food insecurity afflicted 7.225 million in the country in 2013, rising to 10,284 in 2018, and to 19,043 in 2020, driven, above all, by the consequences of the COVID-19 pandemic (Rede Penssan, 2021).

The COVID-19 pandemic, declared by the World Health Organization (WHO) in March 2020, changed the recent history of humanity. The Severe Acute Respiratory Syndrome Coronavirus, SARs-CoV-2, which causes the disease that spread across the planet through human contact, was first identified at the end of 2019 in Wuhan, China. As of August 17, 2021, around 2.63% of the world's population has been infected, and 0.06% has died. Brazil, by the same date, ranked as the third country with the most infections and second with the highest number of deaths - around 9.5% of the population became infected, and 0.29% died, a percentage much higher than the average worldwide (Covid-19 Dashboard by the Center for Systems Science and Engineering [CSSE], s/d).

In Brazil, the pandemic impacted several areas, such as health systems, education, and various sectors of the economy that were paralyzed. The country's GDP in 2020 fell by 4.1% compared to the previous year. However, unlike industry and the services sector, which recorded declines, agriculture saw an increase of 2%. Soy and coffee production, for example, recorded the largest increases in the historical series, 7.1% and 24.4%, respectively (Agência IBGE, 2021). Agriculture also played a leading role in Brazilian exports in 2020, registering a growth of 6%, unlike the extractive industry and products from the manufacturing industry, which registered declines (Governo do Brasil..., 2021).

Considering the records of Brazilian agribusiness and the implications of the pandemic, some causes for the increase in hunger in the country stand out: (1) the growth in unemployment impacted on the reduction of income, and added to the increase in food prices, the access of poorer people was made difficult; (2) although half of the country's grain production is soybeans, since it is mainly destined for export, a large part of this production is not intended for human consumption; (3) although most of the food consumed by Brazilians comes from family farming, the remuneration for food production in the domestic market has been unattractive (Agência IBGE, 2021). In other words, to answer this question, we must consider pre-existing problems and those that were intensified by the Covid-19 pandemic.

The 6th Assessment Report published by the Intergovernmental Panel on Climate Change (IPCC) in 2022 emphasized that "it is unequivocal that human influence has warmed the atmosphere, ocean and land" (IPCC, 2022, p. 5). In this report, in addition to reinforcing the certainty about human intervention in the planet's climate, scientists quantified it: the Earth has warmed 1.09°C since the pre-industrial era, and 1.07°C can be attributed to the emission of Greenhouse Gases (GHG) caused by human activities, such as the burning of fossil fuels and deforestation (IPCC, 2022).

The impacts of climate change are increasingly observable, for example, in the increase in episodes of extreme temperatures and heavy precipitation, and consequently on productive activities such as agriculture. According to the report, the contribution of human activity to the droughts that harm agriculture in regions of Europe, Africa, North America and South America is evident. Currently, serious episodes of drought occur, on average, once every ten years. If the global average temperature rises from the already recorded increase of 1°C to 4°C, these episodes will happen at least four times in that space of time (IPCC, 2022).

In 2021, Brazil experienced the worst water crisis in the last 91 years. The consequence for agriculture was direct: there were problems in the production and transportation of various commodities. For José Merengo, climatologist and general coordinator of research and development at the National Center for Monitoring and Alerting of Natural Disasters (Cemaden), the summers with below-average rainfall and extreme weather events that we observe in Brazil are a consequence of global warming (UOL, 30 Jul. 2021. Crise hídrica no Brasil impacta fluxo de commodities e pode afetar o mundo).

Given this scenario, in this paper we question: has the management of the pandemic by the Jair Bolsonaro government (2019-2022), combined with the impacts of climate change on food production in the country, led the country to the status of an international pariah, putting its role at risk as a global power in the field of food geopolitics? By international pariah, we mean a State that does not follow international norms or standards of behavior defined informally, or through treaties and agreements, by the international community or by States understood as great powers. This is a controversial idea, as different groups, guided by different sets of values, may consider a State to be a pariah, or not (Varikas, 2010). For the purpose of this paper, we will take as indicators the behavior of the Brazilian State in relation to agriculture, the pandemic and climate change, to evaluate its performance and its position, or not, as an international pariah.

To carry out this discussion, methodologically, we mobilized a bibliography on the topic, in order to define the main concepts we are addressing, such as food and nutritional security, global climate change, food geopolitics and leadership. Then, we carried out our analysis considering the positioning of the Brazilian government at national and international levels during the government of Jair Bolsonaro, in order to verify whether the dialogue between these spheres corroborates the hypothesis that the government's management in relation to the pandemic and agriculture, disregarding the phenomenon of global climate change, has led the country to a situation of international pariah even though it is a major producer and exporter of food.

## **2. THE GEOPOLITICS OF FOOD DURING THE COVID-19 PANDEMIC**

To think about geopolitics of food is to consider the importance of the increase in the world population and the increase in demand for resources, such as water and those related to energy

production. Faced with a scenario of uncertainty and worrying predictions about climate change, the increase in commodity and biofuel prices also becomes a central issue in the discussion of the geopolitics of food (Quiroga, 2016). The challenges posed by these issues, and obviously, by the Covid-19 pandemic, are also significant challenges for current geopolitics, as they impact power relations between States.

Nutritional and Food Security (NFS) has long been the focus of attention from researchers around the world. Since the emergence of the pandemic, disasters that threaten NFS, such as wars, extreme weather events, and other natural calamities, have prompted new studies, enabling a better understanding of how these phenomena impact the nutritional balance of vulnerable communities. What we have is an intertwining of factors that predate Covid-19, which end up being worsened by it. It is worth highlighting that the right to autonomous food production is a fundamental part of obtaining NFS. This security, in turn, is built through various social, economic, cultural, climatic and ecological juxtapositions (Buanango; Ferreira; Oliveira, 2020).

The speed with which the virus spreads among human beings allows us to affirm that there is a different distribution of resources in an uneven manner, worsening the health tragedy. In this context, Africa was identified as one of the most vulnerable regions on the planet to the effects of the pandemic and post-pandemic.

In addition to climate threats, countries that had armed conflicts in their territories recorded thousands of fatalities and displaced people, which forced actions such as deforestation for survival, and the respective implications for the worsening of the NFS situation. Some countries managed to get out of this cycle of conflicts, but others still remain in it<sup>5</sup> (Buanango; Ferreira; Oliveira, 2020, p.121).

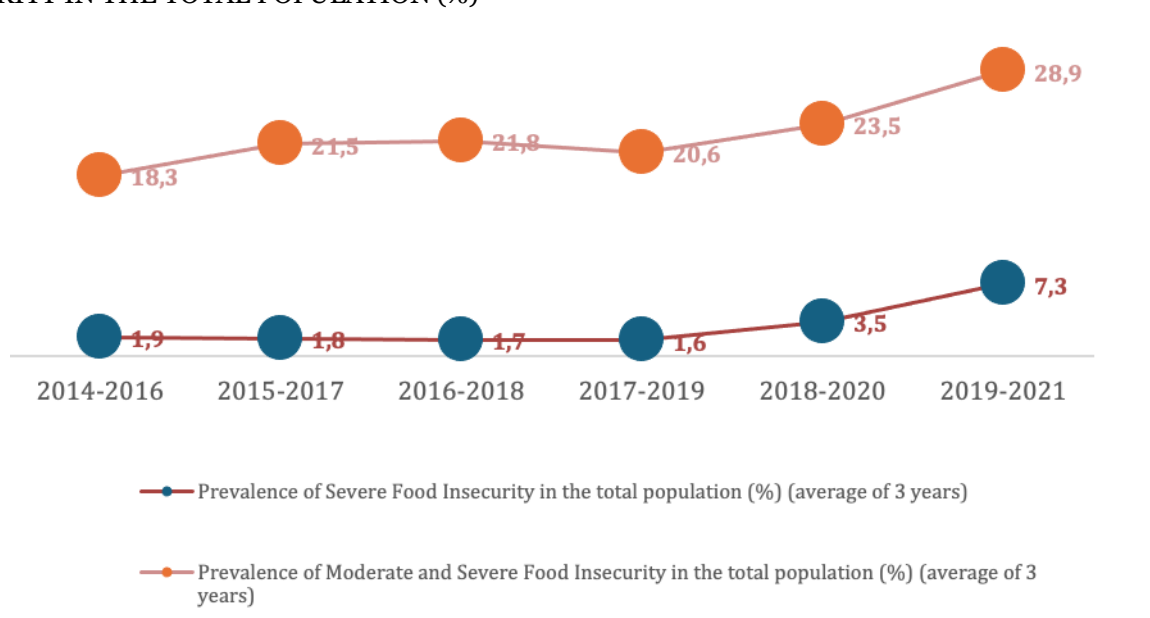
It is known that the loss of agricultural capacity, coupled with local armed conflicts, and hunger hit these areas hardest. Terrorism is a global concern; however, its local impacts generate different forms of deprivations for each community. The SARS-Cov-2 epidemic reached states such as Mozambique and Ethiopia just as populations were facing terrorist threats in their territories, threatening the NFS. The concept of NFS comprises four dimensions: availability, access, use, and stability, with stability serving as a cross-cutting element to the other three. The goal is to ensure the availability and universal accessibility of quality food that enhances human health and well-being, while safeguarding both life and the planet's sustainability. However, climate change poses a significant threat to all NFS dimensions, further intensifying challenges for subsistence agricultural systems (Buanango; Ferreira; Oliveira, 2020).

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<sup>5</sup> Original text in Portuguese: Para além das ameaças climáticas, países que tiveram conflitos armados em seus territórios, registaram milhares de vítimas mortais e deslocados, que forçaram ações como o desmatamento para a sobrevivência, e as respectivas implicações na piora da situação de NFS. Alguns países conseguiram sair deste ciclo de conflitos, mas outros ainda permanecem nele.

Graph 1 shows the prevalence of severe food insecurity, as well as moderate and severe food insecurity in the total population. As can be seen, between the 2014-2016 and 2017-2019 three-year periods, severe food insecurity decreased. However, since the 2017-2019 three-year period, it has been rising to levels at least three times higher than those of the 2014-2016 three-year period. Moderate and severe food insecurity, although it has fluctuated, has also been rising since the 2017-2019 period.

GRAPH 1 – PREVALENCE OF MODERATE AND SEVERE FOOD INSECURITY AND SEVERE FOOD INSECURITY IN THE TOTAL POPULATION (%)



SOURCE: prepared by the authors from FAO, s/d.

In recent years, hunger has increased not only in Brazil, but also in other countries, and, consequently, the number of illnesses and deaths. In many of these countries, no crops were harvested, and even with humanitarian actions, serious social uprisings were avoided. Governance is compromised when the NFS is not guaranteed. In short, the absence of the NFS, and the confluence of destabilizing factors, impedes both sovereignty and governability. The larger the population and the greater the pressure on resources within a context of instability, the greater the movement of people in this context of disrespect for human rights. Food as a weapon of war is at the same time subject and object in a context of tragedy in African states. The lack of security in these situations hinders the establishment of conditions for consistent development that could benefit the entire nation. As a result, the population often becomes dependent on assistance from the government or international aid, such as food and medicine donations. This lack of stability can also limit their freedom, particularly for those confined to refugee camps or held as hostages (Buanango; Ferreira; Oliveira, 2020).



In this scenario, the arrival of Covid-19 and the similarity of population containment policies, formulation of plans to help contain the virus and the closure of commerce did not collaborate with many nations in a context of guaranteeing the NFS, where a large part is dependent on the the informality of the economy and trade. The resignation of the leaders of these nations, the slowness or administrative limitations in their speeches, point to the difficulty of organizing and leading their people towards paths of minimum food security. From 2020 onwards, the world started to feel resentful of Covid-19; however, in all structured countries, the virus remained under control in agricultural areas, which is not noticed in Africa, where relationships are complex and extremely particular within this context.

The concept of leadership is costly to a broader discussion about international governance. In this context, leadership can be defined as “an asymmetrical relationship of influence in which one actor guides or directs the behavior of others toward a certain goal over a certain period of time” (Underdal, 1994, p. 178). Authors in the field (Underdal, 1994; Young, 1991; Saul; Seidel, 2011) assume that leadership is a prerequisite for international cooperation. In most international governance arenas and themes, asymmetry between countries is a defining characteristic of negotiations. In this sense, leadership can manifest itself as the building a framework of shared values and interests for a certain purpose (Underdal, 1994; Young, 1991). In the case of this study, the overlap of three arenas for thinking about Brazilian leadership is considered: climate change, health (pandemic), and agriculture regarding NFS. Furthermore, considering the idea of an international pariah proposed in the introduction, it is understood that the refusal of a leadership position on a given topic, associated with the abandonment of this framework of values, is a component for thinking about a State as a pariah.

Given this context and concepts, we understand that there is an intimate relationship between NFS and the ability of States to organize themselves domestically and internationally, which has become more complicated with the new challenges posed by the pandemic. Some governments appear to have paid attention to the problem of virus migration and its consequences from the beginning, but this is not clearly stated in the agribusiness management and pandemic control policies in rural areas of a central actor in this discussion: Brazil.

### **3. SYNERGIES REGARDING GEOPOLITICS AND GLOBAL CLIMATE CHANGE**

Geopolitics changes depending on planetary physical changes. In a scenario of a 3 degrees Celsius increase in the global average temperature of the Earth's surface, predicted by the new IPCC report for mid-2075, if the Paris Agreement is not complied with (IPCC, 2022), some regions of the globe will rise by 5-6 degrees Celsius. Visibly, the impact will be mainly in the Arctic areas. Let's imagine the Russian black earth being able to produce for nine months of the year. This changes the process of formatting the Eurasian Power projection. The Chinese and Russians are building a flow



of cooperation never before achieved in history, this will have a strong impact on the new Silk Road project (Belt and Road Initiative). Infrastructure is being built to reduce dependence on the control of the seas (geopolitical vision of Alfred Thayer Mahan (1840-1914) - control of the seas) versus the geopolitical vision of Halford John Mackinder (1861-1947), among others - the geopolitical control of the MainLand ("main land", "continent", in this case, Eurasia as a whole, with emphasis on the new silk road.

It must also be considered that the increase in deforestation for coal generation impacts the environment and compromises the climate, and the expansion of pastures contributes to this issue, which also increases the unavailability of food and NFS. Furthermore, if family agricultural activity economically supports the majority of native populations in Africa, it is already possible to affirm that the associated factors of climatic/social turbulence culminate in a genocide of the most vulnerable populations.

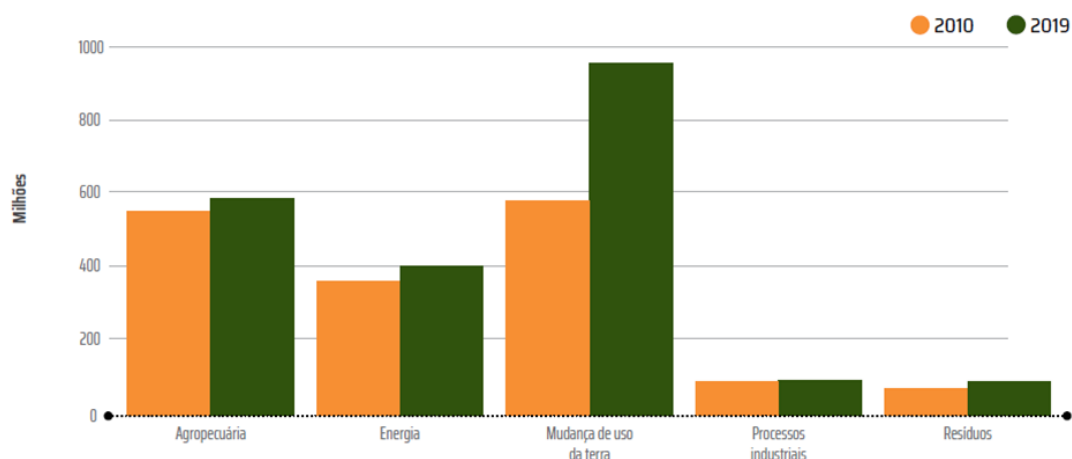
In addition to territorial conflicts, climate change is a source of concern for all sorts of people in every region of the planet. Everyone's health, regardless of the degree of industrialization, is already being impacted by rising temperatures and the increase in CO<sub>2</sub> in the atmosphere. Measures to mitigate these problems, such as the use of cattle manure, guarantee a considerable improvement in this global climate issue. Contrary to popular belief, it is not storms and floods that kill the most in a process of accelerating climate change. Respiratory diseases, flu and other illnesses intertwined by temperature variation are the big problem in this matter. In this context, extensive soil exploitation activities, whether through mining, agriculture and livestock farming, are the villains of the moment in this broad problem. The consequences of climate change still bring diseases such as "malaria, malnutrition and diarrheal diseases," in addition to seriously impacting hundreds of communities' access to drinking water (Buanango; Ferreira; Oliveira, 2020, p. 124).

The climate changes we see impact the poor and the rich differently. It is not absurd to say that the rich are getting richer (like populations in northern Europe), and those who are poor are even more disadvantaged. If it is not yet possible to quantify the extent of the environmental impacts of climate change on small crops and family farming in smallholdings, it is already possible to notice the exodus of populations from these locations due to the increase in pests and water scarcity. Water is also heavily impacted by climate change. In a study conducted in South Africa, it was found that many dams had low water levels, reaching only 40% capacity during 2016/2017, which significantly reduced crop yields. Droughts affecting small-scale farmers have become increasingly frequent, turning into a common and persistent issue (Buanango; Ferreira; Oliveira, 2020).

An important link between climate change, food security and geopolitics is global meat production. In the Brazilian case, agriculture is the second economic activity that emits the most GHG in the country, behind only the change in land use, which is mainly equivalent to deforestation and fires, often associated with the clearing of an area for implementation. of agribusiness activities

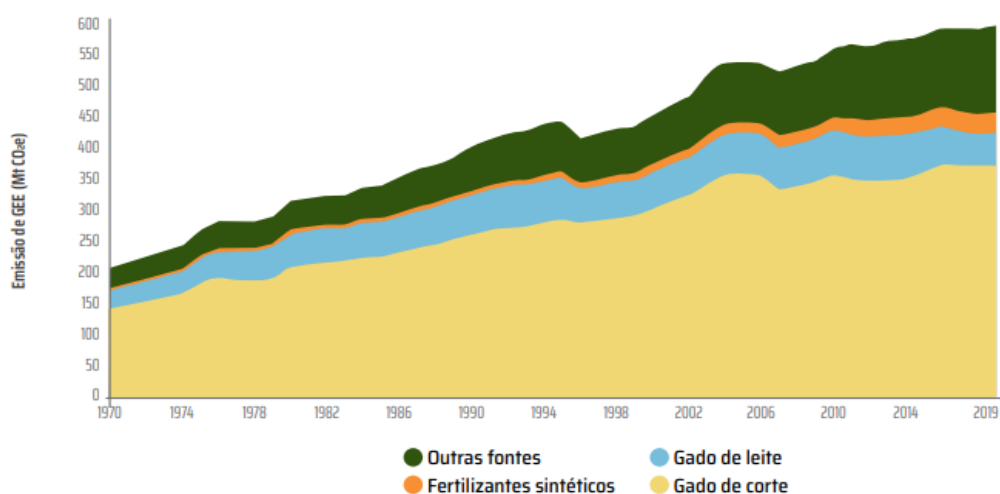
(Observatório..., 2021). Graph 2 illustrates this scenario and Graph 3 specifies emissions from Brazilian agriculture.

GRAPH 2 - GREENHOUSE GAS EMISSIONS IN BRAZIL BY SECTOR IN 2010 AND 2019 (MTCO<sub>2</sub>E)



SOURCE: OBSERVATÓRIO..., 2021.

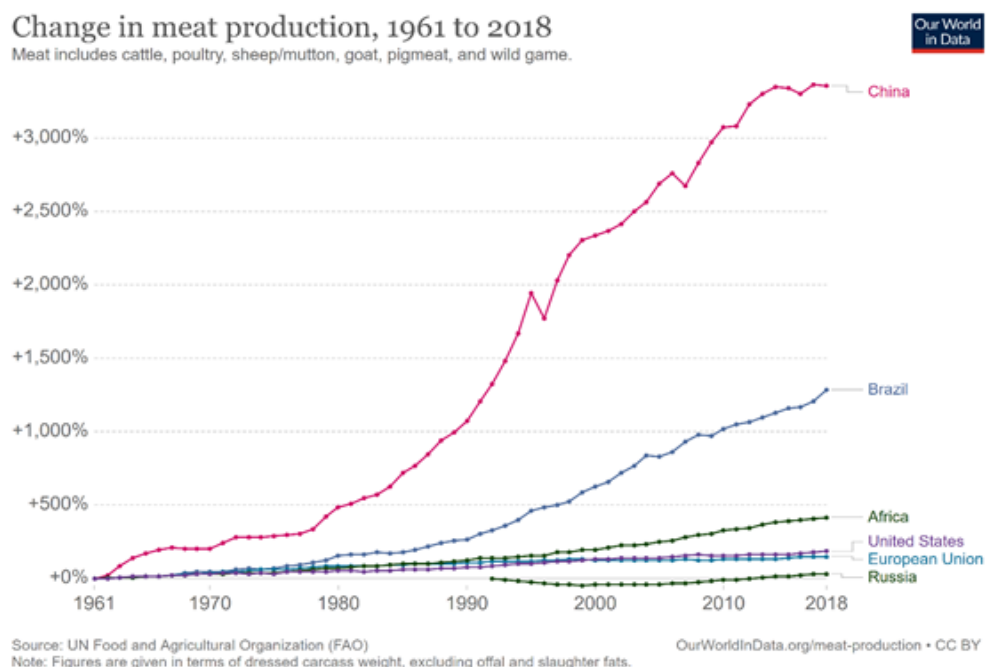
GRAPH 3 - EMISSIONS FROM BRAZILIAN AGRICULTURE BY SOURCE IN THE PERIOD 1990 - 2019



SOURCE: OBSERVATÓRIO..., 2021.

As seen in graphs 2 and 3, agriculture is related to high GHG emissions. Furthermore, from 1990 to 2019, emissions from beef cattle production increased significantly in Brazil. Situating this issue within the international panorama, data reinforces Brazil's centrality in the geopolitics of food and meat production.

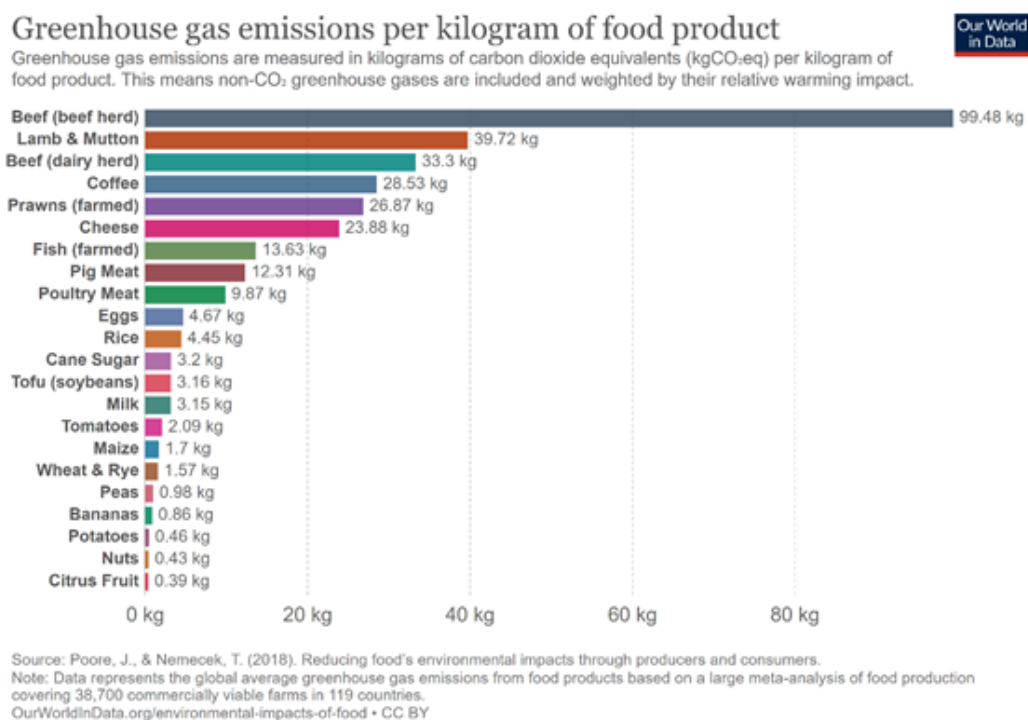
GRAPH 4 – CHANGE IN MEAT PRODUCTION, 1961 - 2018



SOURCE: FAO, 2021.

In turn, graphs 4 and 5 deal with the change in meat production and Greenhouse Gas emissions per kilogram of food produced, respectively. It is possible to observe the rise of China at the turn of the 21st century and the increase in Brazil in the same period, maintaining a leading position. In turn, graph 5 emphasizes the discrepancy in emissions from meat in relation to other products.

GRAPH 5 - GREENHOUSE GAS EMISSIONS PER KILOGRAM OF FOOD PRODUCED



SOURCE: Our World in Data, 2021.

As seen, graph 4 shows that Brazil was, in 2018, in second place in international meat production. Graph 5 highlights that global meat production is the activity that emits the most GHGs among other food production activities. In this way, we observe that, despite the situation imposed by the pandemic, one of Brazil's challenges is the contradiction present in its leading role in food production, especially meat, and the damage caused to the climate resulting from this activity. In terms of geopolitics, it is essential to consider the importance of this activity in all Brazilian negotiations related to food production and climate change, since the challenge is to equalize these spheres so that the country reduces emissions, but not stop producing.

#### 4. BRAZIL IN THE FOOD GEOPOLITICS IN THE POST-COVID-19 WORLD

Brazil is a protagonist in the geopolitics of food, and important challenges must be considered for the country to maintain and enhance this position in the face of current international and domestic challenges, such as food security. It is important to emphasize that protagonist is different from leader because, in the geopolitics of food, the condition of protagonist is related to material factors, while your leadership would depend on your performance in the international environment. To understand this dynamic in Brazil, it is necessary to consider the relevance of the economic environment, the articulation between urban and rural areas, the role of technology and innovation

in food production, logistics, the availability of water and energy, and dialogue with the Brazilian society. Furthermore, an important challenge is also the stigma associated with the country's exports, mostly made up of commodities (Embrapa, 2019).

In this discussion, thinking about Brazil's situation in the face of the pandemic and the developments in food geopolitics, Frederiksen (2020) proposes that Brazil's situation has a high chance of being placed in a very delicate situation in food geopolitics due to some phenomena.

A first phenomenon, which is short-term, was the risk of Covid-19 variants jumping into farm animals. As Brazil is one of the largest producers of animal protein on the planet, and there is a possibility that animals in zoos may become infected, giving rise to an animal pandemic, ranging from cats to tigers and gorillas. A second phenomenon was that South Korea was concerned about the contamination of domesticated animals, something that refers to our situation as a country that is the “farm of the world”. For Frederiksen (2020), the Ministry of Agriculture takes a big risk with its policy, because if the virus spreads to pigs or chickens, for example, there would be gigantic damage to Brazil's image among important commercial partners.

A third phenomenon is that the presence of the Covid-19 virus has already been found in packaging of animal protein of Brazilian origin that was exported to China. This is worrying because, in recent years, Brazil has greatly based its economy on the primary export agenda, and this scenario can generate significant distrust regarding our products abroad. A fourth phenomenon, which is not a catastrophe perspective, is related to the global performance in other pandemics and the uncertainties and questions about the origin of the virus (Frederiksen, 2020).

The fourth and final phenomenon, which reflects on the long term, considers the drop in the consumption of animal protein and foods produced with intense greenhouse gas emissions. If we move towards this scenario, this would impact not only the production but also the consumption of animal protein and industrialized products, which would also affect food production techniques and the demand for agricultural production areas. In the academic world, some are already questioning whether animal protein consumers are the “new villains” of the environment (Frederiksen, 2020).

The fact is that the virus is in one of the regions with the greatest biodiversity in the world. Maybe that's why we are vulnerable, our interaction and measures in the face of the crisis are creating a mutation factory, our environmental factors associated with the discrepancy in virus containment measures puts us in the dark. Relegated to luck and betting on the risk of chaos, we ignore our biota, in an environment in which agriculture, livestock and native vegetation are intertwined.

At a domestic level, the Bolsonaro government's actions in relation to the pandemic and the issue of food security were marked by criticism. The denialist stance regarding the severity of the virus, the delay in acquiring vaccines and the lack of effective national coordination to contain the spread of the disease contributed to the expansion of the impacts of the pandemic in Brazil. In parallel with the health crisis, there was a significant increase in food insecurity in the country. Factors such as the increase in unemployment, the reduction in family income and the absence of

robust public policies aimed at protecting the most vulnerable have worsened the situation. Emergency aid, although an important measure, was implemented late and suffered cuts over time, reducing families' ability to guarantee access to basic foods (O Joio e o Trigo, 24 Oct. 2022).

The lack of an effective response also highlighted the fragility of food and nutritional security policies in Brazil, which had already been dismantled since 2019. The weakening of programs such as Bolsa Família, the extinction of the National Council for Food and Nutritional Security (CONSEA) and disinvestment in family farming directly impacted access to healthy and sufficient food. The result of this scenario was an increase in hunger and food insecurity, disproportionately affecting the poorest and most vulnerable. During the pandemic, Brazil returned to the Hunger Map, according to the UN, after years of progress in reducing this problem. The combination of inaction, dismantling of public policies and a lack of social sensitivity marked the Bolsonaro government's management, highlighting how crises can be worsened when they are not treated with seriousness and public commitment (O Joio e o Trigo, 24 Oct. 2022).

However, the growth of agribusiness in the country highlights major contradictions. The significant growth of Brazilian agribusiness in recent years is a phenomenon that places Brazil as one of the largest exporters of agricultural commodities in the world. But, despite high productivity, agribusiness production is, for the most part, aimed at exports or to supply the commodities and biofuels market, not necessarily to meet the internal food needs of the Brazilian population. This contradiction reveals structural problems worsened during the Bolsonaro government, such as land concentration, the predominance of monocultures and the intensive use of land for commodities, and deforestation and fires to open new pasture areas, intensifying the Brazilian negative GHG contribution (Pompeia, 2023).

In the global political context, for the short term, the shock process of re-sovereignization/new nationalisms, the outcry of managers and their controversial anti-globalization positioning, associated with Trumpist/Bolsonarist thinking is used in a rhetorical way to also justify the closure and entry of agricultural products in central markets. This point is also accompanied by a scenario of aggression against Brazil's environmental attributes by the federal government itself. Even though the crisis has been overcome internationally, Brazil has become a target for global criticism. The global economic shift would immediately reflect on geopolitical relationships and interrelations. Thus, in the process of opening and closing, of nationalisms, we would be hostage to our inertia in managing the agricultural crisis.

It is also worth highlighting the need to create price control stocks, in short, for all low income in Brazil, it could cause a crisis with a domino effect throughout much of Latin America and Africa (Gusson, 2021). In Brazil in the third decade of the 21st century, there is a dubious tendency to internally dollarize the economy. Realize that we are globalizing the prices of inputs in Brazil, at a dubious internal cost. We take an example with Petrobras and its international pricing policy and our protein flow, also taxed by the US currency, while chemical inputs, imported, purchased in

foreign currency, put pressure on prices, causing the production/export cost to rise substantially (Harris, 2021).

This process has a medium-term impact on the global reorganization of where the choice of where to produce food will take place. Thus, we could have a super price shock, which will reorient the territory to export, at a time when the world has little cooperation, that is, the line proposed by Carlos Walter Porto Gonçalves in his work primarily supports the issue by stating that we are selling water and sun. Mendes and Salati (2021) add to the proposed discussion by saying that sovereignty is directly linked to the protection of our forests. Thus, the geopolitics in which we are all inserted immediately involves the internal and external protection of our forest/agroforestry ecosystem and all the themes that permeate the issue. Board 1 summarizes some impressions identified by the authors from this discussion.

Considering climate change and the warming of the planet, especially based on the data presented by the new IPCC report (IPCC, 2021), and Brazil's recent behavior on this agenda, it is observed that the country did not understand that maintaining the average temperature of the planet in an increase of at most 2° Celsius is what maintains the competitive advantage of our agribusiness (Almeida; Freitas, 2020). According to the IPCC estimate, this temperature is expected to be exceeded by 2050, which will imply even more challenges for Brazilian agribusiness.

#### BOARD 1 – Brazil in the food geopolitics in face of the Covid-19 pandemic

What happens from then on?			
Production areas in the agro-export sector almost never have the healthcare infrastructure necessary for recovery, treatment or basic care. If it was already difficult to maintain the population in rural areas, after COVID-19 this became even more difficult.	In Brazil, there is evidence of the internal realignment of the Armed Forces and the attempt to break the hierarchy, and the insertion of generals in strategic command posts, as occurred with General Eduardo Pazuello in command of the Ministry of Health.	In theory, the production of animal protein is considered by veterinarians and zootechnics as domestic animals.	There is a horizon of risks or losses if this virus (or a variant) reaches rural areas; If the animal becomes infected, but the animal remains asymptomatic, but can transmit it to humans, they become vectors of contamination.

SOURCE: developed by the authors.

Three points stand out that relate the spheres discussed and above all the actions of Brazil and other countries within the scope of food geopolitics. First, as many countries in Africa are being pulled into this race for agro-industry production, this will lead to a drop-in prices, but will further increase their dependence on the global market. Secondly, Brazil should have followed the model adopted by New Zealand, an agrarian country that depends on food exports. The more sustainable and raising the bar of environmental protection, the more we would be protected in economic, health and social terms. We should therefore have excellent environmental and biological border security,



to raise the environmental bar of core economies, to maintain everyone's survival. And thirdly, Latin America and Africa would have to invest in the bioeconomy, to push the envelope for others to maintain the planet's temperature at acceptable levels for our populations to adapt to.

The expansion of the bioeconomy in planetary terms is a necessary condition to better reduce the vulnerabilities of the global climate system, an also important condition to maintain the competitiveness of tropical countries, and Brazil in particular in the geopolitics of food. Therefore, combating the spread of the virus globally, controlling the risks of spreading new variants is in the interest of animal protein producing countries, such as Brazil. The adoption of quarantine and biological defense rules, as well as the formation of safe stocks to supply the Brazilian population, would not only reduce the impacts of human losses from Covid-19 on Brazilians, but could even have increased the economic gains from exports. After the lockdown, China demonstrated the world's dependence on its input factories, prices rose and never returned to previous levels, even after their activities resumed. In the Brazilian case, supplying the rest of the planet with our food production served to reduce the increase in prices on the international market.

Likewise, the model of stricter environmental rules is favorable to a climate "conservationist" stance, which can be beneficial to the Brazilian environmental protection model (it is in Brazil's interest to export the model of legal reserves and zones to other producing areas of the planet). In order to generate a scenario of net zero emissions globally, it will be necessary to expand forested areas across the planet. Thus, Brazil's competitors will have to come closer to the Brazilian model of sustainable development. In the Brazilian case, for the country to abandon the model created since the 1980s and consolidated in article 225 of the Citizen Constitution, is playing against the patrimony internally and externally considering long-term conditions.

Furthermore, it is necessary to expand the bioeconomy process beyond food production, scientific evolution and the transformation of our biodiversity assets could bring new materials, drugs to combat new epidemics, new forms of food production (new proteins), new forms of generating and storing energy, the ways of life according to traditional populations and even the organization of knowledge can generate new mental models of the evolution of economy 4.0, for example, the DNA strand has the capacity to store an unimaginable amount of information, the development of computational models inspired by natural molecules is gigantic. However, we are currently transforming such potential wealth into a simple calculation of expanding the agricultural frontier to produce grain for export.

## 5. CONCLUSION

In this paper, we questioned: has the management of the pandemic by the Jair Bolsonaro government (2019-2022), added to the impacts of climate change on food production in the country, led the country to the status of an international pariah, putting its role at risk as a global power in

the field of food geopolitics? After mobilizing concepts and analyzing the data presented, it is believed that our hypothesis has been corroborated. We believe that the government management in relation to pandemic and agriculture, disregarding the phenomenon of global climate change, worsened food and nutritional insecurity in Brazil, and led the country to an international pariah, situation even though it is a leader in terms of production and exports of food.

In relation to agriculture and Food and Nutritional Security, as we have seen, even though Brazil is one of the largest food producers and exporters in the world, during the pandemic, the number of people living with some degree of food insecurity increased exponentially during Bolsonaro administration. One explanation is the fact that Agribusiness production is destined mainly for the external market, while Family Farming, which is aimed at the domestic market, had a strong increase in prices due to the overlap of several crises in the period, such as the pandemic and the bad management by the government.

The second major issue is the pandemic, whose approach by Bolsonaro administration was the denial, misinformation, encouraging the consumption of scientifically unproven medicines and delays in purchasing vaccines. For months, Brazil was on the list of countries with the highest numbers of contaminations and deaths, and the poor management of the pandemic had implications for several sectors, not only health, but also the economy. And in regard to climate change, which can be understood as an “umbrella” issue, is clearly a short, medium and long-term problem for the Brazilian State. Historically, Brazil has engaged with environmental governance and its instruments, however during the Bolsonaro government there was denial and international isolation, proven not only by the absence of the president in international forums of this nature, but also by the favor of Agribusiness in contrast. to the increase in deforestation and fires, clearly interrelated areas whose consequences are already and will be felt even more.

And if we think from the perspective of the status of a pariah State, we can observe that: (i) in relation to agriculture regarding NFS, the weight of the political-ideological orientation of the Bolsonaro government in defense of an extractive model full of concessions and incentives for agribusiness, which boosted the country's exports, despite long-term concerns about the model's impact on the environment, as well as climate change on increasing its vulnerability, and the guarantee of NFS; (ii) in relation to the pandemic, Brazil's misalignment with international regulations became clear, both with prevention and protection protocols in relation to the disease, as well as with the encouragement of the consumption of medicines without scientific proof, and with denial, including by some from the president, in relation to the effectiveness of vaccines; and (iii) in relation to climate change, Brazil's position can also be seen as a pariah and an abandonment of leadership, as the climate issue has been relegated to the scope of the government and Brazilian foreign policy.

Although this is an exploratory study that sought to discuss broad and complex issues, it is believed that it was possible to show that, at the level of international geopolitics, Brazil left a

leadership position and reached a situation of abandonment and pariah, at least in relation to its posture in face of the global pandemic and climate change. After four years of Bolsonaro administration, and Lula da Silva's third government which started in 2023, it is essential to monitor how these major issues will be managed and what the prospects are for Brazil's leadership in the geopolitics of food in the face of worsening climate change.

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