

Brazil's Renewable Energy Sector and Sustainable Foreign Investment: Opportunities and Institutional Challenges

BEATRICE TROCINESU

Doctoral School of Business Administration II
Faculty of Business Administration in Foreign Languages (FABIZ)
Bucharest University of Economic Studies
Calea Griviței nr.2-2A/ Romană Square 6, Bucharest, ROMANIA
t.beatrice@ymail.com

FLAVIA BOGOEVICI

Doctoral School of Business Administration II
Faculty of Business Administration in Foreign Languages (FABIZ)
Bucharest University of Economic Studies
Calea Griviței nr.2-2A/ Romană Square 6, Bucharest, ROMANIA
flavia.bogoevici@yahoo.com

IULIAN ION

Doctoral School of Business Administration II
Faculty of Business Administration in Foreign Languages (FABIZ)
Bucharest University of Economic Studies
Calea Griviței nr.2-2A, Romană Square 6, Bucharest
ion.iulian.1996@gmail.com

ANDREI URSULESCU

Romanian Academy
School of Advanced Studies of the Romanian Academy
Doctoral School of Economic Sciences
National Institute for Economic Research "Costin C. Kirițescu"
Institute for World Economy
Calea 13 Septembrie 13, Bucharest, ROMANIA
andrei.ursulescu@scandia.ro

Abstract: Brazil stands as Latin America's leading economy because almost 80% of its electricity generation comes from renewable energy, including hydropower, wind, solar, and bioenergy. A geographical blessing and plenty of natural resources give the country an opportunity to become an international leader in green energy, embodying these ambitions in its National Hydrogen Plan, announced in 2021. Studies report that Brazil holds a range of energy sources and fast-growing renewable energy capacities but also suffers persistent plights of difficult bureaucracy, uncertain regulations, and environmental management-related challenges. A survey-based study in which 21 respondents, experts in the Brazilian economy, rated the attractiveness of Brazil's renewable energy and sustainable industries for foreign direct investment. According general consensus of the respondents' opinions, the main competitive advantage for Brazil lies in its abundant natural resources, but the greatest disadvantage comes from bureaucracy. Respondents think that simplifying the administrative process and providing stable legislation will improve investment conditions. Sustainable agriculture and wind energy look to be the priority sectors for development, while international partnerships are the second supporting elements for domestic reforms. The article adds to knowledge of Brazil's renewable energy environment by weaving together stakeholder perspectives with policy and investment analyses, arguing for the necessity of institutional reforms in achieving sustainable economic objectives.

Keywords: Brazil, renewable energy, green energy, foreign direct investment, emerging market, sustainable agriculture, energy transition.

JEL Classification: Q42, F21, O13.

1 Introduction

Geographically, Brazil is ranked fifth in the world in terms of population. The availability of natural resources, large agricultural areas and variety of ecosystems are a significant asset to the population. Brazil is located in an important tropical area and it is characterized by a large amount of climatic phenomena, a diversified hydrographic system and sun exposure. All of these aspects increase Brazil's role as an important contributor to renewable energy. In addition to all of this, Brazil has one of the most advanced economies in Latin America, but is faced with serious issues including social disparities, rapid urban growth, and a highly export-oriented economy largely dependent on natural resource exports (Glaser-Segura et al., 2018).

These points also provide Brazil another opportunity for reindustrialization, while creating green jobs, and to perpetuate its global profile as a clean energy force. Da Silva, Lima, & Oliveira (2024) note that Brazil is generally acknowledged as one of the most innovative emerging economies within the renewable energy space. Approximately 80% of the country's electricity is estimated to come from renewable sources, over 60% from hydropower, 13% from wind power, with 7% from solar power. Brazil's notable strides in renewable energy certainly place it at an advantage in the global decarbonization race.

Brazil's prime renewable energy source broadly, and also of energy in general, is hydropower, which takes advantage of highly valued resources. In addition to hydropower, the energy industry has a long history of using both traditional energy sources, new and more modern biofuels, and also solar and wind power. Recently, Brazil has begun investing directly in green hydrogen, which is a critical resource for reaching net-zero carbon emissions. However, some research indicates that the grid will always be vulnerable to climate change and its impact on water resources because of the reliance on hydropower (Werner & Lazaro, 2023). In order to develop renewable energy sources, Brazil benefits from readily accessible financial resources provided by the Brazilian Development Bank (Banco Nacional de Desenvolvimento Econômico e Social, BNDES). According to the Initiative for Climate Action Transparency (ICAT, 2023), Brazil needs to reduce bureaucratic barriers and clarify the country's regulatory framework. In this sense, Brazil can comply with the Paris Agreement, protect nature and reduce gas emissions by ensuring financing is available for infrastructure development in energy while also reducing bureaucracy.

It is pertinent to state that Brazil is fostering a conducive environment for innovation, research and development, thus promoting advancements in technological innovation in relation to green energy and may become a key player globally for the future export of green energy. A rapidly expanding sector is green hydrogen. The National Hydrogen Plan (PNH₂), introduced in 2021 specifies clear goals for the production, utilization and export of non-polluting fuels. The studies by Lira, Kramer, & Quitzow (2025) indicate that the legislation by 2024 provides tax incentives and generates a predictable legal environment for investors, in a sector that Brazil should become a global leader, due to its low production costs and availability of renewable resources. Regarding bioethanol, Brazil has been producing bioethanol from sugarcane since the 1970s, but recent regulations promote innovative bioenergy, including biogas and advanced biofuels (International Energy Agency - IEA Bioenergy, 2024). Berryman et al. (2025) caution that Brazil will always be on the global fringe and may even be excluded if its environmental principles are not applied. According to Costa (2022), the continued flow of foreign investments into clean energy is critical for Brazil's sustainable development goals.

This study examines the experts' perceptions of Brazil's attractiveness for sustainable foreign investment in the green economy. The first objective is to analyse professional perspective of the country's competitive advantages for attracting foreign direct investments into renewable energy and green industries in Brazil. This analysis will include an assessment of Brazil's structural advantages which makes it a leader on the global stage in the green transition, such as natural resources, size and breadth of market, types of institutional support mechanisms available to investors, and the level of international integration. The second objective is to identify the main institutional barriers, that will limit Brazil's appeal to investors, including the perceived difficulty in doing business in Brazil. Due to regulatory instability, bureaucratic inefficiencies & slow bureaucratic processes, infrastructure deficits, fragmented governance structures, and other structural barriers that can affect investors' decision to invest in Brazil. The third objective is to assess which public policies, or support mechanisms, are priorities in order for Brazil to be perceived as a strategic location for sustainable foreign investment. This assessment will be based on experts' perception of the importance of public fiscal incentives, regulatory clarity,

public-private partnerships, risk mitigation, international partnerships and institutional coordination, for creating a resilient and innovative green economy in Brazil.

The research has four research questions, to support the analytical framework of the study based on the objective of the research. RQ1: What are Brazil's key competitive advantages for attracting foreign direct investment in the renewable energy and sustainable sectors? RQ2: What institutional and structural barriers most inhibit foreign investors' decisions in Brazil's green sector? RQ3: How effective are current industrial policies perceived to be in supporting the green transition and attracting sustainable foreign investment? RQ4: What forms of public intervention (fiscal incentives, administrative simplification, international partnerships, and risk mitigation mechanisms) are viewed as determining Brazil's competitiveness in the world green economy? Collectively, the four research questions provide a comprehensive analysis of Brazil's structural strengths, institutional constraints, and policy effectiveness in determining its attractiveness for sustainable foreign investment.

2 Literature Review

Brazil has one of the most diversified renewable energy matrices among emerging economies, supported by abundant natural resources, extensive hydrographic networks, strong solar exposure, significant wind potential, and a well-established bioenergy sector. Hydropower continues to dominate electricity generation, while wind and solar energy have expanded rapidly over the last decade, particularly in northeastern regions of the country. In parallel, Brazil has strengthened its position as a global leader in biofuels, especially ethanol and bioelectricity derived from sugarcane biomass. Recent studies also emphasize the country's growing strategic interest in green hydrogen, particularly following the introduction of the National Hydrogen Plan (PNH2), which aims to support research, infrastructure development, and international competitiveness in low-carbon energy production (Werner & Lazaro, 2023; Da Silva et al., 2024; Lira et al., 2025; IEA Bioenergy, 2024).

At the same time, the literature highlights that Brazil's renewable energy potential alone is insufficient to guarantee long-term sustainable development and international competitiveness. Several authors underline the importance of coherent industrial policies, institutional coordination, and regulatory stability for attracting foreign direct investment into green industries. Since the implementation of PROINFA and subsequent renewable energy auctions, Brazil has developed multiple support mechanisms for renewable energy expansion, including fiscal incentives, public-private partnerships, and state-backed financing through institutions such as BNDES. Nevertheless, researchers continue to identify important limitations related to fragmented governance structures, excessive bureaucracy, inconsistent regulatory frameworks, and insufficient infrastructure for emerging sectors such as green hydrogen transportation and storage (Costa, 2022; ICAT, 2023; Werner & Lazaro, 2023; Lira et al., 2025).

Vasconcelos & Castilho (2025) deem the Brazilian wind turbines among the most efficient in the world, with 40% average efficiency. This efficiency has made Brazil's existing forms of wind energy attractive to foreign investment, particularly in Northeastern Brazil, and has led to incentives that have allowed for rapid investment to be recouped by various studies illustrating high wind potential. In an article for the Oxford Academic journal by Seabra, Cavalett, & Lima (2022), they indicate that operating from this renewable source could potentially sufficiently supply Brazil's electricity demand by as much as 15% by 2050. Nevertheless, the energy characteristics among countries vary significantly from natural resources, government policy and from what has been considered as the integration of technological contributions. For example, in Brazil, the largest economy in the region, the context includes challenges distinct from those found in its neighbours: Chile, Argentina, Uruguay, Mexico and Colombia (Kahn & Boulding, 1964; Magadum et al., 2025).

The international dimension of Brazil's green transition is also strongly emphasized in the literature. Brazil is frequently compared with other Latin American economies and with advanced economies such as Germany due to its renewable energy capacity and ambitions regarding sustainable industrial development. While countries such as Uruguay and Chile have made important advances in renewable energy diversification, Brazil benefits from a larger domestic market, abundant renewable resources, and stronger industrial capabilities. At the same time, Germany's Energiewende model is often presented as an example of long-term policy coherence and institutional coordination. Comparative studies suggest that Brazil possesses substantial structural advantages but still faces difficulties in translating these advantages into stable long-term investment confidence due to institutional and regulatory uncertainty (Dincă et al., 2023; Dincă et al., 2025; Agora Industry, 2023; Energiewende, 2025).

Recent research further demonstrates that Brazil has become an increasingly attractive destination for foreign direct investment in renewable energy and sustainable industries. International investors, including actors from China, the European Union, the United States, and the United Arab Emirates, have expanded investments in wind energy, solar energy, bioenergy, and sustainable infrastructure projects. Studies indicate that renewable energy availability, relatively low production costs, and growing global demand for green technologies position Brazil favourably within the global green economy. However, the literature consistently points to institutional fragility, administrative complexity, infrastructure deficits, and legislative instability as the principal barriers limiting Brazil's capacity to attract and retain long-term sustainable investment flows (Aremu et al., 2025; Zhang & Duarte, 2023; Reuters, 2024; UNCTAD, 2023; Xie et al., 2025).

Overall, the literature suggests that Brazil's future competitiveness in the global green economy will depend not only on its structural resource advantages, but also on its ability to implement coherent public policies, strengthen institutional quality, simplify administrative procedures, and ensure regulatory predictability. Consequently, the interaction between renewable resource endowments, industrial policy effectiveness, and institutional governance remains central to understanding Brazil's attractiveness for sustainable foreign direct investment and green economic transformation

3 Methodology

The study's methodology included the use of a structured questionnaire survey to assess key stakeholder perceptions of Brazil's potential as a location for foreign direct investment in renewable energy and sustainable industries. The survey contained closed-ended multiple-choice questions and ratings of attractiveness. The sample included 21 respondents with a high degree of familiarity with the Brazilian economy. Because of their importance and expertise, they were selected using non-probability sampling. The participants included Brazilian ambassadors, Brazilian diplomats, government representatives, entrepreneurs, markets representatives and APEX-Brasil representatives, all selected because of their positions and experience in trade policies and international cooperation. Data was collected using a structured questionnaire that contained nine questions in Portuguese language, which contained both multiple-choice questions (closed ended), with some ordinal scale items and a space to include any additional comments. The use of the authors professional network developed during her work for the Embassy of Brazil in Bucharest allowed the author to contact Brazilian experts who are knowledgeable about the economic and investment climate of Brazil. The data was collected in September, 2025 and a total of 21 respondents completed the questionnaire. The nine questionnaire items were developed in the Portuguese language using closed-ended multiple-choice design. Respondents were given the opportunity to select multiple answers for all nine questions and answered based on a specific set of choices provided. The response choices for each of the nine questions were intended to represent different evaluation categories and provide consistency in response choices, which could facilitate comparisons among the responses.

The content of the survey focused on the socio-professional data of the respondents, the perception of Brazil's comparative advantages in attracting sustainable investments, the assessment of the effectiveness of existing industrial policy, the identification of barriers for foreign investors, recommendations for the development of adequate policies, the role of international partnerships, which sectors of the green economy present the greatest potential for development, the level of preparedness of local authorities, the elements that influence Brazil's international image and what government support is perceived to be essential.

4 Results and Discussions

The survey obtained information from 21 individuals working in different positions and institutions such as diplomatic missions and international trade agencies to private companies working in tourism, agriculture, and renewable energy. The varied respondent group gives a multi perspective overview of the opportunities and challenges facing Brazil in attracting sustainable Foreign Direct Investment (FDI), especially in the renewable energy and green industries.

Graph 1: Brazil's Competitive Advantages in Attracting Sustainable Foreign Investment

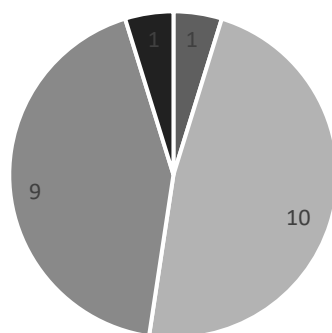


Source: Authors' elaboration

For the first question addressed to the respondents, *In your opinion, what are Brazil's main competitive advantages for attracting foreign investment in renewable energy and sustainable industries?*, the objective was to identify Brazil's advantages in attracting foreign investment in renewable energy. Respondents were presented with a multiple-choice question comprising six possible answers, with the option to select more than one choice (Abundant natural resources, solar, wind, bioenergy; Great domestic market potential; Qualified workforce; Government support programs; Trade agreements and regional integration, e.g. Mercosur; Political and economic stability). All respondents were in agreement that Brazil's most important competitive advantage was an abundance of natural resources (solar, wind, bioenergy), with this being cited in 21 responses. The second most cited aspect of Brazil's competitive advantage was the potential for a strong domestic market, as was cited in 14 responses. Other cited potential advantages included a qualified workforce (7 responses) and relevant government support programs (11 responses). Brazilian studies confirmed that public policy and human capital are critical elements for supporting both the development of innovative ideas and the pursuit of sustainability. According to Pelău et al. (2010), the availability of well-trained personnel and the establishment of coordinated public-private partnerships will facilitate the creation of sustainable innovation ecosystems which can attract investors. Additionally, 8 respondents cited trade agreements and regional integrations (ex: Mercosur) as having potential to support greater investment into Brazil. In contrast, political and economic stability was only cited by 3 respondents, which suggests more of a cautious perception of this particular competitive advantage. This conclusion demonstrates that the same issues were found during recent assessments of Brazil's competitiveness, namely, Brazil will always be a country with tremendous potential. However, many political issues remain as part of the perception of foreign investors as a barrier for investments in Brazil (World Economic Forum, 2022).

Thus, we can argue that compared to Brazil's macro-institutional characteristics, investors are giving more weight to Brazil's structural resource advantages. Therefore, Brazil's competitiveness results more from natural resources than from political and economic stability relative to other nations.

Graph 2: Perception of the effectiveness of Brazilian industrial policies in supporting sustainable investments



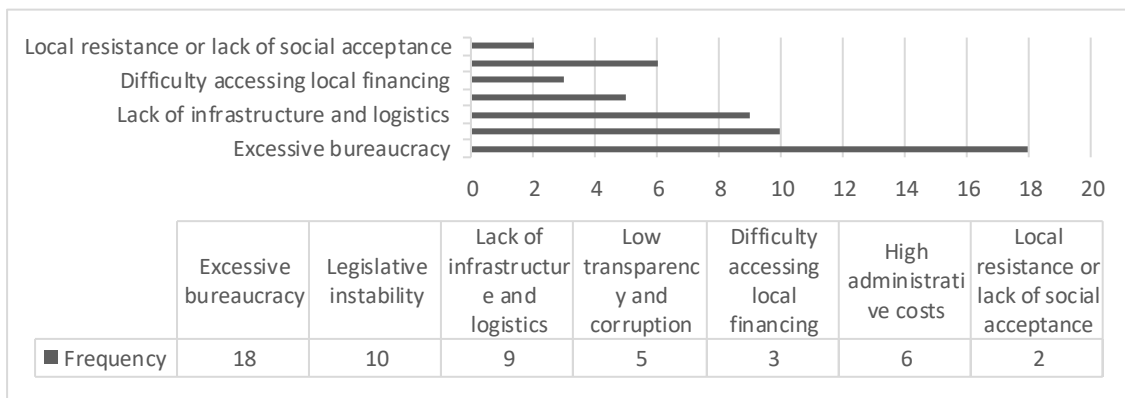
■ Very effective ■ Reasonably effective ■ Partially effective/inconsistent ■ Ineffective

Source: Authors' elaboration

The second question addressed to the respondents, *What is your opinion on the effectiveness of Brazil's current industrial policies in supporting sustainable investment?*, aimed to identify the perceived effectiveness of Brazil's current industrial policies in supporting sustainable investment. Respondents were presented with a multiple-choice question comprising five possible answers, with the option to select one choice (Very effective; Reasonably effective; Partially effective / inconsistent; Ineffective; I do not know / Cannot say). The responses revealed a mostly constrained view. Most participants (10) felt the policies were reasonably effective, which implied some positive actions in implementation but not enough coherence or systematic application. Almost the same number of respondents (9), classified them as only partially effective or irregular which reflected a perception that there was a lack of coherence and continuity in its design and application.

The existence of strategic and supporting frameworks does not eliminate the concerns related to regulatory complexity. Problems related to weak coordination among institutions and limited long-term strategic alignment have not been resolved either. There is a correlation between the results of the survey and the international academic literature indicating that the limitations of Brazil's industrial policies do not stem from the lack of industrial policy initiatives. Rather, they arise from coherence and implementing these Policies consistently over time. These limitations all contribute to lowering investor confidence in Brazil's transition to becoming a green economy.

Graph 3: The main barriers for foreign investors in the renewable energy and sustainable industries sector in Brazil



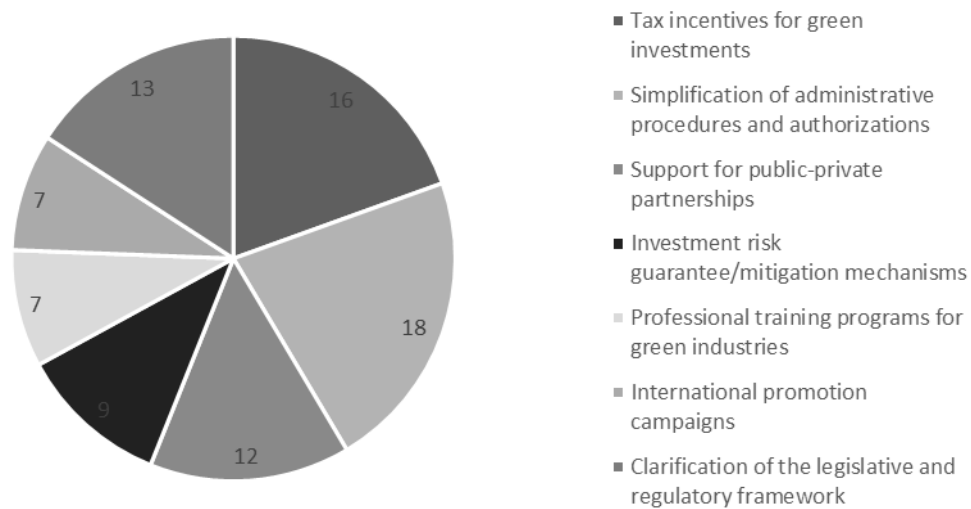
Source: Authors' elaboration

The third question addressed to the respondents participating in the questionnaire-based survey, *What are the main barriers for foreign investors in renewable energy and sustainable industries in Brazil?*, aimed to identify the main barriers faced by foreign investors in renewable energy and sustainable industries in Brazil. Respondents were presented with a multiple-choice question comprising seven possible answers, with the option to select more than one choice (Excessive bureaucracy; Legislative instability; Lack of infrastructure and logistics; Low level of transparency and corruption; Difficulty accessing local funding; High administrative costs; Local resistance or lack of social acceptance). The survey was able to identify a number of issues limiting the attraction of foreign investment into renewable energy and sustainable industries in Brazil. The most frequently cited barrier was bureaucracy, cited by 18 of the participants, indicating a clear perception of the complexities and slow-moving nature of the administrative process which can disincentivise foreign investment. Legislative instability was cited by 10 participants and reflects the apprehension about the frequency of changes in the regulatory environment and the extreme lack of legal predictability. These are consistent with the findings of the UNCTAD (2023) report, which say that when the regulatory environment becomes unstable, it creates uncertainty, especially for investors in renewable energy projects that are a long-term investment and require a degree of regulatory stability.

Overall, the data indicate that foreign investors perceive excessive bureaucracy, instability in legislative processes, and poor infrastructure as the three most important constraints to their investment. The transaction costs associated with these barriers are increased. The wide variety of regulations creates an unpredictable regulatory environment for participants in the Brazilian market. The result is that foreign investors seeking to invest in renewable energy (which typically require substantial amounts of capital) have the potential of having to overcome significant barriers. Because capital-intensive renewable energy projects are heavily dependent on

earning long-term returns, the burden of coordination and regulatory obstacles may outweigh their structural advantages in the determination of whether or not to invest in such projects. In addition, concerns regarding bureaucratic inefficiency, fragmented governance, and a lack of transparency reinforce the perception that Brazil has an institutionally fragile investment environment. Together, these institutional and structural weaknesses create an environment of uncertainty that discourages foreign investors from making ongoing investments in Brazilian green industries, even when Brazil has ample natural resources and potential markets.

Graph 4: Policies needed to be reinforced in order to attract more sustainable foreign direct investment to Brazil

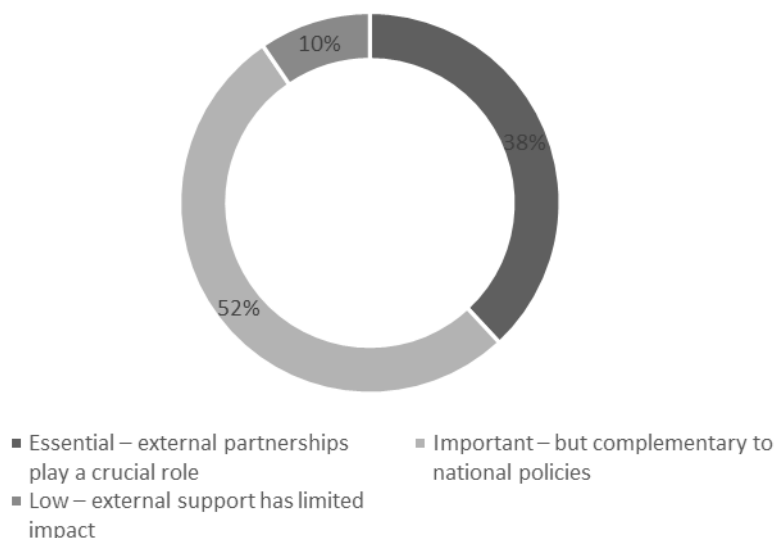


Source: Authors' elaboration

The fourth question in the questionnaire-based survey, *What types of policies should be developed or strengthened to attract more sustainable foreign direct investment (FDI) to Brazil?*, aimed to identify the policies that should be developed or strengthened in order to attract sustainable foreign direct investment to Brazil. Respondents were presented with a multiple-choice question comprising seven possible answers, with the option to select more than one choice (Tax incentives for green investments; Simplification of administrative procedures and authorizations; Support for public-private partnerships; Investment risk mitigation mechanisms; Professional training programs for green industries; International promotion campaigns; Clarification of the legislative and regulatory framework). The respondents pointed out several priority policies that should be developed or strengthened to make Brazil more competitive in the green economy. The most selected option was the simplification of administrative processes and autorizations, chosen by 18 people. This choice showed the need to lower bureaucracy to create a more efficient business atmosphere capable of responding quickly to investment initiatives. Second, with 16 votes was the need to achieve tax breaks related to green investments, which reflects an unambiguous desire to promote the attraction of capital for sustainable projects by way of concrete measures.

The focus on administrative simplification, fiscal incentives, regulatory clarity, and risk mitigation instruments indicates that investors place a premium on policy stability and institutional predictability, as primary factors in determining Brazil's competitiveness as a global green investment market. The evidence of support for public-private partnerships, international promotional strategies, and workforce development initiatives indicates the need for a comprehensive public policy structure to implement these strategies successfully. This structure must be compatible with both Brazil's structural advantages as well as Brazil's governing capabilities. Collectively these insights suggest that Brazil's long-term global green economy competitiveness, will be dependent upon both its natural resource availability and the quality, coherence, and strategic intent of its public policy interventions.

Graph 5: The importance of international partnerships for green investments in Brazil



Source: Authors' elaboration

The fifth question addressed to the respondents, How much can international partnerships contribute to the stimulation of sustainable investments in Brazil?, aimed to assess the importance of international partnerships in attracting sustainable investments to Brazil. Respondents were presented with a multiple-choice question comprising five possible answers, with the option to select one choice (Essential – external partnerships play a crucial role; Important – but complementary to national policies; Low – external support has a limited impact; Insignificant – national policies are almost exclusively important; I don't know / No opinion). Almost all participants valued global collaboration in facilitating sustainable investment in Brazil. Yet, most of them (11 participants, or 52%) said international collaboration is necessary for facilitating sustainable investment in Brazil. However, respondents believed that international partnerships should play a supporting role to national government policies. The recent research supports this perspective. It shows that international collaboration can enable sustainable investment when it occurs within the framework of a nationwide set of policies that include: consistent legislation, government leadership, and political will (UNCTAD, 2023).

Hence, respondents view international partnerships as providing added value rather than substituting for domestic reform. A second important group, made up of 8 (37%) representatives, stated that international partnerships are vital, fulfilling an important role attracting green investment. Their opinion stresses the opportunity that international partnerships offers in providing know-how, funding, risk guarantees and strategic connections, and all these elements are essential in stimulating transition to sustainable development in Brazil.

Graph 6: Potential of Brazil's green sectors for foreign investment (2025–2030)

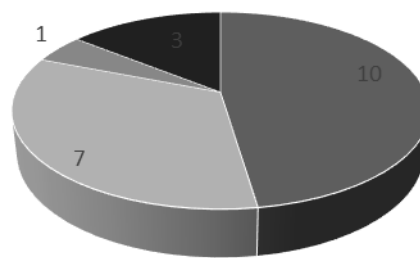


Source: Authors' elaboration

The sixth question addressed to the respondents, *Which sectors of the Brazilian green economy do you consider to have the greatest potential to attract foreign direct investment (FDI) in the next five years?*, aimed to identify the sectors of Brazil's green economy with the greatest potential to attract foreign direct investment over the next five years. Respondents were presented with a multiple-choice question comprising seven possible answers, with the option to select more than one choice (Solar energy; Wind energy; Bioenergy/biofuels; Recycling and circular economy; Sustainable agriculture; Green transport; Energy storage technologies). The results demonstrate a coherent recognition of Brazil's strategic directions for sustainable development and an awareness of which subjects are attractive to international investors. Sustainable agriculture was the most commonly identified sector (15 answers), indicating strong interest in a field in which Brazil is already respected globally.

Participants recognized that agriculture has innovation potential, but faces the pressure that comes with attempts at responsible production which consider the various environmental and social backdrops, in addition to respecting natural resources. Wind energy and green transport (which includes electromobility) received 12 votes each, were generally considered to have good dynamics, good infrastructure development, and good hope for the future of foreign capital. The "less polluting means of transport route" was specifically indicated as a strategic opportunity. Circular economy and recycling were mentioned, by 9 respondents, which suggests there is some emerging interest in sustainable economic models and efforts that can help to minimise waste and valorise resources. At last, it appears that there is a strategic imperative to develop energy storage technologies in order to stabilize grids and integrate renewable energy into the power systems more effectively. The recent analyses of the energy sector support this view by indicating that energy storage will play a vital role in facilitating large-scale renewable installations and is an emerging sector with great investment promise in Brazil in the short to medium term (IEA, 2024).

Graph 7: The capacity of local authorities in Brazil to support foreign investment in green industries



- Prepared, but with some technical or administrative limitations
- Prepared only in certain regions
- Unprepared or resistant to collaboration
- Don't know / Haven't interacted with local authorities

Source: Authors' elaboration

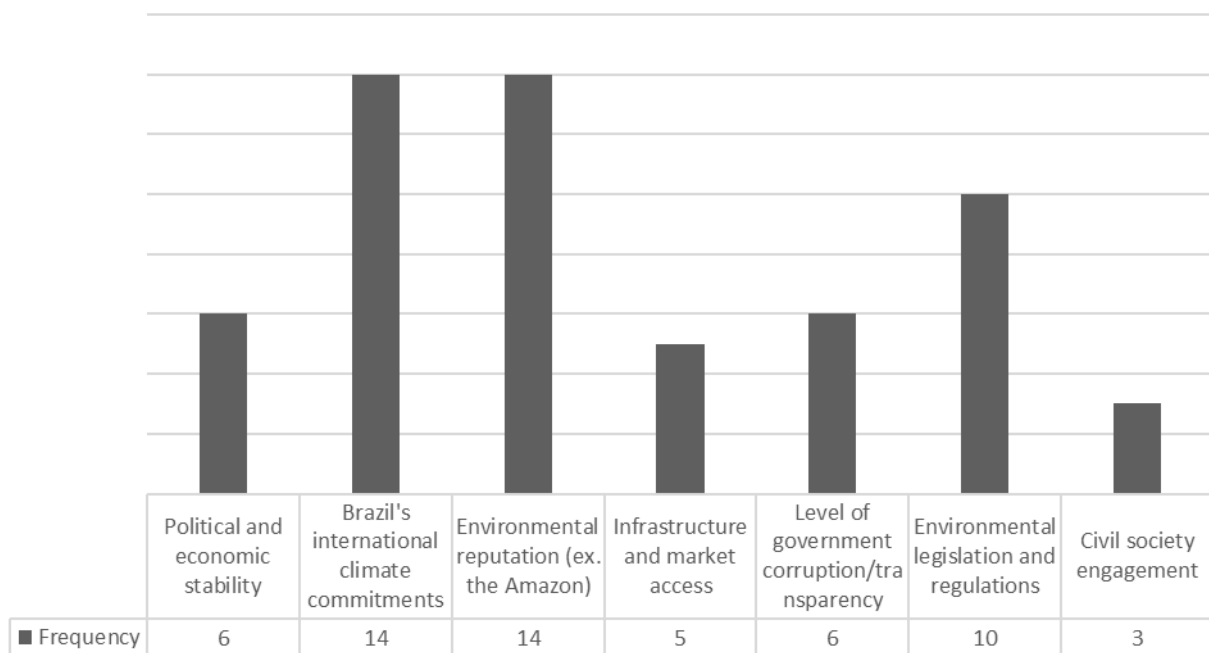
The seventh question in the survey, *How prepared are local and regional authorities in Brazil to collaborate with foreign investors in sustainable industries?*, aimed to assess the level of preparedness of local and regional authorities in Brazil to collaborate with foreign investors. Respondents were presented with a multiple-choice question comprising five possible answers, with the option to select one choice (Very well prepared and open; Prepared, but with some technical or administrative limitations; Prepared only in certain regions; Unprepared or resistant to collaboration; I don't know/I haven't interacted with local authorities). Concerning the readiness of Brazilian local and regional authorities to work with foreign investors in sustainable industries, the participants' views indicate an overall moderately positive assessment, but there are notable issues. Most respondents (10) have a view that the authorities are prepared, but with some technical or administrative limitations. It shows that while there is institutional openness to cooperate there are possible limitations in technical capacity, human resources or bureaucratic aspects that can slow down or complicate engagement with international investors. Seven other survey participants thought that preparedness level varied by region and that

such variation is a well-documented feature of Brazil's decentralized governance. One close source (World Bank Group, 2021) came to parallel conclusions to those of the majority, noting the large differences among Brazil's states and municipalities relative to these institutions' capacities, their abilities to promote investments, and their experiences with sustainable projects. Only one participant responded that local authorities were unprepared or even unwilling to engage in international collaboration, which reflects a negative opinion stated out of context, although it cannot be entirely disregarded, particularly, if it is in a local context with a different set of administrative priorities or where there is no awareness of possible green opportunities. Additionally, 3 respondents stated that they did not know or had not engaged local authorities directly, which could imply a lack of communication and transparency or a lack of regional engagement on the part of investors.

Preparedness levels of local and regional governments differ in terms of their ability to work with foreign corporations. Brokerage inefficiencies have an impact on the uneven capacity of local and regional governments. Regulatory inconsistencies among regions and cities lead to a lack of clarity surrounding regulation's legal status. Regulatory inconsistencies give rise to uncertainty with respect to regulatory compliance. All of these elements impede access for foreign corporations investing in capital-intensive and long-term renewable energy projects. Therefore, structural disequilibrium diminishes the overall predictability of Brazil's investment environment for green sector. Subsequently influencing the foreign direct investments that might be strategically distributed throughout Brazil.

A recent study showed that there are many variables on subnational governance and institutional capacity for the management of sustainable projects successfully within Brazil. Reis-Filho (2026) in *Environmental Policy and Governance* states municipalities are highly variable, with regions that tend to have lower socio-economic indicators exhibiting more of an administrative capacity gap with regulatory process. The conclusion from this article is that improving municipal administration and the standardisation of the local licensing process, will be fundamental pre-requisites necessary to ensure effective implementation of sustainability policies. The research outlined in this paper is consistent with the survey results from this research project. The survey found that local and state governmental jurisdictions are generally willing to work with potential investors. In addition, the survey results also identified numerous technical or administrative limitations that would inhibit successful partnership opportunities. And that there were variable levels of preparedness uniformly within the various regions of Brazil. Significant discrepancies between data collected through surveys and published academic data indicate a need to identify structural barriers. Two of the major issues contributing to the institutional weakness and lack of capacity that exist in the larger investment climate in Brazil are: (1) these two factors are important impediments to the overall investment climate, and (2) they reduce Brazil's capacity to successfully interact with international investors.

Graph 8: Key elements shaping Brazil's image in the field of sustainable investment

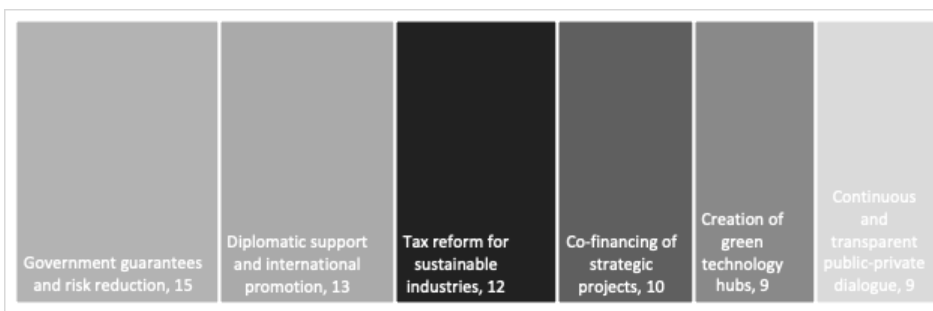


Source: Authors' elaboration

For the eighth question, *What factors most influence Brazil's image as a destination for sustainable investments?*, the study aimed to identify the factors that most strongly influence Brazil's image as a destination for sustainable investments. Respondents were presented with a multiple-choice question comprising seven possible answers, with the option to select more than one choice (Political and economic stability; Brazil's international climate commitments; Environmental reputation; Infrastructure and market access; Level of government corruption/transparency; Environmental legislation and regulations; Civil society engagement). Brazil is viewed as a place to invest in sustainable development due to a combination of many things including environment, politics, and institutions. Brazil's commitment to international climate issues along with its image regarding the environment were the two most mentioned factors when asking respondents what factors affect their view of Brazil as a sustainable investment destination. 14 respondents mentioned both factors. This result is consistent with the findings of some previously published studies that argue that Brazil's ability to attract foreign investment in working sustainably will depend on its ability to meet its international commitments related to climate change and that its credibility as an environmentally responsible nation is crucial when seeking foreign investment in environmentally sensitive markets like Brazil (UNCTAD, 2023). The fact that so many respondents highlighted environmental reputation as an important area of interest reflects increasing concern for protecting critical natural resources in Brazil, particularly the Amazon rainforest. Recent research indicates that whether Brazil is regarded as a global climate leader or a climate liability can have direct consequences on foreign investment decisions regarding green industries (UNCTAD, 2023).

The evidence demonstrates how Brazil's attractiveness as a sustainable investment country comes from both its structural resource base as well as its international commitments to addressing climate change, reputation for environmental sustainability, and perceived regulatory framework. Reputational capital is significant in building competitive advantage in the green economy because it is influenced by several factors, including environmental credibility and commitment to adherence to international climate accords. Reputational capital is essential in developing competitive advantages within the green economy because of factors like environmental credibility and willingness to obey international climate agreements. As such, Brazil's ability to position itself as both resource abundant and a country that is committed to sustainability reinforces its competitive edge in attracting sustainable foreign capital.

Graph 9: The role of the state in facilitating international cooperation in the field of renewable energy



Source: Authors' elaboration

For the ninth and final question of the survey, *What kind of support should the Brazilian government provide to encourage sustainable collaboration with foreign investors in the green energy sector?*, the study aimed to identify the types of support that the Brazilian government should provide in order to encourage sustainable collaboration with foreign investors. Respondents were presented with a multiple-choice question comprising six possible answers, with the option to select more than one choice (Co-financing of strategic projects; Government guarantees and risk reduction; Creation of green technology hubs; Tax reform for sustainable industries; Continuous and transparent public-private dialogue; Diplomatic support and international promotion). Many concrete ways that the Brazilian state should support sustainable partnerships with foreign investors in the green energy landscape. The responses are representative of expectations tied to both risk reduction of investment and with the wider institutional and diplomatic milieu. The most cited option was

government risk abatement nominated by 15 respondents. The responses illustrate a clear need for a proactive state that recognizes its responsibilities and role to assess and reduce ambiguity that disconnects international investors, especially in terms of long-term green infrastructure.

One other important type of support was identified, that is diplomatic support and international promotion of opportunities within the Brazilian green energy sector, mentioned by 13 respondents. Investors value global visibility and institutional support from foreign representations that can facilitate contacts and provide trust in collaborations. According to 12 respondents, one area of public policy that they view as an important tool for building a competitive environment is tax reform for sustainable industries. This finding is consistent with findings from international organisations, which indicate that fiscal incentives, tax exemptions, and targeted subsidies are some of the most effective means for attracting foreign capital to clean energy and sustainable technology (UNCTAD, 2023). State-co-financing of strategic projects (10), is also seen as important policy, where both investors can diminish risk while engaging in a collaborative effort directly with authorities, in large and strategic energy transition projects.

This research relates to research question four (RQ4). There is evident expectation for greater levels of coordinated action by the government to reduce risks associated with capital investment and for increasing confidence of investors. Respondents also stress the importance of financial incentives, regulatory clarity, government guarantees and effective public-private cooperation. Overall, based on the data collected, Brazil's ability to successfully attract sustainable, foreign capital is based not only on Brazil's structural advantages, but also the coherence and credibility of the country's public policy environment.

The results presented in this survey give good exploratory insights from diplomatic, trade and sustainable industry experts; however with only 21 respondents, this is a small sample size; therefore the results should be viewed as representative of expert opinions on Brazil's green economy, and not to be considered statistically representative of all foreign investors or institutional actors involved in Brazil's green economy.

4 Conclusions

The paper conducted a study that collected opinions from experts about Brazil being a good place for sustainable Foreign Direct Investment (FDI) in renewable energy or "green" industries. The paper also wanted to identify Brazil's major competitive advantages, the most significant institutional barriers, and recommendations for policy changes needed for Brazil to be stronger within an international green economy. Overall, the majority of survey respondents said that Brazil's structural advantages continue to be viewed very positively by investors. Even though Brazil's structural advantages are still viewed positively by investors, many institutional frictions remain and impact negatively on the investment climate in Brazil. Additionally, there is a perception that Brazil's policies are unfairly implemented and not consistently effective. The research shows that public sector intervention needs to be strategically coordinated to assist with Brazil's competitiveness.

With regard to (RQ1) and as indicated by responses received from participants, the respondents unanimously believe that the main source of Brazil's competitive advantage lies within the resource and market. Abundant natural resources have been identified as a greater competitive advantage than the potential for a domestic market with 21 responses (21 total responses), compared to fewer responses supporting government support programmes (11 responses of 21), trade agreements integration (8 responses of 21), and qualified workforce (7 responses of 21). While the reports indicated that economic stability was less frequently selected as a significant driver (3/21), the data suggests that investors have some inherent understanding of 'structural' competitive advantages. Nonetheless, investors have concerns over 'macro-institutional' environments. Additionally, participants provided additional factors that could be associated with Brazil's attractiveness as an investment destination.

With regard to RQ2, the paper report that institutional and structural barriers are still a major factor in determining how foreign investors make their decisions. Bureaucracy was noted as the most significant impediment because 18 of 21 participants indicated this as a limitation, followed by legislative instability (10/21) and infrastructure limitations (9/21). Several other challenges also exist, such as high administrative costs (6/21), corruption/transparency problems (5/21), and difficulty accessing local financing options (3/21). Each of these challenges adds to the perception of higher transaction costs and risk, coming especially into play with large capital projects, that require long-term predictability in regulations. Comments about the governance capacity at the sub-national level indicated that respondents viewed the capacity of local and regional governments as variable. However, the majority noted that regional governments were prepared to implement projects but faced technology and administrative deficiencies (10/21), while a significant percent emphasized that readiness varies

regionally (7/21). Overall, evidence of these issues indicates that administrative capacity is not a minor consideration, into the long run administrative capacity issues are primary obstructions to issuing permits, to implementing projects and to promoting ongoing green investment.

As to RQ3, the proportion of respondents who assess the effectiveness of Brazil's current industrial policies is generally moderate, although conclusive indecision also hampers the level of satisfaction with them. Roughly half of all respondents considered the policies to be generally effective (10 out of 21), while just under half rated them as partially effective or inconsistent (9 out of 21). Only one respondent rated them as highly effective (1 out of 21) and one rated them as not effective at all (1 out of 21). According to the available data, the initiatives mentioned have been documented to some extent as actions have occurred within their scope. However, there remains a significant lack of evidence suggesting these actions will result in continued (coherently) effective implementation/continuity or use them consistently as intended to ensure credible, accountable funding for an adequate number of long-term investors. As a result of this, the long-term investor confidence required is still not fully developed. In other words, responses to this survey provide evidence to indicate that the limitation to policy effectiveness lies less in the absence of necessary tools and more in the absence of necessary coordination, predictability, and long-term implementation capability.

Finally, in relation to RQ4, the data shows that all five data collection groups agree on the need for Brazil to have specific public sector interventions to transform the country's structural advantage into sustainable long-term investments in green energy. The two highest ranked measures were: streamline the process for administrative approvals (18/21 responses), and provide tax incentives for investing in green technology (16/21 responses). Additionally, respondents included in their comments support for mitigating investors' risk (9/21 responses), and perceived support from both the Brazilian government and private sector to promote green technology internationally (7/21 responses) by providing professional development programs (7/21 responses). Moreover, there were questions regarding what actions or types of support from the Brazilian government would provide sufficient incentive for respondents to establish and sustain a sustainable partnership with foreign investment. The most commonly selected form of assistance from the Brazilian government was the establishment of government guarantees and risk mitigation mechanisms (with a total of 15 out of 21 selection). The second most commonly selected form of support was related to diplomatic assistance and the promotion of investment opportunities (with a total of 13 out of 21 selection). The third most commonly selected action immigration to provide tax incentives to support sustainable development (with a total of 12 out of 21 selection). The last form of assistance that respondents selected was co-financing of strategic projects from the Brazilian government (with a total of 10 out of 21 selection). Together, these indicators suggest that the investment community expects active and supportive state assistance for green infrastructure development. Investors also want more predictable government actions. Lastly, the presence of dependable and accountable partners will be critical when developing and constructing green infrastructure.

The findings of the research illustrate how Brazil's appeal for sustainable foreign direct investments (FDI) is driven by three key factors: resource endowments, sectoral potential, and reputation as a reliable partner. However, there are some limiting factors to attracting FDI, such as bureaucracy, regulatory volatility, poor infrastructure, and poor institutional capacity. The study also indicates that the effectiveness of Brazil's policies is perceived to be inconsistent, which reinforces the need for administrative reform, improved regulatory clarity, and the development of risk-sharing mechanisms. Consequently, Brazil's future ability to compete globally in the green economy will be dependent on being able to utilize its considerable structural advantages. This must accompany a well-coordinated industrial policy framework. Additionally, it requires coordination of multi-level governance. Public sector interventions are also required to decrease risk while speeding up the process of project implementation.

Limitations of the Research

When interpreting these findings, it's important to note the following constraints associated with the current data. Firstly, the sample size is relatively small in that there were a total of only 21 participants included within the study. While all of the participants had been selected as having both extensive knowledge about and access to the Brazilian economy and investment environment, this limited sample size limits the ability to generalize to a larger population. Secondly, because the respondents were drawn from the author's professional contacts using non-probability sampling methods, each participant has direct ties to the author. Their answers do not reflect the diversity of opinions held by every stakeholder with respect to foreign direct investment in Brazil. Moreover, the closed-ended question format utilised in the study provided for comparability and consistency in terms of how each respondent answered questions, but limited the amount of rich, qualitative data that could have

been gathered via an open-ended question format or via interviews. Finally, the perception of respondents was solicited at one specific point (September 2025) in time and does not account for any changes in policy, investment conditions, or market dynamics that might occur over time.

Directions for Future Research

Future research may be able to lessen some of the limits imposed by this research by increasing the size of the sample population through use of more statistically valid probability sampling methods, to ensure that study findings reflect the true characteristics of the overall population. In addition, through comparative analysis of Brazil and some other developing nations having strong renewable energy industry sectors (e.g., Chile and Mexico) additional insights into how to develop sustainable sources of foreign direct investment (FDI) may be uncovered. Furthermore, future research should consider employing a mix of quantitative and qualitative data collection methods (using quantitative survey data along with qualitative interviews or case studies) in order to better understand what motivates FDI; what institutional impediments exist to FDI; and what gaps exist in the implementation of FDI policy. Finally, the study makes three specific recommendations to develop clearer policy and business strategies for renewable energy sources: conducting separate studies for each source (hydrogen, renewable, and bioenergy) to identify how they can be used sustainably and economically.

Recommendations for Theory, Business and Public Policy

The theoretical contribution of these results contributes to existing literature on sustainable FDI by emphasizing how natural resources, institutional quality, and policy coherence impact a country's attractiveness for investment. Future theoretical work on sustainable investment in emerging markets should incorporate administrative capacity and the effectiveness of governance. For business stakeholders, these results highlight that Brazil offers strong investment potential with regards to renewable energy and sustainable agriculture due to lower energy costs and resource availability. Foreign investors should use several risk mitigation strategies such as partnerships with local businesses and government-supported guarantees to manage regulatory and administrative risks. Public Policy demonstrates the importance of reducing unnecessary regulation, clarifying existing regulations, and improving cooperation between levels of government. Improving transparency, institutional capacity and risk mitigation will allow Brazil to take advantage of its natural endowments and position itself as a regional leader in the green economy.

References:

- [1] Agora Industry (2023). 12 insights on Brazil's green hydrogen competitiveness. Agora Energiewende Report Series.
- [2] Aremu, F. A., dos Santos, A. C., & Morais, F. B. (2025). Quantile analysis of economic growth, foreign direct investment, and renewable energy on CO₂ emissions in Brazil. *Sustainability*, Vol. 18, No. 3, pp. 152.
- [3] Ben Belgacem, S., Younsi, M., Bechtini, M., Alzuman, A., & Khalfaoui, R. (2024). Do financial development, institutional quality and natural resources matter the outward FDI of G7 countries? *Sustainability*, Vol. 16, No. 6, pp. 2237.
- [4] Berryman, A. K., Buckner, J., Senra de Moura, F., Barbrook-Johnson, P., Hanusch, M., Mealy, P., Farmer, J. D., & del Rio-Chanona, R. M. (2025). Skill and spatial mismatches for sustainable development in Brazil. *arXiv Papers*, No. 2503.05310.
- [5] Costa, F. H. D. (2022). Planejamento do setor elétrico brasileiro e transição energética: Perspectivas de integração territorial e industrial. Universidade Federal do Rio de Janeiro.
- [6] Da Silva, G. A., Lima, R. F., & Oliveira, T. S. (2024). Barreiras políticas e institucionais para o investimento verde no Brasil e seus impactos na economia verde latino-americana. Instituto Latinoamericano de Estudos para o Desenvolvimento Sustentável.
- [7] Dinca, V. M., Dima, A. M., Moagăr-Poladian, S., Săseanu, A. S., & Dinu, V. (2025). Energy consumption and savings behavior under the pressure of energy security, sustainability and cleaner energy transition: The case of Romania. *Oeconomia Copernicana*, Vol. 16, No. 2, pp. 489–521.
- [8] Dincă, V. M., Moagăr-Poladian, S., Stamule, T., & Nistoreanu, P. (2023). The RepowerEU Plan and the main challenges for the transition to renewable energy in Romania. *Amfiteatru Economic*, Vol. 25, No. 64, pp. 676–690.
- [9] Dutton, J., Bartunek, J., & Gersick, C. (1996). Growing a personal, professional collaboration. In P. Frost & S. Taylor (Eds.), *Rhythms of academic life*, pp. 239–248. Sage.
- [10] Fraunhofer ISE (2024). Energy charts: Electricity generation in Germany.
- [11] German Federal Ministry for Economic Affairs and Climate Action (2023). *Energiewende monitoring report*.
- [12] Glaser-Segura, D., Nistoreanu, P., & Dincă, V. M. (2018). Considerations on becoming a world heritage site: A quantitative approach. *Amfiteatru Economic*, Vol. 20, No. 47, pp. 202–216.
- [13] Harvard Business Review (2003). How are we doing? Vol. 81, No. 4, pp. 3.

- [14] ICAT (2023). Recommendations for improving Brazil's renewable energy policy framework. Initiative for Climate Action Transparency.
- [15] IEA (2024). Batteries and secure energy transitions.
- [16] IEA Bioenergy (2024). Implementation of bioenergy in Brazil – 2024 update.
- [17] Kahn, R. L., & Boulding, E. (1964). Power and conflict in organizations. Free Press.
- [18] Lira, F., Kramer, N., & Quitzow, R. (2025). Hydrogen policy in Brazil: Emerging path to green re-industrialization. Springer.
- [19] Magadam, T., Murgod, S., Garg, K., & Yadav, V. (2025). Renewable energy transition in South America: Predictive analysis of generation capacity by 2050. arXiv Preprint.
- [20] Martins, A. C., da Silveira, J. M., Pereira, M. C., & Pasqualino, R. (2024). Mitigating climate impacts incentives: An analysis of green investments in South America. *PSL Quarterly Review*, Vol. 77, No. 310, pp. 371–386.
- [21] Pelau, C., Vladoi, A. D., Fufezan, M., Dinca, V. M., & Ghinea, V. (2010). The influence of knowledge dynamics on consumer behaviour. *Proceedings of the 2nd European Conference on Intellectual Capital*, pp. 465–471.
- [22] Reis-Filho, J. A., Fiterman, Y. L., Giarrizzo, T., & Noletto-Filho, E. M. (2026). Environmental deregulation by design: Institutional capacities and the perils of Brazil's new environmental licensing law. *Environmental Challenges*, Vol. 22, pp. 101383.
- [23] Reuters (2024). Brazil aims to lure foreign investment with green development platform.
- [24] Seabra, J. E. A., Cavalett, O., & Lima, J. M. (2022). Modeling the contribution of bioelectricity to the future Brazilian power mix. *Energy, Sustainability and Society*, Vol. 12, Article 9.
- [25] UNCTAD (2023). *World Investment Report 2023*. United Nations.
- [26] Vasconcelos, G. F., & Castilho, H. A. (2025). A SWOT analysis for the evolution of Brazil's renewable energy sector. *Energy Policy*, Vol. 191.
- [27] Werner, J. A., & Lazaro, W. R. (2023). The policy dimension of energy transition: The Brazilian case. *Energy Policy*, Vol. 175, pp. 113557.
- [28] World Bank Group (2021). *Subnational Doing Business in Brazil 2021*. World Bank.
- [29] World Bank Group (2021). *Subnational Doing Business in Brazil 2021*. World Bank.
- [30] World Economic Forum (2022). *The Global Competitiveness Report 2022*.
- [31] Zhang, Y., & Duarte, P. (2023). Chinese FDI in Brazilian renewable energy: Geopolitics and green capital. *Journal of Energy and Development*, Vol. 49, No. 1.