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**A sustainable indicators model proposal for the Brazilian beef production chain: combating greenwashing practices**

*Propuesta de modelo de indicadores sostenibles para la cadena de producción de carne brasileña: combate a las prácticas de greenwashing*

*Proposta de modelo de indicadores sustentáveis para cadeia produtiva da carne bovina brasileira: combate às práticas de greenwashing*

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**KEYWORDS**

Greenwashing,  
Environmental, Social and  
Corporate Governance,  
Sustainability Model.

**Abstract:** This article aims to propose a sustainability model applied to the Brazilian beef production chain. The proposed model integrates the sustainability indicators of corporate models and those identified in the literature, considering the social, economic and environmental dimensions of the Triple Bottom Line, plus the corporate governance of the Environmental, Social and Corporate Governance (ESG), as well as the assumptions of Stakeholder Capitalism. As the object of study of the human sciences is historically constructed and in constant change and transformation, we searched the literature for gaps in models that could serve as a parameter for creating a model that addressed these gaps. From this search, 11 sustainability models were identified. Of these models, three were specific to the agribusiness sector. As a result, the Vilanova and Bazanini model of sustainability was proposed. The model consists of four dimensions: economic, environmental, social and governance; and 21 indicators: 4 economic, 8 environmental, 4 social and 5 governance. The contribution of the research is to present to the academy a specific methodological tool to be applied to the beef production chain against greenwashing practices through indicators that meet the specificities of the researched regions, criteria that are not contemplated in the researched models.



**PALABRAS CLAVE**

Lavado verde;  
Ambiental, Social y de  
Gobierno Corporativo  
(ESG);  
Modelo de Sostenibilidad.

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**Resumen:** Este artículo tiene como objetivo proponer un modelo de sustentabilidad aplicado a la cadena productiva de la carne bovina brasileña. El modelo propuesto integra los indicadores de sostenibilidad de los modelos corporativos y también los identificados en la literatura, teniendo en cuenta las dimensiones social, económica y ambiental de la Triple Botton Line, más el gobierno corporativo de la Environmental, Social and Corporate Governance (ESG), así como los supuestos del Stakeholder Capitalism. Dado que el objeto de estudio de las ciencias humanas fue construido históricamente y en constante estado de cambio y transformación, se indagó en la literatura vacíos en los modelos que pudieran servir como parámetro para la creación de un modelo que contemplara dichos vacíos. A partir de esta búsqueda, se identificaron 11 modelos de sostenibilidad. De esta cantidad de modelos, se identificaron tres que eran específicos para el sector agroindustrial. Como resultado, se propuso el modelo de sostenibilidad de Vilanova y Bazanini. El modelo consta de cuatro dimensiones: económica, ambiental, social y de gobernanza y 21 indicadores, 4 económicos, 8 ambientales, 4 sociales y 5 de gobernanza. El aporte de la investigación es presentar a la academia una herramienta metodológica específica para ser aplicada a lo largo de la cadena productiva de la carne bovina en el combate a las prácticas de greenwashing a través de indicadores que atiendan las especificidades de las regiones investigadas, criterios que no están contemplados en los modelos investigados.

**PALAVRAS-CHAVE**

Greenwashing.  
Environmental, Social  
and Corporate  
Governance. Modelo de  
Sustentabilidade.

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**Resumo:** Este artigo tem como objetivo propor um modelo de sustentabilidade aplicado para a cadeia produtiva da carne bovina brasileira. O modelo proposto integra os indicadores de sustentabilidade dos modelos corporativos e também os identificados na literatura, atendendo às dimensões social, econômica e ambiental do Triple Botton Line, acrescido da governança corporativa da Environmental, Social and Corporate Governance (ESG), bem como os pressupostos do Stakeholder Capitalism. Sendo o objeto de estudo das ciências humanas construído historicamente e em constante estado de mudança e transformação, pesquisou-se na literatura lacunas nos modelos que pudessem servir de parâmetro para a criação de um modelo que contemplasse essas lacunas. A partir dessa busca identificou-se 11 modelos de sustentabilidade. Desse quantitativo de modelos identificou-se três que eram específicos para o setor do agronegócio. Como resultado, foi proposto o modelo Vilanova e Bazanini de sustentabilidade. O modelo é composto por quatro dimensões: econômica, ambiental, social e governança e 21 indicadores, sendo 4 econômicos, 8 ambientais, 4 sociais e 5 da governança. A contribuição da pesquisa consiste em apresentar para a academia um ferramental metodológico específico para ser aplicado junto à cadeia produtiva da carne bovina no combate às práticas de greenwashing por meio de indicadores que atendem as especificidades das regiões pesquisadas, critérios esses, não contemplados nos modelos pesquisados.

## Introduction

In recent decades, global and local markets have become increasingly demanding for products that are not related to environmental degradation or social problems, which have been identified from their origin, provided by the traceability of these products, mainly in relation to activities related to agribusiness. This concern comes from the various stakeholders who are part of the production chains. The issue of sustainability is being treated by organizations as opportunities to add value and as barriers if they are not prepared to face these requirements. In the Brazilian case, with the decrease in industrial production from 2013 onwards, agribusiness became the sector of the economy responsible for balancing the trade balance through the growth of exports to the world market (Bazanini et al., 2023).

The theme of this article focuses on sustainability models, the precepts of TBL – Triple Bottom Line, ESG – Environmental Social Corporate Governance, and the assumptions of Stakeholder Capitalism.

Therefore, there is a need to update existing models that incorporate Ad Hoc indicators with the aim of making the research more comprehensive and, at the same time, considers the particularities of the environment and. As explained by Alves et al. (2022), Ad Hoc research is a method that uses the researcher's empirical knowledge and can be considered one of the most accessible practices for realistically evaluating environmental impacts. This realistic perspective makes it possible to detect the use of abstract universals in companies' discourse on sustainability and, as a result, to denounce and combat greenwashing practices disguised in ideas that omit numerous harmful actions for other stakeholders present in the context.

The American philosopher Robert Edward Freeman coined the expression “stakeholder” in 1963, through an internal memo, in which he characterized stakeholders as a group whose support becomes vital for the existence of the organization. This conception contradicts the

assumptions of Classical Economic Theory, according to which the only interested party in the business is the company owner.

Arising from the conception that aims to meet the interests of other stakeholders, not just its shareholders, the Triple Bottom Line model, proposed by Elkington (1994) stands out among the seminal models of value creation in the environmental, social and economic dimensions. This model began to be incorporated by the corporate universe mainly due to the benefits that tend to be obtained from a new proactive and humanized positioning (Elkington, 1994).

Numerous others emerged from this original model, among which we can highlight: DJSI Model, ISE Model, ARABESQUE S-RAY® Model, ETHOS Model, IBGE Model, SAFA Model, TBL Model for project management, Management Model for sustainable waste, GAS-agro Model, GIPS Model, in addition to the GRI model – Global Reporting Initiative, among others. These models include economic, social and environmental aspects, however, in Brazil the last two aspects have been neglected in favor of the first, especially regarding agribusiness.

Based on the dimensions of these sustainability models, it was found that there were no Ad Hoc indicators that more effectively contemplated the materiality matrix related to regional specificities applicable to the Brazilian beef production chain.

Given these findings, this article aims to propose a sustainability model applicable to the Brazilian beef production chain. Thus, the Vilanova and Bazanini Sustainability Model seeks to fill this gap and go beyond the models researched, presenting indicators that consider the local specificities of the region.

Ad Hoc research covers the Southwest region of Mato Grosso, where the research was carried out and whose specificities were not identified in the more generalist models.

In a way, Brazilian agribusiness goes against history in the face of the protagonist of consumers from purchasing countries, through a movement that seeks to restrict imports associated with

deforestation and disrespect for human rights. This negative image is being combatted, either through effective actions to combat social inequalities and environmental degradation, or through rhetorical procedures, particularly the use of greenwashing. In other words, “green makeup” is considered a way of deceiving the market with fake seals and the reputation of socio-environmentally responsible companies, which does not effectively match their practices. (Araújo, Dias & Pagoto, 2019).

From the perspective of Stakeholder Capitalism, aligned with the perspective of a conscious capitalism for the 21st century, organizations must be increasingly committed to creating value not only in satisfying the interests of shareholders, but also, regarding social and environmental issues and governance.

This commitment necessarily involves the attention that companies dedicate to ESG indicators, as these indicators will guide the actions to be implemented with a view to future success (Serafeim, Zochowski & Downing, 2019). Currently, one of the crucial points for conquering new markets is directly related to socio-environmental issues, points that must be continuously monitored by all stakeholders involved in the enterprise (Tucker & Jones, 2020). In this line of reasoning, these crucial points that must be immediately addressed were mentioned by different researchers for the performance of companies committed to socio-environmental issues (Jha & Rangarajan, 2020; Aouadi & Marsati, 2018).

However, as Bebhuk and Tallarita (2020) have already warned in relation to the Davós World Forum Manifesto (WEF, 2020), these practices related to ESG are inoperative, since the Shareholder Interest Doctrine prevails, disguised as greenwashing, practices in that companies claim to be sustainable, but are not transparent about data or methods, as occurs in models that do not consider the specificities of the researched region.

## **Theoretical elements of the research**

The theoretical elements that constitute the base theory of the research focus on the evolution of sustainability, on the description and analysis of classic and contemporary models of sustainability, taking as a reference the materiality matrix of the Stakeholder Theory that addresses the controversy of effective socio-environmental responsibility business contrary to greenwashing practices.

### **Classic and contemporary sustainability models**

Among the classic sustainability models, the Triple Bottom Line model proposed by Elkington (1994), from which the Environmental Social and Corporate Governance - ESG and Stakeholder Capitalism models originate, provided the theoretical bases incorporated and later updated in these models.

#### **Triple Bottom Line Model**

The Triple Bottom Model was proposed by Jhon Elkington in 1994. This model is considered as the basis of the “principles that guide corporate business sustainability” (Alexandrino, 2020, p.21).

According to Mahoney and Potter (2004), the Triple Bottom Line, which in Brazil is coined as the Sustainability Tripod, is a model that seeks to integrate social, environmental and economic issues into a business or product. It is also used to monitor and measure sustainable development.

Companies with the aim of adding value to their image have incorporated the precepts of the model proposed by Elkington into their policies, also constituting one of the bases for corporate sustainability. For Figlioli (2013), the integration between the theme of sustainability and companies went through several phases until reaching what is known as corporate sustainability. Table 1 presents the phases in the evolution of the concept of corporate sustainability.

Table 1

**Evolution of the concept of business sustainability**

1950s and 1960s	<b>Total ignorance</b> There was little or no understanding among companies about their socio-environmental impacts. The topic of sustainability is still a subject that does not interest to academics, businesspeople and politicians.
1970s	<b>Resistance to adaptation</b> Companies do not agree with regulations on socio-environmental issues, understanding that this will limit their growth. However, they seek to develop ways to meet new obligations in order to maintain the legal license to operate.
1980s	<b>Beyond the obligation</b> Leading companies begin to see benefits when they have sustainable policies that go beyond legislation. Multinationals extend their socio-environmental practices to countries where legislation is more lenient. Pollution prevention and waste control practices are also beginning to generate economic gains.
1990s	<b>Change of path</b> The institutionalization of socio-environmental issues, combined with technological improvement, offers new opportunities to companies. Sustainability indicators and voluntary certifications are spreading, as are dialogue practices with stakeholders, product life cycle analysis and eco-design.
2000s	<b>Partnerships for a new management model</b> The concept of corporate sustainability is consolidated as a management approach, causing countless companies to measure their impacts, innovate their processes and products, dialogue and be accountable to their stakeholders, as well as influence their value chain in adopting the agenda.
2010s onwards	<b>Consolidation of sustainability</b> Social, environmental and economic issues are on the companies' agenda, with the emergence of models such as the Triple Bottom Line; ESG – Environmental, Social, and Corporate Governance; and Stakeholder Capitalism, Influenced by the UN 2030 agenda.

Source: Prepared based on Alexandrino (2020, p.22).

In general, it can be considered that the precepts of the Triple Bottom Line ended up being translated into a sustainability framework, in which the economic, social and environmental impacts of corporations can be examined. However, 25 years after its publication, the author himself went public to inform that the model needed adjustments, as it was unable to make a significant change in capitalism, understanding that, even though he had advanced in socio-environmental issues, companies continued to give greater importance for the economic pillar to the detriment of other aspects (Elkington, 2018).

**ESG - Environmental, Social and Corporate Governance**

ESG, according to Tripathi and Bhandari (2014) and Huang and Watson (2015), seek to address environmental, social and governance factors. These factors, according to the authors, are used to measure the sustainable performance of companies. Regarding environmental factors, these

include greenhouse gas emissions, water use, waste and the use of renewable and non-renewable resources. Social factors refer to diversity, worker health and safety, slave and child labor and actions that impact the community and society. Governance, on the other hand, refers to issues involving corruption, compliance and management.

However, although the term ESG in the strictest sense has been mentioned from 2004 onwards, even in the late 1990s, as the need for corporate social responsibility became more widely recognized and environmental, social and governance considerations have become more deeply embedded in corporate strategy. Consequently, the use of the triple bottom line to describe organizations obligation to consider social and environmental issues has taken off (Plastun, Bouri, Gupta, & Ji, 2022).

In contemporary times, the emergence of new sustainability models has increasingly emphasized the need to achieve the concept of triple financial results, confirming the tendency of organizations to recognize business performance beyond the purely

financial in their value chain.

Table 2 presents a summary of the main approaches used by articles found on ESG in the last five years.

The main approaches in ESG studies focus on

the disclosure of ESG actions and indices by companies and also the importance of ESG in adding value to the company. No specific studies were found that relate ESG to the agribusiness chains, the object of this study.

Table 2  
Main approaches to ESG studies

Authors	Approaches
Chouaibi and Affes (2021); Xie et al. (2019); Feng and Wu (2021); McBrayer (2018); Suttipun (2021); Plastun et al. (2022).	companies disclosing ESG indices.
Fatemi , Glaum and Kaiser (2018); Amel-Zadeh and Serafeim (2018); Wong et al . (2021); Abdi, Li and Càmara-Turull (2021); Behl et al . (2021); Zhang, Qin and Liu (2020); Giese, Nagy and Lee (2021).	Adding company value because of ESG.
Utz (2019); Pedersen, Fitzgibbons and Pomorski (2021).	Reliability of ESG assessments for new partnerships.
Mah (2021); Tettamanzi, Venturini and Murgolo (2022); Yang, Du, Razzaq , Shang (2022).	Sustainable investment, addressing climate issues, human rights, diversity.
Akhtaruzzaman , Boubaker and Umar (2022).	Effects of media coverage of the COVID-19 Pandemic on ESG volatility indices.

Source: Vilanova, Bazanini and Ryngeblun (2022, p. 6).

In the table above, we can observe the trends that appear in studies on ESG in the formation of the image and reputation of contemporary organizations as a necessary requirement resulting from the demands of international markets.

### The Stakeholder Capitalism Model

According to Schwab (2019), we currently have three models of capitalism: “Shareholder Capitalism”, “State Capitalism” and “Stakeholder Capitalism”. In his perception, the first privileges and encourages inequalities and is guided by an emphasis on profit. The second has the task of defining the direction of the economy and the third emphasizes social and environmental responsibility. Unlike the other two models, Stakeholder Capitalism requires organizations to consider, in addition to the economic aspect, social and ecological aspects in their vision of the future.

According to Freeman and Todnem (2022), the idea we had of a business model is changing, undergoing a conceptual revolution. This means that an evolution towards the reform of capitalism, until then focused on the financial return of shareholders, occurred mainly after the global financial crisis of 2008 in which the vision of

capitalism, called Stakeholder Capitalism (which had already existed since the mid-20th century) gained strength due to its scope focused on cooperation between shareholders, employees, and business partners, with an emphasis on a predominantly social perspective, unlike what was seen until then.

Stakeholder Capitalism proposes a new vision of capitalism, a “humanized capitalism”, still pragmatic, but with a focus on the social, and with the objective of finding a balance between the pursuit of corporate gain through financial results and, at the same time, meeting the multiple social demands in which business organizations seek to find a cooperative practice between shareholders, employees, business partners and the communities in which the company is located (Beber & Rangel, 2020).

The Stakeholder Capitalism model, through its principles, can contribute to global governance, promoting a friendly atmosphere to achieve the sustainable development goals – SDGs (Beck & Ferasso, 2023). The authors argue that through Stakeholder Capitalism it is possible to develop partnerships in the search to promote economic growth, innovation and industrial dynamism in a sustainable way.

However, this change in the business model receives criticism, some of it scathing, as is the case of Denning (2020). For the author, Stakeholder Capitalism tends to fail due to the inaccuracy of companies in the scope of accountability. This means that if companies, through their managers, are responsible to the various stakeholders, they can easily end up being not being responsible to any of them.

Following the same line of criticism, the authors Bebchuk and Tallarita (2020) call stakeholder capitalism “stakeholderism”. For the authors, stakeholder governance will not bring benefits to stakeholders, especially those external to the company. According to them, the effect would be the opposite, that is, the adoption of this model would generate isolation of shareholders and also executives, reducing commitment to economic performance and making stakeholders' desire for financial return take a back seat.

Although the new model has received criticism, this corporate vision is increasingly focused on stakeholders and, together with this new model, incorporates ESG classifications into its approaches, both to investment and new opportunities. This change constitutes a change in the investment paradigm, requiring that factors related to ESG be present in the organizations' business strategy, either as effective corporate responsibility or as rhetorical speeches disseminated in the form of greenwashing.

## **Corporate social responsibility or greenwashing?**

The Stakeholder Capitalism Model, by incorporating the assumptions of ESG as recommended at the Davos World Forum (WEF, 2020), addresses the issue of the social responsibility of organizations in relation to the destinies of the community and the planet itself.

Corporate Social Responsibility (CSR) concerns a series of practices that the organization adopts spontaneously to promote the well-being of internal and external audiences, including customers, employees, suppliers, shareholders and

the community in general. To achieve this objective, the organization must voluntarily change its mode of operation, based on a transparent, innovative and sustainable management model (Buitrago Betancourt, 2021).

In the dissemination of socio-environmental actions, the Corporate Social Responsibility Report (CSR) constitutes a strategic CSR instrument that provides numerous benefits by legitimizing the organizations that use it by signaling responsible behavior, which certainly favors an increase in the degree of investors and customers loyalty. (Yu, Van Luu & Chen, 2020).

According to De Souza, De Benedicto and Silva (2021), when companies prepare their own sustainability report, they seek to publicize their actions, making it possible to compare their performance with other organizations in the same sector. However, this information may not correspond to practical reality.

In this sense, Bellantuono, Pontrandolfo and Scozzi (2018) report the subjectivities of the sustainability reporting model proposed by the GRI – Global Reporting Initiative. This model allows companies to identify their own environmental, social and governance aspects to avoid gaps and, consequently, opportunistic behaviors. To minimize these difficulties, they present criteria to identify mandatory topics that must be included in sustainability reports and that can be applied in the agri-food sector. The purpose of which is to improve the reliability of these reports, given that the agri-food sector is where the biggest discrepancies occur in between appears in the reports and what is put into practice.

Vast majority of ESG data provided in CSR is unaudited. Therefore, if the ESG information disclosed by companies is not reliable, the greenwashing behavior of a given company may be a barrier to the integration of ESG factors into investment decisions.

Regarding the measurement of the rhetorical procedures found, summarized in the term greenwashing (Bowen & Aragon-Correa, 2014; Reid & Toffel, 2009), one of the main difficulties is related to the different views on the phenomenon

of corporate sustainability, in which there is no unique concept that can be identified in the literature (Gatti, Seele & Rademacher, 2019).

Among the authors who dedicated themselves to the task of unmasking procedures that are not consistent with the effective practice of sustainability, the following stand out: Antonioli and Gonçalves-Dias (2015); Pagotto and De Carvalho (2020); Marquis, Toffel and Zhou (2016), among others. These authors critically discuss the rhetorical procedures used in the selective disclosure of information regarding the responsible socio-environmental performance of a company, from the perspective of Lyon and Maxwell (2011) with the concealment of negative information.

Bazanini et al. (2016), relying on the rhetorical art and interpretive perspective of the sophists, states that, in most cases, executives assume the role of rhetoricians in defending the interests and reputation of the organizations they represent.

At the same time, the common point between the vision of the sophists and the business communicator corresponds to the interests in achieving a favorable image and reputation in public opinion and, thus, the modern executive began to receive the responsibility of acting rhetorically in defense of the interests of the organization he represents. and, for this, it

needs training that makes it capable of defining and characterizing organizational communication and its field of coverage, highlighting the need to give it a prominent place in its daily activities (Bazanini et al., 2016, p. 63).

In this line of reasoning, different authors have dedicated themselves to studying discourses aimed at sustainability from the rhetorical perspective of the sophists, listed in categories, descriptions and examples that start from the false discourse itself or without evidence, through empty discourses and selective disclosure, even decontextualized promises with unrealistic statements, as illustrated in Table 3.

As can be seen in the greenwashing categories set out in the following table, the predominance of abstract universals, whose ways are incapable of solving the problem of the everyday reality of sustainability by leaving gaps for imagery constructions that favor misleading rhetorical practices. Given such possibilities of using abstract universals in organizations' communication with their different stakeholders, sustainability models must consider the specificities of the regions researched to compare whether socio-environmental responsibility practices are being effective.

Table 3  
Greenwashing Categories

Category	Description	Example	Authors
Misleading speech (Deviation of purpose)	Environmental discourse is disseminated through exaggerations, irrelevant, generic or allegedly unrealistic statements.	The company's obligations are presented as investments in the environment.	Bazanini et al. (2016); Jones (2019); Pagotto and De Carvalho (2020).
Exaggerated speech (Beautiful lies)	Organizations promise to make commitments that they will not fulfill.	Companies promise to impress consumers and investors without any practical initiative.	Jones (2019); Lyon and Montgomery (2015).
Missed speech	It selectively discloses what is interesting and disguises or hides what it does not intend to clarify.	Companies emphasize small things and avoid mentioning things that go against their interests.	Bazanini et al. (2016); Jones (2019); Pagotto and De Carvalho (2020).
	Omit negative social and environmental impacts of the business, disclosing only the positive ones.	Divert public attention to parallel socio-environmental projects.	Lyon and Montgomery (2015); Marquis et al. (2016).
	Companies disclose specific qualities without relating them to their products and services.	Campaigning about social responsibility without practicing them.	Pagotto and De Carvalho (2020).

Source: Prepared by the authors.



## Methodological elements of the research

The review to be used in this study focuses on the systematic literature review, which is characterized by using data sources referring to scientific publications with the aim of describing the state of the art on a given topic (Galvão & Pereira, 2014). In this article, this search for the state of the art takes place through the investigation of works related to sustainability with the aim of finding possible gaps to support the validity and justification of the research objective, using as reference the Stakeholder Capitalism and ESG models on the Scopus database and Web of Science.

## Bibliometric research

Bibliometric research was carried out on the Scopus and Web of Science platforms, taking the last five years as a period, including approved articles and those that will be published in 2024.

The terms used to search the database were as follows: 1) “ESG”; 2) “Value chain”; 3) “Global value chain”; 4) “Firm value”; 5) “Stakeholder”; 6) “Stakeholder Capitalism”; 7) “Agri-Food”. The terms were searched in the article title, abstract and keywords. To check whether the article was related to the researched topic, the title and abstract were read, excluding those unrelated to the research.

## Selection of articles: authors and main approaches

After searching for articles, analyzing their content and context, it can be inferred that even

though the ESG topics is on the rise, there is still a need to seek information about how ESG is adopted by stakeholders who are part of the company's value chain. In the articles researched, a gap was found due to the lack of work that identifies the ESG procedures used by stakeholders in the beef production chain and, furthermore, whether these procedures were a recommendation or imposition, or even in relation to the actions of stakeholders in the meat chain, whether there is interest in environmental, social and governance issues, since these questions were not addressed in the literature investigated.

Interestingly, of all the articles analyzed, only one article was found that specifically deals with the global value chain (Takahashi & Yamada, 2021). The focus of the article is to investigate whether the engagement in ESG of companies that operate in value chains in global markets bring higher returns on shares. 176his work did not address the global meat value chain nor how companies adopted ESG premises, which is the object of this research.

Table 1 presents the number of articles generated from 2018 to 2024 on the Scopus and Web of Science platform. This first table shows the number of articles that have the term “ESG” only in the title. In order not to lose focus and search for articles from different areas of knowledge, a filter was applied to select articles in English and in the areas of: Administration, Sustainability, Economics, Social Science and Environmental Sciences.

The following table presents the results combined with the terms described above.

Table 1  
Search results for articles using terms in the title – Scopus and Web of Science platforms

Advanced search: Terms in article title only	2018	2019	2020	2021	2022	2023	2024	Total
(1) ESG	9	30	44	85	266	510	30	974
(2) Value Chain	144	161	205	238	305	320	10	1.383
(3) Global Value Chain	63	81	115	131	182	187	7	766
(4) Firm Value	82	74	136	125	135	174	5	731
(5) Stakeholder	428	466	558	557	629	767	10	3.415
(6) Stakeholder Capitalism	0	0	3	2	6	6	0	17
(7) Agri-food	26	26	35	49	80	78	2	296
(1 and (2)	0	0	0	0	0	2	0	2

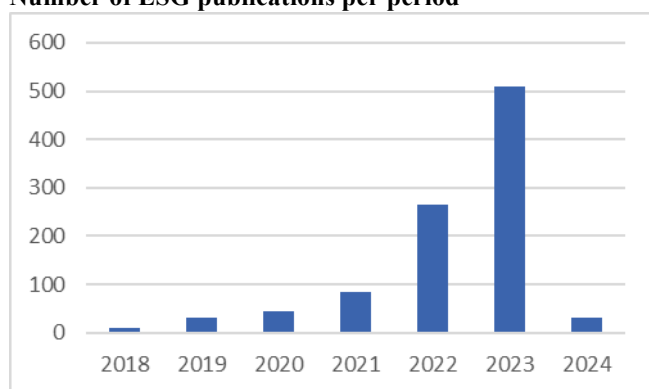
(1) and (3)	0	0	0	0	0	1	0	1
(1) and (4)	1	1	0	1	7	9	0	19
(1) and (5)	0	0	1	2	4	3	0	10
(1) and (6)	0	0	0	1	1	0	0	2
(1) and (7)	0	0	0	0	0	0	0	0

Source: Prepared by the authors.

As can be seen, the results demonstrate significant evolution in publications on ESG. However, when the term ESG is combined with other terms, such as firm value, value chain, global value chain, global meat value chain and Stakeholder Capitalism, the results are restricted. Only the combination of ESG and stakeholder has a greater number of articles. It is preliminarily concluded that there is little research that addresses ESG in the beef chain as well as from the perspective of the Stakeholder Capitalism model.

To present the growing evolution of research on ESG, Figure 1 was created with information on the number of publications using as a filter the search only for the term ESG in the title of the work. The figure contains the numbers for the Scopus and Web of Science platforms.

Figure 1  
Number of ESG publications per period



Source: Prepared by the authors.

Figure 1 clearly illustrates the evolution in the number of ESG publications, demonstrating that it is a current topic and that it is being researched in all regions of the planet.

## Presentation and discussion of results

This topic will present the results of measurement models and sustainability indicators

extracted from corporate models (ARABESQUE, B3, ETHOS, DJSI, SAFA, GIPS and GRI) and models identified in the literature review (IBGE, Triple Button Line Model – TBL for project management, Sustainable Waste Management Model and GAS-Agro Model). Based on this analysis, a new model was proposed, which includes regional indicators not present in the models studied.

## Measurement models and sustainability indicators

The use of traditional indicators, such as GDP – Gross Domestic Product, HDI – Human Development Index to measure the development of a region or country is very common. These are used as a means of supporting numerous decision-making processes, such as public policies. More recently, research has focused on the construction and application of indicators aimed at Sustainable Development (Stoffel & Colognese, 2015).

Sustainability indicators, through their measurement and dissemination, increase the competitiveness of the sector. This is because they are operational technical instruments, which aim to provide scientific evidence, responding to pressure from the entities involved, mainly in relation to environmental, social, economic and governance practices, contributing to the development of the meat production chain (Barry & Hoyne, 2021; Gaudencio, Oliveira & Curi, 2021).

More effectively, the search for sustainability indicators begins with the World Conference on the Environment (Rio-92), resulting in Agenda 21, which brings in chapter 40 the need for countries to develop in accordance with their reality sustainability indicators. Finally, the United Nations presents the 17 sustainable development goals that countries must achieve by the year 2030

(Neves & Martinez, 2020).

Among the sustainability models aimed at the most different sectors of activity (including agribusiness), the following models were selected: DJSI Model - Dow Jones Sustainability Index (Gedaf, 2019); ISE Model – Corporate Sustainability Index (B3, 2021); Arabesque S-Ray® model (Arabesque, 2023); Ethos Model (Ethos, 2022); GRI Model – Global Report Initiative (GRI, 2022); Model of IBGE sustainable development indicators (Ibge, 2015); Triple Bottom Line Model – TBL for project management (Martens & Carvalho, 2017); Management Model for Sustainable Waste (Fatimah, Govindan, Murniningsih & Setiawan, 2020). Using sustainability models aimed exclusively at agribusiness as a reference, the GAS-Agro Model (Neves & Martinez, 2020), SAFA Model - Sustainability Assessment of Food and Agriculture Systems (Fao, 2013), GIPS Model - Guide to Indicators of Sustainable Livestock (Santos, 2022).

All identified models complement each other and seek to identify whether a given company, network, or production chain is meeting the objectives of sustainable development in its most varied aspects.

Based on the dimensions of these sustainability models, it was found that there were no indicators that more effectively contemplated the materiality matrix related to the specificities of the researched region applicable to the Brazilian

beef production chain.

### Vilanova and Bazanini sustainability model proposal

After identifying the corporate sustainability models, it was found that the gap described previously is present in the models researched, as they do not consider the specificities of the regions researched. Therefore, a sustainability model was developed that fills this gap and can be applied to the Brazilian beef production chain.

The proposed model integrates indicators from corporate models and those identified in the literature, considering the Social, Economic and Environmental dimensions of the Triple Bottom Line, plus ESG Corporate Governance, as well as the assumptions of Stakeholder Capitalism. The Vilanova and Bazanini sustainability model, based on the models that preceded it, seeks to jointly contemplate aspects related to the materiality matrix of the Stakeholder Theory, not included in the models researched.

In summary, the model proposes the adoption of a specific methodological tool to be applied to the Brazilian meat production chain, as well as in other production chains focused on agribusiness, complementing the specificities of the researched region. The model construction and indicators are explained in Table 4.

Table 4

**Vilanova and Bazanini model**

Dimension	Indicator	Description	Model/Author
Economic	Financial performance	The business is economically viable and has long-term profitability.	TBL Project Management Model (Martens & Carvalho, 2016, 2017); SAFA Model (Fao, 2013); GIPS model (Santos, 2022).
	Financial benefits	The production, product or service is valued for being sustainable. This appreciation extends throughout the entire beef production chain.	TBL Project Management Model (Martens & Carvalho, 2016, 2017); GIPS Model (Santos, 2022); GAS-AGRO model (Neves & Martinez, 2020).
	Management	How expenses and costs related to the activity carried out are monitored.	TBL Project Management Model (Martens & Carvalho, 2016, 2017); DSJI Model (Gedaf, 2019); GIPS model (Santos, 2022).
	Ethic	The activity's businesses strive for transparency and ethics follow	TBL Project Management Model. (Martens & Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2020); Sustainable Waste Management Model (Fatimah et al., 2020);

		environmental legislation and standards.	ETHOS Model (Ethos, 2022); Arabesque Model (Arabesque, 2023); DSJI Model (Gedaf, 2019); GIPS model (Santos, 2022).
<b>Environmental</b>	Environmental Preservation	The Brazilian Forest Code is complied with. There is a nature and habitat conservation plan.	ISE B3 model (B3, 2021); Arabesque Model (Arabesque, 2023); GAS-AGRO model (Neves & Martinez, 2021); ETHOS Model (Ethos, 2022); GIPS model (Santos, 2022).
	Management	The well-being of animals is considered during the development of production activities. It occurs through management, health, nutrition and transportation practices.	ISE B3 model (B3, 2021); Arabesque Model (Arabesque, 2023); GAS-AGRO model (Neves & Martinez, 2021); SAFA Model (Fao, 2013); GIPS model (Santos, 2022).
	Biodiversity protection	Actions aimed at protecting biodiversity include conservation and recovery practices for flora and fauna.	ISE B3 model (B3, 2021); Arabesque Model (Arabesque, 2023); GAS-AGRO model (Neves & Martinez, 2021); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022).
	Clean energy	Attitudes are taken regarding the use of renewable energy sources. Actions to improve energy efficiency are used regularly.	GAS-AGRO model (Neves & Martinez, 2021); Sustainable Waste Management Model (Fatimah et al., 2020); ETHOS Model (Ethos, 2022); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022); IBGE Model (Ibge, 2015).
	Control	In management routines to control pests, diseases or other types of adversity, natural control methods are used.	GAS-AGRO model (Neves & Martinez, 2021); SAFA Model (Fao, 2013); GIPS model (Santos, 2022).
	Traceability	There is control over the movement of products through traceability. This is possible throughout the beef chain.	TBL Project Management Model (Martens & Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2021); SAFA Model (Fao, 2013); GIPS model (Santos, 2022).
	Water and waste management	Water resources are treated and disposed of correctly after treatment. Renewable sources of these resources are used.	ISE B3 model (B3, 2021); Arabesque Model (Arabesque, 2023); TBL Project Management Model (Martens & Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2021); SAFA Model (Fao, 2013); GIPS model (Santos, 2022). Sustainable Waste Management Model (Fatimah et al., 2020); ETHOS Model (Ethos, 2022); IBGE Model (Ibge, 2015).
	Innovation	Technology and innovation processes are adopted in the development of routines. These processes aim at production efficiency and concern for sustainability.	TBL Project Management Model (Martens & Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2021); Arabesque Model (Arabesque, 2023); ETHOS Model (Ethos, 2022); GIPS Model (Santos, 2022); SAFA Model (Fao, 2013).
	Relationship with the community	The local community is becoming part of the routines and businesses, prioritizing the hiring of labor and carrying out training that involves the community.	ISE B3 model (B3, 2021); Sustainable Waste Management Model (Fatimah et al., 2020); TBL Project Management Model (Martens & Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2021); Arabesque Model (Arabesque, 2023); ETHOS Model (Ethos, 2022); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022); IBGE Model (Ibge, 2015).
		Labor rights are being guaranteed. Workers, whether permanent or	ISE B3 model (B3, 2021); Sustainable Waste Management Model (Fatimah et al., 2020); TBL Project Management Model (Martens &

<b>Social</b>	Labor Practices	temporary, have access to adequate accommodation, transport and food. Training about the risks of the activity is carried out.	Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2021); Arabesque Model (Arabesque, 2023); ETHOS Model (Ethos, 2022); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022); IBGE Model (Ibge, 2015); ISE B3 model (B3, 2021).
	Relationship with society	The local community is served with actions in the areas of education, demonstrating the importance of conserving natural resources.	ISE B3 model (B3, 2021); GAS-AGRO model (Neves & Martinez, 2021); TBL Project Management Model (Martens & Carvalho, 2016, 2017); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022); IBGE Model (Ibge, 2015).
	Relationship with Stakeholders	The aim is to give preference to suppliers and buyers from the local community, strengthening small businesses.	ISE B3 model (B3, 2021); GAS-AGRO model (Neves & Martinez, 2021); TBL Project Management Model (Martens & Carvalho, 2016, 2017); SAFA Model (Fao, 2013); GIPS model (Santos, 2022).
<b>Governance</b>	Sustainable products	The activities are carried out responsibly and sustainably, to guarantee a safe product for the end consumer.	ISE B3 model (B3, 2021); GAS-AGRO model (Neves & Martinez, 2021); TBL Project Management Model (Martens & Carvalho, 2016, 2017); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022); Arabesque Model (Arabesque, 2023); ETHOS Model (Ethos, 2022); DSJI Model (Gedaf, 2019).
	Partnerships	We seek to work with partners, whether public or private, in the search for new products or production techniques.	ISE B3 model (B3, 2021); GAS-AGRO model (Neves & Martinez, 2021); TBL Project Management Model (Martens & Carvalho, 2016, 2017); Arabesque Model (Arabesque, 2023).
	Certifications	There is genuine interest in seeking sustainability certifications.	ISE B3 model (B3, 2021); GAS-AGRO model (Neves & Martinez, 2021); SAFA Model (FAO 2013); GIPS model (Santos, 2022).
	Corruption	Anti-corruption policies and practices are put into practice. Companies are established within ethical principles.	ISE B3 model (B3, 2021); Sustainable Waste Management Model (Fatimah et al ., 2020); TBL Project Management Model (Martens & Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2021); Arabesque Model ( Arabesque , 2023); ETHOS Model (Ethos, 2022); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022); IBGE Model (Ibge, 2015). ISE B3 model (B3, 2021); DSJI Model (Gedaf, 2019).
	Rules and legislation	Rules, standards and legislation, including environmental ones, are covered.	ISE B3 model (B3, 2021); TBL Project Management Model (Martens & Carvalho, 2016, 2017); GAS-AGRO model (Neves & Martinez, 2021); Arabesque Model (Arabesque, 2023); ETHOS Model (Ethos, 2022); SAFA Model (Fao, 2013); GIPS Model (Santos, 2022); ISE B3 model (B3, 2021).

Source: Prepared by the authors.

The proposed model is composed of 21 indicators, of which 4 are economic, 8 environmental, 4 social and 5 governance. The

choice of these indicators, when creating the model, was based on the studies carried out by the models presented here. However, it sought to fill

the gaps through sustainability indicators for agribusiness aligned with the assumptions of Stakeholder Capitalism and ESG.

We also tried to make the model functional and objective, that is, easy to apply and understand for respondents. The proposed indicators, as already mentioned, originated from several models that have already been reviewed by researchers and

experts, being tested and validated, giving greater robustness to the model. In addition to the search procedures for validated indicators, some indicators allow extracting the specificities of the region where the research is being carried out, as shown by the differences between these three Ad Hoc indicators contained in the model, as shown in Table 5.

Table 5  
Differentials of indicators in the Vilanova and Bazanini Model

Indicator	Description of indicators referring to the specificities of the Southwest region of Mato Grosso
Relationship with stakeholders	The objective is to identify whether local community companies are being given preference in marketing and whether small businesses are being valued. Particularly, in the southwest region of Mato Grosso, this indicator becomes essential to measure the creation of value within the local community, since the region has many small companies that depend on this interaction.
Environmental Preservation	The objective is to verify whether the Brazilian Forest Code is being complied with. This indicator is extremely important, as according to art. 12 of law no. 12,651, of May 25, 2012, which provides for the protection of native vegetation. If the property is in the Legal Amazon, which is the case in the southwest region of Mato Grosso, it must maintain an area with vegetation cover of at least 80% in the property located in a forest area; 35%, in the property located in a Cerrado area and 20%, on the property located in the Campos Geral area.
Biodiversity Protection	The objective is to verify whether there are practices for the protection, conservation and recovery of biodiversity. In this sense, this indicator becomes relevant, since three important Brazilian biomes are present in the researched region: Pantanal Mato Grosso, Cerrado and Amazon, being rich in biodiversity.

Source: Prepared by the authors.

It can be seen in the table above that the proposed model, through singular indicators, requires that the specificities of the southwestern region of Mato Grosso be considered in detail. These indicators, in the case of the Brazilian beef chain, certainly differ totally or partially from those present in other regions of the country, as illustrated in relation to small traders, specific legislation and biodiversity protection.

The indicator “Relationship with stakeholders”, referring to trade with the local community, is considered relevant, as according to data from the Commercial and Business Association of Pontes e Lacerda – ACEPL in the municipality alone there are more than 30 industries operating in different segments that depend on stakeholders in the meat chain to develop their activities.

Furthermore, according to the Commercial and Business Association of Pontes e Lacerda (ACEPL, 2022), there are around 1,084 companies in the municipality that operate in different sectors. This demonstrates the importance that the beef

production chain has in the municipality and in the southwest region of Mato Grosso. According to IBGE (2021), there are more than 1300 agricultural establishments, occupying an area of more than 600 thousand hectares in the municipality of Pontes e Lacerda – MT alone. This data from Pontes e Lacerda – MT is because the municipality is considered the commercial hub of the region and where the main slaughterhouses are located.

The indicators “Environmental preservation” and “Biodiversity protection” are relevant, considering that the region where the research is being carried out is part of the Legal Amazon and is strategically located on three important Brazilian biomes, namely: Pantanal Matogrossense, Cerrado and Amazon. These biomes contain countless species of animal and plant that are only found in this habitat. One example is the jaguar, a feline that lives in the Amazon biome and in the Pantanal biome and is threatened with extinction, mainly due to deforestation and predatory hunting (World Wildlife Fund [WWF], 2022).

When contemplating the specificities of the

researched region, we seek to find procedures that, in a certain way, can prevent the use of abstract universals disclosed rhetorically in the form of greenwashing, since the CSR materiality matrix must effectively include all interested parties to that the indicators formulated, achieving positive impacts on the communities in which they operate. By proposing its own model instead of relying exclusively on a certain model, this proposal sought to highlight indicators that seek to extract specific data from this region, with the models identified in the literature having a general scope, not covering local specificities.

Therefore, the Vilanova and Bazanini Model proposes to fill gaps not covered in other sustainability models as a way of detecting greenwashing practices through indicators that address the specificities of the researched region.

When denouncing these practices, in a provocative article, Exam Magazine (04/18/2023) metaphorically exposed these misleading rhetorical procedures using abstract universals, in which ESG principles are only practiced from the outside of organizations. Particularly, in relation to the sustainability model related to the beef chain, the same magazine produced an article related to the difficulties of suppliers in meeting the specificities of the region, as can be seen in the “Green Office Program of the JBS slaughterhouse”. To help its suppliers regularize their environmental liabilities in some regions of Brazil (Exam Magazine, 04/07/2023), there is a need for indicators that adapt to the specificity of the context, especially the last two items of the model in which they are present as a differential of the method the specificities of the beef chain in the Southwest region of Mato Grosso.

## **Final considerations**

Stakeholders Capitalism presents a new vision of capitalism, still with a certain pragmatism, however, with a focus on the social with the aim of finding balance between the pursuit of corporate gain through financial results and, at the same time, meeting multiple social demands.

The sustainability models identified in the research are based on the principles of the Triple Bottom Line, ESG and Stakeholder Capitalism. The Vilanova and Bazanini sustainability model for the beef chain is based on the ESG dimensions plus the economic dimension and has as its differential indicators are to extract the specificities of the beef production chain and the Southwest region of Mato Grosso, where the field research will take place.

Ad Hoc research in sustainability studies, as an essential complement to the effectiveness of a model that can more deeply cover the reality researched, constitutes a particular method for understanding specific situations that become practically inaccessible in more generalist models and approaches when looking for understand the ideologies present in the discourses disseminated by companies related to agribusiness.

Ad Hoc method is justified by considering the specificities of this region, in which attempts are made to find procedures that, in a certain way, can prevent the use of abstract universals rhetorically disseminated in the form of greenwashing, since the CSR materiality matrix must effectively include all interested parties so that the formulated indicators have positive impacts on the communities where they operate.

By proposing its own model instead of relying exclusively on a certain model, this proposal sought to highlight indicators that seek to extract specific data from this region, since the models that identified in the literature have a general scope, not covering local specificities, which, in a certain way, can be fulfilled through abstract universals, elements that constitute the harmful practices of greenwashing.

The preliminary results of this study can serve as support for new research on ESG. Through this mapping of the main approaches, it is possible to offer the academy a specific methodological tool to be applied to the Brazilian meat production chain, as well as in other production chains focused on agribusiness.

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