



## Analysis of the scientific productions about companies, accounting information and sustainability in the pandemic context (Covid-19)

### *Análisis de producciones científicas sobre empresas, información contable y sostenibilidad en el contexto de la pandemia (Covid-19)*

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**Abstract:** The pandemic (Covid-19) decreed by the World Health Organization on March 11, 2020, originating in China in 2019, has generated drastic changes for the world society, and so far is impacting negatively, and changing the quality of life of the entire population. Humanity has been facing an invisible disease and man needs to rethink consumption patterns, as well as the negative environmental impact generated by these patterns. To this end, we aimed to analyze the scientific productions on companies, accounting information and sustainability in the context of the pandemic (Covid-19). This study is classified as a descriptive, bibliographic and qualitative research, as it sought to identify information to highlight the socioeconomic and environmental impacts generated by the pandemic (Covid-19) in organizations. In this sense, the quality of information about these impacts are indispensable issues for analyzing the sustainable development of corporate business. Other impacts were identified in relation to environmental quality such as the companies' accounting technical standards, and theoretical reflections on integrated reporting studies.

**Keywords:** *Environmental management; Sustainable development; Technical accounting standards; Integrated Report.*

**Resumen:** La pandemia (Covid-19) decretada por la Organización Mundial de la Salud el 11 de marzo de 2020, originada en China en 2019, ha generado cambios drásticos para la sociedad mundial, y hasta ahora está impactando negativamente, y cambiando la calidad de vida de toda la población. La humanidad se enfrenta a una enfermedad invisible y el hombre debe replantearse los patrones de consumo, así como el impacto medioambiental negativo que generan estos patrones. Por lo tanto, este estudio tenía como objetivo analizar las producciones científicas sobre las empresas, la información contable y la sostenibilidad en el contexto de la pandemia (Covid-19). Este estudio se clasifica como una investigación descriptiva, bibliográfica y cualitativa, dado que buscó identificar información para destacar los impactos socioeconómicos y ambientales generados por la pandemia (Covid-19) en las organizaciones. En este sentido, la calidad de la información sobre estos impactos son cuestiones indispensables para analizar el desarrollo sostenible de las empresas. Se identificaron otros impactos en relación con la calidad ambiental, así como las normas técnicas de las empresas y las reflexiones teóricas sobre los estudios del relato integrado.

**Palabras clave:** *Gestión medioambiental; Desarrollo sostenible; Normas técnicas de contabilidad; Informes integrados.*

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## **INTRODUCTION**

Throughout historical evolution, planet earth has faced a plethora of viral diseases that lead to death (Smallpox, Bubonic Plague, AIDS, Ebola, and others). Human society is no stranger to global pandemics or regional and local epidemics, as medicine and science have advanced, pandemics have become less frequent and mortality rates better controlled. The scientific community may be focused on developing potential vaccines and treatments, rather than devoting valuable time to observational studies (CHAHROUR et.al., 2020).

For too long, humanity has placed more importance on economic growth than on people's health and quality of life. Environmental pollution was almost always the result of transferring the necessary corrective actions to third parties, without compensation for the costs of this correction. There was no motivation or incentive to change their attitude, the polluter kept his conduct, whose costs would have to be borne by society and future generations (ROBLES JR. & BONELLI, 2010).

Nevertheless, the socioeconomic and environmental situation that the negative impacts of the pandemic (Covid-19) have been causing in the world, leads us to a volume of daily information, whether economic, political and social (education, health, income, among others), and the measures presented by the World Health Organization (WHO) or by local governments should be observed.

Associated with this news, some terms are linked to the concepts of quality management, quality costs, and sustainability (monitoring, testing, evaluation, disease control, prevention, emergency protective measures such as social isolation, for example) among other events. However, the tools used to achieve environmental management are in essence those identical to ensure quality in production (training, action plan, documentation control, organization and cleanliness, inspections, and periodic situation analysis) (ROBLES JR. & BONELLI, 2010).

Environmental issues occupy a respectable space among the major contemporary concerns of science, because they allow structuring a kind of x-ray of reality, which in the face of emerging problems, require an awareness and, especially, an immediate solution (PHILIPPI JR & BRUNA, 2010).

The most sensitive and efficient manifestation, but not always effective of this concern, is the emergence of an environmental literature stimulated by events that have been discussing various aspects of development, seeking the control and improvement of environmental management in an attempt to contribute to a process suitable for sustainable development that takes into account the management process linked to social, economic and environmental aspects. However, the quality of financial and non-financial information is in broad evolution by the study and research center on the environment (USP/FIPECAFI)

that seeks to bring accounting closer to the sustainability issue of corporate business with regard to socioeconomic and environmental disclosure.

It is also important to note the negative impact generated by the pandemic (Covid-19) on the technical standards produced by the accounting pronouncements committee. Starting from this contextualization, it is intended to answer the following question: Which scientific productions about companies, accounting information and sustainability can be identified in the context of the pandemic (Covid-19)?

## **METHODOLOGY**

### **Research classification**

This study is classified into three aspects: 1) as to the objectives that it is a descriptive research, since it sought to map scientific productions of phenomena with aspects linked to companies, accounting information and sustainability in the context of the pandemic (Covid-19); 2) as to the sources of information, which is a bibliographic research, developed based on publicly accessible material, such as books, articles and scientific productions on the subject under study and 3) as to the nature of the data, which is classified as a qualitative research, which aimed to present reflections on the studies about the Covid-19, as well as the main changes in the accounting regulatory process that affect the economic, financial and non-financial results of companies and disclosure of the Integrated Reporting (IR) (GONÇALVES, 2003, p. 79).

### **Methodological procedures**

In the first moment, for the description of this study, it was sought to correlate the terms most used by the literature on environmental management, sustainability, standards and accounting information such as: monitoring, testing, evaluation, disease control, prevention, the 17 Sustainable Development Goals (SDGs), accounting events (business combination, financial instruments, inventories, intangible assets, fixed assets, research and development) and IR.

In the second moment, a bibliographic survey was conducted on studies carried out and published, in order to select works for a better understanding of the events studied (Covid-19, environmental management, sustainable development, technical standard and IR). In the third moment, the main changes in the normative process and the effect on the accounting information described in the financial reports were identified. Subsequently, the issues concerning the quality of environmental and social information in IR studies were observed.

## RESULTS AND DISCUSSION

### Environmental Management and the Pandemic (Covid-19)

When addressing the concepts of environmental management and the variables related to its significance for control, as well as the measurement of these events, refer the following situations: quality of environmental information and the relevance of RI in accordance with the Global Reporting Initiative (GRI). In this context, the WHO decreed on March 11, 2020, the global pandemic, warning all countries to carry out measures to combat the pandemic (Covid-19).

Many scientists from various fields pointed out the future scenario of this disease as a threat to life on planet Earth. The issue of environmental management refers to the most preliminary elements of diseases that could arise due to the aggression and damage to the environment suffered by the world. A reality in which the population, companies, governments, and scientists of various specialties, were surprised.

However, the history of humanity has been marked with diseases that devastated the world being warning signs for scholars on how to combat and avoid the social, economic, and environmental damage caused by pandemic (Covid-19). Thus, it is important to understand the concept of sustainable development, which is concerned with the generation of wealth and its distribution, and aims to improve the quality of life of the entire population, taking into account the environmental quality of the planet Earth (COSTA, 2012).

Thus, there is a need to establish an environmental management aimed at the implementation of public health policies, with the goal of promoting and maintaining the quality of life (PHILIPPI & BRUNA, 2010). This fact makes environmental management an indispensable tool for organizations. In this sense, is that this study seeks to rescue relevant aspects of environmental management regarding the pandemic (Covid-19), characterized by a doubtful scenario, with difficulties of immediate responses to combat the disease. In Box 1 it is possible to observe a brief description of Covid-19.

#### BOX 1: Description of the pandemic (Covid-19).

Aspects	Description
Origin	On December 31, 2019 in the Capital of China's Hebei Province (Wuhan City) Emergence of a new disease called Covid-19, an epidemic identified as severe acute respiratory syndrome coronavirus (SARS-CoV-2); On March 11, 2020, the WHO declared Covid-19 a pandemic.
Disease screening and risk assessment	Evidence-based medicine to assess the frequency of various symptoms to create a stratification system of epidemiological risk factors for Covid-19; Limitations and the statistical power of diagnostic tools in clinical practice; Hospital discharge; Discontinuation of quarantine; Describes epidemiological factors influencing the rapid increase in infected people; Discusses accurate

	information pertinent to improving prevention strategies; Prophylaxis part of medicine that establishes preventive measures to preserve the health of the population.
Symptoms	Fever, dyspnea, dry cough, fatigue, loss of taste or smell, and lung opacities (radiological exams).
International scientific production up to March 2020	377 publications in China; 39 publications in the USA - United States of America; 10 publications in Italy and Iran.

**SOURCE:** Adapted from Chahrour et al. (2020) and Kakodkar, Kaka, and Baig (2020).

According to Kakodkar, Kaka, Baig, (2020) the pandemic (Covid-19) is a reminder of the volatility in ongoing planning to manage primary and secondary infection of SARS-COV-2. This planning can be improved by accurate modeling of current data and elimination of misinformation in the era of data surplus.

However, the 17 SDGs will be vital for sustainable recovery post-Covid-19 as: SDG 12 - Responsible Consumption and Production; SDG 13 - Action Against Global Climate Change; SDG 14 - Life on Water and SDG 15 - Earth Life which address these prospects of significant changes in the environment on the themes of social responsibility, unique health, environmental systems among others (Box 2).

**BOX 2:** Responsible SDGs for sustainable recovery in post-Covid-19.

ODS	Objetivos	
(ODS 12)  Responsible Consumption and Production	Social Responsibility	Unsustainable production and consumption are perpetuated by financing, investments, and lifestyles. Such practices have led to depletion of natural resources, ecosystem disruption, economies, high carbon infrastructure, unsustainable resource use, and environmental problems and diseases, that to successfully achieve environmental goals, responsibilities need to extend from government to the private sector, to environmental problems and diseases.
	Environmental systems	The pandemic has shown the weaknesses of environmental systems. To successfully achieve environmental goals, responsibilities need to extend from government to the private sector, civil society, and individuals. The closed borders, availability of goods, and confinement that have forced the change of many habits around the world.
	Behavioral changes	Some of these changes have accelerated new and emerging sectors that support responsible consumption, such as homeworking and local production. As people return to work and schools reopen, some of these positive changes can be sustained. Public and private employers, civil society, and individuals have sought alternatives for how to work, study, and consume on a scale that can make a lasting leap toward sustainability.
	PNUMA	The PNUMA works with partners on recovery policies and investments to encourage circularity and approach, including focusing on sustainable consumption and aligning public and private finance with resilient sustainable economies and societies. This is an opportunity to meet this demand with stimulus packages that include renewable energy, smart buildings and cities, green public transport, sustainable food and farming systems, and lifestyle choices.
	Environmental management	Act today to protect terrestrial and aquatic ecosystems, combat global warming, including biosafety and environmental security measures. Ensuring that knowledge of and commitment to responsible consumption and production extends across all pillars of societies is a relevant element for the progress and success of all other ODS.
	Environmental damage	Nature is in crisis, threatened by biodiversity and habitat loss, global warming, and toxic pollution. To fail to act is to fail humanity. Facing the pandemic (Covid-19).

	Resilient and Sustainable Futures	Protecting future global threats requires proper management of hospital and hazardous chemical waste. Consistent global stewardship of nature, biodiversity, commitment to rebuilding society, creating green businesses, and facilitating the transition to a carbon-neutral economy. Humanity now depends on action for a resilient and sustainable future.
(ODS 13)  Action Against Global Climate Change	Global warming	There is no science, technology, or funding to solve global warming. Without commitment to decarbonization, the planet will be on track for a 3.2°C or more increase in global temperature, which brings a greater likelihood of pandemics, extreme weather events, droughts, and floods, and causes widespread destabilization of global food, economic, and security systems. Uncontrolled global warming could undo the progress made on almost all the SDGs, which will undermine economic recovery.
	Actions	The plans are formulated to help countries and communities rebuild their economies and societies, this is an opportunity to embrace renewable energy, green technologies, and new sustainable sectors that will take the planet towards decarbonization.
	PNUMA	For climate stability, PNUMA is supporting policy makers and investors.
	Social Responsibility	National, regional and sub-regional sectors with the creation of green fiscal stimulus packages and financing. Prioritize jobs and sustainable income sources, encouraging investments in public assets, social and green infrastructure, promoting consumption with low-carbon production in order to boost financial responsibility.
(ODS 14)  Life in Water	Conservation of Environmental Ecosystems	The ecosystems that support and protect life underwater are as relevant as on land. The decline and degradation of these marine, coastal, and freshwater natural environments and their accompanying biodiversity, combined with the warming, acidification, and widespread pollution of the oceans is a crisis of equal concern. Humans depend on these ecosystems for coastal protection, medicines, industry, and food. The global fish stock in recent decades is getting lower and lower. Marine genetic resources are used for pharmaceutical purposes, including antivirals, conservation of these ecosystems ensures conservation of pharmaceuticals. Excessive nutrient runoff is also an issue that can lead to eutrophication, harmful algal blooms, and a potential increase in dead zones, which can compromise the production and conservation of vital resources.
(ODS 15)  Life on Land	Single Health	Zoonoses like Covid-19 will continue to increase as the world continues to destroy wild habitats for human activity. Degraded habitats can promote more direct interaction between people and animals, accelerating the evolutionary processes of viruses and diversifying diseases as pathogens spread easily to livestock and humans.
	Social Responsibility	To prevent new pandemics, both the destruction of natural habitats for agriculture and mining and housing must become sustainable. It is essential that governments, the private sector, and civil society join together to work better for, not against, the environment in order to manage and build resilience to future systemic threats.
	PNUMA	It provides information on the causes of zoonotic disease transmission to instruct policy makers to protect populations by raising awareness about the damage caused by uncontrolled environmental destruction. In addition, in collaboration with the Secretariat of the UN Convention on Biological Diversity, PNUMA is assisting governments to develop and/or strengthen their biosafety policies and regulatory measures.
	Public Management	Detect, prevent, control, and manage zoonotic pathogens, and is also committed to supporting countries to secure ambitious outcomes at the Conference of the Parties to the Biodiversity Conference (COP15), which is scheduled to take place in 2021.

**SOURCE:** NU (2021)

The pandemic (Covid-19) has caused several disasters and unimaginable problems, such as social, economic and environmental consequences in a deep and lasting way all over the world, almost completely stopping life on planet earth (UN, 2021). Thus, it is observed in these aspects outlined by SDGs 12, 13, 14,

and 15 that they reveal the primordial need for sustainable management, observing the issue of social welfare and quality of life as well as human, animal, and environmental health as inseparable elements.

### **Accounting technical standards**

The effect of the economic and financial crisis has considerable impact on the accounting information of companies and which should be observed in the financial reports; the relevant data on the main accounting events such as inventory, subsequent events, financial instruments, tangible and intangible assets among others. With respect to accounting standards, the texts identified on the financial accounting website were summarized in Table 3, two of which the search was performed by entering the keywords "Pandemic" and "Covid-19".

#### **BOX 3: The impact of Covid-19 on the financial statements<sup>1</sup>.**

<b>Search</b>	<b>Descrição</b>
IAS 1 - Presentation of financial statements	Disclose the main sources of uncertainty about Covid-19: revenue, expenses, cash, loans and receivables, tangible and intangible assets.
IAS 10 - Subsequent Events	The risk of a material adjustment in a subsequent period. You should clarify that adjusting events are events that highlight conditions existing at the reporting date and non-adjusting events arise from conditions after the reporting date.
IAS 2 - Inventory	Decreases in the net realizable value - NRV of inventory are accounted for as expenses in the period in which they occur. NRV = damage, contamination, deterioration, physical deterioration, obsolescence, fluctuations in price levels, reduced demand, or other causes (unplanned stoppages, labor or material shortages, or production bottlenecks). Managers should consider the effects on their inventory costs.
IFRS 9 - Financial Instruments	IFRS requires that forward-looking information be considered when assessing the need to record a potential credit loss. Observe legislation that modifies payment terms according to government agencies (government grants). Observable fair value financial instruments (debt and equity securities) must be recorded at market price at the balance sheet date.
IAS 16 - Property, Plant and Equipment	Depreciation that starts when the assets are put into service. If construction is suspended the process must be observed by IAS 23(borrowing costs).
IAS 36 - Impairment of Assets	Indefinite-lived assets (goodwill) tested for impairment (each year or indication of loss);
IFRS 15 - Business Combination	Covid-19 can affect revenues from current and future contracts (volume discounts, early payment discounts, refunds, cooperation agreements, price concessions, performance bonuses, and fines).
IAS 1 - Presentation of Financial Statements	Additional disclosures in the financial statements are required if there is substantial doubt and to discuss management's plans for resolving the substantial doubt.
IAS 34 - Interim Financial Reporting	All material information should be disclosed that has a significant impact on the operating results, balance sheet effect and cash flow statement. Revisions for credit losses and changes in significant estimates should also be disclosed, as well as subsequent events after the interim period.

**SOURCE:** Adapted from Silva (2021).

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<sup>1</sup> International Financial Reporting Standards (IFRS)

Importantly, these events are accounting information to predict future scenarios that were shaken by the global economic crisis because of the pandemic (Covid-19) of businesses as assets, liabilities, revenues and relevant expenses. In this sense, it should be observed whether such information effectively portrays the financial and economic effect of the companies, noting that in future scenarios the process of measurement as well as disclosure should be studied by economic effects caused by the pandemic (Covid-19).

### **Studies related to integrated reporting**

Regarding the findings of the integrated study, Martins and Ferreira (2020) show that after the adoption of IR to create additional value to shareholders it is not necessary to adopt a specific disclosure format, however it is necessary to program an informative arrangement that integrates financial and non-financial information of socioeconomic and environmental aspects of an organization. Thus, the adoption of IR cannot be limited to a symbol of legitimization of the companies to the market, it must be an instrument that improves the quality of information.

IR can have two main advantages for a company: 1) an improvement in its management processes, especially with regard to non-financial capital, and 2) a decline in asymmetric information. Importantly, based on voluntary disclosure theory, these two factors can have economic benefits for the organization, thus contributing to the literature on IR (cost to equity ratio), also analyzing the impact of institutional factors in this relationship, employing a robust method of analysis that differentiates it from other studies (ZARO et.al., 2020).

Bevilaqua, Neumann and Faia (2020) portray that the IR concept encompasses the business thought cycle, representing a process, in which both are mutually reinforcing and one should not be disregarded from the other. As such, the IR literature in identifying the factors and formulating the propositions that can be used by future empirical studies, and with the discussion of the challenges that encompass the IR theme.

Fernandes and Silva (2020) state that IR is not yet mandatory in Brazil, but acknowledge the relevance of its insertion in corporate disclosures. In the document "The future We Want" resulting from the United Nations conference for sustainable development held in Brazil in 2012, the RIO+20, reinforces the integration of sustainable information to their corporate reports, and encourage industries, governments, stakeholders<sup>2</sup>, with the support of united nations systems to develop models for practical improvements, and facilitates the action of integrating sustainable reports.

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<sup>2</sup>"Stakeholder is a person or group that owns a stake, investment, or shares and has an interest in a particular company or business. The English stake means interest, participation, risk. While holder means one who owns" (PEREIRA & OLIVEIRA, 2018).



However, Kassai et al., (2019) state that this theme is considered relevant in view of the challenges that will have to be solved in these first decades of the 21st century and that involve changes in the extraction-production-distribution-consumption-disposal models and the equating of issues such as: energy, water, agriculture, urban mobility, pollution, health, education, and social assistance, which are being discussed arduously under the themes of global climate change in each of the 17 SDGs, thus, in box 4 it is possible to observe this historical evolution.

**BOX 4: Historical evolution of environmental disclosure in RI.**

Year	Evento	Resumo
1077	Social Balance in France	Relevant report in search of quality social information.
1990	IBASE Report in Brazil	Brazilian Institute of Social and Economic Analysis.
1991	Pioneering research by Professor Nelson Carvalho	Ecological accounting: an experience that is needed. (concerns about the environment).
1997	GRI - <i>Global Reporting Initiative</i>	It is an international, non-profit organization that pioneered the development of a sustainable reporting framework.
2004	The A4S project - The prince's accounting for sustainability Projetc	Launched by His Royal Highness the Prince of Wales and seeks to develop reporting systems capable of responding to the sustainability challenges of the 21st century.
2006	Creation of the group Nucleus for Studies in Accounting and Environment - NECMA/USP	Research laboratory and participation of several sciences: biologists, chemists, physicists, agronomists, engineers, geologists, among others. Objective: To develop research related to accounting and the environment.
2009	Research by professor Louette	Compendium of sustainability indicators of Nations. The CNB is a methodology for reporting on countries or regions.
June 2012	RIO+20 United Nations Conference on Sustainable Development held in Brazil	RIO+20 resulted in a final document entitled "The future we Want".
2013	Worldwide launching of the draft on IR.	Considered the greatest revolution and cultural evolution in the face of a new business model.
2010	Creation of the International Integrated Reporting Council (IIRC)	Entity responsible for the project to create the RI approach proposal and introduced the concept of integrated thinking.
	Scope of IR focus on six types of interconnected capitals.	Natural, Human, Social/Relationship (difficult to measure), Intellectual, Manufactured, and Financial.
2013	Basic principles of IR according to the Brazilian commission of IR monitoring.	Strategic focus and future orientation, information connectivity, stakeholder responsiveness, materiality and conciseness, reliability and completeness, consistency and comparability. These principles are relevant premises for achieving quality RI information.
2013	RI Fremwork is elaborated by the International Integrated Reporting Council -IIRC	New model for corporate reporting of information of a financial and non-financial nature intangible values or goodwill represent the largest portion of a company's value, which are reflected in the share price or in valuation calculations.

**SOURCE:** Adapted from Kassai & Carvalho (2013); Kassai et al., (2019).

Uniformity addresses the issue of standardization in compliance with environmental legislation and environmental information disclosure standards. There is great difficulty in analyzing environmental information due to the lack of uniformity in the structure of reports made available by companies (COSTA & MARION, 2007).

The creation of the NECMA/USP group seeks to resolve the informational asymmetry on environmental issues as well as an alignment with financial information. It represents a new model of corporate communication of financial and non-financial information with a focus on management, a new business model based on integrated thinking.

## **CONCLUSIONS**

The United Nations conference on environment and development, materializes in the program defined by Agenda 21 that sought to establish a new economic order in accordance with sustainable development.

The assessment of sustainability, in particular for environmental management, must observe in the viral diseases that arise, their origin, social, economic and environmental damage. In the economic aspect, highlight for the construct of environmental information broad study developed by the Foundation Institute of Accounting Research Aturarias and Financial (USP-FIPECAFI) since 2011 to the present day. In this sense the theme management and quality of socio-environmental information are observed by authors as relevant tools to achieve sustainable development.

The main SDGs (12, 13, 14 and 15) post-Covid-19 are also presented, raising the environmental damage caused on land, soil and water, as well as solutions such as: environmental management, social responsibility, behavioral changes (environmental education).

The reflections presented here are intended to open new avenues of research, such as: effect of the disease (Covid-19) on financial reports (relevant for analysis of the global economic impact over the years). Measuring the costs of quality in health care, defining contingency plans in case of a pandemic (many managers have been caught off guard), risk management, threats of viral diseases (trying not to collapse the health care system especially in developing countries). Measurement of sustainability indicators in public health and quality of life (relevant result for analysis of the impact of the disease and preventive measures with real data) and the disclosure of corporate reports on socio-environmental issues.

The practical contribution of this research presents general classification of integrated thinking and the benefits provided by its adoption, expanding the understanding of managers regarding the concepts of this thinking and with possible scenarios for the development of thinking and IR in practice. In this sense, it is observed that in the face of the pandemic (covid-19), the contribution of this study seeks to outline new paths of research of the IR of companies, since the following perspectives should be observed: environmental information, environmental liabilities, intellectual capital, pricing of intangibles.

It is worth noting that the main contributions of this article in the scientific field are paths for new research on the topic under study. Environmental management reflects the issues of environmental systems,

environmental impacts evidenced in RI. In this sense, the knowledge produced by the scientific community may predict future scenarios of outbreak to new diseases.

Certain limitations of this study permeate the theoretical field and do not present empirical results. However, aspects related to the quality of socio-environmental information are raised by researchers and specialists in various sciences, with dissertations from NECMA/USP, in an attempt to publish information regarding the damage caused to nature by man and society, as well as strategic actions to mitigate environmental risk.

## REFERENCES

- [1] ALMEIDA, Ribeiro de Almeida *et al.* (2004). Política e planejamento ambiental. 3ed. Rio de Janeiro, Ed. THEX.
- [2] BECK, Ulrich. Sociedade de Risco: rumo a uma outra sociedade. Tradução: Sebastião Nascimento. São Paulo: Editora 34, 2010.
- [3] BLOCHER..., *et al.* (2007). Gestão estratégica de Custos. Tradução: Ariosvaldo Griesi. São Paulo: McGraw-Hill.
- [4] CÂNDIDO, Gesinaldo Ataíde; VASCONCELOS, Ana Cecília Feitosa de.; SOUZA, Edlúcio Gomes (2010). Desenvolvimento sustentável e sistemas de indicadores de sustentabilidade: Formas de aplicações em contextos geográficos diversos e contingências específicas. Capítulo 3. Organizador: Gesinaldo Ataíde Cândido, Ed. UFPB.
- [5] CHAHROUR M, Assi S, BEJJANI, M, *et al.* (March 21, 2020). A Bibliometric Analysis of COVID-19 Research Activity: A Call for Increased Output. Cureus. 12(3): e7357. DOI 10.7759/cureus.7357.
- [6] COSTA, Carlos Alexandre Gehm da. (2012). Contabilidade Ambiental: Mensuração, Evidenciação e transparência. São Paulo: Atlas.
- [7] COSTA, Rodrigo Simão da, & MARION, José Carlos (2007). A uniformidade na evidenciação das informações ambientais. *Revista Contabilidade & Finanças*, 18(43), 20-33. Disponível em: <https://doi.org/10.1590/S1519-70772007000100003>. Acesso em 20 jun 2021.
- [8] GONÇALVES, E.P. Conversas sobre iniciação a pesquisa científica. 3.ed. Campinas: Alínea, 2003.

- [9] KAKODKAR P, Kaka N, Baig M (April 06, 2020). A Comprehensive Literature Review on the Clinical Presentation, and Management of the Pandemic Coronavirus Disease 2019 (COVID-19). *Cureus* 12(4): e7560. DOI 10.7759/cureus.7560.
- [10] ONU - *environment programme*. Disponível em: [programe https://www.unep.org/pt-br/noticias-e-reportagens/reportagem/4-odss-sao-chave-para-recuperacao-sustentavel-no-pos-covid](https://www.unep.org/pt-br/noticias-e-reportagens/reportagem/4-odss-sao-chave-para-recuperacao-sustentavel-no-pos-covid). Acesso em 19 jul. 2021.
- [11] PEREIRA, Jamilton Costa; OLIVEIRA, Marcos Macri. Diagnóstico da sustentabilidade de uma agroindústria localizada na Sub-bacia do Rio do Peixe. *Anais do 5º EIPA – Encontro Interdisciplinar da Paraíba (conexões das Ciências e Sustentabilidade)*. 2018.
- [12] PHILIPPI JR, Arlindo; BRUNA, Gilda Collet (2010). *Curso de Gestão Ambiental (Coleção Ambiental) – Arlindo Philippi Jr, 2 Edição, USP*.
- [13] ROBLES JUNIOR, Antonio; BONELLI, Valério Vitor (2010). *Gestão da qualidade e do meio ambiente*. São Paulo: Atlas.
- [14] SILVA, César Augusto Tibúrcio. *Contabilidade Financeira*. Disponível em: <https://www.contabilidade-financeira.com>. Acesso em 24 mai. 2021.
- [15] SHANK, John K.; GOVIDANRAJAN, Vijay (1997). *A Revolução dos Custos*. 2 Edição, Editora Campus. Shah K, Chaudhari G, Kamrai D, *et al.* (April 04, 2020) How Essential Is to Focus on Physician's Health and Burnout in Coronavirus (COVID-19) Pandemic?. *Cureus* 12(4): e7538. DOI 10.7759/cureus.7538.