

ENTREPRENEURSHIP AND ITS APPROACH TO SUSTAINABLE DEVELOPMENT BASED ON A CIRCULAR ECONOMY MODEL: A REVIEW

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Abstract

A documentary review was carried out on the production and publication of research papers related to the study of the variables Sustainable Development and Circular Economy. The purpose of the bibliometric analysis proposed in this document was to know the main characteristics of the volume of publications registered in the Scopus database during the period 2017-2022, achieving the identification of 482 publications in total. The information provided by this platform was organized through graphs and figures categorizing the information by the Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics have been described, the position of different authors on the proposed theme is referenced through a qualitative analysis. Among the main findings made through this research, it is found that Brazil was the Latin American country with the highest number of registrations in Scopus with a total of 249 publications referring to the analysis of entrepreneurship and its focus on Sustainable Development and the Circular Economy. The Area of Knowledge that made the greatest contribution to the study variables was Environmental Sciences with 295 published documents, and the Type of Publication that was most used during the period indicated above was the Journal Articles that represent 65% of the total scientific production.

Keywords: Entrepreneurship, Sustainable Development, Circular Economy, Latin America.

1. Introduction

The call for attention to the different environmental problems that affect the various product sectors was present in the dedicated of the

sixties, however, the transition process and the due alternative implementation of the different economic, sustainable productive models has developed very slowly. While radically

questioning the irrational use of natural resources, pollution of the ecosystem, the adverse factors of climate change and the damage to the health of humanity, a lifestyle based on the real growth of the market continues to be stimulated, which implies a considerable increase in the law of supply and demand, without taking into account that we have limited natural resources, which has triggered an environmental crisis.

The consumption and demand for services is the main activity of a capitalist society, the influence exerted by companies framed by competition. By increasing production volumes and increasing sales, it triggers the excessive use of raw materials with the sole purpose of satisfying unlimited needs by giving the consumer the sole purpose of a significant satisfaction value. In relation to the problem, the critique of a capitalist model and a consumer society, it is evident that the current economic model, the role of the consumer and the decisions of society are key to preserving the economic dynamism of an economy and the market, until today dominant.

In this sense, it is important to aim to explain the characteristics that influence the creation of new business models with a circular economy approach, and the role of the current consumer, capable of implementing new ecological markets in order to reduce environmental impacts on the planet. Based on the above, the analysis is based that identifies how current companies decide to provide a business model of a circular economy that seeks the incorporation of sustainability from the needs and purchase of new consumers who are influencing the creation of new products and services under the approach of a circular economy. For this reason, this article seeks to describe the

main characteristics of the compendium of publications indexed in Scopus database related to the variables Sustainable Development and Circular Economy, as well. As the description of the position of certain authors affiliated with institutions, during the period between 2017 and 2022.

2. General objective

Analyze from a bibliometric and bibliographic perspective, the production of research papers on the variables Sustainable Development and Circular Economy, published in high impact journals indexed in Scopus database during the period 2017-2022.

3. Methodology

Quantitative analysis of the information provided by Scopus is carried out under a bibliometric approach on the scientific production referring to the study of the variables Sustainable Development and Circular Economy from Latin American institutions. Likewise, it is analyzed from a qualitative perspective, examples of some research works published in the area of study indicated above, from a bibliographic approach to describe the position of different authors regarding the proposed topic.

The search is carried out through the tool provided by Scopus and parameters referenced in Figure 1 are established.

3.1 Methodological design

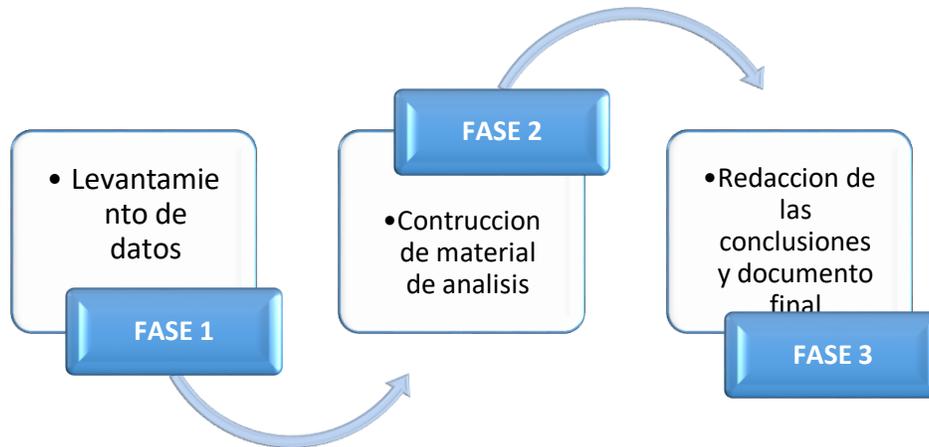


Figure 1. Methodological design

Source: Authors.

3.1.1 Phase 1: Data collection

Data collection is carried out through the Search tool on the Scopus website, through which a total of 482 publications are identified. For this purpose, search filters were established consisting of:

TITLE-ABS-KEY (sustainable AND development, AND circular AND economy) AND (LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017)) AND (LIMIT-TO (AFFILCOUNTRY , "Brazil") OR LIMIT-TO (AFFILCOUNTRY , "Mexico") OR LIMIT-TO (AFFILCOUNTRY , "Colombia") OR LIMIT-TO (AFFILCOUNTRY , "Chile") OR LIMIT-TO (AFFILCOUNTRY , "Argentina") OR LIMIT-TO (AFFILCOUNTRY , "Ecuador") OR LIMIT-TO (AFFILCOUNTRY , "Bolivia") OR LIMIT-TO (AFFILCOUNTRY , "Peru") OR LIMIT-TO (AFFILCOUNTRY , "Uruguay") OR LIMIT-TO (AFFILCOUNTRY , "Costa Rica") OR LIMIT-TO (AFFILCOUNTRY , "Cuba") OR LIMIT-TO (AFFILCOUNTRY , "Honduras") OR LIMIT-TO (AFFILCOUNTRY , "Panama") OR LIMIT-TO (AFFILCOUNTRY , "Venezuela"))

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- ✓ Published documents whose study variables are related to the study of Sustainable Development and the Circular Economy.
- ✓ Limited to Latin American countries.
- ✓ Without distinction of area of knowledge.
- ✓ Without distinction of type of publication.

3.1.2 Phase 2: Construction of analytical material

The information identified in the previous phase is organized. The classification will be made by means of graphs, figures and tables from data provided by Scopus.

- ✓ Co-occurrence of Words.
- ✓ Year of publication
- ✓ Country of origin of the publication.
- ✓ Area of knowledge.
- ✓ Type of Publication

3.1.3 Phase 3: Drafting of conclusions and outcome document

After the analysis carried out in the previous phase, we proceed to the drafting of the conclusions and preparation of the final document.

4. Results

4.1 Co-occurrence of words

Figure 2 shows the Co-occurrence of keywords within the publications identified in the Scopus database.

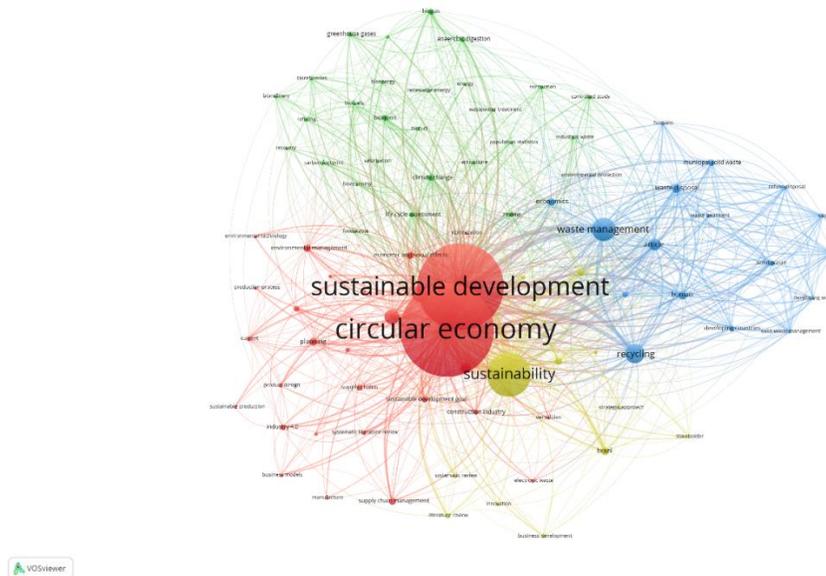


Figure 2. Co-occurrence of words

Source: Authors. (2023); based on data provided by Scopus.

Within the study of the research carried out by the Scopus platform, referring to the variable of Sustainable Development and Circular Economy, object of this scientific debt, it is counted that incorporating a circular economy in a sustainable approach to future companies with the purpose of driving consumers who are compatible with the environment, and at the same time unleash the environmental crisis in almost all areas. It is for this reason that through the interpretation of Figure 2, it is possible to determine as keywords of the publications reported in Scopus, Circular Economy, Sustainability, Sustainable Development, which the circular economy

proposes a completely different approach that allows stimulating economic growth and job creation without compromising the environment, providing a cornerstone in resilient economic recovery.

4.2 Distribution of scientific production by year of publication.

Figure 3 shows how the scientific production is distributed according to the year of publication, taking into account that the period between the years 2017 and 2022 is taken.

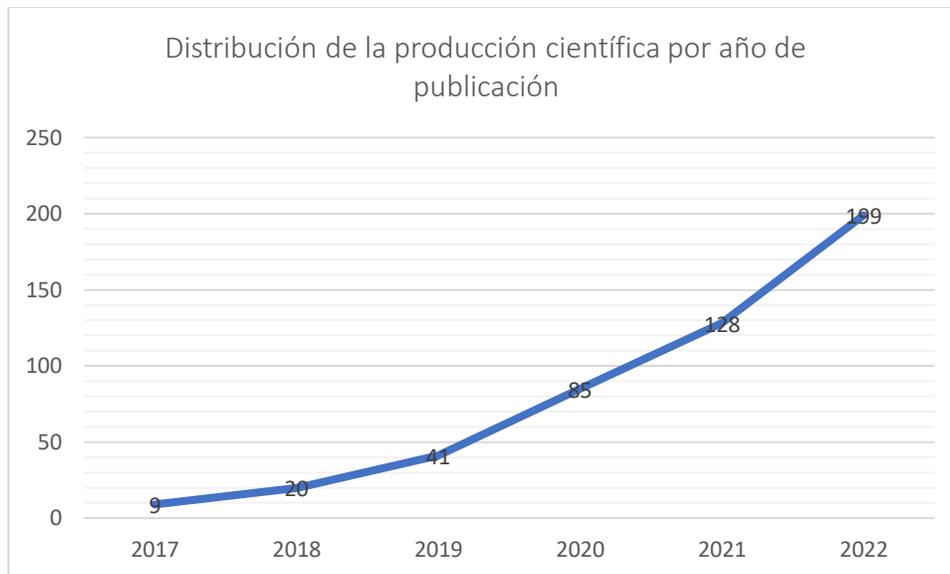


Figure 3. Distribution of scientific production by year of publication.

Source: Authors. (2023); based on data provided by Scopus.

Figure 3, shows the scientific production around the Sustainable Development and Circular Economy in the period between 2017 and 2022, where the increase in production volume in 2022 is evident, with a total of 199 publications related to keywords, among which the article called "Perspectives of a circular bioeconomy in urban ecosystems: Proposal of theoretical framework" (Paes, 2022) whose main objective explores how the alignment of the principles of EBC can support the services provided by the EU, considering its socio-ecological needs. To this end, we propose an adaptive theoretical framework supported by a qualitative and comparative analysis of the current scientific literature. The main contributions of the document are: (i) to propose an original structure using the concept of nature-based solutions (NBS)

as background and (ii) to provide a new typology built from the biophysical limits, drivers, barriers, strategies and indicators identified. The framework is presented as an instrument capable of guiding future research in the thematic area, facilitating the identification of trade-offs, benefits and co-benefits, and represents a step forward in the search for generalization, reducing uncertainties and utopian notions that shape CBE.

4.3 Distribution of scientific production by country of origin.

Figure 4 shows how all the publications registered in Scopus are distributed according to the country of origin of the Latin American institutions.



Figure 4. Distribution of scientific production by country of origin

Source: Authors. (2023); based on data provided by Scopus

Brazil was the Latin American country with the highest number of publications registered in Scopus regarding Sustainable Development and Circular Economy during the period 2017-2021 with a total of 249 publications, followed by Mexico with 68 registrations and Colombia with 57. Of the latter, the article entitled "Innovation in green marketing: opportunities from an analysis of environmental education in young consumers" stands out. (Prieto-Sandoval, 2022) This research aims to understand the educational effects of non-compulsory university courses linked to sustainability and the circular economy (ECS) on the motivations and behavior of students. We analyze students' propensity to consume products and develop more sustainable habits before and after enrolling in SCE courses. The results confirm that the courses impacted students' propensities towards sustainable consumption. Therefore, the biggest changes in the six dimensions underlying green consumption reveal four key recommendations for developing a green

marketing strategy. We encourage companies to 1) engage in green education, 2) create a community, 3) be aware of consumer diversity, and 4) not differentiate by gender. For this reason, we argue that college education can greatly influence students' mindsets regarding sustainable behavior. The results also revealed no significant gender differences, which contrasts with the differentiated behavior found in existing studies in older populations.

4.4 Distribution of scientific production by area of knowledge

Next, it is shown in Figure 5, how the production of scientific publications is distributed according to the area of knowledge through which the different research methodologies are executed.

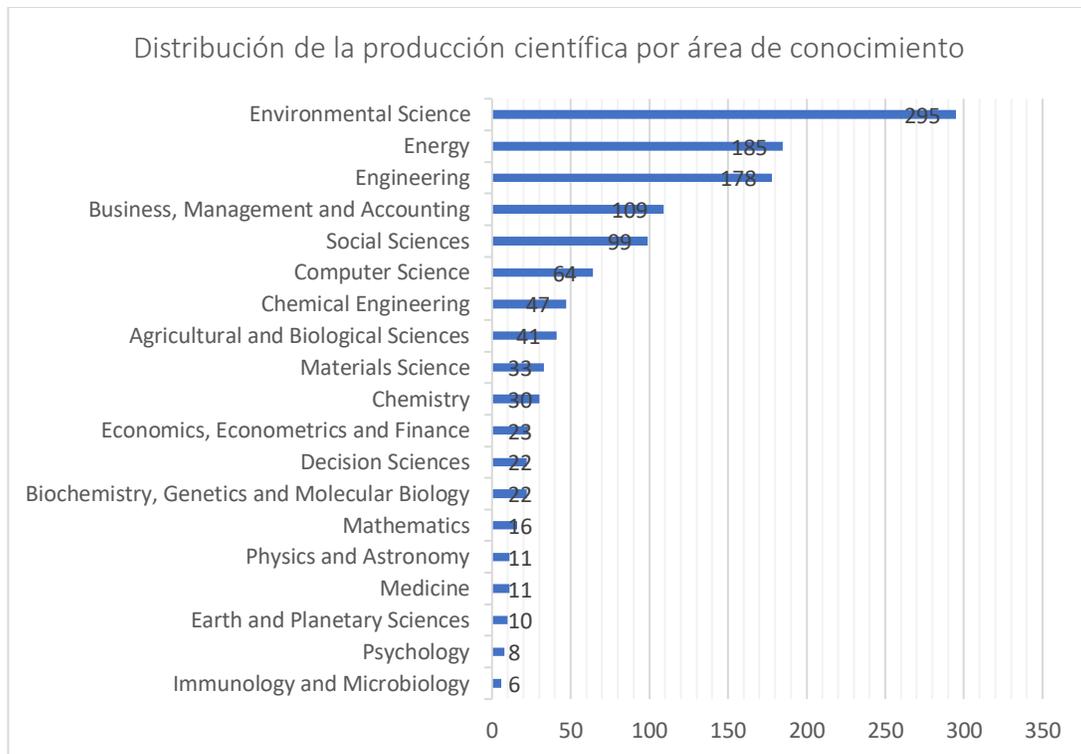


Figure 5. Distribution of scientific production by area of knowledge.

Source: Authors. (2023); based on data provided by Scopus.

Environmental Science was the area of knowledge with the highest number of publications registered in Scopus with a total of 295 documents that have based their methodologies on the impact of Sustainable Development and Circular Economy. Secondly, Energy with 185 documents. The above can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by the Environmental Science area entitled "Zero waste management and sustainable consumption: a comprehensive bibliometric mapping analysis" (Valenzuela-Fernández, 2022) This research aims to provide a global perspective on scientific research on zero waste management and sustainable consumption by identifying years of evolution, the most relevant and influential keywords, articles, journals, universities, countries and authors. This research examines 2534 publications from the Web of Science core

collection from 2011 to 2021. Numerous bibliometric indexes, including number of publications, h-index and citation requirements, have been used as evaluation techniques. Additionally, a relational technique has been developed through graphic maps using the VOS viewer software. The results show a growing trend in the number of publications and citations of zero waste management. Regarding the h-index, the five most relevant journals are Journal of Cleaner Production, Resources Conservation and Recycling, Waste Management, Waste Management Research and Sustainability.

4.5 Type of publication

Figure 6 shows how the bibliography production is distributed according to the type of publication chosen by the authors.

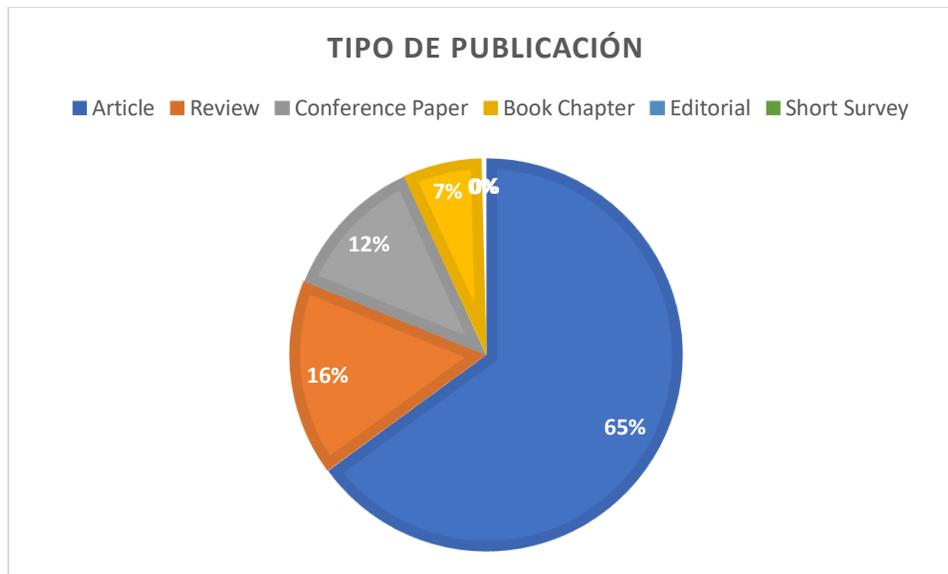


Figure 6. Type of publication

Source: Authors. (2023); based on data provided by Scopus.

The type of publication most frequently used by Latin American researchers was the Article; 65% of the total scientific production corresponds to this type of document. Secondly, Revisions with 16% and Session Papers with 12%. In this last category, the one entitled "Evaluation of the Degree of Sustainable Resilience of the textile industry by size: Incremental change in cleaner production practices considering the circular economy" stands out, this study aims to evaluate the degree of sustainable resilience by the size of the textile industry to drive incremental changes in cleaner production practices considering the circular economy (by Oliveira Neto, 2022). The research method adopted was a survey with 100 responses and data analysis using ANOVA. The theoretical contribution of this study was to assess the sustainable resilience of the textile industry by considering its size to drive an incremental change in cleaner production practices considering the circular economy. For example, it was found that the degree of sustainable resilience of companies is related to the environmental requirements of the market in which they operate. Important practical conclusions were presented that can help shareholders and managers when trying to supply the foreign market; Guidance needed on investment in circular economy actions in

production, small and medium-sized textile enterprises would require government subsidies for investment in product and process projects with circular economy principles

5. Conclusions

Through the bibliometric analysis carried out in this research work, it was established that Brazil was the country with the highest number of records published for the Sustainable Development and Circular Economy variables with a total of 249 publications in the Scopus database during the period 2017-2021. In the same way, it was established that the application of theories framed in the area of Environmental Sciences, were the most frequently used in the measurement of the impact of the circular economy for sustainable development at the business level, these challenges and changes will lead companies to the generation of new business models aimed at a circular economy. In this sense we could highlight that consumers print a strong bias for the transition of new sustainable and circular models, however, the situation of a changing environment will force companies to modify their production models. Obviously the

role played by business marketing has been of great importance in the processes of innovation in different production models, its ability to understand and analyze reality and perceive the needs of consumers allows them to offer solutions to various problems and alternatives, since with the help of marketing needs are evidenced previously not identified by the consumer. However, context plays a fundamental role in all kinds of decisions people make, including purchase. In this sense, the evident and irreversible environmental crisis, as well as the ICT era, determine the decisions for a process of transformation in the habits and lifestyle of people and consumers, particularly in the generation of young people who in turn implement other business models with a circular economic approach.

References

- [1] by Oliveira Neto, G. C. (2022). Evaluation of the *Degree of Sustainable Resilience of the textile industry by size: Incremental change in cleaner production practices considering the circular economy*. Sao Paulo.
- [2] Paes, L. A. (2022). *Perspectives of a circular bioeconomy in urban ecosystems: Proposal of theoretical framework*. Sao Paulo.
- [3] Prieto-Sandoval, V. T.-G.-D. (2022). *Innovation in green marketing: opportunities from an analysis of environmental education in young consumers*. Bogota.
- [4] Valenzuela-Fernández, L. E.-F. (2022). *Zero waste management and sustainable consumption: a comprehensive bibliometric mapping analysis*. Santiago de Chile .
- [5] Aguilar, M. G., Jaramillo, J. F., Ddiba, D., Páez, D. C., Rueda, H., Andersson, K., & Dickin, S. (2022). Governance challenges and opportunities for implementing resource recovery from organic waste streams in urban areas of latin america: Insights from chía, colombia. *Sustainable Production and Consumption*, 30, 53-63. doi:10.1016/j.spc.2021.11.025
- [6] Aguilar-Murguía, D. M., Martínez-Guido, S. I., García-Trejo, J. F., Hernández, S., & Gutiérrez-Antonio, C. (2022). Optimal configuration of a biodiesel production network using oil from black soldier fly larvae doi:10.1016/B978-0-323-95879-0.50151-X Retrieved from www.scopus.com
- [7] Aguilar-Rivera, N. (2022). Bioindicators for the sustainability of sugar agro-industry. *Sugar Tech*, 24(3), 651-661. doi:10.1007/s12355-021-01105-z
- [8] Aguiñaga, E., Henriques, I., Scheel, C., & Scheel, A. (2018). Building resilience: A self-sustainable community approach to the triple bottom line. *Journal of Cleaner Production*, 173, 186-196. doi:10.1016/j.jclepro.2017.01.094
- [9] Akram, S. V., Malik, P. K., Singh, R., Gehlot, A., Juyal, A., Ghafoor, K. Z., & Shrestha, S. (2022). Implementation of digitalized technologies for fashion industry 4.0: Opportunities and challenges. *Scientific Programming*, 2022 doi:10.1155/2022/7523246
- [10] Alanya-Beltran, J., Hassan, A. M. M., Bag, A., Debnath, M., & Bora, A. (2022). Critical analysis of intelligent IoT in creating better smart waste management and recycling for sustainable development doi:10.1007/978-3-031-07012-9_19 Retrieved from www.scopus.com
- [11] Albuquerque, A. R. L., Merino, A., Angélica, R. S., Omil, B., & Paz, S. P. A. (2022). Performance of ash from amazonian biomasses as an alternative source of essential plant nutrients: An integrated and eco-friendly strategy for industrial waste management in the lack of raw fertilizer materials. *Journal of Cleaner Production*, 360 doi:10.1016/j.jclepro.2022.132222
- [12] Alejandrino, C., Mercante, I., & Bovea, M. D. (2021). Life cycle sustainability assessment: Lessons learned from case studies. *Environmental Impact Assessment Review*, 87 doi:10.1016/j.eiar.2020.106517
- [13] Alejandrino, C., Mercante, I. T., & Bovea, M. D. (2022). Combining O-LCA and O-LCC to support circular economy strategies in organizations: Methodology and case study. *Journal of Cleaner Production*, 336 doi:10.1016/j.jclepro.2022.130365

- [14] Ali, S. H., & Puppim De Oliveira, J. A. (2018). Pollution and economic development: An empirical research review. *Environmental Research Letters*, 13(12) doi:10.1088/1748-9326/aeea7
- [15] Ali, S. S., Al-Tohamy, R., Mohamed, T. M., Mahmoud, Y. A. -, Ruiz, H. A., Sun, L., & Sun, J. (2022). Could termites be hiding a goldmine of obscure yet promising yeasts for energy crisis solutions based on aromatic wastes? A critical state-of-the-art review. *Biotechnology for Biofuels and Bioproducts*, 15(1) doi:10.1186/s13068-022-02131-z
- [16] Ali, S. S., Elsamahy, T., Abdelkarim, E. A., Al-Tohamy, R., Kornaros, M., Ruiz, H. A., . . . Sun, J. (2022). Biowastes for biodegradable bioplastics production and end-of-life scenarios in circular bioeconomy and biorefinery concept. *Bioresource Technology*, 363 doi:10.1016/j.biortech.2022.127869
- [17] Alvarez-Risco, A., Del-Aguila-Arcentales, S., Villalobos-Alvarez, D., & Diaz-Risco, S. (2022). Leadership for sustainability in crisis time doi:10.1007/978-981-19-0549-0_3 Retrieved from www.scopus.com
- [18] Amorim Junior, S. S., Hwa Mazucato, V. S., Machado, B. D. S., de Oliveira Guilherme, D., Brito da Costa, R., & Correa Magalhães Filho, F. J. (2021). Agronomic potential of biosolids for a sustainable sanitation management in brazil: Nutrient recycling, pathogens and micropollutants. *Journal of Cleaner Production*, 289 doi:10.1016/j.jclepro.2020.125708
- [19] Amorim Júnior, S. S. D., Pereira, M. A. D. S., Lima, P. D. M., Marishigue, M., Guilherme, D. D. O., & Magalhães Filho, F. J. C. (2021). Evidences on the application of biosolids and the effects on chemical characteristics in infertile tropical sandy soils. *Cleaner Engineering and Technology*, 4 doi:10.1016/j.clet.2021.100245
- [20] Ampese, L. C., Sganzerla, W. G., Di Domenico Ziero, H., Mudhoo, A., Martins, G., & Forster-Carneiro, T. (2022). Research progress, trends, and updates on anaerobic digestion technology: A bibliometric analysis. *Journal of Cleaner Production*, 331 doi:10.1016/j.jclepro.2021.130004
- [21] Anacleto, T. M., Oliveira, H. R., da Silva, C. F. C., Calegari, R. P., Rocha, M. E., Figueira, T. A., . . . Enrich-Prast, A. (2022). ANAEROBIC DIGESTION AS A TOOL TO REDUCE ANTHROPOGENIC IMPACTS ON AQUATIC ECOSYSTEMS. *Oecologia Australis*, 26(2), 169-186. doi:10.4257/oeco.2022.2602.07
- [22] Anacleto, T. M., Oliveira, H. R., Diniz, V. L., de Oliveira, V. P., Abreu, F., & Enrich-Prast, A. (2022). Boosting manure biogas production with the application of pretreatments: A meta-analysis. *Journal of Cleaner Production*, 362 doi:10.1016/j.jclepro.2022.132292
- [23] Andrade, R. O., & Yoo, S. G. (2019). A comprehensive study of the use of LoRa in the development of smart cities. *Applied Sciences (Switzerland)*, 9(22) doi:10.3390/app9224753
- [24] Araoz, M. E., Marcial, A. F., Trejo Gonzalez, J. A., & Avila, A. M. (2021). Renewable and electroactive biomass-derived tubes for CO2Capture in agroindustrial processes. *ACS Sustainable Chemistry and Engineering*, 9(23), 7759-7768. doi:10.1021/acssuschemeng.1c00547
- [25] Araújo, M. F. R. S., Lima, P. C., Cardoso, C. C., & Pasa, V. M. D. (2020). Biocrude production from sugarcane bagasse and ethanol over green catalysts based on shellfish waste. *Journal of Cleaner Production*, 277 doi:10.1016/j.jclepro.2020.123709
- [26] Arekrans, J., Sopjani, L., Laurenti, R., & Ritzén, S. (2022). Barriers to access-based consumption in the circular transition: A systematic review. *Resources, Conservation and Recycling*, 184 doi:10.1016/j.resconrec.2022.106364
- [27] Arruda, E. H., Melatto, R. A. P. B., Levy, W., & Conti, D. D. M. (2021). Circular economy: A brief literature review (2015–2020). *Sustainable Operations and*

- Computers, 2, 79-86. doi:10.1016/j.susoc.2021.05.001
- [28] Aschemann-Witzel, J., & Stangherlin, I. D. C. (2021). Upcycled by-product use in agri-food systems from a consumer perspective: A review of what we know, and what is missing. *Technological Forecasting and Social Change*, 168 doi:10.1016/j.techfore.2021.120749
- [29] Ashby, A., Callegaro, A. M., Adeyeye, K., & Granados, M. (2019). The spiral economy: A socially progressive circular economy model? doi:10.1007/978-3-030-15066-2_5 Retrieved from www.scopus.com
- [30] Aznar-Sánchez, J. A., Piquer-Rodríguez, M., Velasco-Muñoz, J. F., & Manzano-Agugliaro, F. (2019). Worldwide research trends on sustainable land use in agriculture. *Land Use Policy*, 87 doi:10.1016/j.landusepol.2019.104069
- [31] Bacovis, M. M. C., Nascimento-e-Silva, D., Borchardt, M., & Antônio de Melo, P. (2020). Framework proposal to organize sustainability strategies towards a transition to the circular economy. Paper presented at the Springer Proceedings in Mathematics and Statistics, , 337 257-272. doi:10.1007/978-3-030-56920-4_21 Retrieved from www.scopus.com
- [32] Banguera, L., Lucio, E., Duran, C., Fuentealba, D., Hidalgo, J., & Carrasco, R. (2021). Academic perspective on the sustainable supply chain. Paper presented at the 2021 IEEE CHILEAN Conference on Electrical, Electronics Engineering, Information and Communication Technologies, CHILECON 2021, doi:10.1109/CHILECON54041.2021.9703080 Retrieved from www.scopus.com
- [33] Barcelos, S. M. B. D., Salvador, R., Barros, M. V., de Francisco, A. C., & Guedes, G. (2021). Circularity of brazilian silk: Promoting a circular bioeconomy in the production of silk cocoons. *Journal of Environmental Management*, 296 doi:10.1016/j.jenvman.2021.113373
- [34] Barone, A. S., Matheus, J. R. V., de Souza, T. S. P., Moreira, R. F. A., & Fai, A. E. C. (2021). Green-based active packaging: Opportunities beyond COVID-19, food applications, and perspectives in circular economy—A brief review. *Comprehensive Reviews in Food Science and Food Safety*, 20(5), 4881-4905. doi:10.1111/1541-4337.12812
- [35] Barragán-Ocaña, A., Silva-Borjas, P., & Olmos-Peña, S. (2021). Scientific and technological trajectory in the recovery of value-added products from wastewater: A general approach. *Journal of Water Process Engineering*, 39 doi:10.1016/j.jwpe.2020.101692
- [36] Barraza, R., Sepúlveda, J. M., & Derpich, I. (2022). Location of the intermediate echelon to add purchase value and sustainability criteria in a mining supply network. *Sustainability (Switzerland)*, 14(19) doi:10.3390/su141912920
- [37] Barrios-Rodríguez, Y. F., Salas-Calderón, K. T., Orozco-Blanco, D. A., Gentile, P., & Girón-Hernández, J. (2022). Cocoa pod husk: A high-pectin source with applications in the food and biomedical fields. *ChemBioEng Reviews*, 9(5), 462-474. doi:10.1002/cben.202100061
- [38] Barros, M. V., Salvador, R., de Francisco, A. C., & Piekarski, C. M. (2020). Mapping of research lines on circular economy practices in agriculture: From waste to energy. *Renewable and Sustainable Energy Reviews*, 131 doi:10.1016/j.rser.2020.109958
- [39] Barros, M. V., Salvador, R., do Prado, G. F., de Francisco, A. C., & Piekarski, C. M. (2021). Circular economy as a driver to sustainable businesses. *Cleaner Environmental Systems*, 2 doi:10.1016/j.cesys.2020.100006
- [40] Batista-Barwinski, M. J., Venturieri, G. A., Miller, P. R. M., Testolin, R. C., Niero, G., Somensi, C. A., . . . Cotellet, S. (2022). Swine slaughterhouse biowaste: An environmental sustainability assessment of composting, amended soil quality, and phytotoxicity. *Environmental Technology (United Kingdom)*, doi:10.1080/09593330.2022.2143291

- [41] Batlles-delaFuente, A., Abad-Segura, E., González-Zamar, M. -, & Cortés-García, F. J. (2022). An evolutionary approach on the framework of circular economy applied to agriculture. *Agronomy*, 12(3) doi:10.3390/agronomy12030620
- [42] Becerra, L., Carenzo, S., & Juarez, P. (2020). When circular economy meets inclusive development. insights from urban recycling and rural water access in argentina. *Sustainability (Switzerland)*, 12(23), 1-21. doi:10.3390/su12239809
- [43] Beermann, K., & Austin, M. C. (2021). An inspection of the life cycle of sustainable construction projects: Towards a biomimicry-based road map integrating circular economy. *Biomimetics*, 6(4) doi:10.3390/biomimetics6040067
- [44] Bejarano, P. -. C., Rodriguez-Miranda, J. -, Maldonado-Astudillo, R. I., Maldonado-Astudillo, Y. I., & Salazar, R. (2022). Circular economy indicators for the assessment of waste and by-products from the palm oil sector. *Processes*, 10(5) doi:10.3390/pr10050903
- [45] Belmonte-Ureña, L. J., Plaza-Úbeda, J. A., Vazquez-Brust, D., & Yakovleva, N. (2021). Circular economy, degrowth and green growth as pathways for research on sustainable development goals: A global analysis and future agenda. *Ecological Economics*, 185 doi:10.1016/j.ecolecon.2021.107050
- [46] Benachio, G. L. F., Freitas, M. D. C. D., & Tavares, S. F. (2021). Interactions between lean construction principles and circular economy practices for the construction industry. *Journal of Construction Engineering and Management*, 147(7) doi:10.1061/(ASCE)CO.1943-7862.0002082
- [47] Berardi, P. C., Betiol, L. S., & Dias, J. M. (2020). Food waste and circular economy through public policies: Portugal & brazil. Paper presented at the Wastes: Solutions, Treatments and Opportunities III - Selected Papers from the 5th International Conference Wastes: Solutions, Treatments and Opportunities, 2019, 99-105. doi:10.1201/9780429289798-16 Retrieved from www.scopus.com
- [48] Bertassini, A. C., Calache, L. D. D. R., Carpinetti, L. C. R., Ometto, A. R., & Gerolamo, M. C. (2022). CE-oriented culture readiness: An assessment approach based on maturity models and fuzzy set theories. *Sustainable Production and Consumption*, 31, 615-629. doi:10.1016/j.spc.2022.03.018
- [49] Bertassini, A. C., Ometto, A. R., Severengiz, S., & Gerolamo, M. C. (2021). Circular economy and sustainability: The role of organizational behaviour in the transition journey. *Business Strategy and the Environment*, 30(7), 3160-3193. doi:10.1002/bse.2796
- [50] Bertolini, T. C. R., Fungaro, D. A., & Mahmoud, A. E. D. (2022). The influence of separately and combined bentonite and kaolinite as binders for pelletization of NaA zeolite from coal fly ash. *Ceramica*, 68(387), 375-384. doi:10.1590/0366-69132022683873322
- [51] Betancourt Morales, C. M., & Zartha Sossa, J. W. (2020). Circular economy in latin america: A systematic literature review. *Business Strategy and the Environment*, 29(6), 2479-2497. doi:10.1002/bse.2515
- [52] Bianchini, A., Guarnieri, P., & Rossi, J. (2022). A framework to assess social indicators in a circular economy perspective. *Sustainability (Switzerland)*, 14(13) doi:10.3390/su14137970
- [53] Bigolin, M., De Moura Ferreira Danilevicz, A., & Da Silva Filho, L. C. P. (2017). Sustainability requirements for concrete block elements based on recycled CDW: A case study for supporting social production in southern brazil. Paper presented at the PICMET 2016 - Portland International Conference on Management of Engineering and Technology: Technology Management for Social Innovation, Proceedings, 2413-2419. doi:10.1109/PICMET.2016.7806800 Retrieved from www.scopus.com
- [54] Boloy, R. A. M., da Cunha Reis, A., Rios, E. M., de Araújo Santos Martins, J., Soares, L. O., de Sá Machado, V. A., & de Moraes, D.

- R. (2021). Waste-to-energy technologies towards circular economy: A systematic literature review and bibliometric analysis. *Water, Air, and Soil Pollution*, 232(7) doi:10.1007/s11270-021-05224-x
- [55] Bonato, S. V., Augusto de Jesus Pacheco, D., Schwengber ten Caten, C., & Caro, D. (2022). The missing link of circularity in small breweries' value chains: Unveiling strategies for waste management and biomass valorization. *Journal of Cleaner Production*, 336 doi:10.1016/j.jclepro.2021.130275
- [56] Bonfante, M. C., Raspini, J. P., Fernandes, I. B., Fernandes, S., Campos, L. M. S., & Alarcon, O. E. (2021). Achieving sustainable development goals in rare earth magnets production: A review on state of the art and SWOT analysis. *Renewable and Sustainable Energy Reviews*, 137 doi:10.1016/j.rser.2020.110616
- [57] Borges de Oliveira, K., & de Oliveira, O. J. (2022). Making hospitals sustainable: Towards greener, fairer and more prosperous services. *Sustainability (Switzerland)*, 14(15) doi:10.3390/su14159730
- [58] Bortoli, M., Hollas, C. E., Cunha, A., Steinmetz, R. L. R., Coldebella, A., de Prá, M. C., . . . Kunz, A. (2022). Water reuse as a strategy for mitigating atmospheric emissions and protecting water resources for the circularity of the swine production chain. *Journal of Cleaner Production*, 345 doi:10.1016/j.jclepro.2022.131127