INTERNATIONAL JOURNAL OF INDUSTRIAL MANAGEMENT
ISSN: 2289-9286 e-ISSN: 0127-564X
VOLUME 17, ISSUE 1, 2023, 32 – 39
DOI: https://doi.org/10.15282/ijim.17.1.2023.9211

REVIEW ARTICLE

CIRCULAR ECONOMY SUPPLY CHAIN FOR SUSTAINABLE DEVELOPMENT GOALS (SDGS): A REVIEW AND FUTURE OPPORTUNITIES

Ivan Kurniawan[1,2*] and Yudi Fernando[1]

[1]Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia
[2]Faculty of Industrial Engineering, Swiss German University, Pinang, 15143 Tangerang, Kota Tangerang, Banten, Indonesia

ABSTRACT - The issue of sustainability has escalated over the years as the growing concern of world resources that have begun to deplete. Hence, the United Nations (UN) adopted the sustainability 2030 agenda with 17 sustainable development goals (SDGs) to pursue economic, environmental, and social objectives. One of the most prominent concepts to achieve sustainability is circular economy supply chain (CESC). The basic idea of CESC is a system that aims to eliminate waste and preserves natural resources by keeping materials in use and a regenerative natural system. Therefore, the purpose of this paper is to examine the connection between CESC and SDGs as well as the opportunities for research in the future. A systematic literature review on the CESC for SDGs is carried out. There is a significant increase in studies associated with the implementation of CESC to achieve SDGs. The results show that CESC contributes significantly to SDG 2, SDG 8, and SDG 12. Another finding is that technologies could assist CESC practices. CESC implementation for achieving SDGs is not only for big enterprises but also for small and medium enterprises (SMEs). Discussions related to social aspects are less often carried out than from economic and environmental aspects. Future opportunities have been identified for four industrial sectors: manufacturing, agriculture, waste management, and natural resources.

ARTICLE HISTORY
Received : 25-10-2022
Revised : 1-11-2022
Accepted : 3-11-2022
Published : 27-3-2023

KEYWORDS
Circular Economy
Supply Chain Management
Sustainable Development Goals

INTRODUCTION

The sustainability concept has become an emerging issue that attracted academicians and practitioners' attention around the world. The concept of sustainability covered a lot of issues such as environmental (including policies that directly impact environmental management), production and manufacturing, and many other issues (Ruggerio, 2021). The fundamental sustainability concept is based on three interoperating pillars that have the triple bottom line (TBL) as the foundation (Ranjbari et al., 2021). Sustainable development implementation required TBL as a tool to assist and systematize the concept. The three pillars of sustainability associated with the integration of society, environment, and economy are three pillars commensurate with each other. The main goal of sustainability is to enhance human lives within the social, environmental, and economic aspects, which can benefit current and future generations (Geissdoerfer, Savaget, Bocken, & Hultink, 2017).

In 2015, the UN General Assembly launched SDGs as part of the 2030 agenda with an effort of enhancing world sustainable development. SDGs offer a wide and holistic framework that incorporates economic, social, and environmental objectives to enable integrated and collaborative approaches to their implementation to achieve prosperity, peace, and partnership. SDGs were developed to address the TBL of sustainability. The concept of SDGs can be applied to various fields and sectors. Thus, ever since the introduction and approval of the UN 2030 agenda, academics and practitioners have been working collaboratively and intensively to research the possible SDGs implementation techniques.

There are many ways to achieve sustainable development goals. One of the ways is by implementing circular economy (CE) practices (Schroeder, Anggraeni, & Weber, 2019). CE is an economic system of closed loops in which raw materials, components, and products lose their value as little as possible, renewable energy sources are used and systems thinking is at the core (Korhonen, Nuur, Feldmann, & Birkie, 2018; Morales & Belmonte-Urena, 2021). CE practices are not only performed only in manufacturing or municipal waste management, but also in other sectors such as agriculture, forestry, and energy (Fernando, Tseng, Aziz, Ikhsan, & Wahyuni-TD, 2022). Engineering principles also support CE concepts such as performance economy and industrial ecology. The practices of CE are aligned with sustainable development. The previous study by Kirchherr, Reike, and Hekkert (2017) has identified 114 CE definitions. Of the 114 CE definitions, 95 definitions focus on at least one of the three sustainability pillars. According to Kirchherr et al. (2017), 40% of the circular economy definition is focused on economic pillars, 40% focused on the environmental pillar, and the rest of the 20% focused on the social pillar.

*CORRESPONDING AUTHOR | I. Kurniawan | ✉ ivankurniawanofficial@gmail.com

Despite the frequent association of CE with sustainability, most CE practices have yet to reach a consensus on how it contributes to achieving Sustainable Development Goals (SDGs) (Walker et al., 2021). There have been several studies linked between CE and SDGs. For instance, the study conducted by Schroeder et al. (2019) discusses the linkage between CE and SDGs. A study by Dantas et al. (2021) discusses the impact of circular economy and industry 4.0 on SDGs, and Nikolaou, Jones, and Stefanakis, (2021) explored the relationship, similarities, and differences between CE and sustainability in engineering and management scientific fields. Nikolaou et al. (2021) also argued that the recent literature emphasizes that the problems in CE and sustainability are not using a systematic approach and analysis.

CE concept often incorporates Supply Chain (SC) practices with the goal of solving sustainability issues. Implementation of CE in SC gives significant benefits not only in the terms of profit increment, but also in other sustainability issues, particularly the environmental perspectives (e.g., reduction of carbon emission) (Mohammed, Hassan, & Selim, 2021). CESC is, in essence, SCM based on the CE concept. Green Supply Chain Management (GSCM) (Kumar et al, 2022; Pohlmann et al, 2020), Circular Supply Chain (CSC) (Zhang et al, 2021), Sustainable Supply Chain (SSC) (Fernando, Shaharudin, & Abideen, 2022), and Closed-Loop Supply Chain (CLSC) (Gan et al, 2019; Wang et al, 2021) are several concepts based on the combination of CE and SCM (De Angelis, Howard, & Miemczyk, 2018). However, there are still few studies that discuss the influence of CESC on SDGs. It is worth exploring how CESC concepts would give benefit to sustainability, especially SDGs. Another important aspect that needs to be discussed is that previous studies are very broad in the terms of sectors that implemented CESC practices. Therefore, the type of industry that is an opportunity for the implementation of CESC to achieve the SDGs also needs to be explored.

This paper aims to examine the correlation between CESC and SDGs by using a systematic literature review. Definitions and classifications of CESC are elaborated and explored based on the relevant literature review. The SDGs that can possibly be achieved by implementing CESC is also identified. Several future opportunities regarding CESC implementation for achieving SDGs are elaborated. The field and sector that become an opportunity for cooperating with CESC and SDGs are also covered.

The rest of this paper is organized as follows. Section 1 gives a short introduction to sustainability, how sustainability issues become international agenda, and the previous study regarding CESC practices and SDGs. Section 2 discusses relevant literature review regarding sustainable development goals and circular economy supply chain. Section 3 details the research method, analysis methods, and data gathering. Section 4 describes the findings from the article's search. Section 5 is the discussion of the findings and section 6 is the conclusion and future recommendations.

METHODOLOGY

The research is focused on the growing trends of circular economy supply chains and sustainable development goals. There has been a substantial number of papers in the current literature exploring CESC related to sustainability and SDGs. However, the connection between CESC and SDGs still remains to be explored and requires attention. Therefore, a systematic literature review is conducted in this study. The methodology is divided into three phases. The first phase is the identification phase where previous studies and articles are being explored. Since the main focus of this study is to explore the connection between CESC and SDGs, the search strings used for the search process in the Web of Science database are "circular economy" AND "supply chain" AND "sustainable development goals". In addition, Santini (2018) suggested that in order to indicate a fully updated literature review, the recent references being used should be no more than 5 years. Therefore, the search was limited to the years 2018 – 2022. In the preliminary search, there were 144 sets of items as the result.

The second phase is screening in which only published full articles and scientific publications were used in this study, thus resulting in 111 sets of items. After that, eligibility of the articles was conducted by abstract and keyword identification from each of the articles to uphold the context of the research topic.

The third phase is analysis and conclusion. This is where reviewed articles that have passed the screening process would be analyzed. Descriptive analyses were used to visualize and analyze the growing trends of CESC and SDGs, categories of publications, publication journal titles, and publication subject areas. Then, the contents of the articles are explored to discover which of the SDGs could be achieved by CESC implementation, as well as the industry's future trends and opportunities.

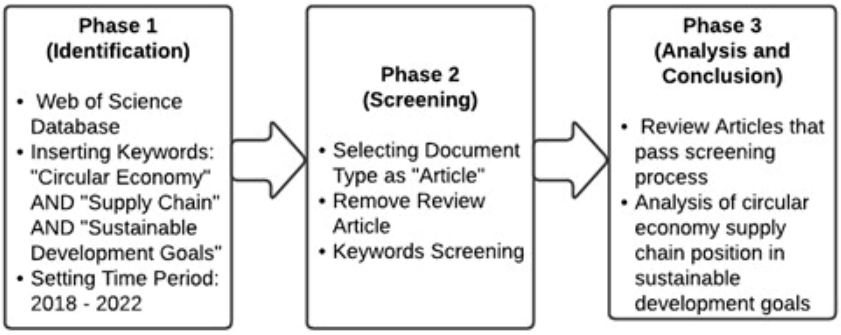

Figure 1. Research methodology

RESULTS

Descriptive Analysis

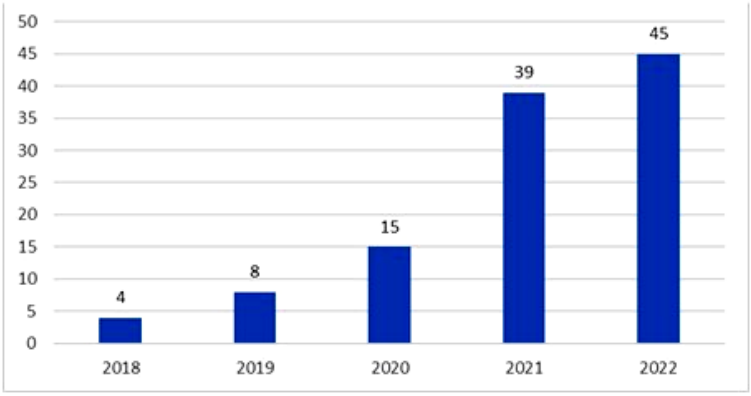

Figure 2. Number of publications (2018 – 2022)

The result from the database search from the web of science shows that there is a growing trend of articles related to the circular economy supply chain and sustainable development goals. Figure 2 shows the uptrend of the paper published. In the year 2022, there are 45 articles published, the highest from the year 2018 – 2022. This indicates that there is a strong upward trend of interest in the fields of both CESC and SDGs.

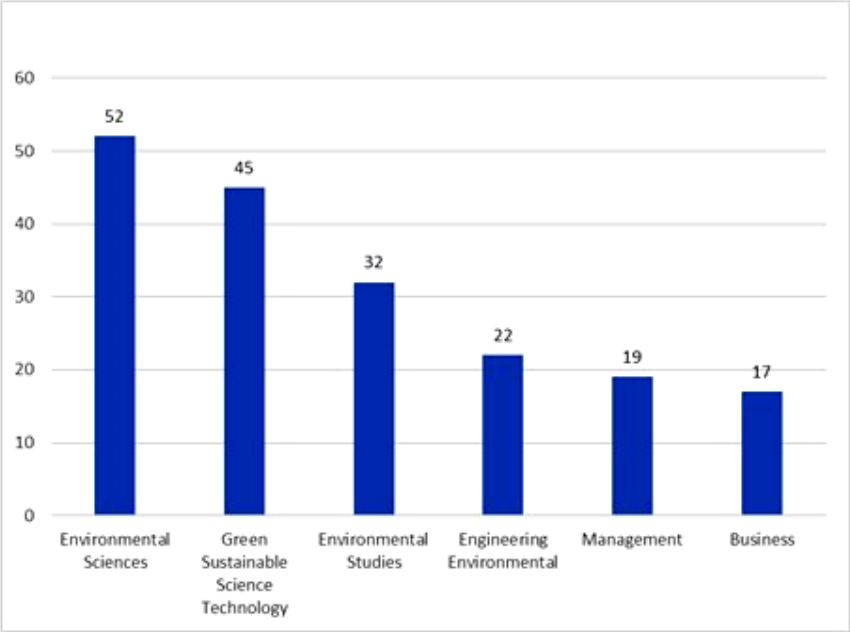

Figure 3. Publication distribution based on categories

Figure 3 describes the 6 highest categories of published articles related to the circular economy supply chain and sustainable development goals. Most of the categories are related to environmental studies (including engineering and

sciences), green sustainable science technologies, management, and business. Each article might have been classified into more than one category.

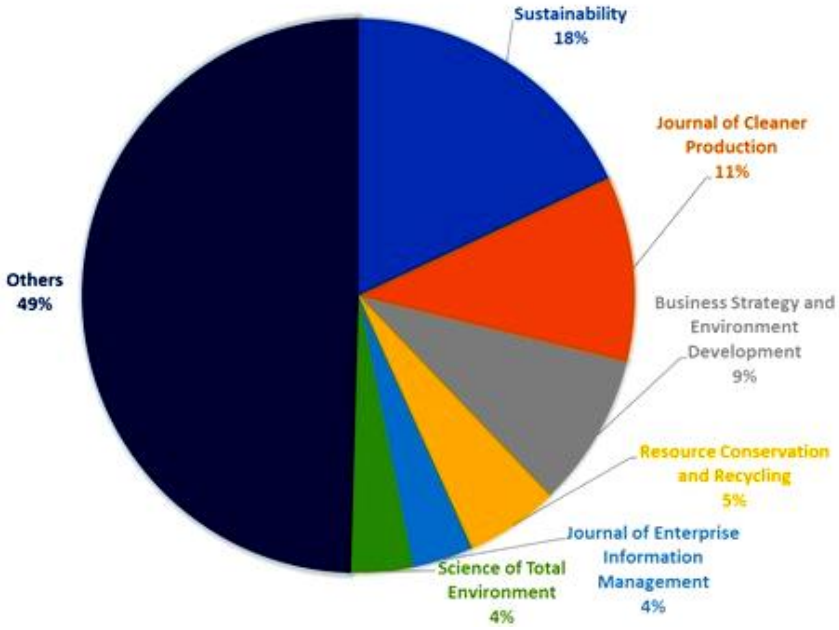

Figure 4. Publication distribution based on journal titles

The 111 articles were published in 50 different journals. Figure 4 shows the seven journals that published the highest number of articles related to the circular economy supply chain and sustainable development goals. Sustainability has 20 related published articles which is the highest number. Second is the Journal of Cleaner Production (12 articles). The third one is Business Strategy and Environment Development with 10 articles, followed by Resource Conservation and Recycling (6 articles), Journal of Enterprise Information Management (4 Articles), and Science of Total Environment (4 Articles). It appeared that the main sources with the most articles published were associated with environmental, economic, and social perspectives which aligned with the concept of sustainability.

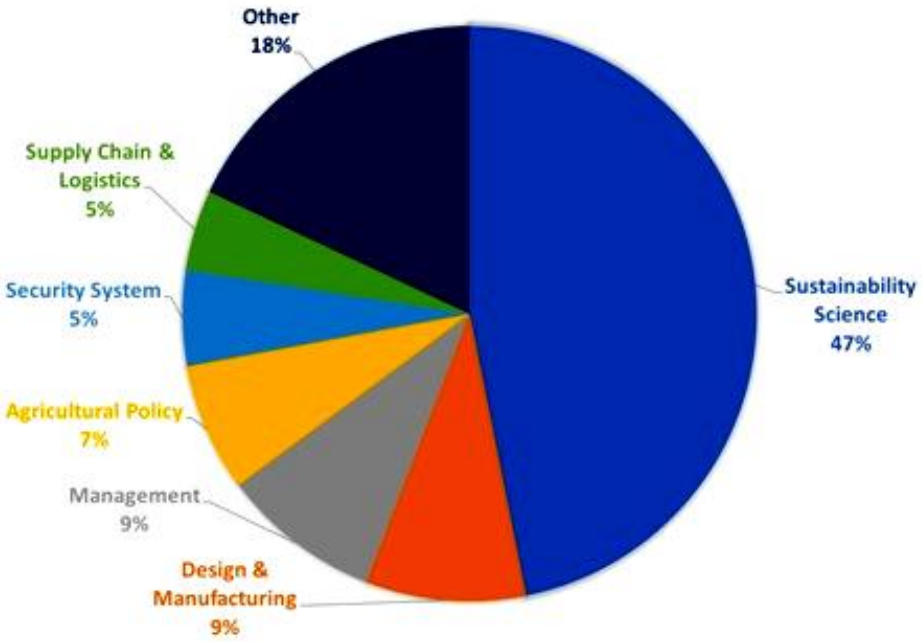

Figure 5. Publication Distribution based on Subject Areas

Figure 5 elaborates on the six major subject areas which contribute around 80% of all the articles. The most important thing to be noticed is the subject area of sustainability science, which has a 47% contribution from all the articles. Based on the finding, circular economy supply chain and SDGs research are closely associated with sustainability science.

DISCUSSION

According to reviewed studies, CESC has been applied to achieve a considerable target of SDGs. One of the strongest connections between CESC and SDGs links is CESC practices to achieve the target of SDG 12 (responsible production and consumption) (Benz, 2022; Trummer, Ammerer, & Scherz, 2022). The previous study discusses the specific target of SDG 12 such as the target of 12.2 which aims to achieve sustainable management and efficient use of natural materials (Trummer et al., 2022). Another specific target is target 12.5 which aims for substantial waste reduction, through prevention, reduction, recycling, and reuse; in this target, the dimension of environmental and economic sustainability are covered (Bjørnbet, Skaar, Fet, & Schulte, 2021). Another SDG that is discussed frequently is SDG 2 (zero hunger). The approach is through maximizing the food management process through CESC implementation (Del-Aguila-Arcentales et al, 2022; El Wali, Golroudbary, & Kraslawski, 2021). SDG 8 (inclusive and sustainable economic growth, employment, and decent work) is also discussed intensively since a lot of the previous research are focused on the financial and economic perspectives (Chen et al., 2020; Fatimah et al, 2020; Ibn-Mohammed et al., 2021; Kayikci et al, 2022; Nilsson & Göransson, 2021).

The circulation of materials, goods, and products are also depending on accurate information. Information plays an important role in having visibility and traceability of supply chain processes. By having accurate information, material flow management and logistics would be more efficient and able to minimize system-wide costs. To assess and trace the information, the required supporting tool is the enabler. Therefore, technology can be one important pillar that needs to be explored especially when designing a circular economy supply chain that embodies sustainable development goals (Fatimah et al., 2020; Khan, Piprani, & Yu, 2022; Kumar, Singh, & Dwivedi, 2020). The specific technologies that commonly integrate with CESC implementation are Digital Technologies (DTs) (Khan et al., 2022; Kristoffersen, Blomsma, Mikalef, & Li, 2020). Examples of DTs used as enablers for CESC are the Internet of Things (IoT), big data, and data analytics. Thus, the opportunity for future research that associates CESC and technologies related to achieving SDGs could be explored.

The CESC concept for SDGs are not only limited to large enterprises; a big opportunity also occurs in small-medium enterprises (SMEs) in term of CESC application to achieve SDGs (Kayikci et al., 2022). One of the ways to comply with CESC with SMEs is by circular business model innovation (CBMI). CBMI itself is the combination between innovation and circular economy concepts to enhance resource productivity and efficiency while also considering sustainable development (Benz, 2022; Suchek, Fernandes, Kraus, Filser, & Sjögrén, 2021). However, based on the explored database there is still a small number of previous researches that discuss the CESC practical implementation on SEMs. For that reason, studies that discuss the impact of CESC implementation on SMEs in terms of sustainability can be conducted.

Another interesting finding is that a high portion of the research that correlates CESC practices and SDGs is only focused on the economic and environmental aspects of sustainability. Research conducted by Walker et al. (2021) stated that most companies consider the social dimension important; however, they do not have a clear picture of it. The finding is also aligned with previous research by Kirchherr (2017) that reviewed CE definitions, on which only 20% of CE terminologies focused on the social pillar. Therefore, CESC impact on SDGs based on the social perspective could become an opportunity to be explored.

Industrial Sector that is Future Trend and Opportunity for the Implementation of Circular Economy Supply Chain (CESC) to Achieve Sustainable Development Goals (SDGs)

The CESC is being applied in many industry sectors. In this section, the sectors in which CESC future opportunities for achieving SDGs are discussed. We identified that there are four sectors, including manufacturing, agriculture, waste management, and natural resources.

In the manufacturing sector, the agrifood industry becomes one of the industries closely associated with sustainability issues. Nowadays, consumer product industries are trying to achieve zero waste in the supply chain, and remanufacturing processes are applied for resource conservation. The food and consumer industries are closely related to the agricultural sector. The manufacturing industries are highly potential for incorporating CESC into it (Bjørnbet et al., 2021; Kristoffersen et al., 2020). CESC has become an enabler for manufacturers and industries achieving sustainability goals as well as increasing profit performances. Refurbishing, recycling, remanufacturing, and increasing product life-cycle have become popular methods in which the implementation is able to give benefits not only from the financial perspective but also from the environmental and social perspectives (Hazen, Russo, Confente, & Pellathy, 2020). Industry 4.0 technologies such as the Internet of Things, big data, data analytics, and others can act as supporting tools to smoothen CESC practices (Khan et al., 2022; R. Kumar et al., 2020).

In the agriculture sector, a circular economy might be one of the tools to improve SDG 2 (zero hunger) (El Wali et al., 2021). Approximately around 40% of the food for human consumption is going to waste because it is not consumed on time. It is estimated that a large population in the world is lacking basic food which led to several negative impacts such as malnutrition, children's physical development, and mental problems (Del-Aguila-Arcentales et al., 2022). Therefore, improving the food management process by incorporating the CESC concept into it would become one potential future research that might be conducted (Hoehn et al., 2021; Pohlmann et al., 2020). By increasing efficiency in food management, the eradication of hunger is possible and complies with SDG 2 (Del-Aguila-Arcentales et al., 2022).

In the waste management sector, CESC is the basic concept which is able to reduce and minimize waste management problems. The SDGs that can be achieved by CESC implementation into the waste management sector are SDG 3 (good health and well-being), SDG 6 (clean water and sanitation), SDG 8 (decent work and economic growth), SDG 12 (responsible consumption and production), and SDG 13 (climate action) (Fatimah et al., 2020). One specific issue commonly arising among practitioners and academicians is electronic waste management or waste electrical and electronic equipment (WEEE). The growing concern of WEEE management has arisen significantly among electronic manufacturers due to various reasons. The first reason is that with the rising demand for electronic and electrical usage around the world, the volume of WEEE also rises worldwide. The second reason is natural resource depletion and natural degradation, and the third reason is the hazardous recycling process of WEEE (Kumar et al., 2022). Therefore, developing sustainable waste management based on CESC is able to support several SDG goals such as SDG 8 and SDG 12.

In the natural resources sector, preserving raw materials has become a critical factor. The development of technology and industrial development depend heavily on raw materials availability (Zanoletti, Cornelio, & Bontempi, 2021). CESC implementation might ensure the availability of raw materials by ensuring the circulation of raw materials, in particular, the strategy of recovery, refurbishment, and reuse. An important sector that is highly associated with the use of natural resources and raw materials is the construction industry. The construction industry is a resource-intensive industry in which CESC plays an important role to conserve natural resources and minimize the usage of raw materials. Accordingly, the circulation of materials based on CESC would become an enabler of long-term sustainability goals (Ghufran et al., 2022).

CONCLUSION AND IMPLICATIONS

This research provides insight into the linkage between the circular economy supply chain and sustainable development goals. The methodology of this study is a systematic literature review. From the findings and discussion, four implications have been identified. The first implication is that CESC practices have become one of the ways to achieve SDGs. The most notable SDG targets that are frequently discussed are SDG 2, SDG 8, and SDG 12. The second implication is the implementation of CESC for achieving SDGs, potentially supported by industry 4.0 technologies such as IoT, big data, and data analysis. These technologies can assist the circulation of materials by providing transparency and traceability of information in the supply chain processes. The third implication is the application of CESC, which is quite wide and adaptable not for only large companies but also SMEs. The fourth implication is most of the previous research is focused on economic and environmental perspectives rather than social perspectives.

The research also investigates the future trends in the industry concerning CESC for achieving SDGs. The manufacturing sector, agricultural sector, waste management sector, and natural resource sector are identified as potential sectors that CESC has a high impact on to achieve sustainability. Since CESC is quite wide and adaptable to various sectors, future research should be discussing more specific details regarding the potential sectors. The research correlated with the CESC model for specific industries and sectors can also be conducted.

ACKNOWLEDGEMENT

This research is supported by an FRGS grant by the Minister of Education Malaysia, project code FRGS/1/2021/SS01/UMP/02/2 with ID RDU210113.

REFERENCES

Benz, L. A. (2022). Critical Success Factors for Circular Business Model Innovation from the Perspective of the Sustainable Development Goals. Sustainability (Switzerland), 14(10). https://doi.org/10.3390/su14105816

Bjørnbet, M. M., Skaar, C., Fet, A. M., & Schulte, K. Ø. (2021). Circular economy in manufacturing companies: A review of case study literature. Journal of Cleaner Production, 294, 126268. https://doi.org/10.1016/j.jclepro.2021.126268

Chen, T. L., Kim, H., Pan, S. Y., Tseng, P. C., Lin, Y. P., & Chiang, P. C. (2020). Implementation of green chemistry principles in circular economy system towards sustainable development goals: Challenges and perspectives. Science of the Total Environment, 716(1), 136998. https://doi.org/10.1016/j.scitotenv.2020.136998

Dantas, T. E. T., D, E., Destro, I. R., Hammes, G., Rodriguez, C. M. T., & Soares, S. R. (2021). How the combination of Circular Economy and Industry 4. 0 can contribute towards achieving the Sustainable Development Goals. Sustainable Production and Consumption, 26, 213–227. https://doi.org/10.1016/j.spc.2020.10.005

De Angelis, R., Howard, M., & Miemczyk, J. (2018). Supply chain management and the circular economy: towards the circular supply chain. Production Planning and Control, 29(6), 425–437. https://doi.org/10.1080/09537287.2018.1449244

Del-Aguila-Arcentales, S., Alvarez-Risco, A., Carvache-Franco, M., Rosen, M. A., & Yáñez, J. A. (2022). Bibliometric Analysis of Current Status of Circular Economy during 2012–2021: Case of Foods. Processes, 10(9). https://doi.org/10.3390/pr10091810

El Wali, M., Golroudbary, S. R., & Kraslawski, A. (2021). Circular economy for phosphorus supply chain and its impact on social sustainable development goals. Science of the Total Environment, 777, 146060. https://doi.org/10.1016/j.scitotenv.2021.146060

Fatimah, Y. A., Govindan, K., Murniningsih, R., & Setiawan, A. (2020). Industry 4.0 based sustainable circular economy approach for smart waste management system to achieve sustainable development goals: A case study of Indonesia. Journal of Cleaner Production, 269, 122263. https://doi.org/10.1016/j.jclepro.2020.122263

Fernando, Y., Shaharudin, M. S., & Abideen, A. Z. (2022). Circular economy-based reverse logistics: dynamic interplay between sustainable resource commitment and financial performance. European Journal of Management and Business Economics. https://doi.org/10.1108/EJMBE-08-2020-0254

Gan, W., Peng, L., Li, D., Han, L., & Zhang, C. (2019). A Coordinated Revenue-Sharing-Based Pricing Decision Model for Remanufactured Products in Carbon Cap and Trade Regulated Closed-Loop Supply Chain. IEEE Access, 7, 142879–142893. https://doi.org/10.1109/ACCESS.2019.2943385

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? Journal of Cleaner Production, 143, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Ghufran, M., Iqbal, K., Khan, A., Ullah, F., Nasir, A. R., Aziz, A., … Alwetaishi, M. (2022). Circular Economy in the Construction Industry: A Step towards Sustainable Development. Buildings, 12, 1004.

Hazen, B. T., Russo, I., Confente, I., & Pellathy, D. (2020). Supply chain management for circular economy: conceptual framework and research agenda. International Journal of Logistics Management, 32(2), 510–537. https://doi.org/10.1108/IJLM-12-2019-0332

Hoehn, D., Laso, J., Margallo, M., Ruiz-salmón, I., Amo-setién, F. J., Abajas-bustillo, R., … Aldaco, R. (2021). Introducing a degrowth approach to the circular economy policies of food production, and food loss and waste management: Towards a circular bioeconomy. Sustainability (Switzerland), 13(6). https://doi.org/10.3390/su13063379

Ibn-Mohammed, T., Mustapha, K. B., Godsell, J., Adamu, Z., Babatunde, K. A., Akintade, D. D., … Koh, S. C. L. (2021). A critical review of the impacts of COVID-19 on the global economy and ecosystems and opportunities for circular economy strategies. Resources, Conservation and Recycling, 164(May 2020), 105169. https://doi.org/10.1016/j.resconrec.2020.105169

Kayikci, Y., Kazancoglu, Y., Gozacan-Chase, N., Lafci, C., & Batista, L. (2022). Assessing smart circular supply chain readiness and maturity level of small and medium-sized enterprises. Journal of Business Research, 149(May), 375–392. https://doi.org/10.1016/j.jbusres.2022.05.042

Khan, S. A. R., Piprani, A. Z., & Yu, Z. (2022). Digital technology and circular economy practices: future of supply chains. Operations Management Research, (0123456789). https://doi.org/10.1007/s12063-021-00247-3

Korhonen, J., Nuur, C., Feldmann, A., & Birkie, S. E. (2018). Circular economy as an essentially contested concept. Journal of Cleaner Production, 175, 544–552. https://doi.org/10.1016/j.jclepro.2017.12.111

Kristoffersen, E., Blomsma, F., Mikalef, P., & Li, J. (2020). The smart circular economy: A digital-enabled circular strategies framework for manufacturing companies. Journal of Business Research, 120(August 2019), 241–261. https://doi.org/10.1016/j.jbusres.2020.07.044

Kumar, A., Gaur, D., Liu, Y., & Sharma, D. (2022). Sustainable waste electrical and electronic equipment management guide in emerging economies context: A structural model approach. Journal of Cleaner Production, 336(January), 130391. https://doi.org/10.1016/j.jclepro.2022.130391

Kumar, R., Singh, R. K., & Dwivedi, Y. K. (2020). Application of industry 4.0 technologies in SMEs for ethical and sustainable operations: Analysis of challenges. Journal of Cleaner Production, 275, 124063. https://doi.org/10.1016/j.jclepro.2020.124063

Mohammed, F., Hassan, A., & Selim, S. Z. (2021). Robust Design of a Closed-Loop Supply Chain Considering Multiple Recovery Options and Carbon Policies under Uncertainty. IEEE Access, 9(i), 1167–1189. https://doi.org/10.1109/ACCESS.2020.3046684

Morales, M. E., & Belmonte-Urena, L. J. (2021). Theoretical research on circular economy and sustainability trade-offs and synergies: A bibliometric analysis. 2021 IEEE International Conference on Technology and Entrepreneurship, ICTE 2021. https://doi.org/10.1109/ICTE51655.2021.9584537

Nikolaou, I. E., Jones, N., & Stefanakis, A. (2021). Circular Economy and Sustainability: The Past, the Present and the Future Directions. 1–20.

Nilsson, F., & Göransson, M. (2021). Critical factors for the realization of sustainable supply chain innovations - Model development based on a systematic literature review. Journal of Cleaner Production, 296. https://doi.org/10.1016/j.jclepro.2021.126471

Pohlmann, C. R., Scavarda, A. J., Alves, M. B., & Korzenowski, A. L. (2020). The role of the focal company in sustainable development goals: A Brazilian food poultry supply chain case study. Journal of Cleaner Production, 245, 118798. https://doi.org/10.1016/j.jclepro.2019.118798

Ranjbari, M., Shams Esfandabadi, Z., Zanetti, M. C., Scagnelli, S. D., Siebers, P. O., Aghbashlo, M., … Tabatabaei, M. (2021). Three pillars of sustainability in the wake of COVID-19: A systematic review and future research agenda for sustainable development. Journal of Cleaner Production, 297, 126660. https://doi.org/10.1016/j.jclepro.2021.126660

Ruggerio, C. A. (2021). Sustainability and sustainable development: A review of principles and definitions. Science of the Total Environment, 786, 147481. https://doi.org/10.1016/j.scitotenv.2021.147481

Santini, A. (2018). The Importance of Referencing. The Journal of Critical Care Medicine, 4(1), 3–4. https://doi.org/10.2478/jccm-2018-0002

Schroeder, P., Anggraeni, K., & Weber, U. (2019). The Relevance of Circular Economy Practices to the Sustainable Development Goals. Journal of Industrial Ecology, 23(1), 77–95. https://doi.org/10.1111/jiec.12732

Suchek, N., Fernandes, C. I., Kraus, S., Filser, M., & Sjögrén, H. (2021). Innovation and the circular economy: A systematic literature review. Business Strategy and the Environment, 30(8), 3686–3702. https://doi.org/10.1002/bse.2834

Trummer, P., Ammerer, G., & Scherz, M. (2022). Sustainable Consumption and Production in the Extraction and Processing of Raw Materials—Measures Sets for Achieving SDG Target 12.2. Sustainability (Switzerland), 14(17). https://doi.org/10.3390/su141710971

Walker, A. M., Opferkuch, K., Roos Lindgreen, E., Simboli, A., Vermeulen, W. J. V., & Raggi, A. (2021). Assessing the social sustainability of circular economy practices: Industry perspectives from Italy and the Netherlands. Sustainable Production and Consumption, 27, 831–844. https://doi.org/10.1016/j.spc.2021.01.030

Wang, W., Zhong, L., Quan, S., & Liu, Y. (2021). Pricing and Collecting Decision of a Closed-Loop Supply Chain under Market Segmentation with Reward-Penalty Mechanism. IEEE Access, 9, 167252–167266. https://doi.org/10.1109/ACCESS.2021.3137177

Zanoletti, A., Cornelio, A., & Bontempi, E. (2021). A post-pandemic sustainable scenario: What actions can be pursued to increase the raw materials availability? Environmental Research, 202(June), 111681. https://doi.org/10.1016/j.envres.2021.111681

Zhang, D., Huang, X., Wen, Y., Pooja, T., & Shanmugan, J. (2021). Sustainable circular business model for transparency and uncertainty reduction in supply chain management. Journal of Theoretical and Applied Electronic Commerce Research, 16(4), 959–975. https://doi.org/10.3390/jtaer16040054