Definitions matter: Including the socio-economic dimension as a critical component of SADC circular economy definitions

Globally, scholars agree that there is a lack of clarity on the notion of the circular economy (CE) and a lack of consensus on a foundational definition of the term. Some definitions place greater emphasis on the socio-economic dimension of the CE than others. In Africa, notions of the CE are still evolving. This paper highlights the salient aspects of texts defining or informing the CE in the Southern African Development Community (SADC). In Africa, the transition to circularity is motivated by the need to stimulate job creation and income generation. At the same time, concern over mounting environmental impacts is increasing. Economic and population growth on the continent, continued urbanisation, and the resulting proliferation of municipal waste contribute to these economic, social and environmental challenges. African governments, business communities, civil society and academia need to collaborate on initiatives that build on circularity principles to advance sustainable development in pursuit of equitable and just societies. This exploratory semi-systematic literature review contributes not only to developing notions of the CE in Africa, but also to the dialogue on circularity in the Global South. In particular, it investigates the extent to which the socio-economic dimension is incorporated in notions of the CE. Moreover, it argues that a strong emphasis on this dimension is imperative in the conceptual development of circularity on the African continent. We argue for the future foregrounding of definitions of the CE that are consistent with social transformation as an aspiration in regional legislative and regulatory frameworks.

Significance:
- Contributes to conceptualisation of the CE in the Global South.
- Indicates how SADC policy dictates the importance of the socio-economic dimension as a regional priority, and therefore signals the primacy of this aspect in the development of a contextual notion of CE.
- Includes a review of grey literature related to the SADC region in the analysis of the notion of the CE.

Introduction
Researchers have acknowledged that there is a lack of a universally accepted definition of the circular economy (CE). Furthermore, conceptual analysis reveals a plethora of definitions, and definitions emerge from multiple epistemological fields. Several scholars have described the concept of the CE as an ‘empty signifier’. The notion of the CE accommodates various interpretations and approaches (D’Amato refers to ‘conceptual plasticity’) and underlines the conceptual difficulties presented by the diversity of perspectives (see Kirchherr et al.) and the risk of collapse or deadlock stemming from ‘permanent conceptual contention’. This is not the case only in the Global North (GN), but also in the Global South (GS), where it is even more pronounced.

The definitional challenges are compounded by the broad diversity of critical sub-themes of the CE, the differential rates at which the CE has gained traction globally, and a research focus that is highly biased towards the GN. Developing countries in general, and the GS in particular, have also been underrepresented in conceptual analyses of the CE. Several scholars have described the concept of the CE as an ‘empty signifier’. The notion of the CE accommodates various interpretations and approaches (D’Amato refers to ‘conceptual plasticity’) and underlines the conceptual difficulties presented by the diversity of perspectives (see Kirchherr et al.) and the risk of collapse or deadlock stemming from ‘permanent conceptual contention’. This is not the case only in the Global North (GN), but also in the Global South (GS), where it is even more pronounced.

Where similar themes were explored in both the GS and GN, for example waste as a resource, the common denominator was research attention to e-waste. However, studies on GS locations also focused on other aspects of the theme of waste as a resource, such as municipal solid waste management and socio-economic dimensions related to waste reclaimers, while GN studies gave equal attention to bio-waste treatment and e-waste. Similarly, Gutberlet et al. highlight social inclusivity (in particular of waste reclaimers) and participation in public policy formulation, implementation and evaluation as important CE themes in the GS, while acknowledging that the GN pays attention to the challenges of improving engineering and governance related to resource loops. These differences are related to the dynamics and relational politics involving governments, business and residents in the two geographical regions. Kirchherr and Van Santen also point out that differences of approach to the CE may be due to different policy environments; availability and access to funding, levels of educational and professional development, as well as available infrastructure, while Winans et al. ascribe the dissimilartion evolution of the concept to different cultural and socio-political systems. Hofstetter et al. and Turing argue that the inclusion of the experience of the GS may highlight the importance of doing more with fewer resources and practising frugality.
Comparatively, the social dimension of the CE appears to play a more predominant role in the motivation for the development of the CE in the GS. Recent literature from the GN on the conceptualisation of the CE confirms that this dimension is generally not well integrated, and advocates more attention to social aspects. Mies and Gold mention four reasons for inadequate attention being paid to the social dimension of the CE, namely an absence of conceptual clarity regarding the social dimension; blurred boundaries of the social, environmental and economic aspects of the CE; problematic operationalisation of indicators for the social dimension; and a predominantly instrumental approach to the CE. The question is whether this inadequate consideration of the social dimension in the conceptualisation of the CE is also true for the GS. Africa and southern Africa. This study aims to investigate this question by first determining the significant characteristics of CE definitions in the Southern African Development Community (SADC) region, and then relating these to the social dimension of the CE.

This exploratory semi-systematic review investigates the salient characteristics of CE definitions in the GS, with an emphasis on socio-economic components. The focus is on the SADC region, which comprises Angola, Botswana, Comoros, Democratic Republic of the Congo, Eswatini, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia and Zimbabwe. It is 30 years since the adoption of the SADC Treaty in 1992. The preamble to the treaty states the resolve of SADC countries to alleviate and ultimately eradicate poverty by means of integration and sustainable economic growth and development. According to Article 12(2)(a)(i), (iii) and (iv) of the SADC Treaty, three of the core areas of integration are trade, industry, finance and investment; food, agriculture, natural resources and environment; and social and human development. Article 21 further lists areas of cooperation necessary for integration, including food security, land and agriculture; trade, industry, finance, investment and mining; social and human development and special programmes; science and technology; natural resources and environment; and social welfare. The Regional Strategic Indicative Development Plan (RISDP) 2020–2030 highlights six strategic priority areas for SADC, which include industrial development and market integration, social and human capital development, and several cross-cutting issues such as environment and climate change. Although the development of a regional CE strategy is listed as an outcome of the RISDP 2020–2030, it is still in its initial stages. This document does not define or foresee operationalisation of the term apart from distinguishing it from the SADC Green Growth Strategy and Action Plan and the SADC Blue Economy Strategy.

It is therefore clear that integration and sustainable development are key to the aims of SADC, and that the promotion of green growth and of the blue and circular economies forms part of its strategic priorities. Because the CE is instrumental to the achievement of sustainable development, investigating salient characteristics of the notion in this region is necessary in order to evaluate the compatibility of interpretations of the concept, and ultimately to advance integration of the member states of SADC as an international organisation. Further research in this regard is necessary to critically assess the viability of translating the CE into practice in the GS. In this regard, Kirchherr and Van Santen have already observed that businesses ‘are beginning to lose interest in CE again – it’s just too difficult to implement’. Unless the concerns of SADC practitioners receive consideration, the realisation of the strategic priorities of SADC for the next decade are also under threat, and the integration of member states remains problematic. This article is an exploration of the salient characteristics of the CE definitions in an attempt to contribute to conversations about compatible understandings of the notion, and ultimately to stimulate strategic approaches to conceptual engagement in the interests of regional integration.

Methodology

The research methodology used for this study can be categorised as an explorative semi-systematic literature review. Frederiksen et al. describe an exploratory review as a review intended to provide a broad approach to the research topic, and they add that the emphasis is on breadth rather than depth of topic coverage in order to achieve a general orientation towards the topic area. In Snyder’s typology of approaches to literature reviews, the semi-systematic review similarly provides an overview and tracks the development of a research topic in terms of, for example, themes, state of knowledge, history or

Figure 1: Literature review process based on Snyder.

Figure 2: Detail of Phases 2 and 3: Process and figure partly modelled on Snyder, Lutz et al. and Brown et al.
research agendas over time. The qualification that this type of review must track development over time might be interpreted as disqualifying research themes that are currently developing and trending, are fairly recent or demonstrate uneven conceptual development across various geographical regions. Therefore, we have opted for hybrid terminology based on Frederiksen et al.25 and Snyder30. In this study, the phases of this review are modelled on a synthesis of the description of the research process by Snyder30, Lutz et al.31 and Brown et al.31

Snyder30 distinguishes four phases of the review process, namely design, conducting the review, analysis, and structuring and writing the review. The schematic presentation of the exploratory literature review by Lutz et al.31, and their approach to data abstraction, informed the succession of procedures included in Phase 2 (conducting the review) and Phase 3 (analysis), as identified by Snyder30. We also drew on the discussion of inclusion and exclusion criteria by Brown et al.31

During Phase 1 (design), we decided on the exploratory literature review as our research methodology. The decision was made to use Google Scholar as the relevant database for this review in order to include grey literature and to counter the limited results returned when searches are restricted to academic sources. A search on Google Scholar provides the added benefit of returning more recent research results in terms of grey literature sources that are not subject to the time lag experienced in the publication of traditional academic articles and books. Grey literature is defined as:

- manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by libraries and institutional repositories, but not controlled by commercial publishers, i.e., where publishing is not the primary activity of the producing body (12th International Conference on Grey Literature, 2010, cited in Bonato32).

Grey literature was included because academic articles on the definition of the CE in Africa are scarce, and a ‘coherent body of high-quality, relevant, peer-reviewed articles’30 is not yet available. Other benefits of not limiting the search to white literature include the richness of source material, the availability of data that cannot be located in commercially published literature, the reduction of publication bias and the improved currency of information on trending topics that would not have been subject to lag time due to long publication processes.34

Phase 2 (conducting the review) consisted of four steps. In Step 1, we determined a set of search terms to be employed in the literature search. The following search terms were used in a string search on Google Scholar during September–October 2021: ‘definition’, ‘circular economy’, ‘SADC’ and ‘socio-economic’. We used this specified search string to identify academic articles, e-books and grey literature. The results were limited to publications from the last five years.

Initially, in Step 2 of Phase 2 of our review, 76 results were obtained based on the search using the specified search string. The grey literature consisted of situation analysis papers, dissertations and theses, technical reports, white papers, background reports, draft white papers, policy reports, inception reports, team reports, conference abstracts and proceedings.

During Step 3 of Phase 2, selection criteria were established. These criteria were then applied to narrow down the results in Step 4 of Phase 2 of the review. Sources were excluded based on accessibility constraints, citations of a source without linking to the source, duplication of sources, or citations to literature without links to the sources. Other sources that were excluded had a global scope and did not specifically refer to Africa in relation to a CE definition. Lastly, sources were only selected if they provided a definition of CE, or if seminal aspects of the definition of CE could be derived from the source. Eventually, 52 sources were excluded (one of which was a duplicate result). Table 1 lists the remaining 24 results.

| Source Literature type |
|------------------------|
| Cloye and South African Institute of International Affairs (SIAI)41 Situation analysis paper (between a policy briefing and an occasional paper) |
| Turing56 PhD (International Development) |
| Grant43 Academic article |
| Ramsarup and Ward47 Source book to support skills planning for the green economy by skills planning entities |
| Kadhlia49 MPhil (Environmental Management) |
| Ozor and Nyambane60 Technical report |
| DST43 White paper |
| Colombo et al.50 Meeting of the Infrastructure Consortium for Africa |
| Martins44 Academic article |
| Frost26 LLM |
| Haimbala23 MSc |
| DST44 White paper (earlier version of DST, 2019) |
| Ndlovu45 MPhil dissertation |
| Manjengwa27 Master of Engineering (Metallurgical Engineering) |
| Hlohe-Ginindza et al.74 E-book |
| Kühmann and Agutu45 Academic article |
| Lydall et al.34 Technical report |
| Van der Westhuizeren46 MBA research project |
| Zulu71 Master in Public Administration dissertation |
| South African Technology Network and National Scientists and Organisations47 Position paper |
| Trimble et al.40,58 Conference proceedings |
| Van Niekerk et al.72 Technical report |
| Izakse7 Master in Engineering Management minor dissertation |
| Sutcliffe and Barnister48 Report |

Phase 3 of the review involved analysis. In Step 5, we used inductive thematic analysis (see Vaisomoradi et al.49) of the remaining 24 most relevant results, while we developed the salient themes of the definitions or definition-relevant results in Step 6. Thematic analysis was chosen due to the lack of previous studies covering this theme in the SADC region as a whole, and categories were deduced from the data in the selected sources (Vaisomoradi et al.25). In addition, thematic analysis enabled consideration of both latent content (developing themes) and manifest content (developing categories). As Vaisomoradi et al.25 state, thematic analysis does not depend on quantifiable measures, but instead pays attention to salient aspects linked to the research question. Finally, after concluding our analysis, we structured and wrote the review in Phase 4.

Results and discussion: Trends in definitional approaches

The following salient aspects or trends in definitional approaches emerged from the inductive thematic analysis.

1. Adherence to canonical definitions

In terms of reliance on established definitions of the CE, some sources referred particularly to what may be termed ‘canonical definitions’ in the sense that they are generally recognised as the most important and
The authors concede that this concept seems to be novel, and that the narratives of sustainable development and the green economy have been accepted and integrated to varying degrees. Similarly, De Jesus et al. identify a lack of analysis of the nexus of CE and EI. Some points of departure in clarifying this intersection include viewing EI as an essential driver of change towards sustainability, and singling it out as a pivotal aspect in developing competitive technologies as well as institutional forms. These generate environmental benefits such as efficient consumption and resource use, labelling it as a catalyst of the CE and key to the transition from a linear economy to a CE. De Jesus et al. conclude that EI presents a pathway to a process premised on ‘cooperation and multi-actor “systemic” integration’. The CE, they propose, is contingent on this process. Again, the social dimension, also evident in the selected literature, is significant and complements the agenda of SADC.

It should be noted that another concept that would fall under this heading, namely the blue economy, was mentioned as ancillary to the CE, and not necessarily the other way around (see Haimbala, and compare with Andriamahafazafla and Failler). This hierarchical divergence can contribute to confusion.

3. Contrasting the CE with the linear economy

The CE is also defined in juxtaposition to the linear economy (LE). Some authors take a more neutral point of departure in explaining the contrast between the LE and the CE. Sutcliffe et al., for example, still describe the CE as an alternative to the LE. Other authors portray the CE as a concept associated with a transition to a different system (DST; D’Amato & Korhonen; Frost; Manjangwana; Lydall et al.) or as a replacement for the LE, as illustrated in the work of Frost, and Ramsarup and Ward. Some sources express a strong resolve to move away from the LE (Ramsarup and Ward phrase it as a commitment) and point to the damage caused by the LE.

4. Foregrounding the life cycle approach

Consideration of a life cycle approach, also described as life cycle thinking (LCT), that takes into account the entire physical life cycle of products, starting with production from raw materials right up until the end of life (Heiskanen), and includes consideration of their environmental, social and economic impacts (Petit-Boix et al., drawing on the Life Cycle Initiative of UNEP and the Society of Environmental Toxicology and Chemistry [UNEP-SETAC]), has been part and parcel of the consideration of environmental burdens for decades. Some of the sources in the selected literature incorporate LCT into their definitions. An example that demonstrates this approach is the conference paper by Trimble and Phuluwa.

CE calls on a new view of design and deployment of technology, which promotes a continuous life cycle that avoids waste and system degradation and optimises utilisation of energy and other resources.

Another source links the CE and the life cycle approach, with the former being instrumental in the realisation of the latter (see, for example, the position paper by the South African Technology Network & National Scientists and Organisations).

5. Adapted definitions to incorporate socio-economic aspects such as growth and the drive for social equity and justice

One of the most important aspects of CE definitions in the selected literature is the adoption of definitions that incorporate socio-economic aspects. Globally, scholarly literature covering the last five years, which was excluded because these sources fall outside the parameters of this study, confirm that consideration of the social dimension of the CE is often lacking. Neglected aspects of the social dimension that require attention include governance, justice and cultural change. Moreover, within the existing research that does cover the social dimension of the CE, certain geographic regions are underrepresented. A 2020 global systematic literature review examining research on the
social dimension of the CE from 2009 to March 2019 found that 70% of the relevant studies included were conducted in Europe, 23% in Asia and a mere 7% were geographically linked to Africa, North America and Latin America combined. However, there is evidence that some canonical definitions include this aspect (see, for example, Kirchner et al.). A further challenge is the classification of social issues. Padilla-Rivera et al. point out that there is no consensus in this regard and refer to social thematic areas proposed by the EMF, including labour practices, decent work, human rights, society and product responsibility. Each of these thematic areas includes detailed social aspects based on the Social Life Cycle Assessment methodology. We propose that this classification system is a useful point of departure, although as a caveat we would add that the classification of specific social aspects and the division of broader thematic areas might need to be adjusted to align with the legislative frameworks of specific regions and countries. Certain social aspects, for example, well-being, diversity and equal opportunity, are also explicitly aligned with constitutional human rights in certain SADC countries and do not relate only to the theme of labour practices and decent work. Some authors of the literature selected for our study acknowledge that a social dimension seems to be lacking in the framework and principles of the CE, or opt for definitions specifically crafted to incorporate social aspects. Although evidence of the choice for this definitional alliance is emerging in the CE literature concerning the SADC region, it appears to be in its infancy. However, in some of our selected sources, the CE is positioned as instrumental in achieving social objectives (see Kadhalakody and Madyira et al.). Madyira et al., for example, view the CE as a measure to achieve the realisation of human rights. In particular, the authors highlight access to clean energy and clean water, poverty alleviation through job creation, and entrepreneurial opportunities as promoters of social equity.

Economic growth is another socio-economic dimension that is integrated in the interpretation of the CE. The CE is posited by some authors as a source of growth, providing economic opportunities associated with new services and business models (see, for example, DST). However, growth should be decoupled from the use of limited resources.

Conclusion

This article presents the results of an exploratory semi-systematic literature review based on a search conducted with a specified search string of terms in order to return results that could be fully included within the limitations of the current publication. This study does not claim to be comprehensive, but serves to stimulate discussion about the conceptualisation of the CE and its alignment with the objectives of regional policy frameworks, as well as the inclusion of the social dimension in CE definitions applied in and related to SADC member states. It also emphasises the need for critical evaluation of the compatibility of various interpretations of the CE with SADC objectives. This is necessary to guide meaningful implementation, recognising that, in the SADC region, the CE ought to transcend a narrow focus on the environment and account for its impact on society.

In this regard, we highlight five aspects emerging from the selected literature, and they are not mutually exclusive. The first is an adherence to canonical definitions, including both traditional and more conservative definitions, as well as more recent and comprehensive definitions that include the socio-economic dimensions. Secondly, the literature links the CE concept to established narratives, such as the overarching sustainability narrative and the green economy, although the CE is also tied to more novel notions such as eco-innovation. Thirdly, the CE is also defined by contrasting it with the LE. Although some sources approach this comparison in a neutral way and present the CE as an alternative to the LE, a more decisive commitment towards a transition is also evident. Fourthly, the life cycle approach is also foregrounded in definitions or linked to the CE by means of association. Finally, some authors demonstrate awareness of the lack of a social dimension in the interpretations of the CE, and accordingly respond by depicting the CE as a measure to attain socio-economic objectives such as social equity through the promotion of human rights and economic growth. These socio-economic objectives are commensurate with the objectives and strategic priorities of SADC mentioned in the introduction. Based on these five trends, we conclude that although there is an emerging awareness of the importance of the social dimension of the CE, and some authors deliberately opt for a canonical definition that includes social aspects, this is not yet the norm, as is evident from the dominance of the EMF definition of the CE in the selected literature. However, even if the social dimension is not explicitly acknowledged in definitions, it is supported by the network of other broader, sometimes older, but more familiar concepts such as sustainability, the green economy and eco-innovation. These concepts acknowledge social benefit, social needs, and, in the case of sustainability, even contain a social component or pillar. By recognising that these concepts all contribute to the CE discourse and conceptualisation, and by drawing attention to their common social concern, the social dimension of the CE in the SADC region can be amplified. Highlighting social impacts within life cycle thinking could have a similar effect. Finally, deliberate, vocal and critical positioning in relation to the LE also has the potential to contribute to the promotion of the social dimension of the CE. The trends that emerge in the selected literature can therefore be interpreted as open to the cultivation of a pro socio-economic stance in SADC. Given the socio-economic objectives of SADC as a region, we would recommend the amplification and promotion of socio-economic dimensions in conceptualising the CE. Critical reflection on the inclusion of the social dimension in the choice of definitions, consideration of the origin of CE definitions, and the conceptualisation of the CE in the SADC region could serve as a starting point for such a realignment. However, this project should not be undertaken by academics alone. There are broader African CE networks consisting of a wide range of stakeholders, including specialists and coalitions led by governments, whose objectives align with those of SADC but are not explicitly linked in the literature. Their input could play a valuable role in this regard. These networks include, for example, the African Circular Economy Network (with wide membership categories and CE experts), which envisions:

a restorative African economy that generates well-being and prosperity inclusive of all its people through new forms of economic production and consumption which maintain and regenerate its environmental resources.

Another example is the African Circular Economy Alliance (ACEA), a coalition of African nations led by governments, promoting the transformation to a circular economy in order to deliver ‘economic growth, jobs, and positive environmental outcomes’ to address the challenges of ‘poverty, poor infrastructure, and unemployment’. The ACEA also states that its support for the CE could consist of policy development, and that it could thus potentially be involved in highlighting the social dimension of the CE.

This study is subject to certain limitations, including the length restriction of the publication, as well as the limitation on references that inevitably rules out the application of search strings that would return a large corpus of results. Further research could therefore incorporate results from less constrained search strings and include search strings from several databases, such as the Web of Science, although some studies indicate that most of the literature in the Web of Science can also be found using Google Scholar. Moreover, although Google Scholar is frequently used as a web-based search engine, in particular where researchers also need to rely on grey literature, and generates a substantial quantity of results, the incorporation of other resources could be beneficial as the application of similar search strings does not overlap considerably.

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Competing interests

We have no competing interests to declare.
Authors’ contributions
L.G.: Conceptualisation; methodology; data collection; writing – initial draft. C.S.: Writing – revisions; methodology; student supervision; funding acquisition. D.B.: Writing – revisions; methodology; referencing.

References
1. Tapia C, Bianchi M, Pallasci G, Bassi AM. Towards a territorial definition of a circular economy: Exploring the role of territorial factors in closed-loop systems. Eur Plan Stud. 2020;29(8):1438–1457. https://doi.org/10.1080/09654333.2020.1867511
2. Friant MC, Vermeulen WJv, Salomone R. A typology of circular economy discourses: Navigating the diverse visions of a contested paradigm. Resour Conserv Recycl. 2020;161:1–19. https://doi.org/10.1016/j.resconrec.2020.104917
3. Homrich AS, Galvá M, Abadia LG, Carvalho MM. The circular economy umbrella: Trends and gaps on integrating pathways. J Clean Prod. 2018;175:525–543. https://doi.org/10.1016/j.jclepro.2017.11.064
4. D’Amato D. Sustainability narratives as transformative solution pathways: Zooming in on the circular economy. Circ Econ Sust. 2021:1:231–242. https://doi.org/10.1007/s43615-021-00008-1
5. Kircher J, Reike D, Heckert M. Conceptualizing the circular economy: An analysis of 114 definitions. Resour Conserv Recycl. 2017;127:221–232. https://doi.org/10.1016/j.resconrec.2017.09.005
6. Corvellec H, Böhm S, Stowell A, Valenzuela F. Introduction to the special issue on the contested realtis of the circular economy. Cult Organ. 2020;26(2):97–102. https://doi.org/10.1080/14795551.2020.1771733
7. Valenzuela F, Böhm S. Against wasted politics: A critique of the circular economy. Ephemera. 2017;17(1):23–60. http://www.ephemerajournal.org/contribution/against-wasted-politics-critique-circular-economy
8. Kircher J, Van Santen R. Research on the circular economy: A critique of the field. Resour Conserv Recycl. 2019;151. https://doi.org/10.1016/j.resconrec.2019.104480
9. Hofstetter JS, De Marchi V, Sarkis J, Govindan K, Klassen R, Ometto AR, et al. From sustainable global value chains to circular economy: Different silos, different perspectives, but many opportunities to build bridges. Circ Econ Sust. 2021:2:1–47. https://doi.org/10.1007/s43615-021-00015-2
10. Andriamahefazany M, Faller P. Towards a circular economy for African islands: An analysis of existing baselines and strategies. Circ Econ Sust. 2021:2:47–69. https://doi.org/10.1007/s43615-021-00059-4
11. Winans K, Kendall A, Deng H. The history and current applications of the circular economy concept. Renew Sust Energ Rev. 2017;68:825–833. https://doi.org/10.1016/j.rser.2016.09.123
12. Ghisellini P, Cialani C, Ulgiati S. A review on the circular economy: The expected transition to a balanced interplay of environmental and economic systems. J Clean Prod. 2016;114:11–32. https://doi.org/10.1016/j.jclepro.2015.09.007
13. Muchangos Lsd. Mapping the circular economy concept and the Global South circular economy. Circ Econ Sust. 2020:2:71–90. https://doi.org/10.1007/s43615-021-00095-0
14. Kirsch D. The social impacts of the circular economy in the Global South: Circularity strategies and shared value creation in fashion social enterprises [master’s thesis]. Utrecht: Utrecht University; 2020.
15. Schröder P, Anantharaman M, Angaerka K, Foxon TJ. The circular economy and the Global South: Sustainable lifestyles and green industrial development. London & New York: Routledge; 2019.
16. Gutberlet J, Careroz S, Kain J-H, De Azvedo AM. Waste picker organizations and their contribution to the circular economy: Two case studies from a Global South perspective. Resources. 2017;6(4):52. https://doi.org/10.3390/resources6040052
17. Turling J. Understanding the circular economy in Kenya. Critiquing the dominant discourse [PhD thesis]. Edinburgh: University of Edinburgh; 2021.
18. Geissdoerfer M, Savaget P, Bocken NM, Hultink EJ. The circular economy: A new sustainability paradigm? J Clean Prod. 2017;143:757–768. https://doi.org/10.1016/j.jclepro.2016.12.048
19. Mies A, Gold S. Mapping the social dimension of the circular economy. J Clean Prod. 2021;321. https://doi.org/10.1016/j.jclepro.2021.128960
20. Romero-Perdomo F, Carvaljain-Umaña JD, Moreno-Gallego JL, Ardila N, Gonzalez-Curbelo MA. Research trends on climate change and circular economy from a knowledge mapping perspective. Sustainability. 2022;14(1):521. https://doi.org/10.3390/su14010521
21. Hobson-Kynch N. Diversifying and de-growing the circular economy: Radical social transformation in a resource-scarce world. Futures. 2016;82:15–25. https://doi.org/10.1016/j.futures.2016.05.012
22. Blomsma F, Brennan G. The emergence of circular economy: A new framing around prolonging resource productivity. J Ind Ecol. 2017;21(3):603–614. https://doi.org/10.1111/jiec.12003
23. Merli R, Preziosi M, Acampora A. How do scholars approach the circular economy? A systematic literature review. J Clean Prod. 2018;178:703–722. https://doi.org/10.1016/j.jclepro.2017.12.112
24. SADC. Member states [webpage on the Internet]. c2022 [cited 2022 Jul 23]. Available from: https://www.sadc.int/member-states#:~:text=The%20Southern%20African%20Development%20Community%2C%20Republic%20of%20Tanzania%2C%20Zambia%20and%20Zimbabwe
25. SADC. Consolidated text of the Treaty of the Southern African Development Community, as amended [document on the Internet]. Ndutave [cited 2022 Jul 23]. Available from: chrome-extension://etudbnmmrnciapcogclefdmmnjk/static/otp.png/docs/2007/070911/consolidated.pdf
26. SADC. Unpacking RISDP 2020–2030 [webpage on the Internet]. c2022 [cited 2021 Oct 13]. Available from: https://web.archive.org/web/20200217164348/https://www.sadc.int/news-events/news/unpacking-risdp-2020-2050/
27. SADC. Regional strategic indicative development plan (RISDP) 2020–2030; 2020.
28. Frederiksen L, Phelps SF, Kimmons R. Introduction to literature reviews. In: Kimmons R, editor. Rapid academic writing [document on the Internet]. c2018 [cited 2021 Oct 13]. Available from: edtechbooks.org/pdfs/mobile/rapidwriting/lit_rev_intro.pdf
29. Snyder H. Literature review as a research methodology: An overview and guidelines. J Bus Res. 2019;104:333–339. https://doi.org/10.1016/j.jbusres.2019.07.039
30. Lutz CS, Carr W, Cohn A, Rodriguez L. Understanding barriers and predictors of maternal immunization: Identifying gaps through an exploratory literature review. Vaccine. 2018;38(49):7445–7455. https://doi.org/10.1016/j.vaccine.2018.10.046
31. Brown KF, Long SJ, Athanasiou T, Vincent CA, Kroll JS, Sevdali N. Reviewing methodologically disparate data: A practical guide for the patient safety research field. J Eval Clin Prac. 2012;18(1):172–181. https://doi.org/10.1111/j.1365-2753.2010.01510.x
32. Bonato S. Searching the grey literature: A handbook for searching reports, working papers, and other unpublished research. Lanham, Boulder, New York & London: Rowman & Littlefield; 2018.
33. Adams RJ, Smart P, Huff AS. Shades of grey: Guidelines for working with the grey literature in systematic reviews for management and organizational studies. Int J Manag Rev. 2016;19:432–454. https://ijmrc.net/apapa/doi/10.1111/ijmr.12102
34. Peaz A. Gray literature: An important resource in systematic reviews. J Evid Based Med. 2017;10:233–240. https://doi.org/10.1016/j.jebm.2017.07.030
35. Vaisomaridi M, Turunen H, Bondas T. Content analysis and thematic analysis. Implications for conducting a qualitative descriptive study. Nurs Health Sci. 2013;15(3):398–405. https://doi.org/10.1111/nhs.12048
36. Frost LH. Is the regulation of single-use plastic in South Africa a waste of time? [LLM thesis]. Durban: University of KwaZulu-Natal; 2019.
37. Ramsarup P, Ward M. (with contributions from Rosenberg E, Jenkin N, Lotz-Sisika H). Enabling green skills: Pathways to sustainable development. A source book to support skills planning for green economies. Pretoria: Department of Environmental Affairs; 2017.
38. Kadhila T. Implementation of a municipal solid waste management system in Swakopmund, Namibia [MPhil thesis]. Stellenbosch: Stellenbosch University; 2019.
39. Ozor N, Nyambara A. The policy and institutional landscape for eco-innovation in Africa. Technical report. Lancaster, UK: Recirculate; 2021.

40. Trimbile J, Phutula HS. Intussuscepting circular economy in African smart cities. In: Trimbile J, Osman A, Stephenson B, Kadoda G, editors. 9th International Conference on Appropriate Technology (ICAT). Technology Exchange and Employment Creation for Community Empowerment: Cross-pollinating Innovative Models; Nov 2020; Pretoria, South Africa. Pretoria: TUT; 2020. p. 109–118. Available from: http://tutvital.tut.ac.za:8080/vital/access/manager/Repository/tutsv:15954;jsessionid=905D2808C60C0EDC710D7D2F3D3F37f?f=sm_subject&k=%23%22sma1+4182

41. Cloete D, South African Institute of International Affairs (SAIIA). SAIIA futures of mining: Implications of large-scale EV adoption [document on the Internet]. c2020 [cited 2022 Jul 23]. Available from: https://sailla.org.za/research/saia-futures-of-mining-implications-of-large-scale-ev-adoption/

42. Kühnlmann K, Agutu AL. The African Continental Free Trade Area: Toward a new legal model for trade and development. Georgetown J. 2020;51(4). http://dx.doi.org/10.2139/issn.35954381

43. South African Department of Science and Technology (DST). Draft white paper on science, technology and innovation [document on the Internet]. c2019 [cited 2021 Oct 13]. Available from: https://www.dst.gov.za/images/2019/DRAFT_WHITE_PAPER_low_res.pdf

44. Martins R. Nexusing charcoal in South Mozambique: A proposal to integrate the nexus charcoal-food-water analysis with a participatory analytical and systemic tool. Front Environ Sci. 2018;6:1–18. https://doi.org/10.3389/fenvs.2018.00031

45. Ndlovu SS. Circumstantial social entrepreneurship: Exploring inclusive, social innovation in the transition from shadow to mainstream economic spaces. A case study of informal sector recycling activities in Bulawayo, Zimbabwe [MPhil dissertation]. Cape Town: University of Cape Town; 2018.

46. Horn Consult Team. Framework to accelerate business transition to green growth and circular economy in Kenya [document on the Internet]. c2021 [cited 2021 Oct 13]. Available from: http://www.environment.go.ke/wp-content/uploads/2021/07/Consultancy_Draft_Framework_to_Accelerate_Business_ to_Green_and_Circular_Economy.pdf

47. South African Technology Network, National Scientists and Organisations. Priority setting for interventions in pre- and post-pandemic management: The case of COVID-19. Position paper [document on the Internet]. c2020 [cited 2021 Oct 13]. Available from: https://thensa.co.za/wp-content/uploads/2020/09/SATIV-COVID-19-Position-Paper-D030620-20200921.pdf

48. Van der Westhuizen JG. Understanding the value processes and barriers facing ecological sustainable entrepreneurs [master’s research report]. Pretoria: University of Pretoria; 2020.

49. Grant R. E-waste challenges in Cape Town: Opportunity for the green economy? Urbaniz. 2019;30(supplement).5–23. https://doi.org/10.5379/urbaniz-iziv-en-2019-30-supplement-001

50. South African Department of Science and Technology (DST). Draft white paper on science, technology and innovation [document on the Internet]. c2018 [cited 2021 Oct 13]. Available from: https://www.assaf.org.za/files/2018/DST%20Draft%20White%20Paper%20on%20STI_Web%20version_FINAL_12092018.pdf

51. D’Amato D, Korhenen J. Integrating the green economy, circular economy and bioeconomy in a strategic sustainability framework. Ecol Econ. 2021;188:1–12. https://doi.org/10.1016/j.ecolecon.2021.107143

52. Johansson N, Henriksson M. Circular economy running in circles? A discourse analysis of shifts in ideas of circularity in Swedish environmental policy. Sustain Prod Consum. 2020;23:148–156. https://doi.org/10.1016/j.spc.2020.05.005

53. Walker AM, Opferkuch K, Lindgreen ER, Raggi A, Simboli A, Vermeulen WJN, et al. What is the relation between circular economy and sustainability? Answers from frontrunner companies engaged with circular economy practices. Curr Econ Sust. 2022;2:731–758. https://doi.org/10.1007/s43615-021-00064-7

54. De Jesus A, Antunes P, Santos R, Mendonça S. Eco-innovation in the transition to a circular economy: An analytical literature review. J Clean Prod. 2018;172:2999–3018. https://doi.org/10.1016/j.jclepro.2017.11.111

55. Haimbata T. Sustainable growth through value chain development in the blue economy: A case study of the port of Walvis Bay [MSc dissertation]. Malmö, Sweden: World Maritime University; 2019.

56. Sutcliffe M, Bannister S, City Insight. Research on the Fourth Industrial Revolution: Implications for local government in the context of skills development [document on the Internet]. c2020 [cited 2021 Oct 13]. Available from: https://bit.ly/3lUMLQ4

57. Manjengwa ER. Evaluating the economics of and business models for metal recycling from waste printed circuit boards in a South African context [master’s thesis]. Stellenbosch: Stellenbosch University; 2019.

58. Lydall M, Nyangwia W, James Y. Department of Science and Technology, Council for Scientific and Industrial Research. Mapping South Africa’s waste electrical and electronic equipment (WEEE): Dismantling, pre-processing and processing technology landscape. Waste Research Development and Innovation Roadmap. Pretoria: DST/CSIR; 2017.

59. Heiskanen E. The institutional logic of life cycle thinking. J Clean Prod. 2002;10:427–437. https://doi.org/10.1016/S0959-6526(02)00014-8

60. Petit-Boix A, Llorach-Massana P, Sanjuan-Delmas D, Sierra-Pérez J, Vinyes E, Gabarrell X, et al. Application of life cycle thinking towards sustainable cities: A review. J Clean Prod; 2017;166:939–951. https://doi.org/10.1016/j.jclepro.2020.105073

61. UNEP-SETAC Life Cycle Initiative. What is life cycle thinking? [webpage on the internet]. c2018 [cited 2021 Oct 13]. Available from: https://www.lifecycleinitiative.org/start-life-cycle-thinking/what-is-life-cycle-thinking/

62. Colombo E, Leone P, Taish M, Cheil F, Pinzone M, Arrigoni S, et al. Toward smart and integrated infrastructure for Africa: An agenda for digitalisation, decarbonisation and mobility [document on the Internet]. c2017 [cited 2021 Oct 13]. Available from: https://re.publico.mat.it/retrieve/handle/11311/0162454/307603/12_2017_ICA_colombo_020% al_annual_meeting_background_paper.pdf

63. Schöggl J-P, Stumpf L, Baumgartner RJ. The narrative of sustainability and circular economy: A longitudinal analysis of two decades of research. Resour Conserv Recyl. 2020;163:105073. https://doi.org/10.1016/j.resconrec.2020.105073

64. Padilla-Rivera A, Russo-Garrido S, Merveille N. Addressing the social aspects of a circular economy: A systematic literature review. Sustainability. 2020;12:1–17. https://doi.org/10.3390/su12197912

65. Ellen MacArthur Foundation (EMF). Circularity indicators: An approach to measuring circularity. Cowes, UK: EMF; 2015.

66. Madyira D, Masebina S, Nyoni E, Rasmeni Z. Integration of technology in communities to enhance circular economy ideologies through waste to energy activities: A PEETS approach. In: Trimbile J, Osman A, Stephenson B, Kadoda G, editors. 9th International Conference on Appropriate Technology. Technology Exchange and Employment Creation for Community Empowerment: Cross-pollinating Innovative Models; Nov 2020; Pretoria, South Africa. Pretoria: TUT; 2020.

67. African Circular Economy Network. ICLEI Local Governments for Sustainability. Circular cities in Africa: A reflection piece by AfriCIRCs about Africa. Draft discussion paper [document on the Internet]. c2020 [cited 2021 Oct 13]. Available from: https://bit.ly/3lqG5Sr

68. African Circular Economy Alliance. Africa’s path to circularity [webpage on the Internet]. No date [cited 2021 Oct 13]. Available from: https://www.africaecoafrica.org

69. Haddaway NR, Collins AM, Coughlin D, Kirk S. The role of Google Scholar in evidence reviews and its applicability to grey literature searching. PLoS ONE. 2015;10(9), e0138237. https://doi.org/10.1371/journal.pone.0138237

70. Hophe-Gindzida S, Chimonyo VGP, Nhloko L, Mpandeil S, Liphadzi S, Naidoo D, et al. Enhancing food and water security through innovations in South Africa. 50 years of research [document on the Internet]. c2021 [cited 2021 Oct 13]. Available from: https://bit.ly/3pGRYPU

71. Zulu B. Towards a sustainable and integrated waste disposal approach: An assessment of waste-to-energy feasibility in Msunduzi Municipality, South Africa [master’s dissertation]. Durban: University of KwaZulu-Natal; 2020.

72. Van Niekerk W, Le Roux A, Petersen A, Mans G, Makhanya S, Van Huyssteen E. Metal recycling from waste printed circuit boards in a South African context [Master’s thesis]. Stellenbosch: Stellenbosch University; 2019.

73. Izaaks G. Water resource management: Analysis of operations and maintenance activities of an informal settlement [master’s dissertation]. Johannesburg: University of Johannesburg; 2019.