

RESEARCH ARTICLE OPEN ACCESS

Mapping the Global South Circular Economy: A Bibliometric-Narrative Analysis

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Received: 13 February 2025 | **Revised:** 14 April 2026 | **Accepted:** 21 April 2026

Keywords: bibliometric-narrative analysis | circular economy | Global South | multilevel framework | thematic trend

ABSTRACT

Although the circular economy (CE) is gaining popularity because of its propensity to optimise the sustainability of resources, few scholars have examined how this field has evolved in the Global South. Using bibliometric-narrative analysis, our paper maps general and thematic trends of CE in the Global South using micro, meso, and macro level frameworks. Based on our dataset, retrieved from the WoS database, we found that the first reference to CE studies in the region emerged in 2007 and was largely focused on waste management and recycling. We identified key themes of CE across different levels of its practices, which interplay either bottom-up or top-down, meaning actions in one area will affect outcomes in others. We also found uneven CE studies in the Global South and highlighted future works to advance the understanding and adoption of the field in the region.

1 | Introduction

In the past two decades, the circular economy (CE) concept has attracted considerable interest among practitioners, academics, and policymakers. Stakeholders across various sectors in the Global North and Global South are making efforts to accelerate CE (Ogut et al. 2023; Hartley et al. 2020; Khajuria et al. 2022). The shift and replacement of a linear economic system with an approach like CE is expected to bring economic progress whilst creating social well-being and ecological welfare (Clube and Tennant 2020).

CE refers to a model of cyclic, repeated and effective usage of goods and natural resources in ecologically responsible economic systems (Popkova 2020). It is operationalised at the micro (firm, product and customers), meso (eco-industrial parks) and macro (city, region, nation and beyond) levels (Ghisellini et al. 2016). CE has been considered to contribute to a substantial number of Sustainable Development Goals (SDGs) including clean water and sanitation (6), affordable and clean energy (7),

decent work and economic growth (8), responsible consumption and production (12), and life on land (15) (Schroeder et al. 2019), climate action (13), quality education (4), reduce inequality (10) and place, justice and strong institution (16) (Ortiz-de-Montellano et al. 2023).

Although gaining popularity in the Global South (Gornostaeva et al. 2020), the dissemination and implementation of CE are mainly in the Global North, making the understanding of how this field evolved in the Global South unclear (Halog and Anieke 2021; dos Muchangos 2022). In the Global North, CE encourages redesign (eco-design) systems in product/production processes to promote durability, repairability and recyclability from the beginning of product creation (Haswell et al. 2024), whereas in the Global South, it tends to focus on life extension through reducing, repairing, reusing and recycling (dos Muchangos 2022).

This paper aims to map trends of CE publications in the Global South region. The Global South refers to Latin America, Asia,

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Africa and Oceania, which are assumed to be less developed and historically referred to as 'developing' or 'third-world' regions (Dados and Connell 2012; Gray and Gills 2016). The term is also interchanged with 'least-developed', 'underdeveloped' and 'low-income economy' (World Population Review 2024). In academic and policymaking, the term Global South has been widely used to characterise material or economic development, geographies of multilateral alliances and individual lived or cultural experiences (Dados and Connell 2012; Haug 2021).

Data were collected in the timeframe between 2000 and 2022 to capture over two decades of CE scholarship in the Global South and maintain a coherent analytical boundary for the study. The 2022 data collection cut-off reflects the timing of data collection, which ended in early 2023. The field has expanded rapidly in very recent years, so publications appearing after this are discussed qualitatively to contextualise emerging findings without altering the methods and structure of our bibliometric dataset.

To map CE publications trends in the Global South, we employed a bibliometric and narrative review. The Global South has been the centre of global production (Bebasari 2019) with strong and large informal sectors (e.g., community-based recycling) whose practices have been close to CE (Langsdorf and Duin 2022), which may shape the formation of the field in the region. However, the adoption of CE in the Global South is often subject to infrastructure constraints, and examinations of how this field evolves in the region remain scattered (dos Muchangos 2022). Thus, this study will contribute to CE discourse as it facilitates a better insight into the evolution of the field and interplays among research themes, which may provoke collaborative actions of various stakeholders and enhance global diffusion of the field.

Although studies have examined trends of CE publication in the Global South, no comprehensive analysis has been done. For instance, Tamasiga et al. (2022) examined this trend in the context of food waste, which solely focused on the meso level. Using three-level frameworks, Nikolaou and Stefanakis (2021) examined the thematic evolutions of CE based on academic disciplines, which did not reflect the Global South. The work by dos Muchangos (2022) might be the one that delineates CE research trends in the region, but it neglects the multisystem nature of the field. Keyword co-occurrence network-based analysis embedded in those studies has also led to the inability to explain the interactions among research themes of the field. Inferences of thematic interactions from such reviews are rarely clear, leading to misinterpretation of the nuance of relationships among themes (Blanchet et al. 2020; Scharp 2021). Our review aims to map the diffusion of CE publication and interplays among research themes in the Global South using a multisystem framework of micro, meso and macro levels. The framework emerged as an ideal choice to holistically present the trend of CE publications (Lanaras-Mamounis et al. 2022) and interplays among research themes. We address the following questions: (1) What are the general and thematic trends for the CE research field in the Global South? (2) How do emerging themes interplay and influence the diffusion of the field? (3) What are the research gaps and future directions for the CE field in the region?

The remainder of this paper is organised as follows: The following section discusses conceptual frameworks. Section 3 presents the methodological approach, whereas Section 4 highlights findings and future research. We provide conclusions in the last section.

2 | Theoretical Framework

To evaluate the overall concepts of CE publications, we used the multilevel framework: micro, meso and macro levels (Yalçın and Foxon 2021; Nikolaou and Stefanakis 2021; Lanaras-Mamounis et al. 2022). The micro level examines the smallest area, one-on-one interaction, firm or product (Nurdiana et al. 2021). The micro level seeks to identify how firms incorporate circular principles to narrow, slow and close material loops utilised (Bocken et al. 2016) and develop eco-innovation in the production process (Prieto-Sandoval et al. 2018; Lanaras-Mamounis et al. 2022). This is organised by performing eco-design, cleaner production strategy, resource/material efficiency, labelling systems and sustainable production and consumption (Geng et al. 2009; Geng et al. 2012; Ghisellini et al. 2016). Product life extension and business model innovation (Linder and Williander 2017) are also features of CE at the micro level, where the practical implementation is often with the adoption of R-strategies—rethink, refuse, reduce, remanufacture, repair and recycle (Morsetletto 2020; Barreiro-Gen and Lozano 2020).

At the meso level, inter-firm collaborations and synergies are emphasised. For example, an industrial park/industrial symbiosis where companies mutually benefit from each other through collaborative innovation (Lanaras-Mamounis et al. 2022). The focus here is fostering networks amongst business communities across industries to optimise the usage of resources based on bilateral exchanges of materials like waste, water and energy by-products (Fang et al. 2007; Faria et al. 2023), technology/facility sharing (Chertow 2000), reverse logistics and green supply chain and extended producer responsibility (de Jesus et al. 2018). Chain matching projects (input–output) in various entities (product, waste metabolism, ecological protection and management service) are also features of CE at the meso level (Wen and Meng 2015).

The macro level, geographical/territorial, is theorised as a wider scale of CE. At this level, CE includes activities related to the administrative areas of policymakers (city, province, region and national) to stimulate circular-oriented societies (Kazancoglu et al. 2021). The macro level emphasises the need for support facilities (policy/legislation) for CE, where strategies include integration/redesign of industrial systems, establishing infrastructure/delivery systems, developing cultural frameworks and social consumption systems (Naustdalsslid 2014; Ghisellini et al. 2016; Feng and Yan 2007). At the macro level, Feng and Yan (2007) stressed the need to establish industrial systems featuring industrial symbiosis and material circulation to absorb natural resources and proceed to manufacture, distribute and deliver products. In such a process, the system being used must be able to aid the development of regional production, water recycling systems, clean energy and clean mass transit. The social systems embedded at this level are also crucial since shifting into CE, consumer/social behaviour needs to be aligned with

environmental protection, and policymakers are responsible for assisting sufficient policy mechanisms to support the process (Feng and Yan 2007).

Considering the above discussion, our paper aims to map CE publication trends in the Global South using a broad spectrum of micro, meso and macro levels. For the micro level, studies relied on the internal operations process of firms, and for the meso level, collaborations among industries and counterparts are emphasised, whereas at the macro level, focus is on policy relevance toward CE (Lanaras-Mamounis et al. 2022; Giljum et al. 2011). Incorporating this view into our framework, we provided a holistic analysis of this emerging field in the region.

3 | Methods

A bibliometric and narrative review was used to map the publication and thematic trends of CE studies in the Global South. This method enabled us to reflect and build new explanations and interpretations of the topic being reviewed (Torraco 2005). We selected the Web of Science (WoS) as a source for the database. WoS was chosen as it is a leading scientific citation search and analytical information platform that has been widely used for bibliometric review (Hansen et al. 2015; Salim et al. 2018). WoS covers a wide range of disciplines, including humanities, science, social science and arts, making it suitable for studying CE as an interdisciplinary field. Author names, affiliations, article titles, abstracts and keywords are also accessible via WoS.

To collect relevant publications, we followed the keyword search string strategies of a similar review (Gallego-Schmid et al. 2024). The first and second groups of keywords 'circular economy' AND 'global south' OR 'developing countr*' OR 'developing econom*' OR 'emerging econom*' OR 'emerging nation*' OR 'least-developed countr*' OR 'underdeveloped countr*' OR 'low-income econom*' OR 'third-world countr*' were inserted into our search query. Various synonyms of the 'Global South' were

considered because, as explained in section one, the term is often used interchangeably. The third group keyword, the names of countries that are all listed by the United Nations Educational, Scientific and Cultural Organisation (United Nations 2023), was included in our search string, see Appendix A of the [Supporting Information](#). The combination of those keywords into our data collection processes enabled us to rigorously retrieve a wide range of publications in the Global South.

The year 2000 was selected as the start date for data collection as it was the first year that laws and plans based on principles close to CE were introduced (Aggeri 2021). Then, we exclusively searched for articles published between 2000 and 2022. In our current study, data collection commenced on 24 March 2023, so the end point of 2022 represented the last full year of bibliometric data at that time. Through our search string process, a total of 1584 documents were captured, which were then filtered based on criteria.

The screening process focused on original research publications (primary or secondary/review research) in English. Publications such as proceedings, perspectives and retracted articles were excluded, reducing the number to 1290 documents. The review was then narrowed to articles published between 2000 and 2022, retaining 1186 publications. Each was assessed by reading the title, abstract and full text and categorised based on predetermined CE categories and subcategories. Through these processes, 927 publications were selected and reviewed. Figure 1 presents the process flow of article refinement.

We recognise that there has been a rapid expansion in the number of publications since 2022. However, extending the dataset beyond this date would have required a doubling of our sample size, requiring manual screening, coding and interpretation of more than 1500 additional papers. This scale of expansion would effectively constitute a new study, as it would alter the structure of the dataset, the thematic clusters and the comparability of the longitudinal trends. The 2000–2022 period, therefore, provides

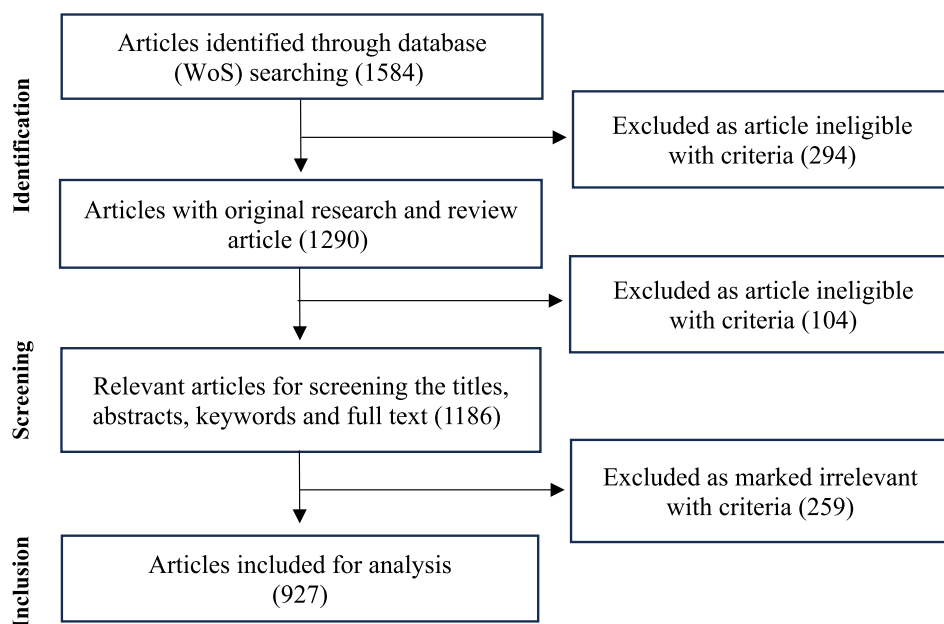


FIGURE 1 | The process flow for article refinement and selection.

TABLE 1 | Categories and subcategories for article inclusion.

Categories	Subcategories
Micro level	Eco-design, cleaner production strategies, resource/material efficiency, labelling systems, sustainable production and consumption, product life extension and business model innovation
Meso level	Resource/material exchange, technology/facility sharing, reverse logistics and green supply chain, extended producer responsibility and chain matching projects
Macro level	Integration/redesign of industrial systems, infrastructures/delivery systems, cultural frameworks and social consumption systems

a pragmatic and methodologically consistent foundation for analysing long-term developments, with more recent post-2022 trends discussed qualitatively.

Following Yalçın and Foxon (2021), CE is formed in multi-level perspectives; our screening and inclusion criteria were established within this framework. Table 1 and Appendix A of the [Supporting Information](#) show the summary of the categorisation criteria. The micro level category includes articles discussing topics about eco-design, cleaner production strategy, resource/material efficiency, labelling systems, sustainable production and consumption, product life extension (PLE) and business model innovation. The meso level covered articles that discuss topics on resource/material exchange, technology/facility sharing, reverse logistics and green supply chain, extended producer responsibility and chain matching projects. The macro level included articles that discuss topics related to the integration/design of industrial systems, infrastructure/delivery systems, cultural framework and social consumption systems.

3.1 | Analytical Approach

We employed two analytical approaches. First, we conducted performance analyses to map the general trend, including total publications, research location and industry focus (Donthu et al. 2021). Following Gupta et al. (2006), we categorised publications based on research methods and designs: identifying if they used data observation/experiment, literature review/survey, modelling and analysis. We also categorised articles as qualitative if the paper employed case studies, interviews, focus groups and non-statistical methods in their data collection. Articles using numerical data collection approaches were labelled as quantitative, whereas articles that integrate quantitative and qualitative data were classified as mixed methods.

We also categorised publications based on the analytical techniques used. Publications that use regression/similar analytical techniques as the analytical technique consist of those that employ logistic, linear and other similar regression techniques in their data analyses. Categories of multivariate

and mathematical modelling covered articles that used factor analysis, cluster analysis, time series, mathematical modelling and simulation in their data analyses. Meanwhile, articles were classified as qualitative if they employed content, narrative, coding, discourse and other qualitative analytical techniques.

Second, science mapping was employed to map the intellectual structures (a big picture) of the overarching research themes within the field (Lim and Kumar 2024). In bibliometric analysis, science mapping is significant for mapping the little-known academic area of the field. Science mapping was specifically applied to articles discussing CE in the Global South and combined with narrative discussion to build explanations and interpretations (Torraco 2005). Articles discussing the Global North or combining North and South were excluded from analyses. The process was performed by reading titles, abstracts and full text to determine and classify them into our predefined categories and subcategories shown in Table 1.

4 | Results and Findings

This section highlights findings of general and thematic trends of CE publications in the Global South. General trends encapsulate annual publications, geographical distribution, industry and area of research focus. Thematic trends, on the other hand, illustrate thematic distributions of CE research publications during the study period.

4.1 | Descriptive Analysis of General Trends

Figure 2 shows the trends of CE research publications in the Global South from 2000 to 2022. Although the framework law based on CE principles began in 2000 (Aggeri 2021), we found that the first reference to CE studies in the Global South appeared in 2007, with five publications. In the first decade, this trend remained constant, with a gradual increase in 2017, with 25 publications. Significant growth occurred in 2018 and 2020, with 44 and 135 articles, respectively. There was a remarkable development of 582 (63%) CE publications from 2020 to 2022. Although there has been a rapid expansion in the number of publications since 2022, we retain our current dataset and

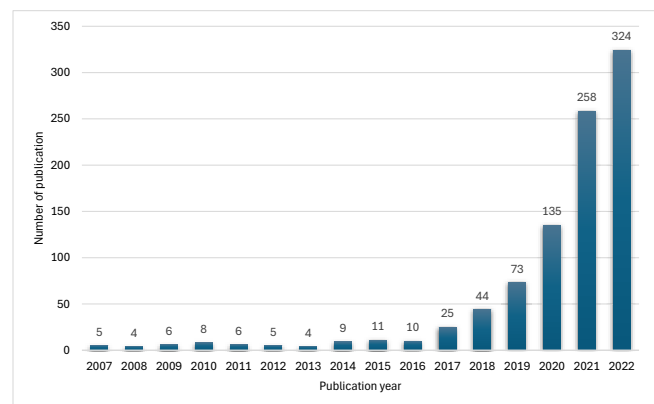
**FIGURE 2** | Trends of CE research publication in the Global South.



FIGURE 3 | Distribution of research location in the Global South CE publications.

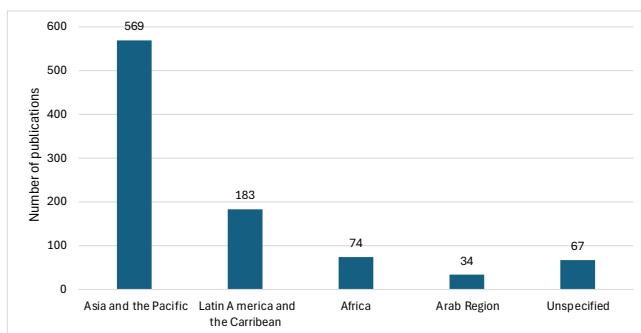


FIGURE 4 | Publication distribution by geographical region.

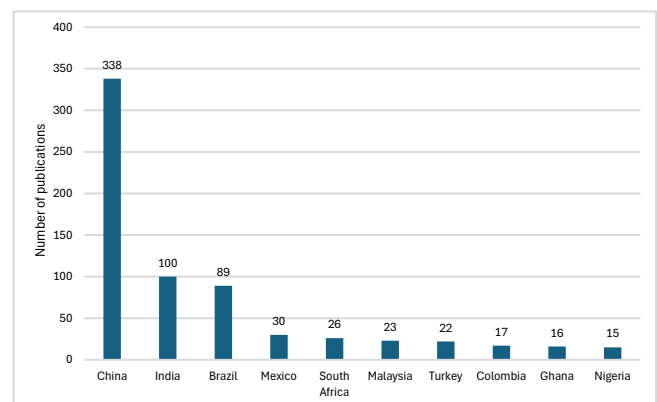


FIGURE 5 | Top 10 countries for the Global South CE publications.

provide a pragmatic and methodologically consistent foundation for analysing long-term developments of the field in the region.

4.1.1 | Geographic Focus

Geographic distributions of CE publications were grouped by following the United Nations Educational, Scientific and Cultural Organisation (United Nations 2023). Figures 3 and 4 show the geographic spread of research locations. As shown in Appendix B of the [Supporting Information](#), the CE field has been researched in 54 countries of the Global South. A total of 569 (61%) were identified in Asia and the Pacific, with China and India leading with 338 (36%) and 100 (11%) studies, respectively. Latin America and the Caribbean came second, with 89 (10%) articles being conducted in Brazil. Africa contributed 74 (8%), and slightly above the Arab regions, whereas the remaining 67 (7%) articles were grouped as unspecified (as research location was carried out in multiple countries). As shown in Figure 5, the top 10 study locations were from

economic growth nations (Nayyar 2016), indicating a strong link between economic progress and engagement in CE research.

4.1.2 | Industry and Research Focus

Figure 6 depicts the industry focus of CE studies in the Global South over the period of 2000–2022. A large share of studies, 304 (33%), examined CE in waste management and recycling sectors. The manufacturing sector contributed 216 (23%), whereas the service sector represented 92 (10%) publications. The energy and agriculture contributed 60 (6%) and 46 (5%) publications, respectively. The construction sector made up 24 (3%), whereas the remaining 185 (20%) examined the CE across multiple sectors, combining manufacturing and service. Given the dominance of publications where China is the focus, we also explored findings when these articles were excluded. We found the pattern was consistent whether China was included or not in the dataset. Indeed, waste management and recycling sectors remained

dominant, reflecting that the CE field has been widely examined within this industrial area.

Figure 7a shows the research design approaches used in CE studies in the Global South during the study period. Quantitative methods were used in 610 (66%) articles, followed by qualitative with 231 (25%), and mixed methods with 86 (9%). The qualitative category widely explored barriers and drivers for CE adoption and policy intervention, particularly in the context of China. The quantitative category examined societal aspects such as customers' perception and behaviour in CE. The mixed method typically addressed complex relationships, such as cause-and-effect relationships among CE barriers.

We also found that most studies, 667 (72%), used empirical methods, followed by modelling/analytical approaches (127;

14%). Literature review and survey accounted for 87 (9%) articles, whereas conceptual papers made up 46 (5%). Scholars also used various data collection methods. Gupta et al. (2006) argued that this was prevalent given the diversity of objectives, industries and the interdisciplinarity of the CE field, which required various data collection strategies. In terms of data collection methods, surveys (e.g., instruments/questionnaires) and archival (e.g., organisational reports) were the most widely used, with 289 (31%) and 280 (30%) publications, respectively. Qualitative data collection using interviews, focus groups and/or field surveys represented 204 (22%) publications. Articles with laboratory-based data collection covered 145 (16%), and a few (nine) publications had no data reported. Figure 7a,b,c shows distributions of research design, purpose, methodology, data collection and analysis used in the Global South CE studies over the period of 2000–2022.

In terms of data analysis, descriptive data analyses were the most common, with 399 (43%) articles. Multivariate and mathematical modelling accounted for 246 (27%) publications, whereas qualitative analysis covered 237 (26%) publications. Regression and related techniques were found in 45 (5%) publications. Regarding research purposes, the vast majority of articles, 828 (nearly 90%), focused on knowledge production theory/building. Theory verification through conceptual/hypothetical testing was found in 66 (7%) publications, whereas practical applications shared 33 (4%). These indicate that the primary focus of scholars in studying the CE field in the

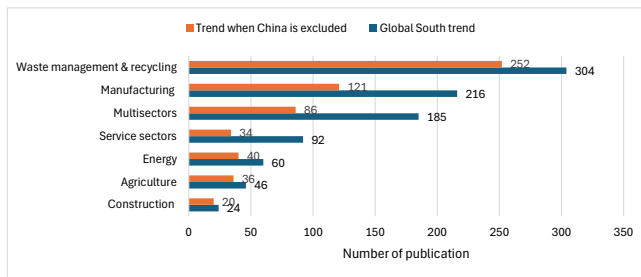
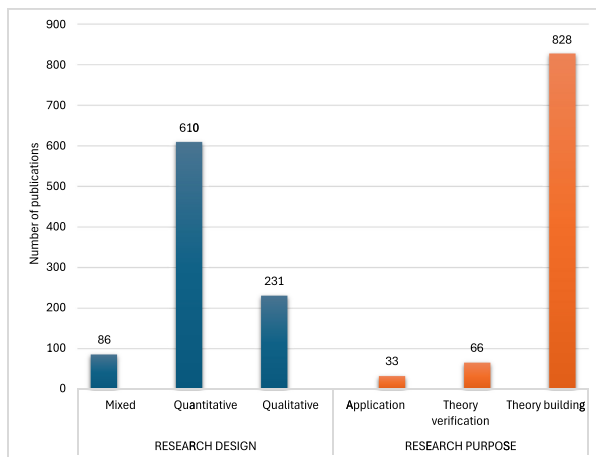
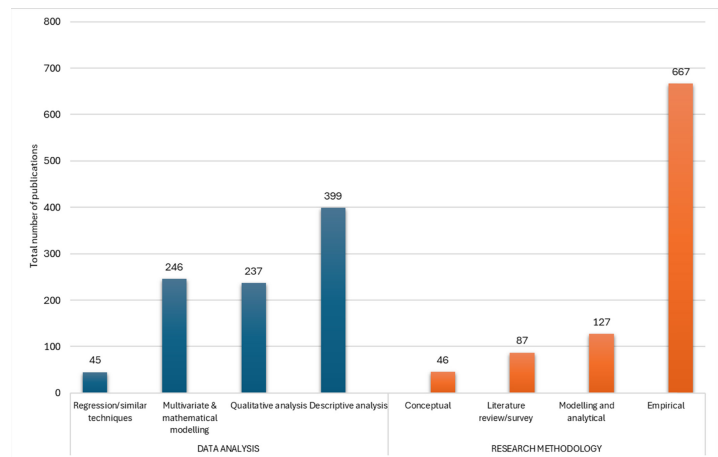


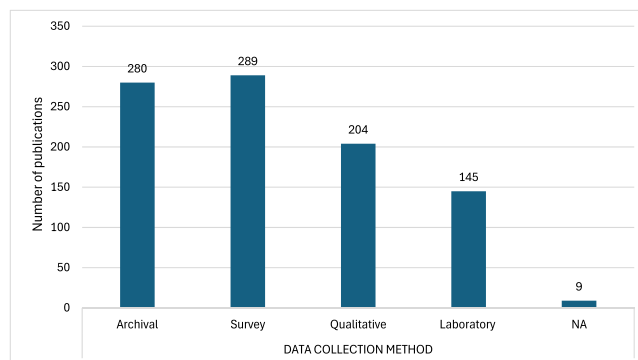
FIGURE 6 | Industry distributions of the research publications.



a. Distribution of research design and purpose



b. Distribution of research methodology and data analysis



c. Distribution of research data collection methods

FIGURE 7 | Distributions of Global South CE publications between 2000 and 2022 according to (a) research design and purpose, (b) methodology and data analysis and (c) data collection methods adopted.

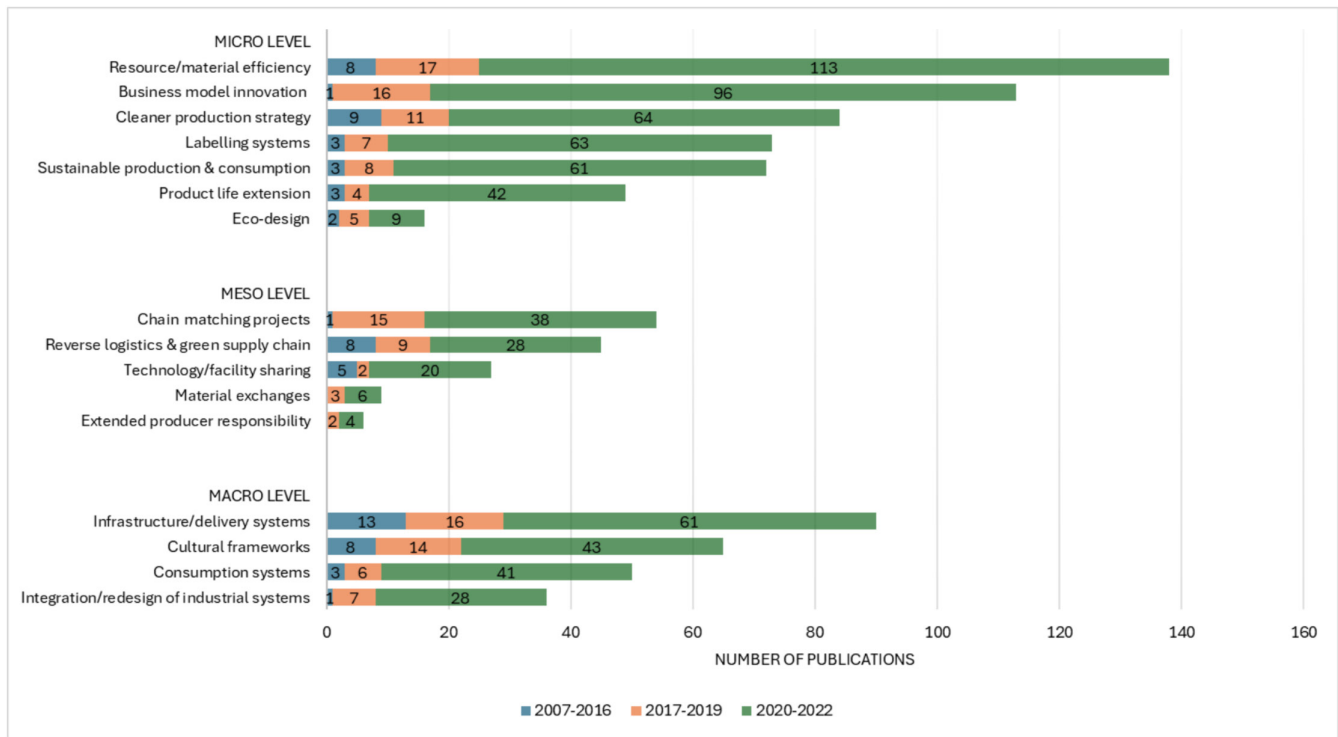


FIGURE 8 | Thematic distributions of the micro, meso and macro level publications.

Global South between 2000 and 2022 was academic purposes of knowledge production.

4.2 | Thematic Distributions

Figure 8 shows thematic distributions and evolutions of CE research publications at the micro, meso and macro levels. To visualise the thematic evolution of the field, we grouped the timeline into three periods, as shown in Figure 8 and more detailed in Appendix D of [Supporting Information](#).

Thematic distributions of the CE field in the Global South have just evolved after 2019, where the micro level came the most prominent with 545 (59%) articles. Resource/material efficiency and business model innovation are remarkable topics with 138 (15%) and 114 (12%) articles, respectively. The former focused on exploring themes including energy recovery from waste, adoption of loop systems to enhance recycling performance, energy efficiency and economic growth, whereas the latter addressed challenges, opportunities and strategies to CE. Furthermore, the cleaner production strategy research subcategory represented 84 (9%), covering topics of management aspects, including process improvement, total quality management and people-driven factors of CE. Labelling system, sustainable production and consumption system subcategories shared similar features, which mainly explored topics including resource/waste characteristics, compositions and volumes. Research on PLEs and eco-design identified the least, with only 49 (5%) and 16 (2%) publications, respectively. The diversity of thematic focus at the micro level indicates CE has been widely examined in company settings, reflecting its economic (e.g., resource/material efficiency), social (e.g., labour absorption) and environmental

(e.g., waste reduction) benefits that firms can make from CE implementation.

Studies at the meso level accounted for a small fraction, with 141 (15%) over the study period. A large share of studies in this subcategory were chain matching projects, 54 (9%), exploring topics such as the transformations of industrial waste into alternative resources (e.g., biogas and bioenergy). This subcategory experienced exponential growth between 2017 and 2022. The reverse logistics/green supply chain subcategory, addressing issues like raw material flows and logistic structures, represented 44 (5%) publications. Technology/facility-sharing covered 27 (3%) publications, whereas material exchange and extended producer responsibility subcategories were the least, with 10 and 6 publications, respectively.

Our analysis also revealed that of the 927 articles reviewed, 241 (26%) fell into the macro level. The infrastructure system research subcategory led the macro level trend with 13 articles in the first decade, before then showing exponential growth between 2020 and 2022. This was then followed by the cultural frameworks research subcategory, which accounted for 65 (7%) of the total publications. Research on infrastructure systems predominantly discussed legislative and policy/legal aspects of CE, whereas the cultural frameworks subcategory examined topics such as waste processing systems and health risk assessment. Behavioural intervention, which aims to mitigate barriers in waste separation processes, is also discussed in this research subcategory. The consumption system research subcategory, which covers topics like energy consumption and economic growth, contributed to 50 (5%). Integration/redesign of industrial systems was the least at the macro level theme, with only 36 (4%) publications over the study period.

5 | Discussion

This section elaborates on our research findings. We begin by discussing the predominance of China in CE discourses in the Global South. This is followed by an analysis of how the thematic distribution of the field aligns with the multi-level framework. Subsection 5.3 outlines avenues for future research, whereas the final subsection presents limitations of the study.

5.1 | The China Effect in the CE Dissemination

Although the CE conversations have historically been dominated by the Global North, there is a notable exception. As shown in Figure 8, from the 927 articles reviewed, a total of 338 (36%) were conducted in China. The primary explanation for this overachieving is the promulgation of the Circular Economy Promotion Law (CEPL) in 2008. This top-down policy framework provided comprehensive planning for CE development across micro, meso and macro levels of the country (Feng and Lam 2021). The framework has tailored the implementations, capacity building and long-term commitments of China to the circularity transitions (Zhu et al. 2025).

The capacity of China's research infrastructures also helps explain the substantial growth of CE in the country. In line with the CEPL, China implemented programmes to promote R&D, enhance science and technology and stimulate education and scientific work to support the CE initiatives (World Bank 2008). The government assigned the National Development and Reform Commission (China's leading agency for CE) to organise and coordinate the academia, central and local government and industrial associations to conduct theoretical research, pilot projects and demonstration of accounting with its national CE agenda (European Commission 2018). Such a strong policy agenda and the extensive capacity of research institutions have therefore positioned China as the leader in the dissemination of the CE field in this context.

Although dominating CE conversation in the region, excluding China from the analysis did not change the overall trend of the Global South publications. As shown in Figure 6, the industry trend reveals consistent features, with waste management and recycling sectors leading. This finding corroborates the study of Nikolaou and Stefanakis (2021), who found that scholarly works on CE have paid considerable attention to the waste management policies, particularly in municipal and international contexts. The thematic trend also remains similar, with resource/material efficiency (micro) and chain matching projects (meso) and infrastructure/delivery system (macro) as the dominant themes; see Appendix D of [Supporting Information](#).

5.2 | Proximity of Thematic Distribution

As CE operate across multiple levels, our findings indicate that the emerging research themes are closely interplayed, with dynamic interactions unfolding in both bottom-up and top-down directions. In the bottom-up, for instance, the rise of research on resource/material efficiency and business model innovation

(micro level) corresponds to the expansion of studies on themes of chain matching projects, reverse logistics and green supply chains (meso level). Resource and material efficiency (one of the themes at the micro level) deals with the maximisation of resources through increased material circulation and minimisation of loss (van Ewijk 2018). To support such a process, firms need to be aided by reverse logistics and supply chain systems to return raw materials of second-hand/after-market products to producers. Such a process can only be done through chain matching projects involving meso level actors, which is consistent with the trend of publication on certain subcategories of the micro and meso levels (see Figure 8). Similarly, the trend of studies on business model innovations aligns with the expansion of scholarly works on chain matching projects, reverse logistics and green supply chains. Business model innovation is classified as closing resource loops in which companies create value from waste/nonvirgin material (Bocken et al. 2016) that need to be supported by reverse logistics, which somehow validates the publication trend of those subcategories.

The increasing number of studies on cleaner production strategies (micro level) also aligns with the growing research related to technology and facility sharing (meso level). Sousa-Zomer et al. (2018) emphasised that adopting cleaner production to reduce emissions in circular product design requires technological support, confirming the findings of the emerging research related to cleaner production strategies (micro level). The expansion of studies on the labelling systems and sustainable production and consumption appears to be driven by the expansion of societal (producers and consumers) awareness about the ecological effects of their production and consumption choices (Pineiro-Villaverde and García-Álvarez 2020; Zu 2013).

The expansion of studies on resource and material efficiency, business model innovation and cleaner production strategy (micro level) likely appears to be driven by monetary opportunities, as adopting those can help firms create new, better value propositions (Bocken 2024). These strategies are often referred to as 'slowing resource loops' and 'closing loops' (Bocken et al. 2016). Performing those strategies in the business process of the firm enables gaining greater value while minimising risks to humans and the environment with a lower cost (Tschiggerl and Topic 2019). A noticeable number of studies on PLE, shown in Figure 8, support earlier findings by Bakker et al. (2014), who found PLE to be an unexplored area within CE. Milios (2021) argued that this gap stems from the urgent need for infrastructure (e.g., policy reform) to support firms adopting PLE. Moreover, implementing PLE depends on active participation from consumers (returning used products to producers), which involves a longer and more complex process, making it less appealing for companies. The small number of studies on eco-design may be caused by economic uncertainty associated with its adoption (Dalhammar 2016). Implementing eco-design requires detailed information on the ecological impacts of product lifecycles across all stages of the production process (Favi et al. 2021; Van Doorsselaer 2021), which makes it less attractive, leading to a slow academic response to the eco-design subcategory.

As shown in Figure 8, the upward trend of publications in particular areas of micro and meso level aligns with the growth of studies at the macro level, particularly in infrastructure systems.

As more companies (micro level actors) implement resource and material efficiency, business model innovations and cleaner production strategies in their systems, more materials (second-hand products), which may contain hazardous substances, are exchanged/traded. This certainly drives action from macro level actors (cities and regions) by reforming infrastructure systems (policy/regulatory reform) as well as cultural frameworks of institutions to govern the activities for the effectiveness of CE implementations (Beaurain et al. 2023). This is true in this case, as the ban on importing particular types of used products in 2017 by China (the leading country in this transition) profoundly reconfigured the global diffusion of CE. The action inevitably leads to shortages of recycled materials (a critical aspect for micro level actors) and increases the price of products in the supply chain at the meso level. Such a situation has indeed become a target for scholarship discourses, which corresponds to expansions of publications on topics related to this particular CE research subcategory.

In the top-down approach, cities and regions (the macro level actors) play an important role in facilitating CE both at the micro and meso levels. This actor manages a wide range of policies that must be effectively coordinated to support circularity initiatives (Dąbrowski et al. 2024). Lacombe and Rajaonson (2024) and OECD (2020) highlighted three main roles of cities and regions in CE: catalysts/enablers, promoters and facilitators. As catalysts, cities and regions plan and design relevant programmes to advocate CE practices by creating enabling conditions such as grant programmes, capacity building and business development support (Dąbrowski et al. 2024; Lacombe and Rajaonson 2024; OECD 2020). The prevalence of these actors explains the evolving trends of publications on the infrastructure systems subcategory, which align with the trend of research on resource/material efficiency, business model innovation and cleaner production strategies at the micro level. These areas emphasise the monetary feasibility, which is vital for the micro level as firms often target specific goals with immediate reach by adopting strategies like reducing, reusing, recycling and resource efficiency (dos Muchangos 2022).

As promoters, cities and regions act as role models by setting clear information and establishing goals and targets (OECD 2020). They also develop plans, implement and monitor progress in wider societies/business communities in their territories (Lacombe and Rajaonson 2024). Our analysis shows that the advancement of CEPL to encourage circularity of industries has pushed the rapid expansion of Chinese industrial parks (a crucial aspect of global supply chains), which is promoted by top-down paradigms (Lyu et al. 2022), explaining the trend of studies on reverse logistics and green supply chains research subcategories. Expansions of eco-industrial parks/industrial symbiosis indirectly affect the use of second-hand resources in a productive chain based on collaboration between firms (Boom-Cárcomo and Peñabazena-Niebles 2022), which spurs academic interest in the theme of chain matching projects at the meso level.

As facilitators, cities and regions play key roles in providing relevant infrastructures for micro level actors (firms) by enforcing effective coordination, ensuring policy coherence, embracing stakeholder engagement and adopting functional approaches (OECD 2020). Our review shows that the growing

trend of research in the infrastructure systems subcategory is likely influenced by government policies (CEPL, the National Resource Efficiency Policy and the National Solid Waste Policy) in particular countries of the Global South. Such initiatives spur scholarly responses in researching topics related to the cultural framework.

Although CE initiatives in the Global South are widely inspired by the Global North practices, there are notable differences in thematic focus and adoption. Merli et al. (2018) identified that the global research regarding CE was concentrated at the macro level, and this contrasts with our results. We revealed that the Global South CE studies were predominantly examined at the micro level. CE in the Global North is framed as a transition from a linear economic model to a sustainable one (Blomsma et al. 2023), encouraged by top-down models (policy reform) to integrate macro level targets and micro level adoptions (Drofenik et al. 2025). Thus, most of the CE studies in the region focus on strategic tools such as eco-design, eco labelling and EPR (Dragomir and Dumitru 2024; Haswell et al. 2024). In the Global South, in contrast, CE adoption tends to be a more pragmatic business, emphasising resource efficiency (Abunyewah et al. 2023), and is largely performed by micro level actors from informal sectors such as waste pickers and community-based recycling (Cataldo et al. 2025; Langsdorf and Duin 2022; dos Muchangos 2022). These disparities are likely influenced by differences in policy frameworks, economic conditions and the degree of awareness about the environmental impact of products among actors, where countries in the Global North have established programs for eco-design, eco labelling and EPR, which are less common in the Global South (Haswell et al. 2024).

5.3 | Future Research

CE research in the Global South is largely examined in waste management, which expands our knowledge of using waste as an alternative resource. We urge scholars in the future to consider other industries to improve the discourse of the field. Because of the purpose of current CE studies in the Global South being academic/theory development, scholars in the future need to embrace non-academic audiences to elevate practical applicability (Salim et al. 2018).

We identified areas for future work for CE, including PLE and eco-design (micro level), which are vital to enhance product repairability, upgradability and refurbishment (Van Doorselaer 2021). Research may explore human aspects like stakeholder engagement and challenges in managing people to work together in circular systems (Dahmani et al. 2022), the collaboration process, stakeholder assessment and paradoxes, as well as how they can be best managed (Brown et al. 2021). Examining how design strategies contribute to reducing environmental footprints (Maldini et al. 2019) can also be considered. Given the diversity of actors (suppliers and designers) involved in eco-design, it is also promising to scrutinise how these stakeholders can be managed to escalate CE under eco-design (Brown et al. 2021).

We also signal gaps at the meso level, as little research has been done on EPR. Future studies could address this by examining

stakeholder behaviours within EPR as well as economic, social and environmental outcomes of the EPR system. Such studies may offer insight for developing a sustainable-oriented model (Gu et al. 2017) while supporting policymakers in identifying and designing relevant policies to foster CE at the industrial level.

Additional insights from the consumption system subcategory have emerged at the macro level. In broader scales (e.g., cities and regions), social consumption should aim to harmonise human activity with nature, aided by policy interventions that help establish consumption mechanisms (Feng and Yan 2007). Studies may explore how social consumption systems, cultural changes and consumer motives (individual and industrial) contribute to promoting sufficiency-based lifestyles under CE frameworks (Camacho-Otero et al. 2018; Garcia et al. 2021).

5.4 | Limitations

This study offers a comprehensive analysis of CE from the Global South, which is relevant as discourses on this have been dominated by the Global North narratives. Our analysis, building on a multisystem framework (micro, meso and macro), provides a robust and novel insight that has not been used in prior literature in this context. However, this study is not without limitations. The analysis of CE evolution solely relied on the WoS database. Using additional sources (Scopus and Google Scholar) may have introduced diverse results and implications.

Subsequently, our review is limited by the time-bounded nature of the dataset, which ends in 2022. This was an intentional methodological decision that reflects the timing of our data collection in early 2023. Although publications have increased rapidly since 2022, the 2000–2022 dataset provides a coherent and internally consistent foundation for analysing long-term trends in the region. Future work could build on this by incorporating newer publications using approaches capable of handling much larger datasets, like automated or AI-assisted screening, content or cluster analysis or mixed-method bibliometric techniques. Such methods would enable researchers to track the evolution of the field beyond 2022 and examine how emerging themes identified in this study continue to develop.

6 | Conclusion

Our review highlights general and thematic trends of CE publications and the interplays among them using a holistic analysis of the micro, meso and macro level framework. A total of 927 articles were analysed, and the results revealed that CE research in the Global South had just five publications recorded in 2007 and significantly rose to 324 in 2022. Of all articles reviewed, 527 (57%) came from China, India and Brazil, with a strong emphasis on waste management and recycling. The majority of studies are aimed at generating theoretical insight and advancing academic understanding of CE from the Global South's views.

We also unravelled thematic trends of CE across micro, meso and macro levels of its practice. At the micro level, research widely explores topics of resource/material efficiency, business model innovation, cleaner production strategy, labelling system,

sustainable production and consumption and PLE, whereas eco-design remains sparse. At the meso level, topics of chain matching projects, reverse logistics and green supply chain and technology/facility sharing are well discussed, whereas material exchange and EPR receive limited attention. At the macro level, scholars frequently assess infrastructure systems, cultural frameworks and consumption systems. However, there are limited studies related to the integration/redesign of industrial systems at the macro level. We also found that within a multi-system framework, CE research themes are interlinked either bottom-up or top-down, meaning actions/changes in one area will influence outcomes in others.

Finally, the expansion of the environmental agenda in certain areas of the Global South has contributed to the increasing diffusion of CE research in the region. The prominence of China, India and Brazil in CE discourse reflects their economic development, infrastructure progress and political influence to raise sustainability issues at the global level. However, the limited research on certain themes needs to be acknowledged, given that CE transitions could be scaled through the integration/redesign of industrial systems at the macro level, supported by EPR at the industrial level and the adoption of eco-design at the firm level.

Conflicts of Interest

The authors declare no conflicts of interest.

Funding

This research was supported by the Indonesian Education Scholarship, Centre for Higher Education Funding and Assessment, and Indonesian Endowment Fund for Education.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Data S1:** Supporting Information.