



## Collaborative Governance in Handling the Waste Crisis: A Systematic Literature Review

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### ABSTRACT

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The waste crisis presents a complex challenge that requires diverse stakeholder engagement for efficient and lasting solutions. This study aims to analyze and synthesize current literature on collaborative approaches in waste management. The research employs a systematic literature analysis, focusing on key elements such as stakeholder engagement, government involvement, community participation, technical advancements, and information and communication governance. The study emphasizes the importance of intersectoral collaboration and multi-level governance in addressing the waste challenge. Collaborative techniques involve parties with similar interests, but implementation is hindered by differences in objectives, interests, and responsibilities. Cooperation is seen as a methodology that enhances coordination, optimizes resource use, and fosters innovative ideas. The findings offer valuable insights for decision-makers, practitioners, and researchers involved in developing and executing efficient collaborative approaches to tackle the waste problem.

## 1. INTRODUCTION

Collaborative governance entails an approach to governance that prioritizes cooperation, partnership, and inclusive decision-making among diverse stakeholders, encompassing government agencies, non-governmental organizations, private sector companies, and individuals [1, 2]. The objective of this strategy is to leverage the combined knowledge, assets, and viewpoints of these varied stakeholders to tackle intricate social issues and attain outcomes that are both more efficient and sustainable. Collaborative governance frequently includes the establishment of transparent communication channels, the exchange of information, collective problem-solving, and the consolidation of resources to formulate and execute policies, programs, and initiatives [3, 4]. Through the promotion of cooperation, governments could access a broader spectrum of perspectives, leading to the generation of new solutions. This, in turn, has the potential to bolster public trust and engagement, ultimately facilitating beneficial societal change across various sectors and levels. This approach acknowledges the limitations of individual entities in possessing the requisite expertise and resources to address the complex challenges of the present era. Consequently, collaboration emerges as a vital technique for attaining comprehensive and influential governance.

In the realm of environmental concerns, collaborative governance entails a comprehensive and inclusive strategy for tackling intricate environmental problems by means of the active involvement and cooperation of governmental entities, environmental non-governmental organizations, businesses, local communities, and individuals [1, 4]. It acknowledges that

environmental issues, such as climate change, biodiversity loss, pollution, and resource depletion, necessitate comprehensive solutions that surpass conventional boundaries and expertise. Collaborative governance is the exchange of information, skills, and resources among many stakeholders with the common objective of collectively formulating and executing policies, programs, and initiatives that address the challenges posed by environmental changes [5]. This methodology facilitates the exchange of ideas, the establishment of agreement, and the integration of many viewpoints, so guaranteeing that the resultant strategies are more all-encompassing, efficient, and enduring. Through the active involvement of diverse participants, collaborative governance effectively boosts its ability to innovate, harnesses collective knowledge, and cultivates a shared feeling of ownership and accountability among many stakeholders. Within the domain of environmental concerns, the adoption of this strategy is imperative in order to cultivate substantial transformation and ensure the protection of the planet for both present and future cohorts.

Collaborative governance, in the realm of waste management and environmental sustainability, involves a coordinated endeavor among governmental entities, waste management entities, environmental organizations, industries, local communities, and individuals to collectively address the intricate obstacles presented by waste [6]. The aforementioned approach acknowledges the multifaceted nature of waste-related concerns, which involve a variety of linked challenges such as the overflow of landfills, the proliferation of plastic pollution, the proper disposal of hazardous waste, and the depletion of resources. Collaborative governance in the realm of waste management is the sharing of knowledge, experience,

and resources among many stakeholders in order to collectively develop creative solutions and effectively implement comprehensive programs for trash reduction, recycling, and disposal [7]. Through the facilitation of inclusive and constructive discourse, as well as the active engagement of multiple viewpoints, collaborative governance endeavors to ensure that policies and projects effectively cater to the heterogeneous requirements and apprehensions of all relevant parties involved [8-10]. This strategy additionally promotes the advancement of circular economy models, which aim to decrease waste and promote the reuse, repair, or recycling of products, thereby resulting in a reduction of the overall environmental effect. In conclusion, the use of collaborative governance in waste management endeavors enhances the capacity to achieve efficient waste reduction, fosters the adoption of sustainable methodologies, and contributes to the cultivation of a more pristine and salubrious environment for present and forthcoming cohorts [11].

In the context of globalization, the problem of waste management has surpassed the confines of national borders, necessitating a cooperative governmental strategy that encompasses the participation of governments, international organizations, enterprises, local communities, and individuals [12]. This collective effort is crucial for effectively tackling the intricate and extensive global waste difficulties. Collaborative governance, within the framework of waste management and globalization, involves the implementation of coordinated endeavors to effectively regulate the movement of waste materials across national boundaries, deter the unlawful disposal of waste in developing nations, and encourage responsible waste disposal practices among industries that operate within global supply chains. This method recognizes the transcontinental movement of waste, including electronic waste and plastic pollution, which significantly contributes to environmental deterioration and poses health risks.

Therefore, this paper provides a systematic review of how collaborative governance in waste issues until 2023 (April) through the following research questions:

**RQ1:** What research clusters or patterns exist in the bibliometrics of collaborative governance in waste issue literature?

**RQ2:** How have these research clusters developed?

**RQ3:** Who and what are the main channels for collaborative governance and waste issues?

**RQ4:** What are the promising future research avenues?

Furthermore, this paper provides an explanation of bibliometric research tools and methodologies by discussing the findings from the concerned authors and identifying the most influential research groups and articles, authors and journals. Finally, this paper provides directions for future research.

## 2. DATA COLLECTION AND METHODOLOGY

This study is a literature review that incorporates a systematic literature review methodology [13]. This research

is alternatively referred to as text data mining or, in its evolution, might be denoted as big data methodologies [14, 15]. Numerous investigations have been conducted in various domains, including social media management [16], digitalization in accounting [17], English language instruction for non-native speakers [18], the significance of e-commerce [19], and exploratory factor analyses in the field of management [20].

This systematic literature review was conducted with the aim of understanding the concept of collaborative governance. To analyze the concept of collaborative governance in the literature through the SCOPUS portal in the last 10 years with the keyword "collaborative AND governance" in the Title-Abstract-Keyword category on 08 July 2023 produced 744 documents. Then, the first screening was carried out with the criteria of open-access journals and published articles written in English. The results of the first screening resulted in 283 articles. Subsequent screening was carried out by limiting journal articles based on subject areas in social sciences and humanities which resulted in 87 articles. Analysis was carried out and produced six articles that were considered appropriate to answer the research problem formulation. Thus, 81 articles were considered irrelevant to the research formulation. To understand the concept of collaborative governance in more depth, the citations of six articles were traced and resulted in two additional journals that fall into the categories previously defined. Eight articles were selected to be analyzed synthetically using qualitative research.

Next, to add to the waste problem, an additional systematic literature review was conducted by including the keywords "collaborative governance" AND "waste management" AND "Indonesia". Figure 1 illustrates the research procedure carried out based on the PRISMA guidelines. The inclusion criteria for the first screening step were set to include research published in open-access journals, therefore guaranteeing free access to every one of the chosen papers. Furthermore taken into consideration were only English-written papers, which help to ensure uniformity in data collecting and interpretation. To prevent accessibility problems and any language hurdles, studies from subscription-based publications and those written in languages other than English were therefore deleted.

The next screening concentrated on the topic, covering just works classified as belonging to the humanities and social sciences. This emphasis complements the study goal of investigating cooperative governance in social and humanistic settings. To keep a clear and pertinent disciplinary perspective, works related to other fields, including natural sciences or engineering, were thus eliminated.

Articles including clear discussion of collaborative governance in the framework of waste management in Indonesia were added to guarantee relevance to the study concept. This specificity guarantees that the chosen studies directly guide the topics of inquiry. Studies lacking both waste management and collaborative governance in Indonesia were thus omitted to preserve a targeted and cogent synthesis of the body of evidence.

Moreover, extra relevant studies were found using citation monitoring. Articles cited from the initially chosen studies were taken under consideration for inclusion providing they satisfied all previously stated criteria. This method enriches the comprehensiveness of the review by helping to find pertinent material that might not have been caught in the first database search (see Figure 1).

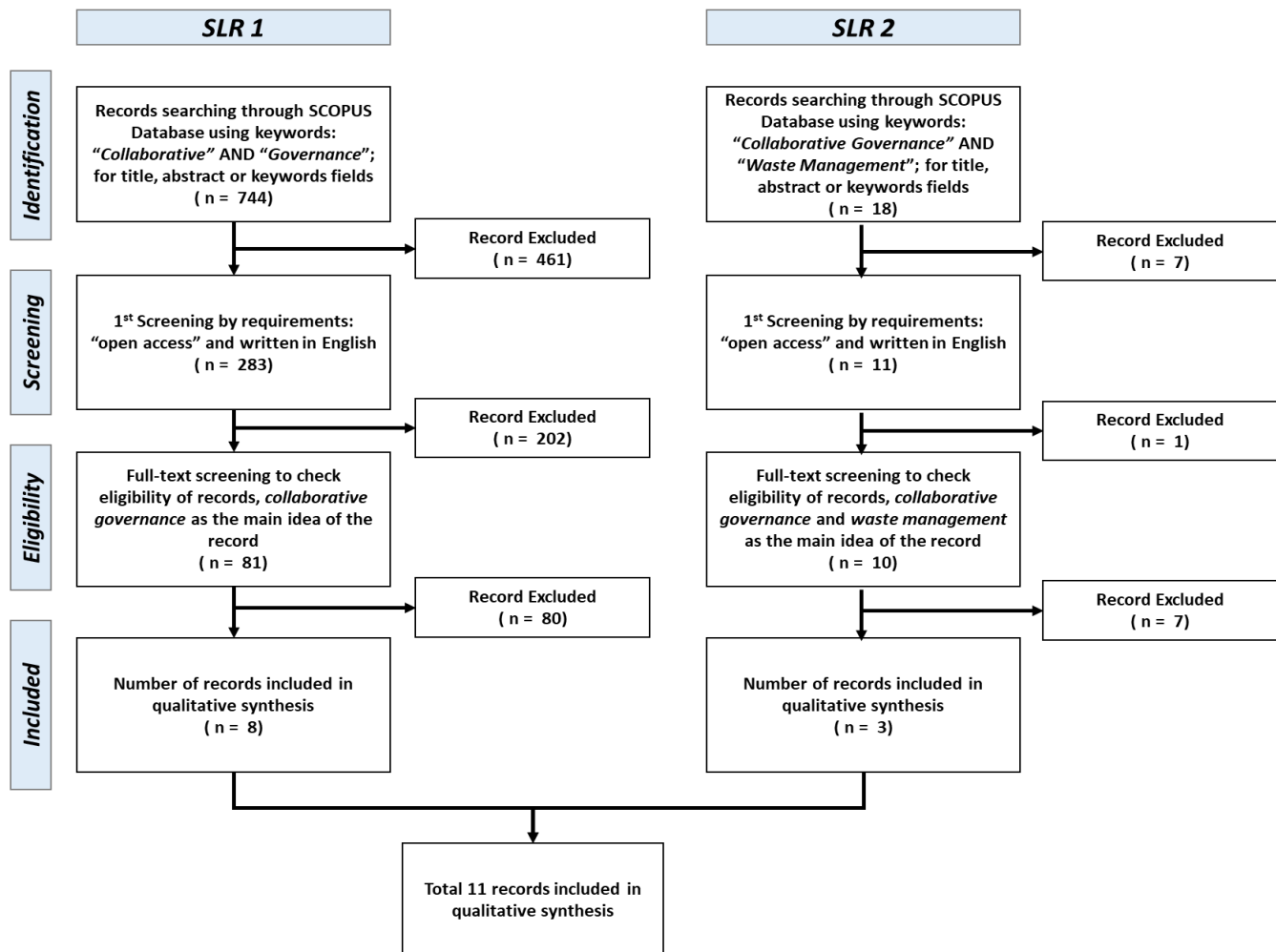


Figure 1. Stages of systematic literature review

### 3. RESULT AND DISCUSSION

#### 3.1 Change in the pattern of collaborative governance in waste issues

Table 1 categorizes papers based on their respective year of publication, with the purpose of discerning and contrasting any potential shifts in the applied research stream, theoretical frameworks, or methodological approaches. The researchers in this study partitioned the research continuum into three distinct phases: the period spanning from 2008 to 2013, the period from 2014 to 2019, and the period from 2020 to 2023.

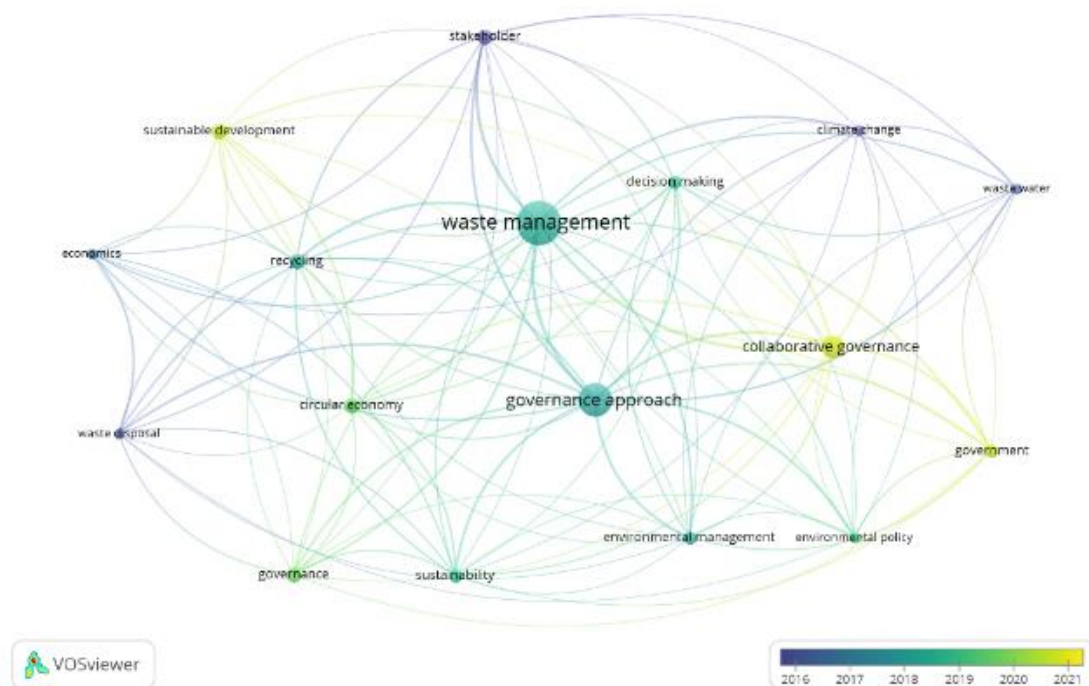
The aforementioned conversations present a series of collaborative strategies that aim to tackle waste management and environmental issues in a systematic manner, progressing through different stages. During Phase I (2008-2013), the primary focus was on the lack of a comprehensive regulatory framework pertaining to electronic waste and the significance of voluntary participation. Stakeholders play a vital role in ensuring the effectiveness of waste management, particularly in areas such as trash collection, segregation, and the development of markets for recovered products. The rise of Voluntary Environmental Initiatives represents a shift towards collaborative approaches aimed at enhancing environmental conditions. During Phase II (2014-2019), the emphasis is redirected towards strategic partnerships, recognizing their capacity to challenge established practices and facilitate the advancement of sustainable waste management. The need of

environmental stewardship has become increasingly prominent, emphasizing the necessity of addressing issues related to water security and the repercussions on the natural environment. The necessity of collaborative approaches to address intricate urban water resource concerns is evident.

Phase III (2020-2023) showcases a persistent focus on collaborative governance that encompasses a wide range of stakeholders, such as non-governmental organizations (NGOs), government entities, corporations, and local communities. The observed pattern suggests an increasing acknowledgement of the importance of collective participation in waste management approaches. Nevertheless, there are ongoing obstacles that continue to exist in this context. These challenges encompass various aspects, including the necessity for establishing common goals, engaging the community, ensuring compliance, and effectively allocating resources. The expanding framework encompasses the growing significance of collaboration, which encompasses not only the management of specific waste kinds but also broader environmental initiatives. This framework aims to promote public participation, inclusivity, transparency, and the implementation of governance mechanisms supported by available resources. Despite the advancements made, the presence of deficiencies in governance and discrepancies in the execution of waste management practices highlight the intricate nature of establishing effective cooperation in this field within different settings.

**Table 1.** Evolution of collaborative governance in waste issues

Phase I (2008-2013)	Phase II (2014-2019)	Phase III (2020-2023)
<ul style="list-style-type: none"> <li>• The lack of a comprehensive regulatory framework pertaining to the management of electronic trash (e-waste) underscores the importance of voluntary collaboration actions at the federal level [21]</li> <li>• The factors that exhibited the greatest influence across all three dimensions of sustainability were trash collection and segregation, municipal solid waste management (MSWM) planning, and the local market for recycled products. The identification of these aspects is deemed vital due to the necessity of significant collaboration among diverse stakeholders and components within the waste management system in order to attain complete and efficacious outcomes [22]</li> <li>• The emergence and importance of Voluntary Environmental Initiatives as means to tackle environmental issues and improve companies' environmental performance through cooperative strategies and self-governance [23]</li> <li>• The advent of Smart Cities has given rise to a novel professional community known as the Urban Systems Collaborative. This collaborative platform serves as a convergence point for diverse disciplines such as architecture, planning, engineering, transportation, information technology, social sciences, and other related subjects [24]</li> </ul>	<ul style="list-style-type: none"> <li>• Strategic partnerships have the potential to play a pivotal role in various contexts by engaging multiple stakeholders and distributing agency among them. These collaborative alliances have the potential to disrupt the perpetuation of path dependencies and facilitate the shift towards more environmentally viable waste management systems [25]</li> <li>• It is imperative to recognize environmental stewardship as a pivotal element of the development process. The primary emphasis lies in the resolution of matters pertaining to regional water security, waste water management, and the repercussions on the natural environment [26]</li> <li>• The effective water resources management requires collaboration among various stakeholders, facilitated by a power-sharing institutional structure. This collaborative approach aims to address the complex water resource issues resulting from rapid urbanization [27]</li> <li>• The narrow problem definition of waste can result in divergent values among various stakeholders. In the present setting, the process of enhancing waste management systems can be hindered by the presence of many stakeholder perspectives, hence adding complexity to the decision-making process [28]</li> <li>• Case study shows cooperative environmental governance in authoritarian China, involving citizens and activists, deviating from hierarchical model [29]</li> </ul>	<ul style="list-style-type: none"> <li>• Collaborative approach enhances public engagement in environmental efforts, involving NGOs and promoting local community involvement [7]</li> <li>• Collaborative governance entails the collective engagement of diverse stakeholders, encompassing governmental agencies, commercial sector organizations, community associations, and non-governmental organizations (NGOs), with the aim of enhancing waste management methodologies [30]</li> <li>• Collaborative governance in Bali's plastic trash management is commendable, but community participation and compliance remain deficient due to lack of shared objectives among diverse entities [3]</li> <li>• This model likely outlines a framework for bringing together different stakeholders, such as government bodies, the public, and relevant enterprises, to collaboratively address the challenges associated with C&amp;D waste recycling [31]</li> <li>• Waste management institutions prioritize strategic planning, inclusivity, transparency, continuity, and resources for citizen involvement, but not all cities apply these elements equally due to lack of strategies or limited resources [32]</li> <li>• Governance gaps in Bandung include inadequate monitoring, uncoordinated financial allocations, low community involvement, and supportive leadership [33]</li> </ul>



**Figure 2.** Research stream of collaborative governance in waste management issues

### 3.2 Research stream of collaborative governance in waste management issues

This study uses the citation mapping approach from VosViewer software to visually represent the research findings. The aforementioned methodology involves the utilization of an overlay visualization technique to represent the outcomes in the form of keyword co-occurrences. The findings demonstrate the utilization of overlaying keywords or concepts on the graphic, enabling comprehension of the dominant themes across several clusters or topics (Figure 2).

#### 3.2.1 Government approach

The impact of the "government approach" on collaborative governance in waste-related matters is significant and encompasses various dimensions. The strategic decisions, policies, and regulatory frameworks implemented by the government have a significant impact on the manner in which different stakeholders engage in collective efforts to tackle waste-related issues [34, 35]. A government approach that is proactive and supportive, prioritizing inclusive engagement, openness, and shared accountability, has been observed to cultivate more robust collaborative governance [6, 36]. The establishment of well-defined waste management objectives, the efficient enforcement of legislation, and the provision of research and infrastructural resources by the government serve to foster close collaboration among stakeholders, including industry, communities, and environmental organizations. On the other hand, a government strategy that is less active or inconsistent might impede collaboration by generating ambiguity or a lack of clear guidance. The success of collaborative programs in waste management can be influenced by the extent to which the government actively involves stakeholders, facilitates the exchange of information, and empowers local communities [37, 38]. In conclusion, the adoption of a facilitative governmental strategy that strikes a harmonious equilibrium between control and adaptability, while fostering a culture of collaborative problem-solving, can serve as a potent catalyst for promoting comprehensive and sustainable initiatives aimed at tackling intricate waste challenges.

The manner in which the government addresses waste management plays a crucial role in influencing the dynamics of collaborative governance within this particular field. A government that adopts a proactive approach and places emphasis on environmental sustainability is more inclined to develop all-encompassing waste management rules, regulations, and plans [39, 40]. The establishment of laws can facilitate collaboration by delineating the specific roles, responsibilities, and standards applicable to the diverse array of parties engaged in the process. These stakeholders encompass industry, local communities, waste management businesses, and environmental organizations.

When the government places importance on the principles of inclusion and stakeholder engagement, it cultivates a collective feeling of ownership and shared responsibility among diverse participants [41–43]. Collaborative governance flourishes when the government extends invitations to stakeholders, urging their active involvement in decision-making processes, consultations, and policy discussions. The engagement of multiple stakeholders not only guarantees the inclusion of diverse viewpoints but also strengthens the credibility and efficacy of waste management endeavors. Collaborative platforms, such as advisory boards or working

groups, may be implemented with the purpose of fostering continuous communication and cooperation.

In addition, the manner in which the government distributes resources and provides funds has a substantial influence on joint endeavors [44]. Sufficient financial backing for research, the creation of infrastructure, and efforts aimed at waste reduction serves as a catalyst for stakeholders to allocate their time and resources towards collaborative endeavors. Governments can effectively encourage industries to adopt environmentally friendly solutions by offering incentives, grants, or tax breaks for the implementation of sustainable waste management methods.

Transparency represents an additional crucial element. A government that actively supports openness through the dissemination of information regarding waste generation, disposal methods, recycling rates, and environmental impacts plays a crucial role in cultivating trust among various stakeholders [45]. The transparency of information promotes the practice of making well-informed decisions and fosters teamwork by utilizing precise and current facts.

When the government exhibits inconsistency in its policy or enforcement attempts, collaborative governance encounters difficulties. Uncertainty pertaining to regulatory frameworks or a deficiency in fulfilling obligations can engender perplexity and diminish the drive for collaborative efforts.

Furthermore, a government that acknowledges and values the knowledge and skills of local communities has the potential to augment joint endeavors [46]. In the field of waste management, it is frequently necessary to develop solutions that are tailored to the individual circumstances. The involvement of communities in the decision-making process and the integration of their traditional knowledge or creative ideas by governments can result in enhanced efficacy of waste management solutions.

In conclusion, the findings from the literature review indicate that the government's strategy plays a pivotal role in fostering collaborative governance within the realm of waste management. An atmosphere conducive to effective collaboration towards sustainable waste solutions is facilitated by a government that is supportive, involved, and transparent. The comprehensive and holistic addressing of waste concerns can be facilitated by the government through the implementation of clear policies, active involvement of stakeholders, allocation of resources, promotion of transparency, and recognition of local expertise.

#### 3.2.2 Environmental policy

The field of waste management is significantly influenced by environmental legislation, which has a profound and important effect on the practice of collaborative governance [47, 48]. Environmental policies play a crucial role in shaping regulatory and strategic decisions pertaining to the environment, serving as a guiding framework [49]. These policies establish the foundation for fostering collaboration and cooperation among diverse stakeholders. Effective environmental laws that encompass waste management in a comprehensive manner serve as a common basis for fostering collaboration among governmental entities, companies, communities, and advocacy organizations.

Efficient environmental strategies frequently emphasize the interdependence between waste management and wider environmental and societal objectives. This perspective promotes collaboration by seeing waste management as more than merely a technical obstacle, but rather as an essential

component of sustainable development. Stakeholders are inclined to participate in collaborative efforts when they consider waste management as a crucial factor in the preservation of ecosystems, public health, and the overall well-being of society.

Environmental policies often prioritize the concepts of collaborative governance, which include openness, public participation, and stakeholder engagement [50]. Policies facilitate the establishment of collaborative possibilities by integrating several components, such as public consultations, multi-stakeholder dialogues, and cooperative decision-making processes. The promotion of inclusivity in waste management solutions cultivates a sense of ownership and validity, while also providing an opportunity for varied perspectives to influence the trajectory of joint endeavors.

In addition, environmental legislation frequently provide precise objectives, benchmarks, and mandates for the implementation of waste management protocols [4]. When these regulations are unambiguous and capable of being enforced, they establish a foundation for collaborative efforts by offering a mutually agreed upon structure in which stakeholders can coordinate their endeavors. Collaborative governance is characterized by a shared dedication to fulfilling policy obligations and attaining predetermined objectives.

The function of enforcement in environmental policies is also a crucial factor in fostering collaboration. Policies that establish repercussions for non-compliance foster a collaborative environment among stakeholders, promoting collective efforts to achieve adherence [51]. The aforementioned collective obligation fosters collaboration in the dissemination of optimal methodologies, technical proficiency, and resources to address regulatory requirements and alleviate adverse environmental consequences.

Environmental policies serve as drivers for the implementation of collaborative governance in the realm of waste management. These policies facilitate effective collaboration among multiple stakeholders by highlighting the interdependence of trash concerns with broader environmental goals, encouraging stakeholder involvement, offering explicit directives, and ensuring compliance with established standards. This collaborative effort transcends the confines of corporate boundaries and promotes a collective dedication to addressing waste issues in a manner that is both sustainable and responsible, while also aligning with overarching environmental objectives.

### 3.2.3 Environmental management

The role of environmental management is crucial and essential in establishing collaborative governance pertaining to waste-related matters [51, 52]. Environmental management is a comprehensive framework that incorporates a range of policies, strategies, and actions. Its primary objective is to preserve and enhance the environment. By providing a solid foundation, environmental management facilitates effective collaboration among various stakeholders with varying interests [53-55]. The integration of environmental management concepts into waste management plans fosters collaboration among many stakeholders, such as government entities, industries, communities, and non-governmental organizations (NGOs), to collectively tackle waste-related issues in a comprehensive manner.

Environmental management frameworks frequently prioritize sustainability, resource efficiency, and long-term strategic planning. This strategy promotes collaboration by

emphasizing the interdependence of trash concerns with wider environmental, social, and economic objectives. Stakeholders are inclined to participate in collaborative endeavors when they acknowledge that waste management is interconnected with the health of ecosystems, the mitigation of climate change, and the general welfare of communities.

In addition, environmental management frameworks frequently promote the utilization of participatory methodologies and the engagement of stakeholders [56, 57]. This is consistent with the fundamental tenets of collaborative governance, which prioritize the incorporation of a wide range of viewpoints and specialized knowledge. Collaborative platforms, such as public consultations, multi-stakeholder working groups, and collaborative decision-making procedures, are frequently essential components of environmental management plans. These platforms facilitate opportunities for open discourse, the sharing of knowledge, and the establishment of agreement, all of which are crucial for the development and implementation of efficient waste management strategies.

Environmental management places a strong emphasis on the utilization of data-driven decision-making and the implementation of evidence-based policies [58]. The promotion of precise information fosters a collaborative environment, necessitating the cooperation of various parties in the collection, analysis, and dissemination of data pertaining to trash creation, disposal methods, recycling rates, and environmental consequences. Collaborative endeavors are thereafter directed by a collective comprehension of the obstacles and possibilities, so enabling more focused and efficient responses. Moreover, the incorporation of accountability within the framework of environmental management demonstrates a strong alignment with the fundamental tenets of collaborative governance. Stakeholders are responsible for fulfilling their duties and commitments, so cultivating a collective sense of accountability in waste management endeavors [59]. The concept of accountability fosters a collaborative mindset and motivates individuals or groups with vested interests to actively contribute their resources and specialized knowledge towards shared objectives.

In essence, environmental management functions as a guiding framework that forms and augments collaborative governance in matters pertaining to waste. Environmental management promotes collaboration among multiple stakeholders to address waste concerns through a focus on sustainability, participatory techniques, evidence-based decision-making, and shared accountability. The incorporation of environmental management principles into waste management techniques fosters an atmosphere that facilitates collaborative endeavors surpassing geographical limits and yielding impactful and enduring results.

### 3.3 Leading authors, affiliations, trending articles, and leading journal

When considering the inquiry on the most often referenced authors and their significant influence in the field of research on collaborative governance in waste management issues, various procedural steps must be undertaken for proper implementation. The findings are depicted in Table 2, which presents four columns representing the total number of citations obtained in the cited section.



**Table 2.** Leading authors

Rank	Refs.	Article	Total Citation (2019-2023)
1	[22]	Sustainable recycling of municipal solid waste in developing countries	464
2	[60]	Mapping the frontiers and front lines of global environmental justice: The EJAtlas	289
3	[61]	Stakeholder analysis combined with social network analysis provides fine-grained insights into water infrastructure planning processes	226
4	[28]	The rise and fall of a "waste city" in the construction of an "urban circular economic system": The changing landscape of waste in Beijing	62
5	[62]	Multi-stakeholder Partnerships (SDG #17) as a Means of Achieving Sustainable Communities and Cities (SDG #11)	50
6	[7]	Coping with waste: A government-NGO collaborative governance approach in Shanghai	29
7	[63]	Leading for social change: Waste management in the place of social (ir)responsibility	12
8	[25]	Partnerships for development: Municipal solid waste management in Kasese, Uganda	11
9	[6]	Waste Bank Policy Implementation through Collaborative Approach: Comparative Study—Makassar and Bantaeng, Indonesia	7
10	[32]	Citizen involvement in waste management and circular economy in cities: Key elements for planning and implementation	5

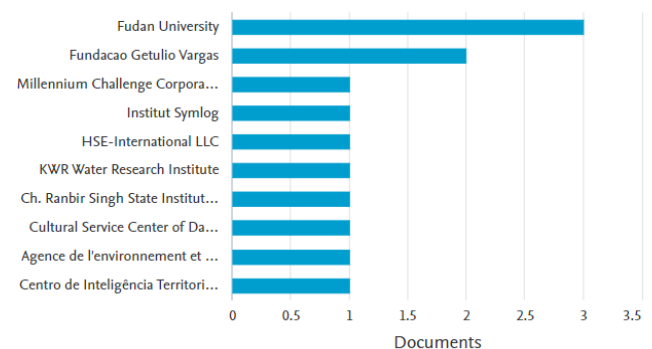
The data offers valuable insights into the authors who have had a significant impact on the topic of collaborative governance in waste management issues. The significance of collaboration, stakeholder engagement, and interdisciplinary approaches in tackling intricate waste management challenges is underscored by the range of citation counts, the breadth of topics covered, the interdisciplinary nature of the research, and the global relevance of the studies.

The citation counts among the top authors exhibit a considerable degree of variability, so suggesting varying degrees of influence and impact. Troschinetz and Mihelcic [22] exhibit a notably higher citation count of 464, in contrast to lower-ranked writers such as Izdebska and Knieling [32], who have a citation count of 5. This observation implies that specific publications have received considerably more attention and recognition among scholars, potentially exerting a stronger influence on molding the discourse within this particular topic. Troschinetz and Mihelcic [22] conducted a study that centers on the assessment of data quality and the identification of obstacles and motivations for recycling in developing nations. The objective of this study is to gain insight into the attitudes and behaviors towards recycling in both developed and developing nations. Additionally, it seeks to measure the generation and recovery of municipal solid waste (MSW) and evaluate the interconnections between various factors that influence sustainable municipal solid waste management (MSWM). The research used a multivariate estimate matrix to assess the data quality and deems material recovery rates of 5% or above as indicative of active recycling endeavors. The inclusion of stakeholders and fostering collaboration are seen as key elements in enhancing municipal solid waste management (MSWM). The study offers valuable insights into the disparities observed in recycling research between developed and developing nations, shedding light on the practical issues that influence recycling behavior in the latter [22].

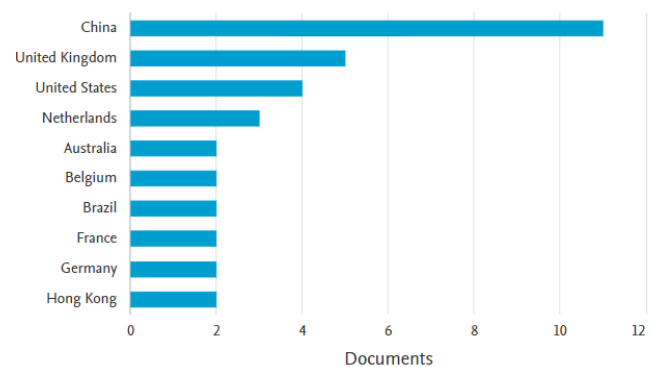
Hence, varying outcomes arise in relation to the author's institutional affiliation. Fudan University, located in China, emerges as the most prevalent association in scholarly literature pertaining to collaborative government involvement in waste management matters, as evidenced by the greatest publication count (Figure 3).

China is considered to be among the countries or territories that exhibit a notable volume of publications pertaining to the discussed concerns. Australia, Belgium, Brazil, and France Germany and Hong Kong are two countries that have the

lowest publishing rates in this particular field (Figure 4).



**Figure 3.** Documents by affiliation



**Figure 4.** Documents by territories

#### 4. CONCLUSION

The findings demonstrate a thorough investigation into the concept of collaborative governance within the realm of waste management and the promotion of environmental sustainability. Collaborative governance is a foundational approach that places emphasis on partnership, cooperation, and inclusive decision-making among a wide range of stakeholders, including governments, non-governmental organizations (NGOs), industries, and local communities. This study emphasizes the importance of collaborative governance in effectively resolving the intricate challenges presented by

waste management and environmental issues.

The progression outlined in the text highlights the increasing significance of collective engagement and innovative strategies in waste management. It begins with the recognition of the necessity for comprehensive regulatory frameworks and voluntary participation in Phase I. This initial phase emphasizes the importance of establishing a robust regulatory structure and encouraging active involvement from relevant parties. Moving on to Phase II, the focus shifts towards acknowledging the value of strategic partnerships and environmental stewardship. This stage recognizes the benefits of forming alliances with key stakeholders and prioritizing responsible environmental practices. Finally, in Phase III, the progression culminates in the expansion of collaborative governance that encompasses a wide range of stakeholders. This phase emphasizes the need for inclusive decision-making processes and the involvement of diverse actors in waste management initiatives. Overall, this progression underscores the growing recognition of the significance of collective participation and innovative approaches in effectively managing waste.

Moreover, the research examines the distinct functions of governmental strategies, environmental policies, and environmental management in influencing the establishment of collaborative governance in the field of waste management. This statement highlights the need of proactive and supportive government tactics, transparent policies, and participatory environmental management frameworks in creating an atmosphere that promotes collaboration. The research additionally highlights the significance of accountability, openness, resource allocation, and acknowledgment of local expertise in augmenting the efficacy of collaborative endeavors.

Nevertheless, although the report presents useful insights, it also highlights specific areas of research that require additional exploration. An area of research that warrants attention is the investigation of the various challenges and barriers that impede the effective implementation of collaborative governance in the field of waste management. An examination of characteristics such as divergent goals, asymmetrical power relations, and differential levels of stakeholder involvement may provide insights into potential approaches for surmounting obstacles to collaborative efforts. Furthermore, the study predominantly centers its attention on the function of government, environmental regulations, and management. Examining the impact of other stakeholders, such as companies, non-governmental organizations (NGOs), and local communities, on the outcomes of collaborative governance may contribute to a more holistic comprehension of the underlying dynamics.

In brief, this research makes a valuable contribution to the scholarly conversation surrounding collaborative governance in the field of waste management. It accomplishes this by providing a comprehensive examination of the historical development of collaborative governance, the significance of influential elements, and the resulting implications for the promotion of environmental sustainability. The work contributes to the field by identifying areas where further research is needed and suggesting potential directions for future exploration. This lays the foundation for ongoing research that can deepen our knowledge of effective collaboration techniques in solving the urgent issues surrounding waste management and environmental preservation.

## REFERENCE

- [1] Ansell, C., Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, 18(4): 543-571. <https://doi.org/10.1093/jopart/mum032>
- [2] Bingham, L.B. (2011). Collaborative government. In *The SAGE Handbook of Governance*. SAGE, pp. 386-399.
- [3] Ain, K.Q., Nasri, M.A., Alamsyah, M.N., Pratama, M.D.R., Kurniawan, T. (2021). Collaborative governance in managing plastic waste in Bali. *IOP Conference Series: Earth and Environmental Science*, 905(1): 012115. <https://doi.org/10.1088/1755-1315/905/1/012115>
- [4] Zambrano-Gutiérrez, J.C., Valente de Macedo, L.S., Picavet, M.E.B., Puppim de Oliveira, J.A. (2023). Individuals in collaborative governance for environmental management. *Environmental Management*, 71(3): 565-586. <https://doi.org/10.1007/s00267-022-01693-w>
- [5] Carrera, L.B., Warren, A., Beek, E.V., Jonoski, A., Giardino, A. (2017). Collaborative modelling or participatory modelling? A framework for water resources management. *Environmental Modelling and Software*, 91: 95-110. <https://doi.org/10.1016/j.envsoft.2017.01.014>
- [6] Fatmawati, F., Mustari, N., Haerana, H., Niswaty, R., Abdillah, A. (2022). Waste bank policy implementation through collaborative approach: Comparative study—Makassar and Bantaeng, Indonesia. *Sustainability (Switzerland)*, 14(13): 7974. <https://doi.org/10.3390/su14137974>
- [7] Arantes, V., Zou, C., Che, Y. (2020). Coping with waste: A government-NGO collaborative governance approach in Shanghai. *Journal of Environmental Management*, 259: 109653. <https://doi.org/10.1016/j.jenvman.2019.109653>
- [8] Liu, C., Yang, H. (2021). Waste to energy closed-loop supply chain: Recycling energy supply, collaborative operation and sustainability. *Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering*, 37(10): 182-191. <https://doi.org/10.11975/j.issn.1002-6819.2021.10.022>
- [9] Picavet, M.E.B., de Macedo, L.S.V., Bellezoni, R.A., Puppim de Oliveira, J.A. (2023). How can transnational municipal networks foster local collaborative governance regimes for environmental management? *Environmental Management*, 71(3): 505-522. <https://doi.org/10.1007/s00267-022-01685-w>
- [10] Suharjito, D., Wulandari, C. (2019). A reflection of social forestry in 2019: Towards inclusive and collaborative government approaches. *Forest and Society*, 3(1): 137. <https://doi.org/10.24259/fs.v3i1.6099>
- [11] Saputra, N., Putera, R.E., Zetra, A., Azwar, Valentina, T.R., Mulia, R.A. (2024). Capacity building for organizational performance: A systematic review, conceptual framework, and future research directions. *Cogent Business and Management*, 11(1): 2434966. <https://doi.org/10.1080/23311975.2024.2434966>
- [12] Shen, L., Zhang, Z., Tang, L. (2023). Research on determining resource utilization rates of regional construction and demolition waste from the perspective of collaborative governance. *KSCE Journal of Civil Engineering*, 27(1): 27-39. <https://doi.org/10.1007/s12205-022-0465-y>



- [13] Xiao, Y., Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, 39(1): 93-112. <https://doi.org/10.1177/0739456X17723971>
- [14] Oswald, F.L., Behrend, T.S., Putka, D.J., Sinar, E. (2020). Big data in industrial-organizational psychology and human resource management: Forward progress for organizational research and practice. *Annual Review of Organizational Psychology and Organizational Behavior*, 7(1): 505-533. <https://doi.org/10.1146/annurev-orgpsych-032117-104553>
- [15] Putera, P.B., Suryanto, S., Ningrum, S., Widianingsih, I., Rianto, Y. (2022). Three decades of discourse on science, technology and innovation in national innovation system: A bibliometric analysis (1990–2020). *Cogent Social Sciences*, 8(1): 2109854. <https://doi.org/10.1080/23311886.2022.2109854>
- [16] Mohammed, S., Getahun, F., Chbeir, R. (2023). Events management in social media: A systematic literature review. *Social Network Analysis and Mining*, 13(1): 70. <https://doi.org/10.1007/s13278-023-01079-8>
- [17] Pargmann, J., Riebenbauer, E., Flick-Holtsch, D., Berding, F. (2023). Digitalisation in accounting: A systematic literature review of activities and implications for competences. *Empirical Research in Vocational Education and Training*, 15(1): 1. <https://doi.org/10.1186/s40461-023-00141-1>
- [18] Sánchez-Auñón, E., Férrez-Mora, P.A., Monroy-Hernández, F. (2023). The use of films in the teaching of English as a foreign language: A systematic literature review. *Asian-Pacific Journal of Second and Foreign Language Education*, 8(1): 10. <https://doi.org/10.1186/s40862-022-00183-0>
- [19] Cordes, D.L., Marinova, D. (2023). Systematic literature review of the role of e-commerce in providing pathways to sustainability for poverty alleviation in Sub-Saharan Africa. *Discover Sustainability*, 4(1): 7. <https://doi.org/10.1007/s43621-022-00109-3>
- [20] Howard, M.C. (2023). A systematic literature review of exploratory factor analyses in management. *Journal of Business Research*, 164: 113969. <https://doi.org/10.1016/j.jbusres.2023.113969>
- [21] Renckens, S. (2008). Yes, we will! Voluntarism in US E-waste governance. *Review of European Community and International Environmental Law*, 17(3): 284-297. <https://doi.org/10.1111/j.1467-9388.2008.00605.x>
- [22] Troschinetz, A.M., Mihelcic, J.R. (2009). Sustainable recycling of municipal solid waste in developing countries. *Waste Management*, 29(2): 915-923. <https://doi.org/10.1016/j.wasman.2008.04.016>
- [23] Khanna, M., Brouhle, K. (2009). The effectiveness of voluntary environmental initiatives. In *Governance for the Environment: New Perspectives*. Cambridge University Press, pp. 144-182. <https://doi.org/10.1017/CBO9780511627170.008>
- [24] Harrison, C., Donnelly, I.A. (2011). A theory of smart cities. In *55th Annual Meeting of the International Society for the Systems Sciences*, pp. 521-535.
- [25] Christensen, D., Drysdale, D., Hansen, K., Vanhille, J., Wolf, A. (2014). Partnerships for development: Municipal solid waste management in Kasese, Uganda. *Waste Management and Research*, 32(11): 1063-1072. <https://doi.org/10.1177/0734242X14539029>
- [26] Wilkinson, P., Von Lany, P., Lane, A. (2014). Environmental stewardship: Lessons for European unconventional gas from the United States and Australia. In *Society of Petroleum Engineers - European Unconventional Resources Conference and Exhibition: Unlocking European Potential*, pp. 318-332.
- [27] Moreira, L., Adamowski, J., Gaskin, S., Saraiva, A. (2014). The impact of poor governance on water and sediment quality: A case study in the Pitimbu River, Brazil. *IAHS-AISH Proceedings and Reports*, 364: 429-434. <https://doi.org/10.5194/piahs-364-429-2014>
- [28] Tong, X., Tao, D. (2016). The rise and fall of a “waste city” in the construction of an “urban circular economic system”: The changing landscape of waste in Beijing. *Resources, Conservation and Recycling*, 107: 10-17. <https://doi.org/10.1016/j.resconrec.2015.12.003>
- [29] Wong, N.W. (2019). Possibilities for environmental governance in China? Anti-incinerator activists turned participants in municipal waste management in Guangzhou. In *Handbook of Protest and Resistance in China*. Edward Elgar Publishing Ltd, pp. 266-279. <https://doi.org/10.4337/9781786433787.00028>
- [30] Agiamoh, R.G. (2020). From bureaucracy to market? Ongoing reform and performance challenges of solid waste administration in Moscow. *Public Administration Issues*, 5: 149-170. <https://doi.org/10.17323/1999-5431-2020-0-5-149-170>
- [31] Zhai, K., Lu, S. (2021). Discussion on key influencing factors of construction and demolition waste recovery and recycling management in China. *IOP Conference Series: Earth and Environmental Science*, 719(4): 042019. <https://doi.org/10.1088/1755-1315/719/4/042019>
- [32] Izdebska, O., Knieling, J. (2021). Citizen involvement in waste management and circular economy in cities: Key elements for planning and implementation. *European Spatial Research and Policy*, 27(2): 115-129. <https://doi.org/10.18778/1231-1952.27.2.08>
- [33] Rahmasary, A.N., Koop, S.H.A., van Leeuwen, C.J. (2021). Assessing bandung’s governance challenges of water, waste, and climate change: Lessons from urban Indonesia. *Integrated Environmental Assessment and Management*, 17(2): 434-444. <https://doi.org/10.1002/ieam.4334>
- [34] Nakamura, H. (2022). Collaborative dialogue-based approach for environmental and disaster resilience and governance in Japan. In *A Resilience Approach to Acceleration of Sustainable Development Goals*. Springer Nature, pp. 103-118. [https://doi.org/10.1007/978-981-19-4345-4\\_6](https://doi.org/10.1007/978-981-19-4345-4_6)
- [35] Qomariyah, P., Hamid, E.S. (2023). Community-based waste management: Best practice for waste management in Panggungharjo Village, Sewon District, Bantul Regency. *IOP Conference Series: Earth and Environmental Science*, 1180(1): 012009. <https://doi.org/10.1088/1755-1315/1180/1/012009>
- [36] Asian Development Bank. (2005). Effectiveness of participatory approaches: Do the new approaches offer an effective solution to the conventional problems in rural development projects? [https://www.adb.org/sites/default/files/evaluation-document/35012/files/ses-effectiveness\\_6.pdf](https://www.adb.org/sites/default/files/evaluation-document/35012/files/ses-effectiveness_6.pdf)
- [37] Geerling, C. (2007). An environmental approach. <https://doi.org/10.2523/35856-ms>
- [38] Quimbo, M.A.T., Perez, J.E.M., Tan, F.O. (2018).

- Community development approaches and methods: Implications for community development practice and research. *Community Development*, 49(5): 589-603. <https://doi.org/10.1080/15575330.2018.1546199>
- [39] Buchy, M., Ross, H., Proctor, W. (2000). Enhancing the information base on participatory approaches in Australian natural resource management. *Land and Water Australia* (Ed.) *Natural Resources Management—People and Policy*, Land and Water Australia, Canberra, pp. 1-78.
- [40] Dunn, W.N. (2017). *Public Policy Analysis: An Integrated Approach*. Routledge.
- [41] Angelidou, M. (2014). Smart city policies: A spatial approach. *Cities*, 41: S3-S11. <https://doi.org/10.1016/j.cities.2014.06.007>
- [42] Travis, C. (2017). GeoHumanities, GIScience and smart city lifeworld approaches to geography and the new human condition. *Global and Planetary Change*, 156: 147-154. <https://doi.org/10.1016/j.gloplacha.2016.12.011>
- [43] Van Waart, P., Mulder, I., de Bont, C. (2016). A participatory approach for envisioning a smart city. *Social Science Computer Review*, 34(6): 708-723. <https://doi.org/10.1177/0894439315611099>
- [44] Johnson, T. (2013). The politics of waste incineration in Beijing: The limits of a top-down approach? *Journal of Environmental Policy and Planning*, 15(1): 109-128. <https://doi.org/10.1080/1523908X.2012.752183>
- [45] Wang, K.C.M., Lee, K.E., Mokhtar, M. (2021). Solid waste management in small tourism islands: An evolutionary governance approach. *Sustainability*, 13(11): 5896. <https://doi.org/10.3390/su13115896>
- [46] Rajendiran, S., Senthilnathan, R., Rakesh, M. (2012). Integrated approach to solid waste management in Chennai: An Indian metro city. *Journal of Material Cycles and Waste Management*, 14(2): 75-84. <https://doi.org/10.1007/s10163-012-0046-0>
- [47] Stern, P.C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, 56(3): 407-424. <https://doi.org/10.1111/0022-4537.00175>
- [48] Suman, S., Das, S. (2020). Corporate environmentalism, epistemological review & ontological position. In *CSR, Sustainability, Ethics and Governance*. [https://doi.org/10.1007/978-3-030-24444-6\\_11](https://doi.org/10.1007/978-3-030-24444-6_11)
- [49] Khatter, A., McGrath, M., Pyke, J., White, L., Lockstone-Binney, L. (2019). Analysis of hotels' environmentally sustainable policies and practices: Sustainability and corporate social responsibility in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 31(6): 2394-2410. <https://doi.org/10.1108/IJCHM-08-2018-0670>
- [50] Miklós, A. (2014). Environmental attitudes and ecological anthropocentrism: A new challenge in environmental higher education. *The Journal of Education, Culture, and Society*, 1: 28-40. <https://doi.org/10.15503/jecs20141-28-40>
- [51] Nakamura, H. (2017). Political and environmental attitude toward participatory energy and environmental governance: A survey in post-Fukushima Japan. *Journal of Environmental Management*, 201: 190-198. <https://doi.org/10.1016/j.jenvman.2017.06.053>
- [52] Tyagi, S., Garg, N., Paudel, R. (2014). Environmental degradation: Causes and consequences. *European Researcher*, 81(8-2): 1491. <https://doi.org/10.13187/er.2014.81.1491>
- [53] Asaju, K., Arome, S. (2015). Environmental degradation and sustainability in Nigeria: The need for environmental al degradation and sustainability in Nigeria: The Need for Environmental Education. December.
- [54] Bernauer, T., Betzold, C. (2012). Civil society in global environmental governance. *The Journal of Environment & Development*, 21(1): 62-66. <https://doi.org/10.1177/1070496511435551>
- [55] Sinclair, A.J., Diduck, A.P. (2017). Reconceptualizing public participation in environmental assessment as EA civics. *Environmental Impact Assessment Review*, 62: 174-182.
- [56] Chopra, R. (2016). Environmental degradation in India: causes and consequences. *International Journal of Applied Environmental Sciences*, 11(6): 1593-1601.
- [57] Kegler, M.C., Miner, K. (2004). Environmental health promotion interventions: Considerations for preparation and practice. *Health Education & Behavior*, 31(4): 510-525. <https://doi.org/10.1177/1090198104265602>
- [58] Dewitt, B., Fischhoff, B., Davis, A., Broomell, S.B. (2015). Environmental risk perception from visual cues: the psychophysics of tornado risk perception. *Environmental Research Letters*, 10(12): 124009. <https://doi.org/10.1088/1748-9326/10/12/124009>
- [59] Victor, D., Agamuthu, P. (2013). Strategic environmental assessment policy integration model for solid waste management in Malaysia. *Environmental Science and Policy*, 33: 233-245. <https://doi.org/10.1016/j.envsci.2013.06.008>
- [60] Temper, L., Del Bene, D., Martinez-Alier, J. (2015). Mapping the frontiers and front lines of global environmental justice: The EJAtlas. *Journal of Political Ecology*, 22(1): 255-278. <https://doi.org/10.2458/v22i1.21108>
- [61] Lienert, J., Schnetzer, F., Ingold, K. (2013). Stakeholder analysis combined with social network analysis provides fine-grained insights into water infrastructure planning processes. *Journal of Environmental Management*, 125: 134-148. <https://doi.org/10.1016/j.jenvman.2013.03.052>
- [62] MacDonald, A., Clarke, A., Huang, L., Roseland, M., Seitanidi, M.M. (2018). Multi-stakeholder partnerships (SDG# 17) as a means of achieving sustainable communities and cities (SDG# 11). In *Handbook of Sustainability Science and Research*. Springer, Cham, pp. 193-209. [https://doi.org/10.1007/978-3-319-63007-6\\_12](https://doi.org/10.1007/978-3-319-63007-6_12)
- [63] Esposito, P., Ricci, P., Sancino, A. (2021). Leading for social change: Waste management in the place of social (ir)responsibility. *Corporate Social Responsibility and Environmental Management*, 28(2): 667-674. <https://doi.org/10.1002/csr.2078>