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Social Entrepreneurship and Water Disclosure: A Bibliometric Analysis

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A B S T R A C T

In a world increasingly concerned with environmental sustainability and corporate responsibility, the relationship between water disclosure, social entrepreneurship, and the cultivation of the entrepreneurship ecosystem emerges as a critical nexus. Water is the essential need for human life and business life. Entrepreneurial concern for these issues also influences access to financing and market. These problems have received much attention from researchers, but there has been no attempt to synthesize the results. This research aims to explore and synthesize the literature related to water disclosure and social entrepreneurship in the entrepreneurship ecosystem. The analysis was based on Scopus database in the last decade and PRISMA protocol and VOSViewer was used. This study performs co-occurrence and co-authorship analysis. Social entrepreneurship, sustainability, innovation, water disclosure, and strategy are some of the frequently emerging variables. The results of network analysis show that social entrepreneurship and water disclosure are linked by variable stakeholder, economic and social effect, and sustainable development. It highlights that water disclosure and social entrepreneurship is a mandate of the stakeholders and its implication is that the entrepreneurial ecosystem has moved towards sustainable development.

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1. INTRODUCTION

In an era defined by increasing environmental challenges, social entrepreneurs provide a glimmer of hope by offering innovative solutions to problems that occur globally. One of the challenges that cannot be separated from human welfare in the future is the management of

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responsible water resources. The World Economic Forum (2022) said that water problems are the biggest threat to the global population. The water crisis has a big impact on human activities both household and economic (Dolan et al., 2021). Water is a resource whose sustainability is often ignored, even though water is a basic human need and other living things on earth (Zhang et al., 2021).

Social entrepreneurship is an improvement of traditional business models. Social entrepreneurship combines business and innovation with a commitment to create positive social and environmental impacts. Entrepreneurs and organizations that identify themselves as social entrepreneurs are not only oriented to profit or financial success but also efforts to achieve social improvement. In the field of water management, the enthusiasm of entrepreneurs who have social and environmental orientation uses innovative business models and seeks to overcome problems such as water crises, reducing pollution, and water conservation in their business activities. This is done to contribute to sustainable development (Diaz-Sarachaga & Ariza-Montes, 2022). This concept is also known as Triple Bottom Line consisting of People, Planet, and Profit (3PS) (Elkington, 1994, 1998). In the 3PS concept, the company believes that the company's profit is not only determined by economic performance, but also their concern for the community and the environment (Susilowati et al., 2023).

Climate change, urbanization, and population growth put more pressure on the water system, so it is important to find a continuous and socially responsible approach to overcome problems related to water. At the same time, the developing field of social entrepreneurship has emerged as one of the forces to encourage entrepreneurs and advanced -minded organizations to exceed profit orientation and pay more attention to social and environmental orientation (Lubberink, 2020).

Entrepreneurship and environmental sustainability have become important fields of research and practices, especially in efforts to overcome global challenges such as scarcity of water and access to clean water. Social entrepreneurship refers to the use of entrepreneurial principles and innovative approaches to manage the company's impact on the environment and society. The company is one of the largest water users and its operations have the potential to damage the environment, one of which is a water ecosystem (Hazelton, 2013; OECD, 2012; Qin et al., 2019). When the company's activities damage the water environment, the company will lose legitimacy from the community and will have difficulty to continue its operations and have an impact on the company's success in the long term (Akhter & Kabir, 2018). This highlights the importance of companies to pay attention to the social environment and the environment well.

In the midst of conditions where the world is faced with a water crisis, responsible water management has become the main focus for both the public and private sectors. One of the efforts made is to do water disclosure. Disclosure of water is a mechanism that allows the company to report activities, impacts, and commitment to water transparently. Water disclosure aims to increase accountability, encourage responsible water management, and encourage companies to be actively involved in efforts to mitigate water -related risk. Disclosure of water is also an important channel for company communication towards stakeholders that are useful for decision making and other objectives. Disclosure of non -financial information also functions as an impression management (Santoso et al., 2023), legitimacy, and building a company image (Cho et al., 2012). Water disclosure mechanisms allow companies to make appropriate decisions regarding the use, conservation, and water investment.

Companies and entrepreneurs often claim that their operations have been paying attention to the environment, but often there is no concrete evidence that shows the claim. This highlights the importance of disclosure. Water disclosure is a disclosure or reporting on water information such as water consumption in both physical and monetary amounts. Disclosure of

water is intended to encourage companies to manage responsible and continuous water management. Previous research found that environmental disclosure such as water improves company performance and value (Hardiningsih et al., 2020; Khuong et al., 2022). Therefore, in this case social entrepreneurship and water disclosure have correlation.

Social entrepreneurship and water problems have attracted the attention of various researchers to examine the two topics. This research seeks to contribute to the developing dialogue regarding social entrepreneurship and water problems. This study has two research questions namely RQ1. What drives the evolution of research on social entrepreneurship and water disclosure? RQ2. How do social entrepreneurship and water disclosure connect? This study tries to answer the research question using bibliometric analysis. This study contributes to several things: (1) providing a summary of the driving force of the evolution of social entrepreneurship research and water disclosure; (2) this study identifies the liaison between social entrepreneurship and water disclosure; and (3) provides a summary of the literature that is still fragmented in big data.

2. METHOD

This study uses bibliometric analysis. In general, bibliometrics are used to summarize various literature that has been published (Ellegaard & Wallin, 2015; Setiani & Sopiah, 2023). This study traces articles from the Scopus database and then uses PRISMA Protocols including identification, screening, eligibility, and inclusion to get relevant articles (Hansen et al., 2022; Kuckertz & Block, 2021). Based on PRISMA Protocol (Table 1), 262 articles will be analyzed further. This study only selects English articles and other languages are excluded to avoid bias (Gulluscio et al., 2020; Setiawan et al., 2023; Stechemesser & Guenther, 2012). The feasibility stage is done by reviewing the keywords used in each article to ensure that articles discuss social entrepreneurship and water disclosure. There are 262 selected articles for further analysis, namely co-authorship and co-occurrence analysis.

VosViewer and Scopus Analyze Result are used in this analysis. Analysis of co-authorship and co-occurrence is used to lead to conclusions about the driving force of the evolution of social entrepreneurship and water disclosure research. In addition, co-occurrence is also used to lead to conclusions about how social entrepreneurship and water disclosure are connected to each other. Thus, it can provide direction for further research.

Table 1. Research Protocol

Stage	Description	Results
Identification	Keywords search: "water disclosure"; "water information disclosure"; "entrepreneurship ecosystem"; "social entrepreneurship"; and "sustainability"	690 articles
Screening	Screening criteria: 1. Year: 2013-2023 2. Subject area: "Business, Management and Accounting" and "Economics, Econometrics and Finance" 3. Language: English 4. Source type: Journal 5. Document type: Article	428 articles were excluded
Eligibility and Inclusion	Justification based keywords used	262 articles

Source: Processed data, 2023

3. RESULTS AND DISCUSSION

Based on the PRISMA protocol which consists of identification, screening, eligibility, and inclusion, 262 articles regarding social entrepreneurship and water disclosure were obtained.

Then co-authorship and co-occurrence analysis was carried out on the 262 selected articles. This study uses VOSViewer and Scopus Analyze Results to analyze the obtained big data.

3.1. Results

Figure 1 shows the development of social entrepreneurship and water disclosure publications for the past decade. Based on Figure 1, publication trends regarding social entrepreneurship and water disclosure tend to increase. In 2013 there were 13 documents and reached its peak in 2020. This coincided with the condition of Pandemi Covid-19 where social, health, economic, and water environment issues were widely discussed. In these conditions the company is more aware of the importance of paying attention to the environment both socially and the environment such as water. Water is a basic human need that is used for household, agricultural and business needs. This is also related to how companies maintain legitimacy from the community, investors, and other stakeholders amidst the crisis that impacts the decline in company performance both financial and nonfinancial. This unique situation is possible to attract the attention of researchers so that publications experience a significant increase in 2020. After that, the publication dropped to 29 documents and rose again in 2022 with 36 published documents. In terms of water disclosure, previous research found that the implementation of Global Reporting Initiative (GRI) 303 on Water and Effluents may be hampered by the lack of clarity in the term "water stress" (Hewawithana et al., 2023). This is because the quality and availability of information regarding water stress varies and the fact that water databases offer different water stress calculation options.

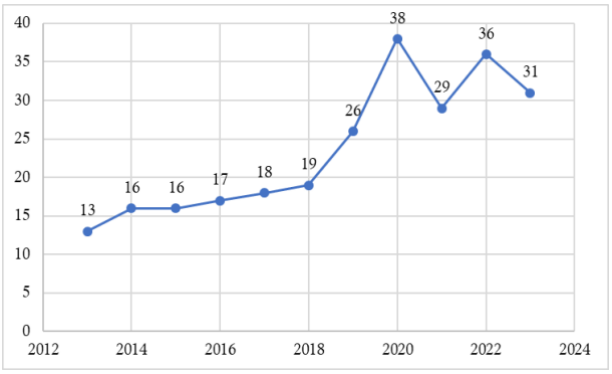

Figure 1. Publication development
Source: Processed data, 2023

Figure 2 shows 16 journals with the most publications. The first position is occupied by Emerald Emerging Markets Case Studies with 28 documents, the second position is occupied by the Journal of Cleaner Production with 16 documents publications, and the third position is occupied by the Journal of Social Entrepreneurship with Publications of 12 articles. On the other hand, it can be seen in Figure 3 which shows the top 15 affiliates with the most publications. Central South University and Rollins College occupy the highest position as affiliates with the most publications, each of five documents. Then followed by American University in Cairo, Copenhagen Business School, Universitas Indonesia, and Leuphana Universitat Luneburg with publications each of four documents. Based on Figure 3, it can be concluded that the university is the center of social entrepreneurship and water disclosure research studies. This indicates that the main driving force for the development of social entrepreneurship and water disclosure research is universities.

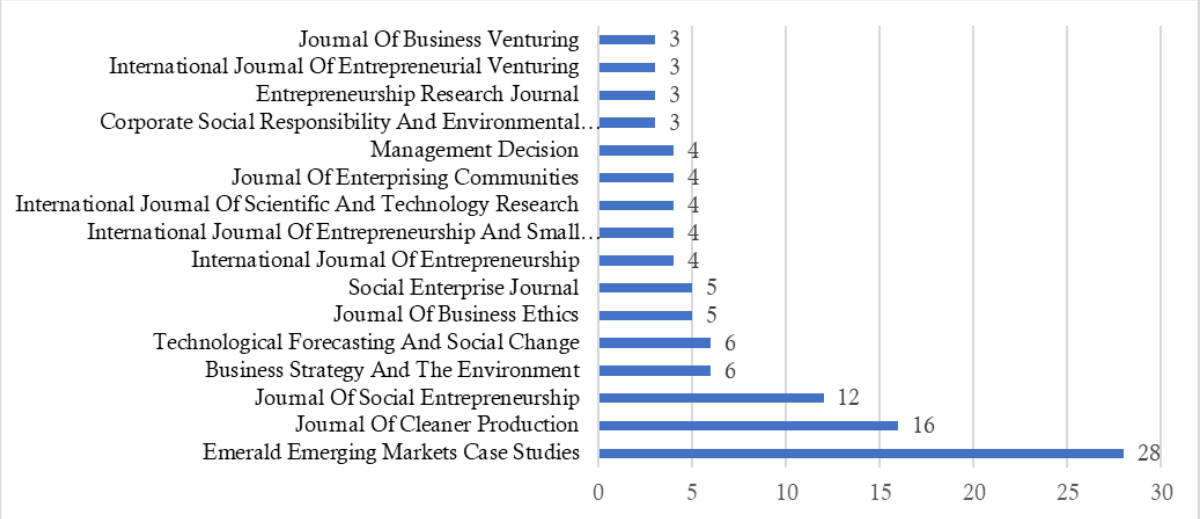

Figure 2. Top 16 Journal by number of publications
Source: Processed data, 2023

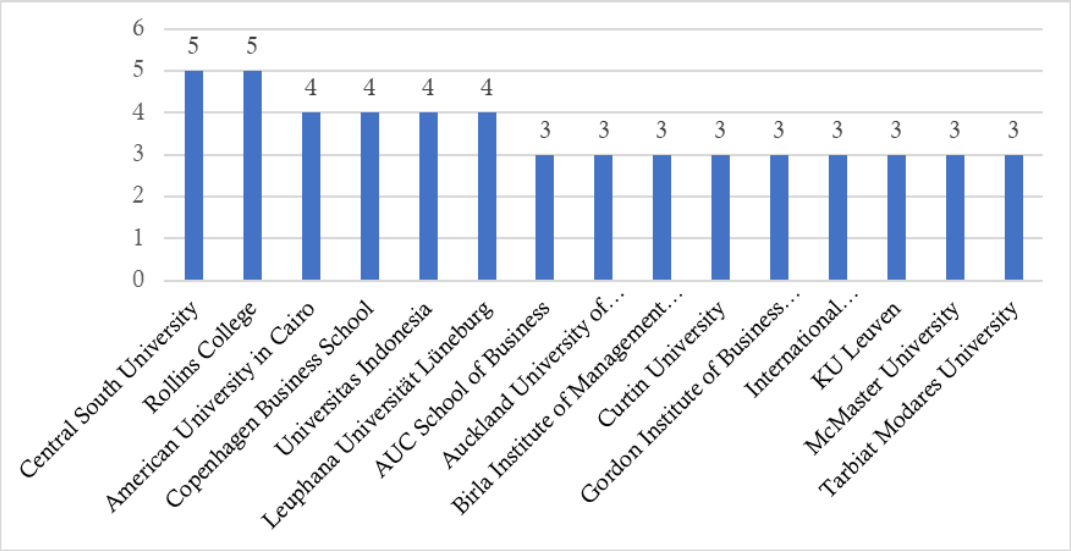

Figure 3. Top 15 affiliation by number of publications
Source: Processed data, 2023

Figure 4 visualizes the production of publication of articles on social entrepreneurship and water disclosure of each country. The United States ranks first with 48 publications. Then followed by India and Australia with publications of 31 documents and 23 documents. In addition to the three countries, there are 59 other countries with publications between 1 document to 19 documents over the past decade. This indicates that research on social entrepreneurship and water disclosure developed in various countries shows the urgency of research for this topic. In addition, it can be concluded that the United States, India, and Australia are the main countries that encourage the development of social entrepreneurship and water disclosure studies.

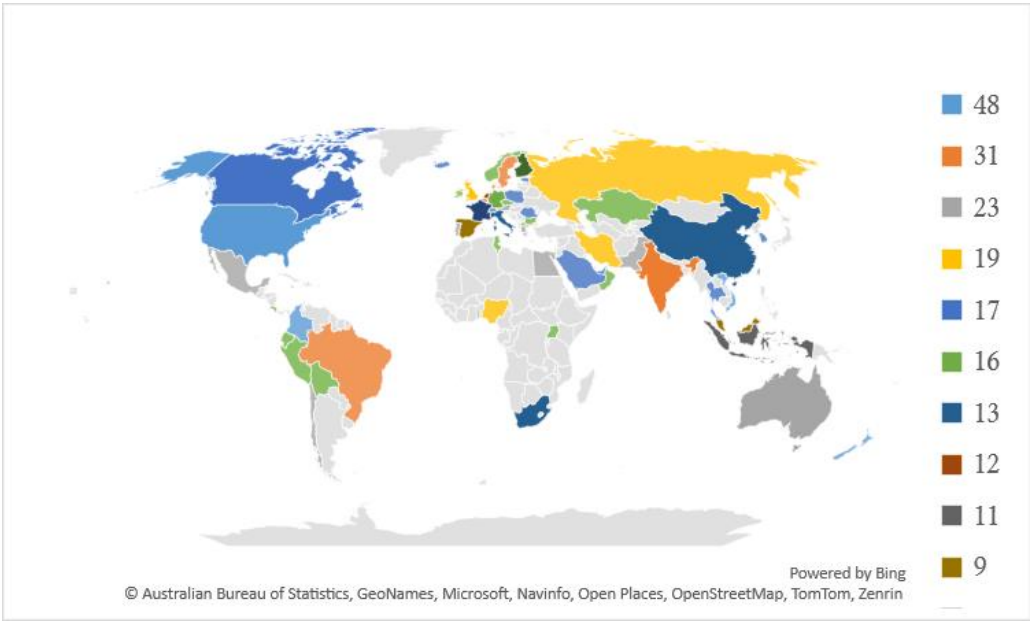

Figure 4. Production by country
Source: Processed data, 2023

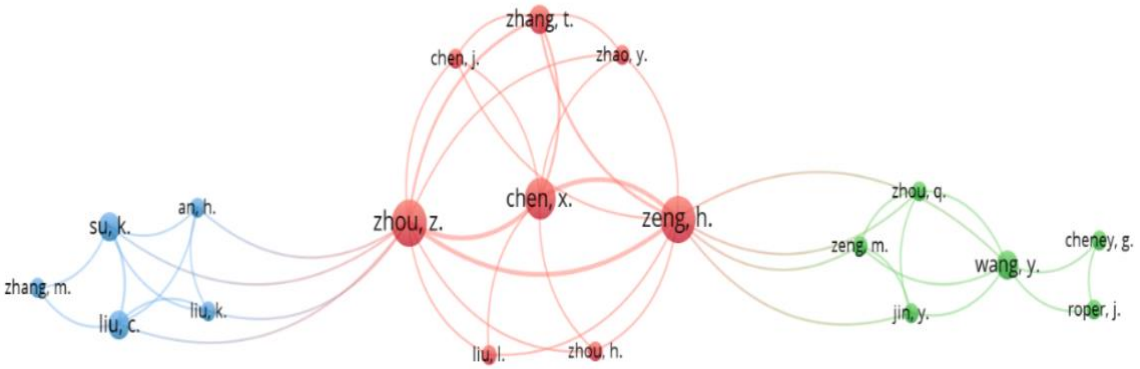

Figure 5. Co-authorship network
Source: Processed data, 2023

Figure 5 shows a co-authorship network. Basically, the bibliometric network is bibliometric from nodes and edges (Van Eck & Waltman, 2014). Nodes is a circle -shaped visualization that describes key words and author words, so that the greater the node the higher the level. Edge is a visualization of a line that connects nodes. The thicker edge shows the stronger relationship between the two nodes. In addition, the distance between nodes also shows the closeness between these nodes. Meanwhile, red, green, and blue colors show the cluster of each author. Table 2 shows a list of authors that contribute to social entrepreneurship and water disclosure studies. Zeng, Zhou, and Chen are the most productive authors with publications of five documents, five documents, and four documents. The three authors also occupy the top three on the total link strength which shows that the three authors often collaborate with another author. In addition to the three authors, there are 16 other authors that contribute to social entrepreneurship and water disclosure studies. Thus, it can be concluded that Zeng, Zhou, and Chen are the main authors that encourage the development of social entrepreneurship and water disclosure studies.

Table 2. Author List

Label	Cluster	Links	Total Link Strength	Occurrences	Avg. Pub. Year
Zeng, h.	1	11	18	5	2019,4
Zhou, z.	1	11	18	5	2019,8
Chen, x.	1	7	14	4	2019
Liu, c.	3	5	6	2	2022
Su, k.	3	5	6	2	2022
Wang, y.	2	6	6	2	2018,5
Zhang, t.	1	5	8	2	2020
An, h.	3	4	4	1	2023
Chen, j.	1	4	4	1	2020
Cheney, g.	2	2	2	1	2016
Jin, y.	2	4	4	1	2021
Liu, k.	3	4	4	1	2023
Liu, l.	1	3	3	1	2018
Roper, j.	2	2	2	1	2016
Zeng, m.	2	4	4	1	2021
Zhang, m.	3	2	2	1	2021
Zhao, y.	1	4	4	1	2020
Zhou, h.	1	3	3	1	2018
Zhou, q.	2	4	4	1	2021

Source: Processed data, 2023

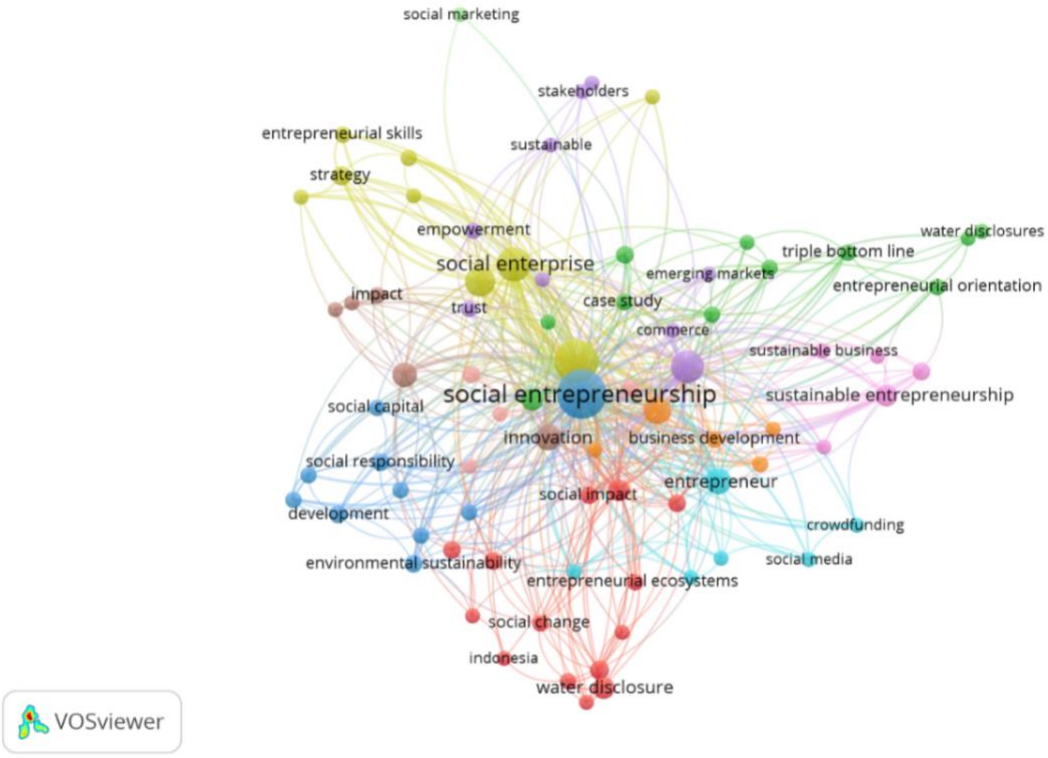

Figure 6. Co-occurrence network
Source: Processed data, 2023

Figure 6 visualizes variables that often appear regarding the study of Social Entrepreneurship and Water Disclosure. The bigger circle shows that these variables often appear. Based on Figure 6, Social Entrepreneurship and Water Disclosure is connected through several variables such as stakeholders, economic and social effects, sustainable development, corporate social responsibility, and decision making. Companies or entrepreneurs are

demanded by stakeholders to care more and show their efforts to mitigate water risk, one of which is by making water disclosures.

The disclosure of water carried out by the company shows the company's commitment that the company is not only oriented to profit but also social and environment by ensuring remaining resources for the sustainability of the company and the needs of the surrounding community. This information can be used by stakeholders to make decisions such as investment, granting permits to establish businesses, and other decisions. Thus, it can be concluded that social entrepreneurship and water disclosure are interrelated because of the orientation of sustainable development. This is in line with 3PS namely people, planets, and profit.

Table 3. Variable List

Variable	Cluster	Links	Total Link Strength	Occurrences	Avg. Pub. Year
Social entrepreneurship	3	70	352	152	2018,6579
Sustainability	4	70	310	104	2018,9904
Social enterprise	4	43	136	47	2018,8723
Sustainable development	5	44	134	40	2019,375
Entrepreneurship	4	30	86	31	2019,5806
Corporate social responsibility	7	33	68	20	2018,95
Innovation	8	26	62	19	2018,5263
Entrepreneur	6	33	81	17	2019,7059
Social innovation	8	19	35	15	2020,2667
Sustainable entrepreneurship	9	12	35	11	2018,6364
Water disclosure	1	9	18	11	2020,6364
Economic and social effects	1	26	46	10	2020,4
Social enterprises	2	16	27	10	2019,2
Stakeholder	1	13	19	7	2019,7143
Strategy	4	10	22	7	2019,8571
Environmental sustainability	3	11	19	6	2016,1667
Social impact	1	17	30	6	2017,1667
Business model	2	11	16	5	2021
CSR	10	6	10	5	2017
Development	3	10	16	5	2018
Economics	10	14	21	5	2019,2
Ecosystems	1	13	21	5	2021,6
Environmental entrepreneurship	9	8	17	5	2017,4
Social entrepreneur	1	10	16	5	2018,8
Social responsibility	3	8	18	5	2016,6
Social value creation	1	7	12	5	2017,2
Business development	7	14	22	4	2020,75
Case study	2	6	8	4	2021,5
Climate change	3	7	15	4	2017,25
Empowerment	5	8	11	4	2017,75
Entrepreneurial ecosystems	1	6	7	4	2020
Entrepreneurial orientation	2	8	11	4	2020,25
Entrepreneurial skills	4	4	11	4	2020
Impact	8	8	9	4	2018
Inclusion	4	6	13	4	2019
Opportunity recognition	3	9	14	4	2019
Resilience	3	7	13	4	2017
Resource-based view	2	11	16	4	2016,75
Scaling	7	10	16	4	2017
Social business	2	15	20	4	2020,75
Social capital	3	7	10	4	2018,5
Social change	1	15	18	4	2017

Variable	Cluster	Links	Total Link Strength	Occurrences	Avg. Pub. Year
Social entrepreneurs	3	13	19	4	2019,5
Social value	3	10	13	4	2014,5
Triple bottom line	2	10	16	4	2018,75
Trust	5	7	9	4	2015,75
Water management	1	7	10	4	2020,75
Assessment	8	6	7	3	2019,3333
Base of the pyramid	5	7	10	3	2017,3333
Business	6	8	10	3	2018,6667
Business model innovation	2	7	9	3	2020,6667
Commerce	5	9	13	3	2022,3333
Crowdfunding	6	7	12	3	2018
Decision making	1	8	8	3	2022
Design thinking	8	6	8	3	2018,6667
Developing countries	10	11	15	3	2016,6667
Emerging markets	5	9	11	3	2018,6667
Ethics	6	7	10	3	2020
Indonesia	1	5	5	3	2021,6667
Industrial performance	2	6	8	3	2021,6667
Intrapreneurship	4	7	9	3	2018
Literature review	9	10	15	3	2019
Shared value	2	7	8	3	2016
Social innovations	7	11	14	3	2018,3333
Social marketing	11	2	3	3	2020,6667
Social media	6	7	11	3	2018,6667
Social mission	1	6	8	3	2018,6667
Social sustainability	6	12	16	3	2021
Social values	10	9	12	3	2020,6667
Stakeholder theory	1	8	10	3	2019,3333
Stakeholders	5	6	6	3	2020
Strategic management	4	6	10	3	2021,6667
Sustainable	5	7	9	3	2022
Sustainable business	9	7	10	3	2018,6667
Sustainable development goals	9	6	7	3	2021
Systems thinking	7	6	9	3	2017,6667
Water disclosures	2	1	1	3	2022,3333
Water information disclosure	5	2	2	3	2020,3333
Well-being	4	5	6	3	2021,3333

Source: Processed data, 2023

Table 3 is a list of variables that have been studied in the study of Social Entrepreneurship and Water Disclosure. Over the past 10 years there have been around 79 variables that have been reviewed. However, not limited to that amount, because variables that are very rarely studied may not be seen in the bibliometric network. Table 3 also shows that there are 11 clusters represented in different colors in figures 6.

Total links indicate the frequency of variables connected to other variables and the Total Link Strength indicates the strength of the relationship of one variable with another variable. Occurrence shows the number of occurrences of each variable over the past 10 years. Variables that are often studied include social entrepreneurship, sustainability, social enterprise, and entrepreneurship. Meanwhile, variables such as crowdfunding, industrial performance, shared value, social innovation, and stakeholders are some of the variables that are still rarely studied so that they have great potential to be developed in subsequent research.

3.2. Discussion

Social entrepreneurship improves upon traditional business models by integrating a commitment to positive social and environmental impacts alongside financial success. In water management, entrepreneurs prioritize innovative business models to address crises such as scarcity, pollution, and conservation, contributing to sustainable development. This aligns with the Triple Bottom Line framework, emphasizing People, Planet, and Profit. Amid a global water crisis, water disclosure emerges as a key tool for companies to transparently report activities, engage stakeholders, and enhance accountability. It also serves impression management, bolstering legitimacy, and company image. Ultimately, water disclosure empowers companies to make informed decisions regarding water use and investment. Thus, social entrepreneurship and water disclosure are two topics that are related to the focus of sustainable and socially oriented development.

Previous literature has provided valuable insight into the development of social entrepreneurship and water disclosure studies regarding the determinants and consequences of both for companies, the environment and business. Based on co-occurrence analysis, these factors are divided into several clusters. The first cluster discusses variables such as economic and social effects, social impact, and stakeholder theory which indicates that social entrepreneurship practices and water disclosure have an important role in creating sustainable social value through corporate transparency in water management, active stakeholder participation in encouraging environmental action. and corporate social, as well as business innovation oriented towards solutions to water problems. Fernández-Guadaño & Diez (2023) found that social entrepreneurship has a positive impact on sustainability and innovation. Government ownership, creditor pressure, foreign ownership, large companies, and high capital intensity are thought to increase water disclosure practices (Ben-Amar & Chelli, 2018; Wicaksono & Setiawan, 2022; Yu et al., 2020; Zhang et al., 2021; Zhou et al., 2021). These practices not only strengthen the company's economic sustainability but also have a positive impact on society and the environment, with Indonesia being an example of a location where these practices are a significant topic of discussion. However, in general, studies on social entrepreneurship and water disclosure are more developed in developed countries where most companies and society are more concerned with the environment and pay great attention to the various impacts caused by company activities such as waste management and corporate social activities.

Cluster 2 provides information that by using approaches such as 3P and shared value, social companies try to create value for all stakeholders by paying attention to economic, social and environmental aspects (Pfajfar et al., 2022). Water disclosure is important in increasing transparency and accountability of water management (Zeng et al., 2020), while an entrepreneurial-oriented approach drives innovation in achieving social and environmental goals (Sánchez-García et al., 2022). This also indicates that the integration of social entrepreneurship and water disclosure has great potential to improve overall industrial performance and create value for society and the environment. Meanwhile, Cluster 3 emphasizes important contributions in responding to global challenges related to water and the environment. Social and environmental actions such as water disclosure tend to be carried out by companies that have a long-term orientation (Ben-Amar & Chelli, 2018). Through a social entrepreneurship approach, social entrepreneurs identify opportunities to create social and environmental value while strengthening environmental sustainability and social responsibility. Increasing social capital and resilience helps confront climate change and strengthen affected communities (Carmen et al., 2022). In this way, sustainable development can be achieved.

Cluster 4 emphasizes that social enterprises combine entrepreneurship with a commitment to environmental and social goals, utilize strategic management, and

entrepreneurial skills to drive greater impact. Inclusion and intrapreneurship are critical, ensuring diversity of perspectives and innovative solutions. These strategies prioritize long-term prosperity and sustainability. Cluster 5 indicates that sustainable development initiatives prioritize empowerment and trust among stakeholders, especially at the base of the pyramid in emerging markets. These efforts are in line with sustainable development goals, namely by strengthening stakeholder involvement and social impact. Social incubators are important in the development of social start-ups (Sanchez-Robles et al., 2023), educating transformative entrepreneurs (Hoppe & Namdar, 2023), and social entrepreneurship education itself (Baltador & Grecu, 2023).

Cluster 5 discusses the role of entrepreneurs in navigating business ethics and utilizing crowdfunding platforms to encourage social sustainability. This platform is not only used as a platform to obtain capital from investors but also to encourage investors to be more socially and environmentally conscious (Yáñez-Valdés & Guerrero, 2023). Additionally, by leveraging social media, social entrepreneurs amplify their impact, expand connectivity, and promote responsible business practices. Cluster 7 discusses corporate social responsibility initiatives to encourage business development while emphasizing scale and social innovation. In this case, the CSR committee has a significant role in encouraging social and environmentally sound practices such as water disclosure (Salsabila & Adhariani, 2022). CSR and social entrepreneurial practices are also believed to be drivers of social inclusion and prosperity (Cezarino et al., 2022).

Discussion of social innovation is discussed in Cluster 8. This cluster also discusses the impact of social innovation in social entrepreneurship and water disclosure. Through methodologies such as design thinking, social entrepreneurs design sustainable solutions to overcome various social and environmental problems such as the water crisis. Cluster 9 discusses the discourse of sustainable entrepreneurship and environmental entrepreneurship which emphasizes the importance of aligning business practices with sustainable development goals. This has become known since the emergence of the Triple Bottom Line concept, where companies to achieve going concern must pay attention to profit, people, and planet. In the concept of social entrepreneurship sustainability, Kamaludin (2023) proposes three dimensions, namely social sustainability, economic sustainability, and environmental sustainability.

In Cluster 10, the literature discusses social entrepreneurship and water disclosure studies which seek to integrate CSR practices by upholding social values while advancing economic development and prosperity. This is especially true in developing countries where social and environmental problems such as water crises often occur and it is predicted that there will be a large increase in demand for water to meet household and industrial needs (He et al., 2021; OECD, 2012; World Meteorological Organization, 2020). The final cluster discusses social marketing strategies that play an important role in promoting social entrepreneurial ventures, enabling them to effectively communicate their mission and impact to society, investors, and other potential parties, thereby spurring the acceleration of positive social change.

4. CONCLUSION

This study has two research questions, namely: What drives the evolution of research on social entrepreneurship and water disclosure? How do social entrepreneurship and water disclosure connect? The study of social entrepreneurship and water disclosure shows an increasing trend, although it has decreased during the Covid-19 Pandemic period. However, after that it shows an increasing trend again. The study of social entrepreneurship and water disclosure is driven by several things, namely the university as a research center, author productivity, and country productivity. In general, social entrepreneurship and water disclosure studies are connected

through several things, namely stakeholders, economic and social effects, sustainable development, corporate social responsibility, and decision making. These variables connect social orientation to social entrepreneurship and water disclosure studies. Both are in the same orientation, namely sustainable development that not only pays attention to profit but also social and environment.

This research has several limitations. First, this study only uses articles in English to avoid bias in the analysis and interpretation process. Further research can examine articles that use non-English to complete the results of this study. Second, this study has only been multiplying publications over the past decade, so that publications before 2013 and after September 2023 were not accommodated in this study. Subsequent research can expand the study and add literature from other databases such as Web of Science and Google Scholar. Nevertheless, this study has been able to answer research questions clearly and completely. Further research can examine variables that are rarely studied to expand the scope of social entrepreneurship and water disclosure studies, such as stakeholders, crowdfunding, industrial performance, and social innovation.

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