

## A Data-Driven Bibliometric Analysis Using R Analytics for Visualization of Women Entrepreneurs Contribution to Sustainable Development

Pavithra D<sup>1</sup> and Dr. M. Venkatraman<sup>2</sup>

<sup>1</sup>Ph.D Research Scholar, Department of Commerce, PSG College of Arts & Science, Bharathiar University, Coimbatore – 161 014, Tamil Nadu, India.

pavidev26@gmail.com

<sup>2</sup>Associate Professor, Department of Commerce, PSG College of Arts & Science, Bharathiar University, Coimbatore – 161 014, Tamil Nadu, India.

divineramji@gmail.com

**How to cite this article:** Pavithra D, M. Venkatraman (2024). A Data-Driven Bibliometric Analysis Using R Analytics for Visualization of Women Entrepreneurs Contribution to Sustainable Development. *Library Progress International*, 44(3), 23834-23847

### ABSTRACT

**Purpose:** The primary objective of this study is to conduct a data-driven bibliometric analysis to explore the intersection of women entrepreneurship and sustainable development. It aims to identify key research trends, critical gaps, and the contributions of women entrepreneurs toward achieving Sustainable Development Goals (SDGs), providing actionable recommendations for policymakers and practitioners.

**Design/Methodology/Approach:** This study utilizes a bibliometric analysis method, drawing from 454 scholarly documents retrieved from the Scopus database (1995-2024). The analysis is conducted using R Studio's Biblioshiny, focusing on trends in publication volumes, citation metrics, keyword co-occurrence, and thematic developments related to women entrepreneurship and sustainable development.

**Findings:** The results reveal a substantial growth in research connecting women entrepreneurship with sustainable development. Key thematic clusters include innovation, social entrepreneurship, and policy impacts. The findings highlight women entrepreneurs as critical contributors to achieving SDGs, particularly in the areas of gender equality, environmental sustainability, and community development. However, significant gaps remain, particularly in addressing regional disparities, access to finance, and the long-term sustainability of women-led enterprises.

**Research Limitations:** The study is limited to data from the Scopus database, which may not encompass all relevant literature. Additionally, the focus on bibliometric analysis may limit the exploration of qualitative aspects of women entrepreneurship and sustainability.

**Practical Implications:** The findings provide valuable insights for policymakers and development practitioners, emphasizing the need for targeted support for women entrepreneurs, including enhanced access to finance, capacity building, and policies that promote sustainability and inclusivity.

**Keywords:** Women Entrepreneurs, Sustainable Development, Bibliometric Analysis, R Analytics, Sustainable Development Goals, Policy Recommendations.

### 1. INTRODUCTION

The rise of women entrepreneurs signifies a transformative shift in global economic landscapes, marking an essential evolution in the role of women within both local and international markets. Historically, women have played a crucial role in various economic activities, yet their contributions often went unrecognized in traditional narratives. From the early days of community-centered economies to the contemporary business world, women have continuously demonstrated resilience, creativity, and an entrepreneurial spirit. This narrative begins with the cottage industries where women skilfully produced textiles, crafts, and food products for their families and communities. As societies evolved, so did the entrepreneurial landscape, with women slowly emerging from the shadows of domesticity to embrace leadership roles in business. The late 20th century heralded a new era for women entrepreneurs, coinciding with societal shifts that prioritized gender equality and empowerment. With

increasing access to education and professional opportunities, women began to establish their businesses across various sectors, including technology, health, and sustainable practices. Studies indicate that women-led enterprises contribute significantly to economic growth, innovation, and job creation, reflecting their critical role in shaping a resilient and inclusive economy. As these women entrepreneurs expand their reach, they not only challenge existing norms but also redefine what it means to be a successful business leader. Their stories are often characterized by a commitment to social impact, with many women-led ventures prioritizing sustainable practices that align with the principles of environmental stewardship and community well-being.

Today, the intersection of women's entrepreneurship and sustainable development is more relevant than ever. As the global community confronts complex challenges such as climate change, resource depletion, and social inequality, the need for innovative solutions is paramount. Women entrepreneurs have emerged as catalysts for change, leveraging their unique perspectives and experiences to drive sustainable business practices that benefit both the economy and society. Research has shown that women-led businesses tend to focus more on sustainable development goals, implementing strategies that not only enhance profitability but also contribute to ecological preservation and social equity. By prioritizing community engagement and environmental responsibility, women entrepreneurs are paving the way for a new model of business that emphasizes sustainability alongside financial success. In light of this growing recognition, this study conducts a data-driven bibliometric analysis that highlights the contributions of women entrepreneurs to sustainable development.

## 2. LITERATURE REVIEW

Women entrepreneurship and sustainable development have garnered significant scholarly attention, reflecting a paradigm shift in recognizing women's vital role in driving economic growth and sustainability. Megha and Kumar (2023) conducted a bibliometric analysis that revealed a marked increase in research themes related to social entrepreneurship since 2015, particularly in the tourism and environmental sectors, thus encouraging future inquiries into collaborative approaches that can enhance sustainable initiatives. Complementing this, Gabith et al. (2023) identified a critical gap in literature focusing on rural women, particularly in Latin America, calling for targeted studies that capture the diverse experiences of these entrepreneurs. Fivi, Daniati, and Novianti (2023) emphasized the importance of empowering women in the SME sector, illustrating how enhanced training and education improved women's adoption of information and communication technology (ICT) during the Covid-19 pandemic. Herry, Priyono, and Pancawati (2023) further highlighted the substantial contributions of women entrepreneurs to the economic recovery of SMEs in Indonesia, where women manage 64.5% of these enterprises, underscoring their pivotal role in revitalizing local economies.

Building on these insights, Subhendu Kumar and Pradhan (2023) explored eco-friendly businesses initiated by Self-Help Groups (SHGs) during the pandemic, demonstrating alignment with Sustainable Development Goals (SDGs) and highlighting the necessity for comprehensive support for sustainable practices. Similarly, Kubra Simsek et al. (2023) conducted a bibliometric analysis that illuminated key subtopics within women's entrepreneurship literature, such as discrimination and entrepreneurial intention, while Muhammad Irfan (2023) found limited contributions from women entrepreneurs in West Sumatra despite positive influences from female professional staff, signaling the need for enhanced governmental initiatives. Michael Zisuh Ngoasong (2023) developed a framework to understand gender influences on sustainable business models among women entrepreneurs in Turkey, illustrating how gendered perceptions shape entrepreneurial practices. This narrative is further enriched by Hamrila Binti Abdul Latip (2023), who emphasized socio-economic development through women's empowerment, while Setiani and Sopiah (2023) uncovered underrepresented themes in women's entrepreneurship through bibliometric analysis.

The critical role of technology in ensuring the sustainability of women-led enterprises emerged as a key theme, particularly in Ecuador, where training and governmental support are vital for fostering sustainable entrepreneurship. In Saudi Arabia, Badway et al. (2023) emphasized that increasing women's workforce participation is essential for achieving economic empowerment in line with the country's Vision 2030. Further exploration by Linda et al. (2022) on the nexus between gender and sustainable energy reflects an expanding awareness of gender issues in sustainability discourse, while Karanja and Dabo (2022) highlighted the barriers women face across Africa in entrepreneurship. Muneera et al. (2022) advocated for local training and mentorship in resource-rich countries to promote female entrepreneurship, and Ramakrishna and Rajan (2022) analyzed trends in sustainability research, emphasizing the critical need for increased support for women's entrepreneurship to promote economic development. Together, these studies weave a compelling narrative of the significant contributions of women entrepreneurs to sustainable development, underscoring the urgent need for targeted research and policy initiatives that empower women and recognize their indispensable role in shaping a sustainable future.

**RQ1:** What are the dominant research trends and themes that connect women entrepreneurs to sustainable development in the existing literature?

**RQ2:** How do women entrepreneurs contribute to specific SDGs, and what gaps exist in the current body

of research?

**RQ3:** What strategic insights can be derived from bibliometric data to inform policy and practice, enhancing the role of women entrepreneurs in promoting sustainability?

3. OBJECTIVES OF THE STUDY

- ☞ To analyse the key research trends and thematic developments in the intersection of women entrepreneurship and sustainable development using bibliometric analysis with R analytics.
- ☞ To identify critical gaps and emerging opportunities within the literature, focusing on the contributions of women entrepreneurs to achieving Sustainable Development Goals (SDGs).
- ☞ To provide data-driven recommendations for policymakers and practitioners, enabling them to better support women entrepreneurs as agents of sustainability and economic development.

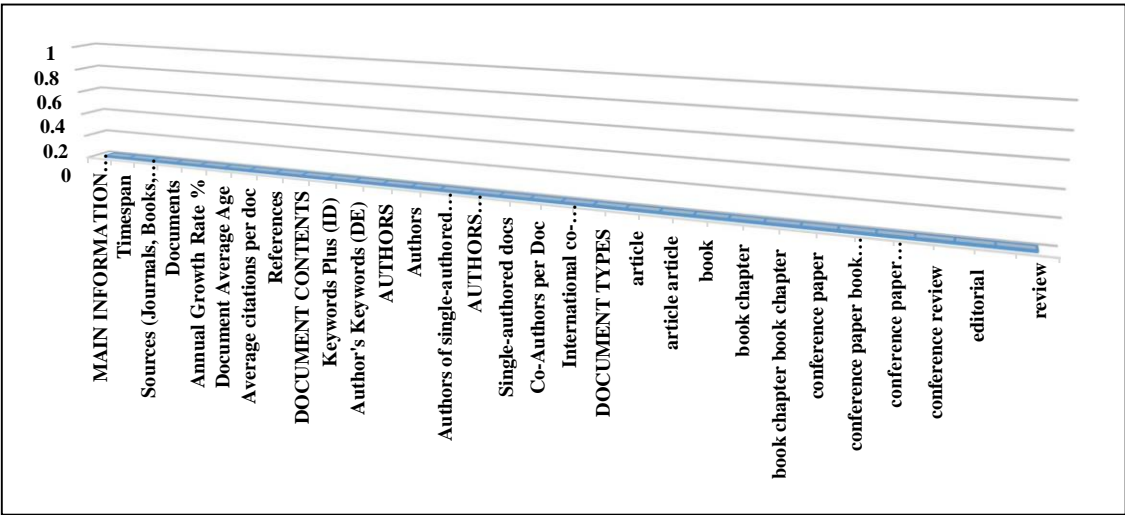
4. RESEARCH METHODOLOGY

This study employed a comprehensive quantitative methodology to examine the literature on women entrepreneurship and its relationship with sustainable development. Data were collected from the Scopus database, a leading repository of peer-reviewed academic literature, covering a timespan from 1995 to 2024. A total of 454 scholarly documents, including journal articles, conference papers, and reviews, were systematically retrieved for analysis. The bibliometric analysis was performed using Biblioshiny, a user-friendly interface for conducting bibliometric studies in R Studio. Initially, descriptive statistics were calculated to assess publication trends, such as the volume of publications, average citation counts, and annual growth rates within the field. A keyword analysis was conducted to identify prevalent themes and emerging research topics, employing both Keywords Plus and author-generated keywords to ensure a comprehensive exploration of the research landscape. Citation metrics were analyzed to evaluate the academic impact of the identified publications, while the distribution of document types provided insights into the preferred channels of scholarly communication. Furthermore, a geographic distribution analysis highlighted regional contributions to the literature, showcasing active research communities. Lastly, network analysis was utilized to visualize relationships among key terms related to women entrepreneurship and sustainable development, revealing thematic clusters and insights into interdisciplinary connections within the field. This robust methodology facilitated an in-depth understanding of the evolution, impact, and thematic structure of research focused on women entrepreneurship and its alignment with sustainable development goals.

5. ANALYSIS AND INTERPRETATION

The analysis delves into the comprehensive examination of the bibliometric data, shedding light on the evolving research landscape surrounding women entrepreneurship and sustainable development. The insights drawn from the data reveal significant trends, key contributors, and thematic areas that warrant further exploration. Through this analysis, we aim to understand the dynamics of scholarly discourse and its implications for policy and practice. Ultimately, these findings will inform future research directions and contribute to the ongoing dialogue on enhancing women's roles in sustainable development.

Figure 4.1 shows the main information about the data



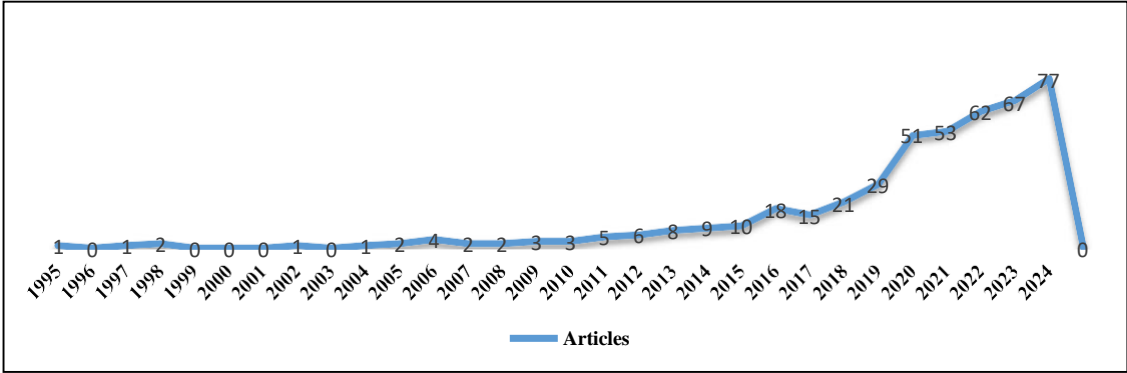
Source: Biblioshiny

The analysis of the dataset, which comprises 454 documents published from 1995 to 2024 across 306 distinct sources, reveals a comprehensive overview of research output in a specific field. Notably, the annual growth rate stands at 0%, suggesting a stable production of academic literature within the timeframe considered. This stability is underscored by the average document age of 4.17 years, indicating that the majority of the works are relatively recent and likely reflect ongoing discussions and advancements in the field. Furthermore, an average citation count of 10.25 per document suggests a moderate level of recognition and impact within the academic community, as these citations can be indicative of the relevance and importance of the research findings to other scholars.

A detailed keyword analysis enhances our understanding of the thematic landscape of this research. With 643 Keywords Plus and 1,249 author-generated keywords, there is a clear indication of a diverse range of topics being addressed. This broad array of keywords not only highlights the research focus but also emphasizes the interdisciplinary nature of the field, where various concepts and ideas intersect. Regarding authorship, the dataset lists a total of 1,165 authors contributing to the body of work, with 81 authors producing single-authored documents. This statistic suggests that while many researchers prefer collaborative efforts, a significant number are also engaging in solo projects, indicating a balance between individual and collective contributions to the literature. The average number of co-authors per document is 2.75, reflecting a collaborative environment among researchers. Furthermore, the presence of international co-authorships in 25.11% of the documents underscores the global nature of research in this area, indicating that scholars from different countries are working together to advance knowledge and share insights.

Examining the types of documents produced, articles emerge as the predominant format, comprising 316 of the total documents. This suggests that journal articles are the preferred medium for disseminating research findings, likely due to their rigorous peer-review process and wider accessibility. Additionally, the dataset includes other types of documents such as books (7), book chapters (70), conference papers (41), and reviews (7), indicating a robust scholarly engagement that spans various formats. The variety in document types not only enhances the depth and breadth of the research output but also allows for different audiences to engage with the material, from academic peers to practitioners and policy-makers. Overall, the dataset reflects a dynamic and collaborative research landscape that is actively contributing to the advancement of knowledge in its respective fields.

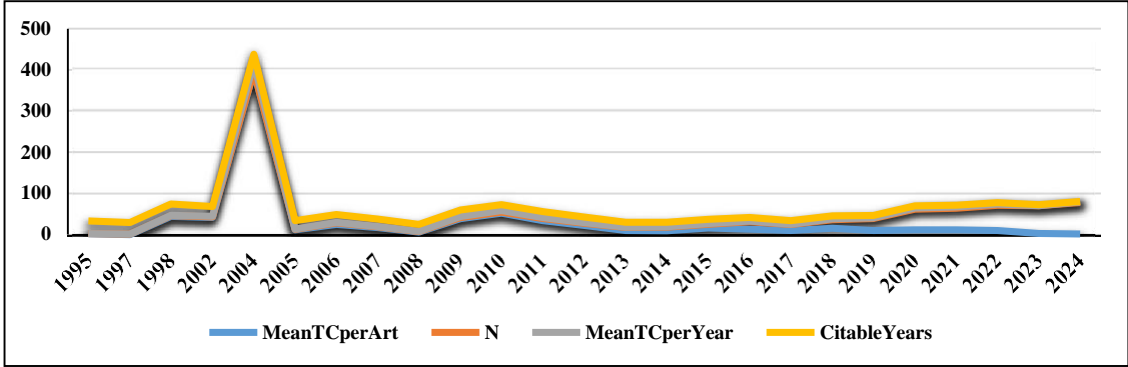
Figure 4.2 shows the Annual Scientific Production



Source: Biblioshiny

The dataset reveals a significant trend in article publications from 1995 to 2024, beginning with modest output in the early years, with only 8 articles published from 1995 to 2005. This period reflects a nascent stage of research interest in the field. However, from 2006 to 2014, there was a notable increase, totalling 42 articles, indicating a growing academic focus. The most striking growth occurred from 2015 onwards, culminating in a dramatic surge in publications, particularly from 2020 to 2024, where output escalated from 10 articles in 2015 to a projected 77 articles in 2024. This rapid expansion, especially evident during the global events surrounding 2020, suggests heightened interest, possibly driven by increased funding, collaboration, and societal shifts impacting the research landscape. Overall, the total of 378 articles published over the nearly three-decade span highlights a robust development in the field, indicating its increasing relevance and dynamism in academic discourse.

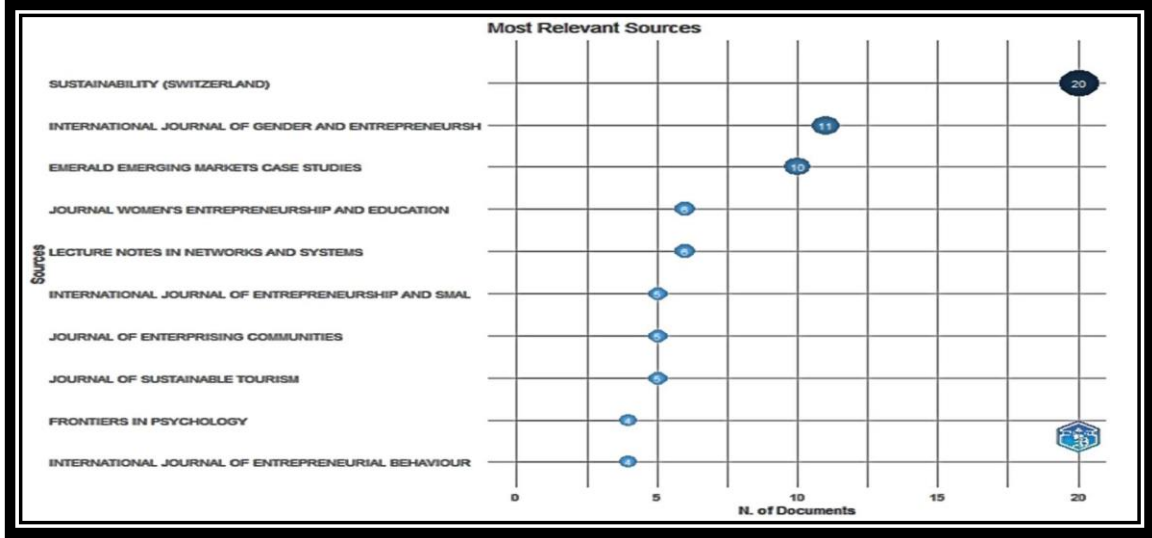
Figure 4.3 shows the Average Citations Per Year



Source: Biblioshiny

The analysis of citation metrics from 1995 to 2024, derived from Biblioshiny, reveals distinct trends in the scholarly impact of published articles. Notably, 2004 exhibits an exceptional mean total citation per article of 397, although based on a single publication, while 1998 and 2010 also show significant citation activity with mean totals of 44 and 51.67, respectively. Despite these peaks, a general decline in mean total citations per article is evident in recent years, with averages dropping to 2.79 in 2023 and 1.26 in 2024, suggesting a potential shift in research focus or increased competition for citations among more recent publications. Furthermore, the decreasing number of citable years associated with newer articles indicates that they still accumulate citations, highlighting the evolving landscape of academic impact. These findings prompt further investigation into the factors influencing citation practices and the relevance of research in an increasingly competitive academic environment.

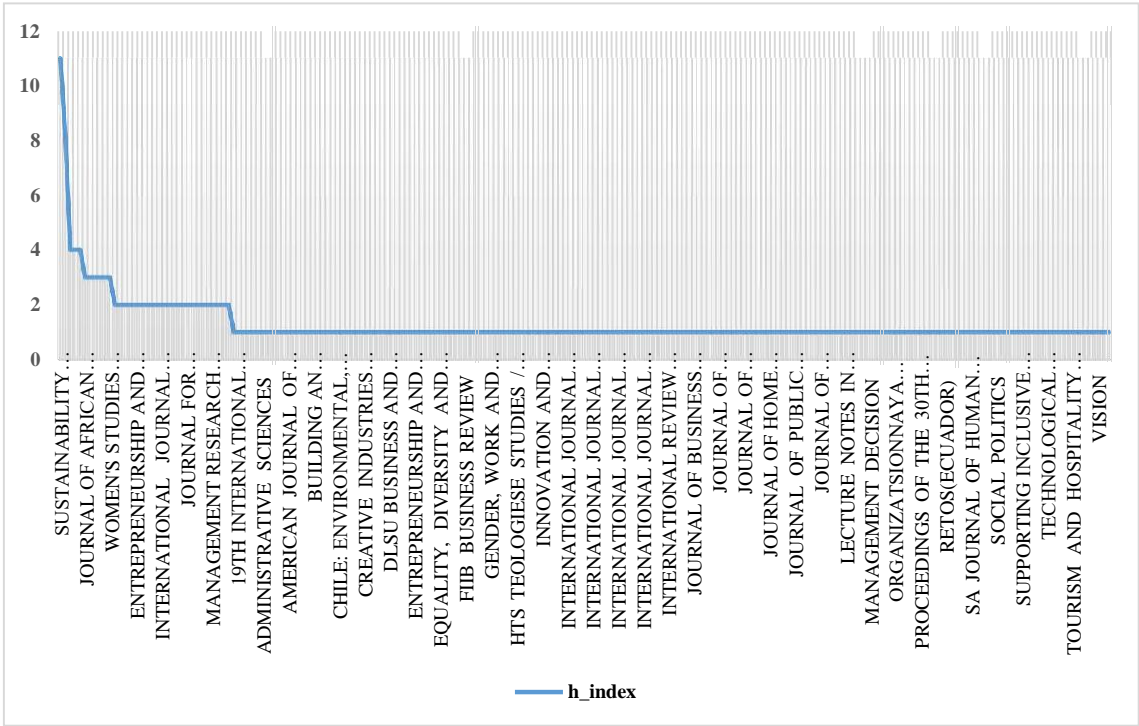
Figure 4.4 shows the Most Relevant Sources



Source: Biblioshiny

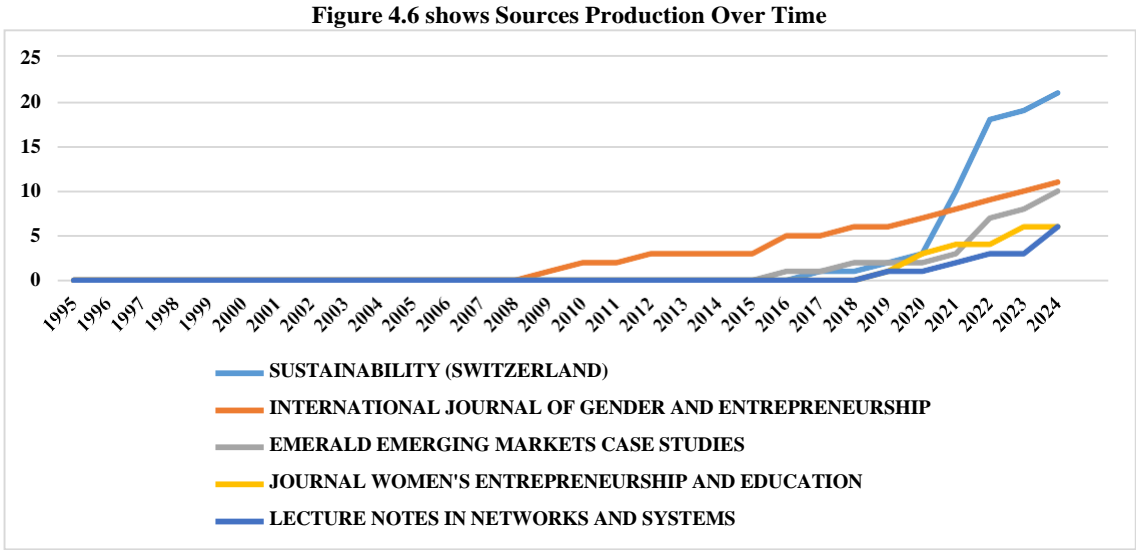
The chart above shows the distribution of articles on women entrepreneurs across various academic journals. **Sustainability (Switzerland)** stands out with the highest number of publications, suggesting a strong research focus on the intersection of women entrepreneurship and sustainability, particularly in relation to the Sustainable Development Goals (SDGs). Other journals like the **Journal of Business Research** and the **Journal of Small Business and Entrepreneurship** also show a significant number of publications, highlighting key areas such as small business management and entrepreneurial research. The presence of articles in a wide range of interdisciplinary journals, including **Management Research**, **Social Politics**, and **Scandinavian Journal of Management**, indicates that the topic of women entrepreneurs is studied from diverse perspectives, not just from a business standpoint. Additionally, the relatively lower number of articles in journals like the **International Political Economy Series** and **Journal of Organizational Change Management** suggests potential gaps in research that could be explored further, particularly in political, organizational, and change management dimensions of women entrepreneurship. Overall, the data reflects the growing importance of women entrepreneurs in various academic fields, with a notable emphasis on sustainability and small business development.

Figure 4.5 shows the Source Impact Factor



Source: Biblioshiny

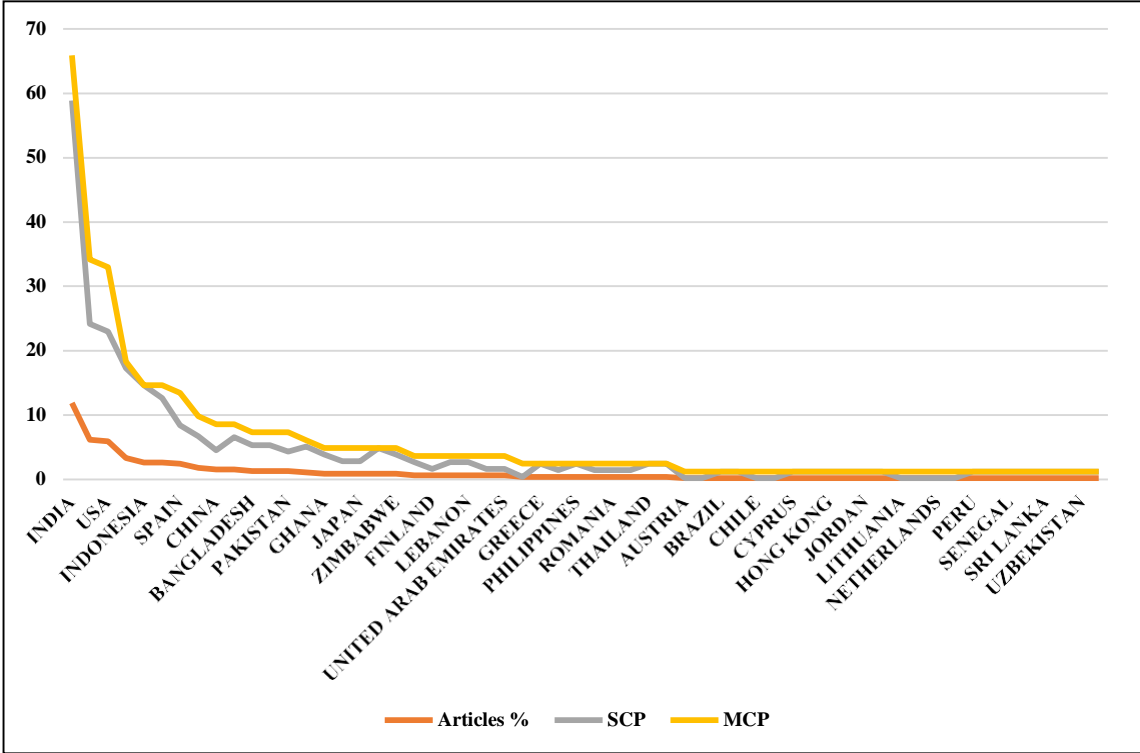
The h-index data for various sources reveals the relative impact of journals and publications in the academic and research communities, specifically in areas related to entrepreneurship, sustainability, gender studies, and business management. **"Sustainability (Switzerland)"** stands out with the highest h-index of 11, indicating a strong influence and frequent citations within the field. Other notable journals like **"International Journal of Gender and Entrepreneurship"** and **"Journal of Entrepreneurship in Emerging Economies"** have a lower h-index of 8 and 4, respectively, suggesting a more specialized or emerging focus. Many of the listed journals have an h-index of 1 or 2, representing relatively new or niche areas of study. The data highlights the variation in academic impact, with sustainability and entrepreneurship being key themes across many of the sources, emphasizing the ongoing interest in these areas of research.



Source: Biblioshiny

The data reflects a significant increase in publications across all five journals from 2009 to 2024, particularly from 2017 onwards. **Sustainability (Switzerland)** and the **International Journal of Gender and Entrepreneurship** show the most notable growth, with **Sustainability** moving from no publications before 2017 to 21 by 2024, and the **International Journal of Gender and Entrepreneurship** steadily rising from 1 publication in 2009 to 11 in 2024. **Emerald Emerging Markets Case Studies** and the **Journal of Women's Entrepreneurship and Education**, though slower to gain traction, show continuous increases in recent years, especially from 2019 onwards. **Lecture Notes in Networks and Systems** is relatively new to the field but has also seen steady growth since its first publication in 2019. This overall upward trend suggests a growing academic interest in topics like sustainability, gender, entrepreneurship, and emerging markets, particularly in the context of global challenges and development.

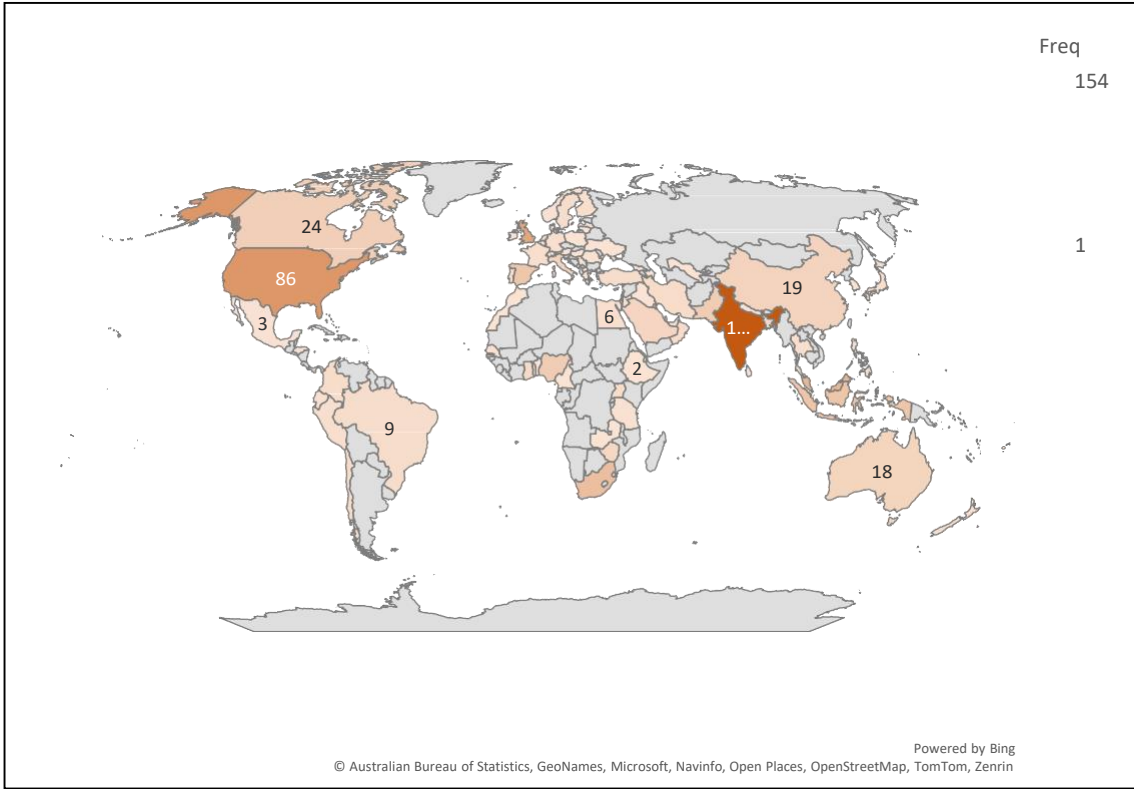
Figure 4.7 shows the Corresponding Author Countries



Source: Biblioshiny

The data reveals a distribution of articles categorized by their publication type, highlighting a trend in collaboration among researchers. The article set with the highest count includes 54 publications, which constitutes 11.89% of the total, with 47 being single-country publications (SCP) and 7 classified as multiple-country publications (MCP), representing 12.96% of that group. The subsequent set, comprising 28 articles (6.17%), showcases a notable collaborative aspect, with 35.71% (10 out of 28) identified as MCPs. Similarly, another set of 27 articles (5.95%) features 37.04% of MCPs, indicating a robust trend of cross-border research efforts. Some sets, such as the one with 15 articles (3.30%), reflect limited international collaboration, showcasing only one MCP, which accounts for 6.67%. Conversely, certain sets demonstrate a high percentage of MCPs, such as a set with 7 articles (1.54%) showing 57.14% MCP involvement and another set with 6 articles (1.32%) having 50% MCPs, underscoring a significant engagement in collaborative research across countries.

Figure 4.8 shows the Country's Scientific Production



Source: Biblioshiny

The distribution of articles by region reveals a significant concentration of research from India, leading with 154 publications, which constitutes a substantial portion of the total output. Following India, the United States contributes 86 articles, and the United Kingdom adds 68, underscoring the robust presence of English-speaking countries in the academic landscape. Notable contributions also come from Malaysia (51), South Africa (43), and Indonesia (35), reflecting a diverse array of research outputs. Countries like Spain (33), Nigeria (27), and Pakistan (27) further illustrate the global interest in the subject matter. While Canada (24) and Italy (20) maintain a strong presence, several nations exhibit lower frequencies, such as Australia (18) and Saudi Arabia (16). Additionally, countries with fewer than ten publications, including Brazil (9), Sweden (9), and Turkey (9), indicate emerging research activity, whereas nations like Azerbaijan and Belgium, with only one publication, show limited engagement in this research area. Overall, the data highlights a rich geographic diversity of contributors, with India at the forefront and notable participation from various countries worldwide.

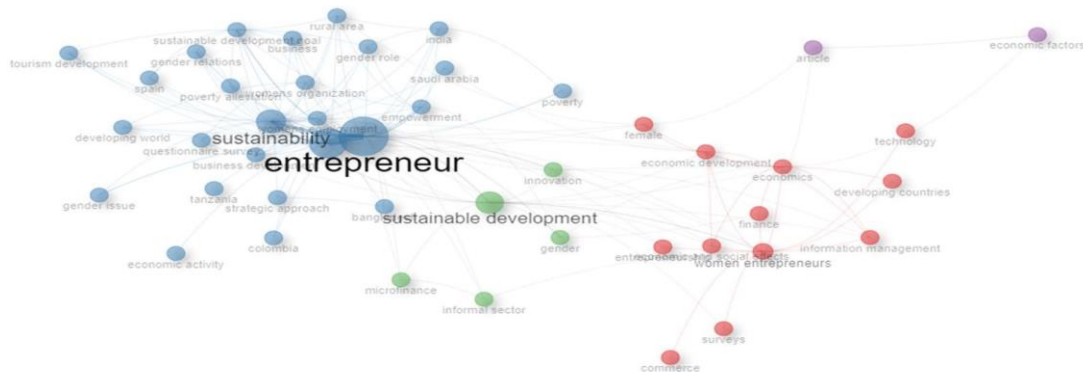
**Figure 4.9 shows the frequent Key Terms**



**Source: Biblioshiny**

The frequency analysis of key terms reveals a strong emphasis on women's entrepreneurship and its relationship with sustainable development. "Entrepreneur" ranks highest with 48 occurrences, indicating a central focus on entrepreneurial activities, particularly among women. Terms like "women's status" (35), "sustainable development" (25), and "sustainability" (24) further highlight the importance of understanding women's social roles and integrating long-term economic, social, and environmental objectives into discussions surrounding women's entrepreneurship. Additionally, the presence of terms such as "empowerment" (11), "women entrepreneurs" (18), and region-specific terms like "India" and "Saudi Arabia" suggests a nuanced exploration of the barriers women face in economic participation and the impact of initiatives like microfinance on poverty alleviation. Overall, these frequencies illustrate a comprehensive examination of how women's entrepreneurial efforts contribute to sustainable development and the pressing need to address gender-related challenges in this domain.

**Figure 4.10 shows the Co-occurrence Network**

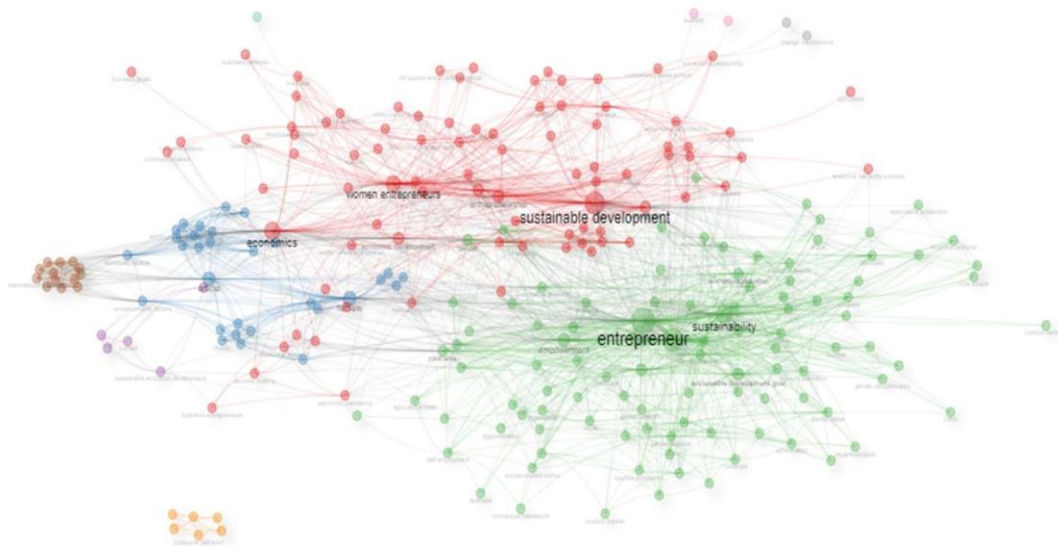


**Source: Biblioshiny**

The analysis of the network surrounding women's entrepreneurship reveals a nuanced interplay of terms that are crucial to understanding the role of women in economic development and sustainability. **Cluster 1** prominently features terms like "women entrepreneurs," "economics," and "economic development." The high betweenness score of "women entrepreneurs" (156.556) indicates its pivotal role as a connector within this cluster, emphasizing the need to incorporate female perspectives in economic discussions. This connection suggests that recognizing and promoting women's contributions to the economy can foster greater social change and drive economic growth. In **Cluster 2**, "entrepreneur" stands out with a significant betweenness score (414.078), reflecting its centrality in dialogues about empowerment and economic participation. This highlights entrepreneurship as a vital pathway for women to attain economic independence and improve their societal status. Terms such as "women's status," "sustainability," and "empowerment" further illustrate the intertwined nature of

gender equality and economic advancement, underscoring that fostering female entrepreneurship is essential for achieving comprehensive economic and social objectives. Additionally, "women's employment" and "business development" reinforce the narrative that empowering women through entrepreneurship contributes significantly to both personal and community development. **Cluster 3** encompasses concepts like "sustainable development," "innovation," and "gender," reflecting an ongoing dialogue about the necessity for sustainable practices in business and the recognition of gender as a critical element in economic planning. The focus on innovation signals the importance of adopting modern business approaches that enhance economic performance while also promoting social equity and environmental responsibility. Finally, **Cluster 4** addresses broader economic themes, including "economic factors," "microfinance," and "informal sector," highlighting the diverse challenges and opportunities faced by women entrepreneurs, particularly in developing regions. This cluster points to the need for targeted strategies that tackle barriers such as limited access to financial resources and support services, which can impede women's entrepreneurial endeavours. Overall, the analysis underscores a critical need for ongoing dialogue and policy initiatives aimed at enhancing women's economic empowerment, especially in developing countries. The strong interconnections among these key terms illustrate that boosting women's entrepreneurial capabilities is not solely a matter of gender equality; it is a strategic approach to fostering sustainable economic growth and social advancement. Addressing these challenges comprehensively can lead to significant progress in achieving sustainable development goals, ultimately benefiting both women and the broader economy.

Figure 4.11 shows the Thematic Map

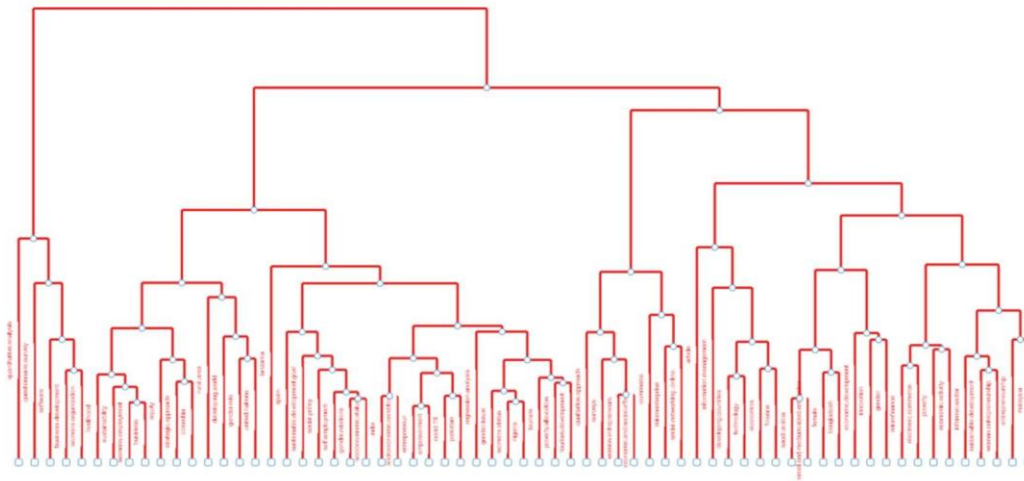


Source: Biblioshiny

The thematic map demonstrates the intricate relationships between key concepts related to sustainable development and women entrepreneurs, emphasizing the central theme of **sustainable development** as foundational to discussions surrounding economic growth and entrepreneurship. Its prominence suggests that sustainable practices are crucial for the long-term viability of women-led business ventures. The close proximity of **women entrepreneurs** to sustainable development highlights their significant role in advancing sustainability goals, indicating that policies aimed at empowering women in business can directly contribute to broader objectives. The presence of terms such as **economic development**, **innovation**, and **microfinance** underscores the diverse factors influencing the landscape of women entrepreneurship, suggesting a need for a multifaceted approach to support women-led enterprises through financial assistance, educational resources, and innovative practices. Social dimensions are also evident, with elements like **social entrepreneurship**, **gender equality**, and **environmental protection**, pointing to the motivations of women entrepreneurs aligning with social causes, thus emphasizing their potential to drive positive change in their communities. Furthermore, the emphasis on finance and information management indicates that access to resources and knowledge is essential for women entrepreneurs, highlighting areas for intervention where increased funding, training, and information can enhance their contributions to sustainable development. Overall, the map serves as a strategic tool for identifying key areas

for intervention, enabling stakeholders to better understand the interconnected dynamics that can facilitate the growth of women entrepreneurs while advancing sustainability goals.

**Figure 4.12 shows the Factor Analysis**



**Source: Biblioshiny**

The factor analysis of women entrepreneurs illuminates a comprehensive framework of how these individuals contribute to and engage with sustainable development. Each identified factor offers insight into the different dimensions of women's entrepreneurship, reflecting both their unique strengths and the challenges they encounter. The first factor, socio-economic empowerment, underscores the transformative impact of women's entrepreneurship on local economies and communities. Women entrepreneurs not only create jobs but also enhance household incomes and stimulate economic activity within their communities. By participating in the workforce, women challenge traditional gender roles, leading to broader social change. The analysis reveals that when women are economically empowered, they invest in education, health, and welfare, which benefits entire communities. This factor emphasizes the vital link between women's entrepreneurial activities and the achievement of economic growth and community well-being.

The second factor, innovation and adaptability, highlights the inherent creativity and resourcefulness of women entrepreneurs. Many women-led businesses emerge in response to specific local needs or challenges, showcasing their ability to adapt and innovate. This dimension reflects how women leverage their unique perspectives and experiences to create innovative products and services, often in industries that have been traditionally dominated by men. The analysis suggests that women's entrepreneurial ventures are characterized by a willingness to experiment and a commitment to finding new solutions, which not only fosters business growth but also encourages a culture of innovation within their communities.

The third factor reveals the critical role of networks, mentorship, and community support in the success of women entrepreneurs. Access to informal networks and formal support systems, such as business incubators and mentorship programs, significantly enhances women's ability to navigate the entrepreneurial landscape. These support structures provide essential resources, information, and encouragement, enabling women to overcome barriers and achieve their business goals. This factor underscores the importance of fostering collaborative environments where women can connect, share experiences, and learn from one another, thereby reinforcing their entrepreneurial capabilities.

The fourth factor emphasizes the commitment of women entrepreneurs to integrating sustainable practices within their business models. Many women-led enterprises prioritize ethical sourcing, environmental stewardship, and social responsibility, aligning their operations with broader sustainable development goals. This commitment to sustainability not only reflects a deep understanding of the environmental and social challenges facing their communities but also positions women entrepreneurs as key players in promoting sustainable business practices. The analysis suggests

that women's unique perspectives on sustainability can lead to innovative solutions that benefit both their businesses and the environment, further contributing to the advancement of sustainable development.

Finally, the fifth factor captures the various obstacles that women entrepreneurs encounter in their business journeys. These challenges can include limited access to financial resources, societal norms that discourage women from pursuing entrepreneurship, and a lack of support from institutions. The analysis reveals that while women entrepreneurs exhibit resilience and creativity in overcoming these barriers, systemic issues still hinder their potential. Recognizing and addressing these challenges is crucial for creating an enabling environment that supports women entrepreneurs in achieving their goals and contributing to sustainable development. Therefore, the factor analysis provides a nuanced understanding of the complexities surrounding women entrepreneurship. By identifying key factors such as socio-economic empowerment, innovation and adaptability, support systems, sustainability practices, and the challenges faced, the analysis highlights the multifaceted nature of women's contributions to sustainable development. This comprehensive perspective is essential for policymakers, support organizations, and stakeholders who aim to develop targeted initiatives and strategies that can effectively foster the growth and success of women-led enterprises. By addressing the unique needs and strengths of women entrepreneurs, we can leverage their potential to drive sustainable economic development and social progress.

## 6. CONCLUSION

This bibliometric analysis provides valuable insights into the evolving landscape of women entrepreneurship and its significant contribution to sustainable development. By leveraging data from the Scopus database and employing Biblioshiny in R Studio for analysis, the study reveals a notable increase in scholarly publications on this topic, indicating a growing recognition of the importance of women-led enterprises in addressing societal challenges and promoting economic growth. The thematic clusters identified, such as innovation, social entrepreneurship, and policy impacts, underscore the multifaceted nature of women's entrepreneurial experiences and the critical role they play in advancing sustainable practices. Moreover, the analysis highlights the necessity for interdisciplinary research to address the diverse challenges faced by women entrepreneurs across different contexts. Despite the progress reflected in the literature, gaps remain in understanding the unique barriers encountered by women from various socio-economic backgrounds and geographical regions. This study serves as a call to action for future researchers to delve deeper into these aspects, fostering a more nuanced understanding of how gender dynamics influence entrepreneurial success and sustainability. Overall, the findings of this analysis not only enrich the academic discourse surrounding women entrepreneurship but also offer practical implications for policymakers and practitioners. By prioritizing support for women entrepreneurs and recognizing their potential as agents of change, stakeholders can create an enabling environment that fosters innovation and sustainability. Ultimately, continued research and targeted interventions are essential to harness the transformative potential of women-led enterprises, contributing to a more inclusive and sustainable future.

## REFERENCES:

- ☞ Megha, Garg., Parveen, Kumar. (2023). Social Entrepreneurship and Sustainable Development: A Bibliometric Analysis. *Colombo Business Journal*, doi: 10.4038/cbj. v14i2.159
- ☞ Gabith, Miriam, Quispe, Fernández., José, Miguel, Giner-Pérez., Vicente, Marlon, Villa, Villa. (2023). Bibliometric Studies on Rural Female Entrepreneurship: A Metabibliometric Review. *Academic Journal of Interdisciplinary Studies*, doi: 10.36941/ajis-2023-0098
- ☞ Fivi, Anggraini., Daniati, Puttri., Neva, Novianti. (2023). Effect of Women's Entrepreneurship Practices on Information Communication Technology (ICT) Adoption During the Covid-19 Pandemic: A Case Study in West Sumatra, Indonesia. *Journal of economics, finance and management studies*, doi: 10.47191/jefms/v6-i6-65
- ☞ B., Herry, Priyono., Galuh, Pancawati. (2023). The Role of Women SME's in Economic Recovery During the Covid-19 Pandemic in NTT Province. *KnE Social Sciences*, doi: 10.18502/kss.v8i11.13571
- ☞ Subhendu, Kumar, Pradhan. (2023). Post Covid-19: Eco-Friendly Women Entrepreneurs Sustainability Development on Tbl Components. *International Journal of Professional Business Review*, doi: 10.26668/businessreview/2023.v8i6.2257
- ☞ Turdiyeva Shokhista (2023). Economic and Social Participation of Women in Achieving Sustainable Development Goals. *International Scientific and Current Research Conferences*. 1, 01, 131–134. DOI:https://doi.org/10.37547/goal-25.

- ☞ Muhammad, Irfan. (2023). Pengaruh Pemberdayaan Perempuan Dalam Ekonomi Dan Politik Terhadap Pembangunan Perempuan di Provinsi Sumatera Barat. *Jurnal Kajian Ekonomi dan Pembangunan*, doi: 10.24036/jkep. v5i2.14862
- ☞ Kübra, Şimşek, Demirbağ., Umut, Denizli., Orkun, Demirbağ. (2023). Is it a Man's World? Bibliometric Analysis of Women's Entrepreneurship Literature from a Gender Perspective. *Journal of research in business*, doi: 10.54452/jrb.1239959
- ☞ Michael, Zisuh, Ngoasong. (2023). A framework for gender influences on sustainable business models in women's tourism entrepreneurship: doing and re-doing gender. *Journal of Sustainable Tourism*, doi: 10.1080/09669582.2023.2201878
- ☞ Hamrila, Binti, Abdul, Latip. (2023). Sustainable Socio-Economic Development of Women: A Blueprint from Vulnerability to Empowerment. *International Journal of Academic Research in Economics and Management Sciences*, doi: 10.6007/ijarems/v12-i2/16662
- ☞ Setiani, Setiani., Sopiah, Sopiah. (2023). The Factor of Women's Entrepreneurship in Competitiveness: Bibliometric Analysis. *Journal of Economics Education and Entrepreneurship*, doi: 10.20527/jee.v4i1.8293
- ☞ Johanna Rosali Reyes-Reinoso, Deisy Carolina Castillo Castillo, & Andrea Vanesa Mory Alvarado (2023). Technology a factor in determining the sustainability of women lead enterprises. *Russian Law Journal*, 11 (1S), 359-375. doi: 10.52783/rlj.v11i1s.555
- ☞ Badway, Elsayed, Zalhaf., Khaled, Ahmed, Abdel, Al, Ibrahim. (2023). 13. The Saudi women's empowerment level and sustainable development in light of Saudi's vision 2030. *Conhecimento & Diversidade*, doi: 10.18316/rcd. v15i36.10839
- ☞ Linda, Dwi, Ariyani. (2022). Bibliographic analysis: the trends of gendered sustainable energy studies. *IOP Conference Series: Earth and Environmental Science*, doi: 10.1088/1755-1315/1105/1/012001
- ☞ Jubril, B., Olubiyi, T. O., Sojinu, O. S., & Ngari, R. (2022). Strengthening gender equality in small business and achieving sustainable development goals (SDGs): Comparative analysis of Kenya and Nigeria. *Economics, Management and Sustainability*, 7(2), 19–31. <https://doi.org/10.14254/jems.2022.7-2.2>
- ☞ Muneera, Saad, Al-Qahtani., Mariem, Fekih, Zguir., Ibrahim, Ari., Muammer, Koç. (2022). 24. Female Entrepreneurship for Sustainable Economy and Development—Challenges, Drivers, and Suggested Policies for Resource-Rich Countries. *Sustainability*, doi: 10.3390/su142013412
- ☞ S, Ramakrishna., Rajan, Jose. (2022). 32. Sustainability in Numbers by Data Analytics. *Circular Economy and Sustainability*, doi: 10.1007/s43615-022-00201-w
- ☞ Saidah, Hamizah, Ahmad., Nursyamimi, Izzati, Mohd, Kamal., Azira, Idris., Ani, Widayati. (2022). 35. Strategies among Women Entrepreneurs to Cope and Sustain Businesses: A systematic literature review. *Environment-behaviour proceedings journal*, doi: 10.21834/ebpj.v7i20.3325
- ☞ O., Chaikin., E., Kirieieva. (2020). 48. Women's entrepreneurship as the part of economic systems inclusive development. doi: 10.37203/10.37203/KIBIT.2020.45.09