

# A Bibliometric analysis of Green Finance in India

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**Abstract:** Green financing promotes the dissemination of cutting-edge technologies and the creation of eco-friendly infrastructure. In order to better understand green finance in India, this research will conduct a bibliometric analysis of the relevant literature. In order to achieve this, 86 publications from the top Green Finance journals in India were chosen and examined using bibliometric methods. According to the data gathered, the number of bibliometrics-related papers published in these journals shot up dramatically after the year 2020. The research shows that there is still a lack of knowledge in the field of green finance, especially in relational bibliometric studies. This is one of the first studies to provide critical discussions, suggestions, and avenues for future study in this field. There were a total of 86 publications published on green finance in India in Scopus between 1992 and 2023. Three key findings emerge from an examination of the most influential journals, documents, most cited country, country specific production, and word cloud: (1) there is a rapidly expanding body of literature on the topic of green finance in the journal *Resources Policy*; (2) the most important paper published in 2016 by Soundararajan p. earned 86 citations; and (3) in terms of country specific production and most cited country, India is the leading country in the literature of green finance.

**Keywords:** Bibliometric , Green Finance, Scopus, India.

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## I. Introduction

Green finance is an initiative that brings together standard corporate practices with concern for the environment. It is an area for many individuals to take part, including consumers and businesses, producers, investors, and financial lenders (Wang & zhi, 2016). There have been several bibliometric investigations into green finance. Zhang et al. (2019) summarised the current state and future prospects of green finance using a bibliometric analysis approach. The current and future development of scholarly research on green finance from the Scopus database search is also evaluated by Mohanty et al. (2023), using a core bibliometric methodology. From 1997 through 2021, Bhatnagar and Sharma (2022) analysed the Scopus database's intellectual structure by means of the VoS Viewer and Bibliometrix R With the use of Scopus and other sources. Debrah, et al. (2022) conducted a quantitative analysis of 995 publications on green finance. Malhotra and Thakur (2020) used the terms "green finance" and "climate finance" to find relevant articles.

We contribute to the literature using the term "green finance in India" by mapping the existing knowledge and gaps and by offering various theoretical and practical implications for moving forward. Specifically, the paper concludes by discussing the descriptive analysis, annual production, most relevant journals, documents, most cited countries, country specific production and word cloud analysis that will help scholars and industry further develop and refine their research agendas specifically in India. The paper discusses the bibliometric approach and publication progress in the area of green finance in India. Then, the paper concludes by discussing the limitations of the study and its implications on future directions.

## II. Methodology

This research examines the literature on green finance in India using bibliometric techniques. Researchers might benefit from a systematic examination of the scientific production and impact of publications using bibliometric analysis, which employs simple to advanced mathematical and statistical methods retrieving documents from bibliographic databases like Web of Science (WoS), Scopus, Google Scholar, etc. is essential for bibliometric analysis. Our research intends to fill this knowledge gap by examining the current state of green finance in India and how it has developed. The study's overarching goal is to determine the current and potential future research agendas for a certain topic. Scopus was used to retrieve articles for this study because it is a comprehensive database of articles that also contains complete citations. The Scopus search term was "green finance in India." Scopus classifications restricted the research to publications published between 1992 and March 2023, specifically in the fields of business management. After applying the inclusion criteria for business domains, the search yielded 86 articles from business management publications. In the final moment, 86 articles were included in the bibliometric study.

### III. Data Analysis

#### 3.1 Main information about data

Table 1 shows that 86 documents were published in between 1992-2023 with an average year of publication of 4.72. A total of 195 authors published these articles with 272 keywords. Annual production shows the no. of publications on green finance in between 1992-2023. The no. of articles has gradually increased after 2011. In 2021, 16 documents were published and in 2022, 25 documents have been published in the Scopus database.

Sr. No.	Main Information About Data	Info.
1	Timespan	1992:2023
2	Sources (Journals, Books, etc)	67
3	Documents	86
4	Average years from publication	4.72
5	Keywords Plus (ID)	452
6	Author's Keywords (DE)	272
7	Authors	195
8	Authors of single-authored documents	14
9	Authors of multi-authored documents	181
10	Authors per Document	2.27
11	Co-Authors per Documents	2.43
12	Collaboration Index	2.74

**Table 1.** Main information about Data

#### 3.2 Journal Analysis

The top 15 cited Journals/sources are shown in table 2 with the highest no. of publications from 1992-2023. The resources policy is the most widely read journals for academic works on green finance in India a total of 4 articles were published in the Journal, followed by the international journal of green economics and renewable energy. These top 15 journals highlighted major publication in the literature of green finance in India in terms of number of publications.

**Table 2.** Most Relevant Sources

Sr. No.	Sources	Articles
1	Resources Policy	4
2	International Journal Of Green Economics	3
3	Lecture Notes In Civil Engineering	3
4	Renewable Energy	3
5	Capitalism Nature Socialism	2
6	Climate Policy	2
7	Economic Research	2
8	Energy Economics	2
9	International Journal Of Advanced Science And Technology	2
10	International Journal Of Business Innovation And Research	2
11	International Journal Of Energy Economics And Policy	2
12	International Journal Of Recent Technology And Engineering	2
13	Investment Management And Financial Innovations	2
14	Springer Proceedings In Business And Economics	2
15	Accounting Finance Sustainability Governance And Fraud	1

### 3.3 Most Cited Countries

Table 3 shows that since 1992, Publications on green finance in India have been most cited in India with 257 citations and Netherland ranked second with 53 citation score. India ranked first again & has higher frequency of country specific production followed by China, USA, Indonesia. One can infer from this analysis that research is gaining attention in the domain of green finance in India.

Most Cited Countries		Country specific production	
Country	Total Citations	Region	Frequency
India	257	India	103
Netherlands	53	China	26
Pakistan	21	USA	12
China	18	Indonesia	11
Turkey	14	Malaysia	6
Switzerland	10	Japan	5
Saudi Arabia	7	France	4
Italy	4	Netherlands	4
Malaysia	4	Saudi Arabia	4

**Table 3.** Most Cited Countries and Country Specific Production

### 3.4 Most Global Cited Documents

Table 4 shows top 14 globally cited publications in the plot of green financing in India. Sounderrajan P, 2016, Agric Econ wrote the top articles in the domain, showing their seminal contribution with maximum citations. The most cited articles in the field were given by Sounderrajan P, 2016, Agric Econ and Chaurey A, 2009, Energy Policy each with more than 50 citations.

### 3.5 Word Cloud

Figure 1 represents word cloud in the dimension of green finance in India using keywords plus filter. According to word cloud, environment sustainability, Finance sustainability, climate change is the mostly used keywords in the literature on green finance in India with maximum frequency. Moreover, other words such as green bonds scheme, carbon finance, energy security are used frequently in green finance in India.

Sr. No.	Paper	Total Citations	Tc Per Year
1	Soundarrajan P, 2016, Agric Econ	83	10.3
2	Chaurey A, 2009, Energy Policy	60	4
3	Ahlers R, 2015, Earth SystDyn	53	5.8
4	Iqbal S, 2021, Estud Econ Apl	44	14.6
5	PradhanBk, 2022, Energy Econ	22	11
6	ThakkerSv, 2018, Manage Environ Qual	22	3.6
7	Wang S, 2022, Renew Energy	21	10.5
8	Sharma M, 2022, Environ Dev Sustainability	18	9
9	Ibrahim RI, 2022, Sustainable Energy Technol Assess	14	7
10	TauhidFa, 2018, J Reg City Plan	14	2.3
11	Syal M, 2006, J ArchitEng	14	0.7
12	Nenavath S, 2022, Renew Energy	11	5.5
13	Fahim F, 2022, Environ SciPollut Res Int	10	5
14	AggarwalAk, 2020, Int J Energy Sect Manage	10	2.5

**Table 4.** Most Global Cited Documents



Figure 1. Word Cloud

#### IV. Discussion and conclusion

Green financing makes it possible for businesses to operate in the market. The expansion of the green industry is the primary factor that contributes to economic sustainability. As a direct consequence of green investment, power generation, ecological sustainability, cleaner production, and the number of enterprises producing renewable energy have all increased. This paper describes the progress pattern of green finance in India for doing this we have done bibliometric using Rstudio. For the purpose of our analysis we used 86 paper. In order to conduct the Descriptive analysis, data were taken from the SCOPUS and entered into the Rstudio.

This study focused on descriptive analysis which includes main information, analysis of journal, analysis of sources, most cited countries, countries specific production and word cloud analysis in the ligature of green finance in India. We observed 86 publications were there in the timespan of 1992-2023 with 195 authors and 272 authors keywords. Resource policy journal published 4 articles followed by international journal of green economics with 3 articles on green finance in India.

Further the paper revealed most country specific production which disclose 103 publications from India, 26 from China, 12 from USA and 11 from Indonesia. The result of most global cited documents showcased study by Soundarrajan.P, 2016(83 citations) followed by chaurey. A, 2009 (60 citations) in the domain of green finance in India.

Word cloud spotlighted the themes such as climate change, sustainability, carbon finance, green bound, economic growth, renewable energy and energy efficiency and green banking which occurred on the basis of usage of authors keywords.

Few limitations in the study is faced which are outlined here. First, the SCOPUS data do not contain all relevant literature; therefore, the data in this study are not comprehensive. For doable research, other databases such as WoS, google scholar, and other methodologies such as SLR and other network analyses, such as the co-occurrence of index keywords, citations, co-citations of other parameters, and bibliometric coupling, can also be applied. Second more keyword and combinatorial can be used to dig deep for research perspective. Third the study is limited to India whereas it can be extended to other parts of the world.

The finds advocated that research on green finance has been growing significantly from last three years. The bibliometric approach will provide a useful framework by highlighting the work done in this field in context of India. Thus, further research is needed. These days, knowing how to manage one's finances is crucial. Given the present state of affairs, investigations analyzing the demographics of green finance literacy across nations may also be fruitful. Further research might also be conducted on the financial success of green businesses across nations and on the policies of various countries in regards to green financing. Researchers may get useful information from a variety of approaches to the aforementioned investigations. The research may also analyse block chain technology and artificial intelligence systems in the context of green finance.

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