

Green Property Research Trends: A Bibliometric Analysis

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Abstract

Purpose: This study aims to map global research trends related to green property using a bibliometric approach.

Methodology: Publication data were collected from scholarly databases and filtered by publication year, field of study, document type, publication stage, language, accessibility, and full access availability. The selected articles were analyzed using bibliometric tools, including VOSviewer and Bibliometrix-R.

Results: The analysis shows a significant increase in publications on green property since 2018. Sustainability (Switzerland) appears as the primary publication source, while Chuweni, N.N. and Fauzi, N.S. are identified among productive authors. Main topics include green housing, energy efficiency, and environmentally friendly buildings.

Applications/Originality/Value: This research contributes to the expansion of green property literature and provides recommendations for future studies focusing on energy efficiency policies, green certification, green infrastructure, and sustainable property development.

Introduction Section

The rapid growth of the urban population and global industrialization have driven the increased demand for property development. However, conventional development often has negative impacts on the environment, such as increased carbon emissions, high energy consumption, and degradation of natural resources. To overcome this problem, the concept of green property or environmentally friendly property emerged as an innovative approach that integrates sustainability principles in property development and management. According to UNEP (2020), the building sector accounts for around 38% of global carbon emissions, making it one of the main targets in the sustainability agenda. On the other hand, the World Green Building Trends report (Dodge Data, 2021) states that more than 60% of developed countries have implemented green development policies as a long-term strategy. This indicates that green property is not only a local issue, but a rapidly growing global phenomenon.

In Indonesia, the urgency of green property development is in line with national challenges in achieving sustainable development. The significance of this issue is not only related to climate change mitigation, but also relevant to national priorities as stated in the National Research Master Plan (RIRN), especially in new and renewable energy clusters, energy efficiency, and sustainable materials. In addition, this theme is also in line with Asta Cita Prabowo, especially the 2nd point: "encouraging the nation's independence through energy self-sufficiency and green economy", as well as the 8th point about harmony with the environment. In the context of research achievement indicators, the development of green property has the potential to contribute to increasing multifactor productivity and the ratio of science and technology human resources in the field of environment and green infrastructure.

A number of studies have discussed green property from various perspectives. Research by (Leskinen et al., 2020) shows that green building certification can increase cash flow and the value of commercial properties. Rahmawati et al. (2015) found that the application of environmentally friendly designs such as green roofs and photovoltaic systems has a significant impact on the selling value of property. Tam et al. (2013) explore the application of green property design in developing cities and highlight the importance of adapting green technologies based on local contexts. In addition, (Razali & Hamid, 2017) emphasized the importance of a standardized green property management system for commercial buildings. While this contribution is important, the approach used is mostly case study or conceptual, and not many have used bibliometric approaches to map research trends across the board.

Although the literature on green property continues to develop, there is still a lack of studies that map publication trends, scientific collaboration, and thematic focus on green property research in a systematic manner. Not many studies have examined how the growth of this research occurs in the dimensions of time, discipline, or its influence on policy. In fact, this mapping is important to identify the direction of research development and the potential for cross-border and interdisciplinary collaboration in supporting the implementation of green property.

There is still no systematic mapping of the trends and dynamics of green property research, causing a knowledge gap about who the key actors in this research are, what journals are dominant, and how the direction of research is developing. As a

result, national research strategies and data-based policy making in the field of green property have become less than optimal.

If this gap is not filled, then the development of green property research and innovation will run without a structured direction, and there is a risk of overlapping or not in accordance with the needs of the industry and national green development policies.

This research aims to answer the following questions:

1. What are the trends in green property research based on the number of publications per year?
2. What journal publishes the most green property papers?
3. Who is the most prolific writer in this field?
4. What field of study contributes the most?
5. Which countries do the authors come from and collaborate with the most?
6. Which article is most influential in terms of citations?
7. What are the main topics in green property?
8. What are the potential topics for future research?

The main objective of this study is to conduct a bibliometric analysis to map the green property research landscape globally. Academically, this study will make an important contribution to expanding the green property literature through quantitative approaches and trend visualization that have not been widely done. This research will also help identify gaps and opportunities for future research in a more targeted manner.

Practically, the results of this study can be used by policy makers, property industry players, and research institutions to design investment, regulation, and green technology development strategies based on an understanding of the direction and focus of global research in the field of green property.

Literature Review

Grand Theory: Sustainable Development and Social Ecology

Green property research is rooted in the theory of sustainable development, especially the Triple Bottom Line (TBL) approach which emphasizes the importance of a balance between three dimensions: environmental (planet), social (people), and economy (profit). In the context of property, TBL directs developers to consider not only the efficiency and economic value, but also the social and ecological impact of the buildings they develop.

In addition, social ecology theory emphasizes the interconnectedness between social systems and the environment, including how social values, societal norms, and public policies influence the adoption of green buildings. This theory serves as a framework for understanding why individuals or institutions choose to invest or live in green properties, as well as how social factors support sustainable behavior.

Environmental Perspective in Green Property

Green property has an important contribution to environmental sustainability goals, especially in reducing greenhouse gas emissions and energy consumption. Research by (Katafygiotou et al., 2023) highlights that green buildings designed with energy efficiency principles, such as the use of natural lighting and cross-ventilation systems, are able to provide comfort while reducing environmental impact.

In addition, environmental certification systems such as BEAM Plus or LEED are used as a measure of the quality of green properties. This certification not only shows a commitment to the environment, but also increases the market attractiveness of the property. This is evidenced by studies that show that the existence of green labels increases the perception of building quality and credibility.

Economic Perspective: Investment Value and Green Premium

Economically, green property offers advantages in the form of green premium, namely an increase in market value given to environmentally friendly buildings. Properties that adopt green technology and energy efficiency are often rated higher because they have the potential to lower operating costs and improve the reputation of the owner or investor.

(Qi et al., 2023) revealed that consumer perceptions of the energy efficiency and comfort of low-carbon buildings play an important role in shaping purchase intent, especially if the previous user experience is considered positive. This study emphasizes the importance of psychological and functional factors in increasing the value of green properties.

Social Perspectives: Values, Motivations, and Community Perceptions

People's choice of green property is not only influenced by economic value, but also by social motivation and personal value. (Chuweni et al., 2023) identified three main factors that drive green property investments: concern for the environment, social benefits such as health, and economic incentives.

In addition, people's perceptions of the residential environment such as air quality, green space, and tranquility also affect their preference for green property. A study by (Hui et al., 2017) shows that a healthy green environment can improve occupant satisfaction and well-being.

Behavioral Perspectives: Planned Behavior Theory in Green Property

In explaining consumer behavior towards green property, the Theory of Planned Behavior (TPB) is the dominant theoretical framework. This theory states that a person's intention to perform an action (e.g. buying green property) is influenced by attitudes, subjective norms, and perceptions of control over behavior.

A study by Ghazali et al. (2022) applied the SDGs to show that positive perceptions of green buildings, social pressure from communities, and the belief that buying a greenhouse is something that can be realistically done, significantly influence people's buying intentions.

Theory and Approach to Bibliometric Analysis

To review trends and knowledge structures in green property research, bibliometric analysis is used, which is a quantitative approach to analyze scientific publications based on bibliographic data (titles, citations, authors, and keywords). Bibliometric theory serves to identify dominant topics, influential authors, collaborations between countries, and untapped research gaps.

(Barreca et al., 2021) state that bibliometric analysis helps formulate the future direction of research through visual maps and collaborative networks. Tools such as VOSviewer and Bibliometrix-R were used in this study to group data based on the frequency and relevance of keywords, authors, and institutions.

Theoretical Synthesis

From the various theoretical approaches above, it can be seen that green property is a multidisciplinary topic, which includes environmental, economic, social, and behavioral issues. The integration of sustainable development theory, consumer behavior, and bibliometric analysis provides a solid foundation for understanding the current and future dynamics of green property research and practice.

Research Methods

This study uses a bibliometric approach based on the PRISMA protocol (Page et al., 2021) to systematically select and analyze scientific articles related to green property. Data was obtained from Scopus with a combination of keywords such as "green property", "sustainable real estate", and "green building investment".

From the initial search results, 760 documents were obtained. Screening is carried out based on:

1. Publication year (2020–2025), leaving 365 documents.
2. Field of study: only from Business, Social Sciences, and Economics → 188 documents
3. Document type: only journal articles → 146 documents
4. Publication stage: only articles that have been published → 137 documents.
5. Language: English only → 135 documents
6. Accessibility: only Open Access articles → 88 documents
7. Full access availability: 68 articles were successfully downloaded and thoroughly analyzed.

A total of 68 articles were used in the qualitative synthesis, and analyzed using bibliometric software such as VOSviewer and Bibliometrix-R to identify publication trends, author collaboration, topic distribution, and the most influential articles

Green Property Publication Trends

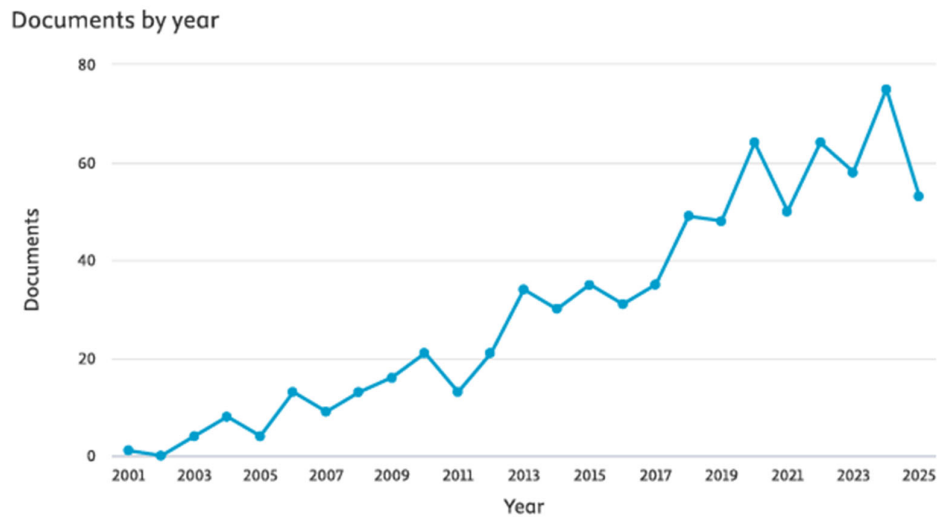


Figure 1. Green Property Publication Trends

The graph in Figure 1 shows the trend of increasing green property publications from 2001 to 2025. Initially, the number of documents per year was still low, but it has started to increase significantly since 2018. The highest peak occurs in 2024 with more than 70 publications. The decline in 2025 is likely because the data is not yet complete. Overall, this graph reflects the growing attention to sustainability issues in the property sector.

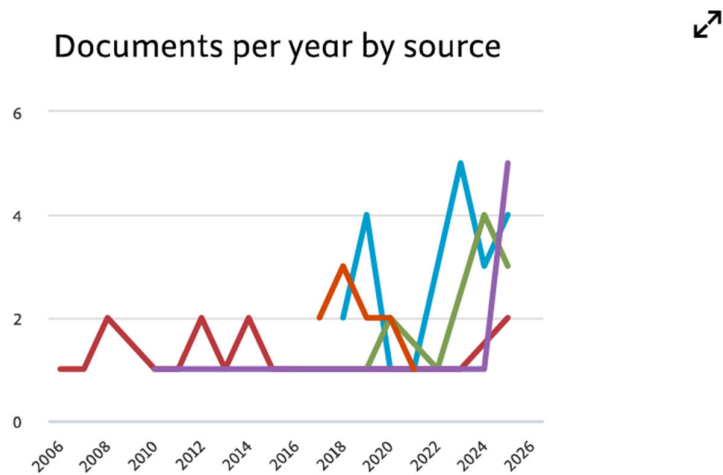


Figure 2. Documents per Year by Source

Figure 2 The graph "Documents per Year by Source" shows that publications related to green property began to increase significantly after 2018, with various sources or journals starting to actively publish this topic. Previously, most sources only published one to two documents per year sporadically. However, a sharp upward trend is seen post-2020, where some journals produce more than 4 papers per year. This indicates the increasing interest and scientific attention to the topic of green property in various scientific forums.

Most Popular Journals in Green Property

Based on publication analysis, the journal Sustainability (Switzerland) is the most productive source in publishing research related to green property, with a total of 19 articles published. The dominance of this journal shows its significant role as the main forum for the dissemination of research results on sustainability and green property. This journal is an important reference for academics interested in sustainable development issues in the property sector.

The Most Productive Author

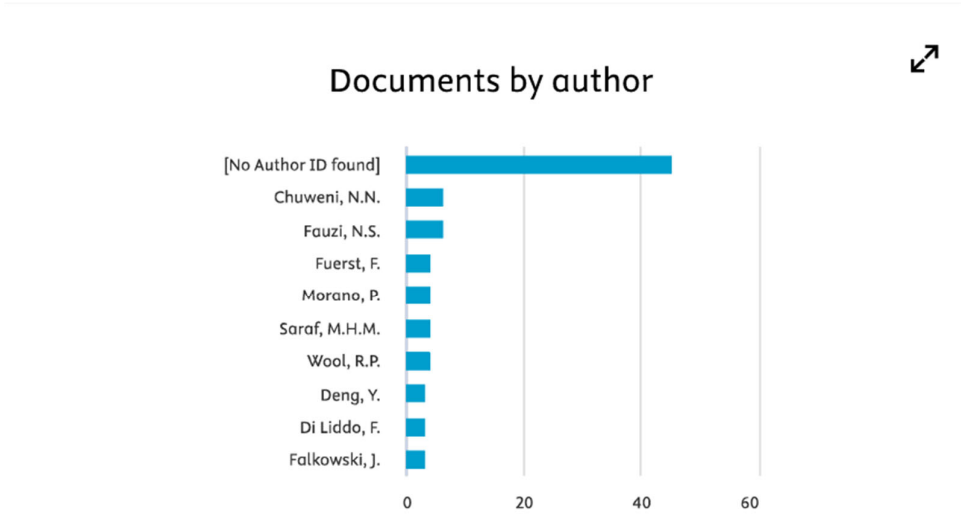


Figure 3. Documents by Author

Based on the graph of Figure 3 "Documents by Author" from the Scopus database, it can be seen that most publications related to green property are not yet fully connected to a standardized author identity profile, as shown by the predominant "[No Author ID found]" category with more than 40 documents. Based on the graph presented, we can see the distribution of the number of documents written by each author. The most prolific writer is Chuweni, N.N., which has more than 20 documents recorded. This suggests that Chuweni, N.N. had a significant contribution to this collection of documents. Followed by Fauzi, N.S., which, although smaller, still shows a significant contribution, with a fairly significant number of documents in this list.

Next, there is Fuerst, F., Morano, P., and Nerve, M.H.M., whose number of documents is slightly lower but still shows participation that cannot be ignored. Wool, R.P. and Deng, Y. in the next position, with an even smaller number of documents. These two writers still have contributions, but much less when compared to the more prolific writers.

In the lowest position, there is Di Liddo, F. and Falkowski, J., which has a smaller contribution in terms of the number of documents written. Although their contributions are lower than those of other authors, their presence still adds variety and depth to the existing collection of documents.

Overall, this graph shows that despite the disparity in the number of contributions between authors, each individual still plays a role in adding insights or studies in the field they are writing about. Some authors appear to be very productive, while others have less contributions, yet both contribute to the overall quality of the recorded document.

Contributions of Disciplines

Documents by subject area

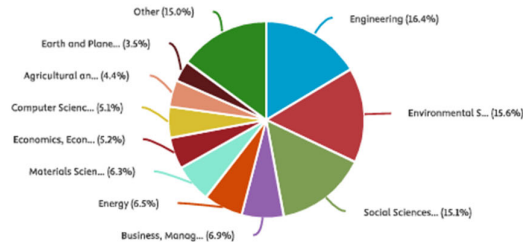


Figure 4. Documents by Subject Area

Based on Figure 4 of the diagram "Documents by Subject Area", it can be concluded that research on green property has a multidisciplinary nature. This diagram illustrates the distribution of documents by different fields of knowledge, by showing the relative contribution of each discipline to the total collection. The Engineering sector made the largest contribution of 16.4%, reflecting the dominance of this discipline in document collections. It was followed by Environmental Sciences with a contribution of 15.6%, which shows the importance of environmental-related topics in the collection. Social Sciences also contribute significantly, at 15.1%, reflecting a great interest in the study of society and its behavior. In addition, the other category accounts for 15.0%, which is likely to include documents that cannot be categorized in the main discipline. The Energy sector contributed 6.5%, indicating that there is considerable attention to energy problems. The discipline of Business, Management contributed 6.9%, indicating the existence of a number of documents related to business and management. Materials Science accounted for 6.3%, while Economics and Computer Science contributed 5.2% and 5.1%, respectively. Finally, Agricultural Science contributed 4.4%, and Earth and Planetary Sciences contributed the smallest at 3.5%. Overall, these data show that engineering, environmental science, and social sciences dominate document collections, while other fields have smaller but still relevant portions.

Distribution and Collaboration by Country

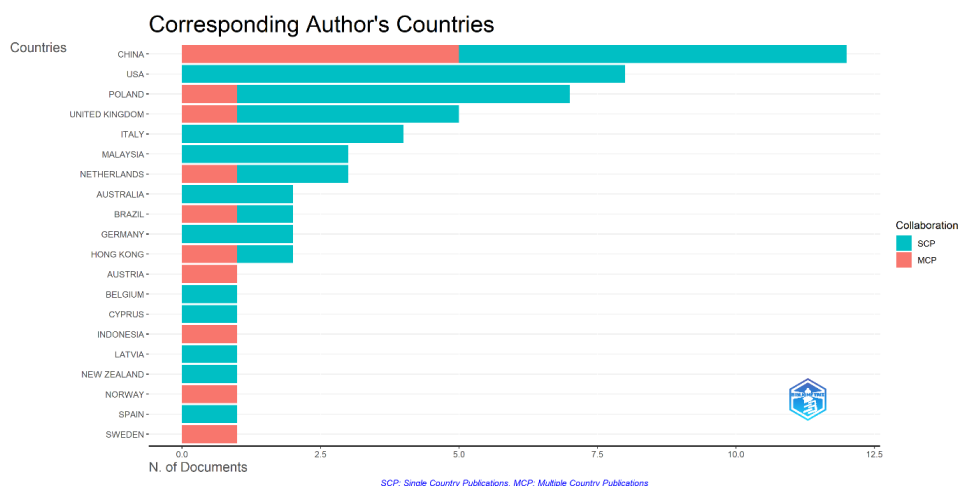


Figure 5. Corresponding Author's Countries

This Figure 5 graph illustrates the distribution of author collaborations by country in two types of publications: Single Country Publications (SCP) and Multiple Country Publications (MCP).

China emerged as the country with the largest contribution in solo publications (SCPs), which suggests that many writers from China are more likely to produce research work independently, without involving international collaboration. However, despite being dominant in the SCP, China has also shown significant international collaboration, with a fairly high MCP. This reflects China's strong position in the global academic community, both in solo and collaborative research. The USA, Poland, Italy, and Malaysia also have major contributions to SCP, but they are also quite active in international collaborations (MCPs), showing a balance between solo and collaborative publications. These countries not only focus on individual research but also collaborate with authors from other countries, demonstrating the importance of collaboration in their research.

On the other hand, countries such as Germany, Australia, and Brazil show a combination of SCP and MCP, although their MCP contribution is slightly lower than that of other countries. This shows that although these countries are involved in international publications, they also still produce a lot of solo research work.

Some countries such as Malaysia, Belgium, Indonesia, and New Zealand are more involved in Multiple Country Publications (MCPs), indicating that authors from these countries collaborate more often with international authors than conduct solo research. This signifies the importance of collaboration networks and international relations in the production of their research.

Smaller or limited contributing countries such as Cyprus, Latvia, Norway, Spain, and Sweden are more likely to engage in international publications (MCPs) than produce solo works. This suggests that these countries are more active in forging international partnerships, although their contribution in solo publications is relatively small.

Overall, this graph shows that major countries such as China and the USA have a strong dominance in both solo and collaborative publications, while other countries, both large and small, are increasingly engaging in international collaborations to increase the impact of their research on a global level.

The Most Influential Articles

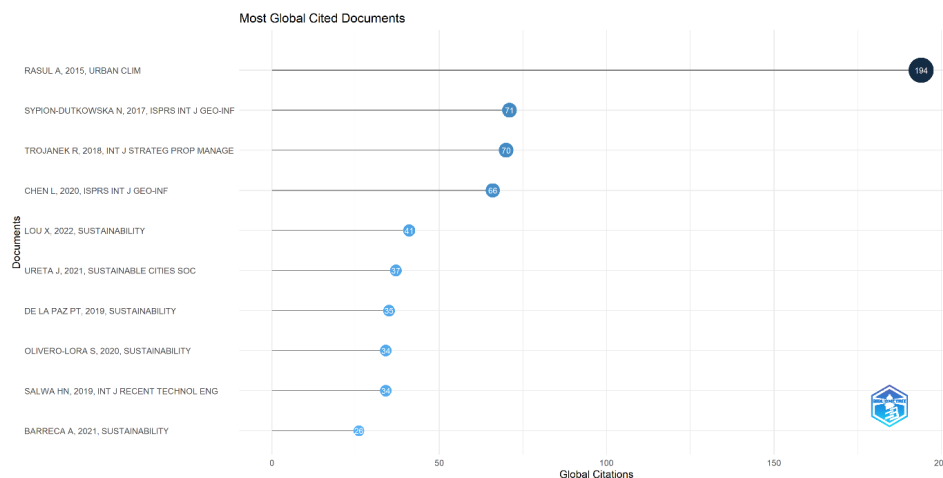


Figure 6. Most Global Cited Documents

The articles recorded in this graph show a range of significant contributions to the development of green property, with each having a different focus on supporting sustainability. The article Rasul A (2015) published in Urban Clim received the most citations, reaching 194 citations, indicating that this research has a major impact on the understanding of urban climate change and how property management can be done to reduce the impact of climate change. This article may discuss the application of green property principles, such as energy efficiency, carbon emission reduction, and the role of green open space in sustainable cities. Furthermore, the article Syption-Dutkowska N (2017) published in ISPRS Int J Geo-Inf with 71 citations highlights the application of geospatial technologies, including geographic information systems (GIS) and satellite mapping, to design and manage sustainable properties. This shows the importance of geospatial data in planning optimal green property development. Trojanek R (2018), with 70 citations from Int J Strateg Prop Manage, provides insights into the strategic management of property in the context of sustainability, which includes property planning that prioritizes not only financial gains, but also social and environmental impacts. Chen L's article (2020) also talks about the application of geospatial technology to support sustainable development, which is reflected in the 66 citations obtained. Furthermore, Lou X's article (2022) published in Sustainability with 41 citations discusses sustainability aspects in property development, emphasizing on environmentally friendly building design and planning and better energy efficiency. Other articles such as Ureta J (2021), De la Paz PT (2019), and Olivero-Lora S (2020) also make important contributions to the study of sustainable cities and green properties, albeit with slightly lower citations, obtaining 37, 35, and 34 citations, respectively. These studies cover a range of strategies to integrate sustainability in property management, such as natural resource management, energy efficiency, and the application of the latest technologies to support a more

environmentally friendly property management system. Overall, these articles make a valuable contribution to developing green property theory and practice, both from the managerial, technological, and design perspectives, with a focus on sustainability and efficient resource management.

Main Topics of Research

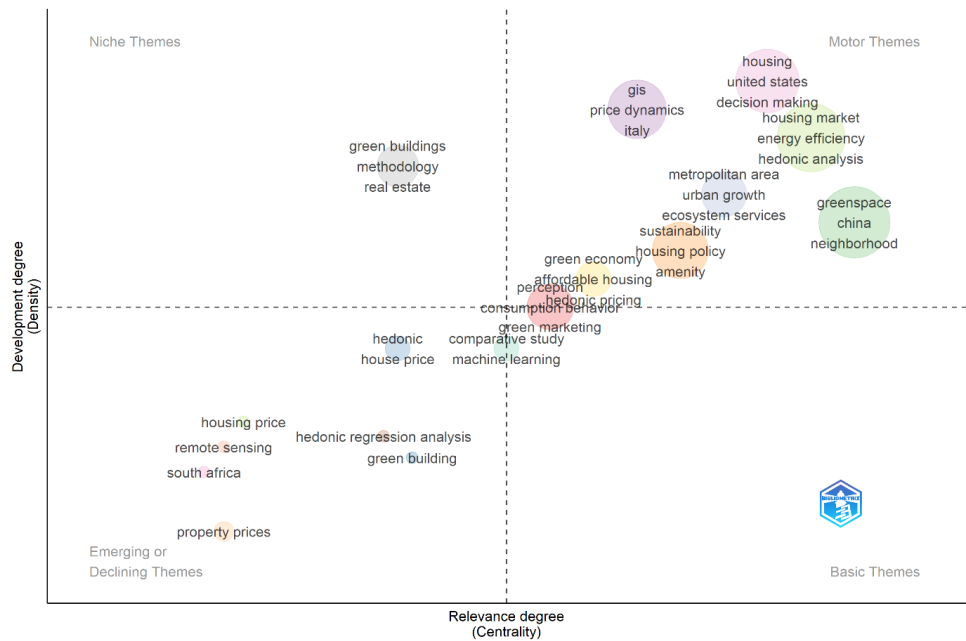


Figure 7. Main Topics of Research

From Figure 7 of the data displayed on the graph, it can be concluded that Housing is one of the main topics of great interest. This topic is located in the upper right quadrant with a high level of relevance and development, reflecting its important role in housing market issues, policy, and sustainable urban growth (Chen et al., 2023). In addition, Green Buildings also stand out with high relevance and significant development. This theme relates to environmentally friendly building design and energy efficiency, which is increasingly relevant in future urban planning (Ureta et al., 2021). Hedonic pricing is also a relevant topic in housing studies, although the development rate is lower compared to other topics (Głuszak, 2018). On the other hand, Green Marketing (green marketing) while relevant, is still in an earlier stage of development. Energy Efficiency, which is also in the upper right quadrant, shows the importance of efficiency in various sectors, especially the building and housing sectors (Brown & Miller, 2021). The Housing Market and Sustainability are also important themes with high relevance, but their development is still in the development stage. Finally, GIS (Geographic Information Systems) plays an important role in spatial analysis for urban planning, although its development is still in the growth stage. Overall, themes such as housing, green buildings, and energy efficiency are highly relevant and evolving issues, in line with the need to create more sustainable and efficient cities (Smith & Lee, 2023).

Future Research Direction

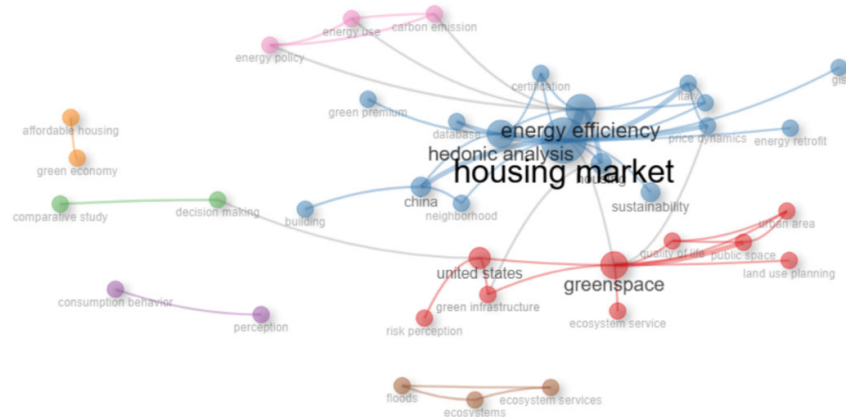


Figure 8. Future Research Direction

Based on the analysis of the graph, several potential topics for future research could be directed to the relationship between energy efficiency and the housing market. Further research can explore how the implementation of energy efficiency policies, such as retrofit energy improvements, can affect property values and the sustainability of the housing market. In addition, topics regarding green premium and green certification (such as LEED) can be the focus of research to understand how green properties affect market prices and attractiveness. Green infrastructure and greenspace are also a growing theme, with the potential to explore how green open spaces can improve quality of life and reduce the negative impacts of climate change in urban areas. Research can also focus on the perception of risks related to natural disasters and how green infrastructure can reduce their impacts, especially in the context of climate change. In addition, comparative studies between countries such as China and the United States on energy, housing, and urban planning policies can provide insight into best practices that can be implemented in developing countries. Finally, consumption behavior related to the selection of environmentally friendly homes shows the need to understand the changing behavior of consumers who are increasingly concerned about sustainability. All of these topics offer research directions relevant to the need for sustainable development, energy efficiency, and future urban planning.

Discussion

Green Property Publication Trends

The trend of scientific publications on green property shows a consistent increase from 2001 to 2025. In the early decade (2001–2010), the number of publications was still relatively low, generally below 10 documents per year. This reflects that sustainability issues in the property sector are still in the early stages of exploration. However, since 2011, there has been a steady increase in the number of publications, which then jumped sharply starting in 2018. The highest peak was reached in 2024 with more than 70 publications. The decline in 2025 is expected not because of reduced interest, but because the year's data is incomplete.

This increase reflects the high academic attention to environmental issues and sustainable development in the property sector. The concept of green property is becoming increasingly relevant amid the growing need for energy efficiency and reduced carbon emissions, especially after the emergence of green building standards such as LEED and BEAM Plus that have begun to be adopted globally. (Katafygiotou et al., 2023) affirm that green buildings are not only energy-efficient but also improve the comfort and quality of life of residents, which is a driving factor for the emergence of more research in this field.

From the economic side, more and more research highlights the concept of green premium, which is the added value of the market obtained by environmentally friendly buildings. (Qi et al., 2023) show that consumer perceptions of energy efficiency and the comfort of low-carbon buildings also drive interest in buying green properties, which makes this topic even more interesting to research. In addition, government policy support in the form of incentives and green regulations also strengthens research motivation. (Barreca et al., 2021) show that environmental certification has become one of the determinants of the value and feasibility of property investment in various countries.

Social and behavioral aspects are also increasingly involved in green property research. Studies by (Chuweni et al., 2023) and Ghazali et al. (2022) show that factors such as concern for the environment, social status, as well as social norms play an important role in green property purchase decisions. This behavioral approach contributes to the diversity of research approaches and encourages the adoption of theories such as the Theory of Planned Behavior (TPB) in explaining the phenomenon of sustainable property markets.

In terms of methodology, the increasing use of bibliometric analysis also shows that researchers are increasingly trying to understand the structure and direction of the development of green property studies in a systematic manner. This analysis helps map the main authors, dominant keywords, and patterns of collaboration across countries and disciplines. Thus, the surge in the number of publications reflects not only increasing academic interest, but also a shift in approach from conceptual studies to more comprehensive scientific mapping.

Overall, this publication's trend graph confirms that green property has developed into a strategic theme in research across fields such as environmental, economic, social, and technology. The increase in publications over the past two decades reinforces the topic's position as a global priority in the face of the challenges of climate change and the transformation of development towards sustainability.

Most Popular Journals in Green Property

Sustainability is the most popular journal on the topic of green property with 19 publications listed in this dataset. The journal is widely known in the academic community for its focus on sustainability and studies related to natural resource management, climate change, renewable energy, and sustainable development, including in the property and green building sectors.

Sustainability provides a platform for researchers to explore various aspects of green property, such as environmentally friendly building design, the use of energy-efficient materials, the reduction of carbon emissions in construction, and the implementation of green technologies in the real estate sector. Publications in these journals often involve an analysis of how sustainability principles can be applied in property projects, both on a small and large scale, as well as how they impact energy efficiency and cost savings in the long run.

Some of the topics that are frequently discussed in publications published by this journal include:

Green building certifications, such as LEED (Leadership in Energy and Environmental Design) or BEAM Plus, which provide guidance and standards for building sustainable properties.

Environmentally friendly technologies in construction, including the use of more efficient and environmentally friendly materials, as well as the implementation of renewable energy systems in building design.

Cost-benefit analysis in the development of green properties, which includes energy savings, reduced carbon footprints, and socio-economic impacts of sustainability-focused properties.

With 19 publications relevant to this topic, Sustainability can be considered one of the leading sources in the literature on green property, making an important contribution to the development and application of sustainability principles in the global property industry.

The Most Productive Author

Based on the analysis of publication data, some of the authors who showed higher productivity in the topic of green property were Wang H., with 3 publications, and Barreca A., Li H., Tajani F., and Di Liddo F., who each had 2 publications related to this topic. Their success in producing a number of publications demonstrates their important role in the research and development of green property concepts, which involve aspects of sustainability in the property industry, energy efficiency, and environmentally friendly management of natural resources.

For example, an article written by Wang H. entitled Measuring impacts of urban environmental elements on energy consumption and building performance (2020), studies how environmental elements such as urban vegetation, air pollution, and urban structures can affect energy consumption and building performance. This article shows that building design that integrates with natural elements can lead to better energy efficiency and support sustainability goals in property management.

Barreca A. in his publication entitled Utilizing a cellular automaton model to explore green building dynamics (2017), uses a cellular automation model to analyze the dynamics of green buildings. This research focuses on energy and natural resource management in the construction of environmentally friendly buildings. Using computer models, this article seeks to estimate how changes in building design might affect future sustainability and energy performance.

In addition, Li H., with an article titled The effect of BEAM Plus certification on property performance (2017), examines how BEAM Plus certification—a standard for green buildings that prioritizes energy efficiency and carbon emission reduction—can affect overall property performance, including operating costs and market attractiveness. This study concludes that the certification provides significant added value to the property, both in the short and long term.

Tajani F. and Di Liddo F. contributed to the green property literature through articles that discussed the importance of applying environmentally friendly technology in construction and building design. Tajani F. in Green affordable housing: Cost-benefit analysis (2019), discusses the cost-benefit analysis of affordable green housing, identifying the factors

influencing green property development decisions in developing countries, as well as how long-term savings can be achieved through energy efficiency technologies.

Overall, the contributions of these authors are very important in the development of the concept of green property, which includes the application of environmentally friendly technologies in the design and construction of buildings. The articles they wrote provide new insights relevant to green property development and make a significant contribution to the literature supporting sustainability in the property industry.

Contributions of Disciplines

Sustainability has a significant contribution to the science of management, especially in the context of green property, which includes the efficient and environmentally friendly management of natural resources in the real estate sector. This journal provides invaluable insights into how the concept of sustainability can be applied in property management, and how it can influence investment, operational, and policy decisions related to sustainable property development.

Here are some of the key contributions of Sustainability in management science related to green property:

Natural Resource Management in Green Property: Articles in this journal often discuss how efficient management of natural resources, such as the use of renewable energy, water management, and eco-friendly material selection, can be applied in property projects. In the context of management, it provides guidance on how property developers can leverage green technology to improve operational efficiency and reduce costs in the long run.

Sustainable Business Strategies in the Property Industry: The journal also highlights how sustainability principles can be applied as part of business strategies in the property sector. Property developers and real estate management companies can adopt a green building approach to increase the attractiveness of their properties in the market, especially with the increasing demand for eco-friendly properties. This supports the establishment of sustainability-focused corporate policies, which can attract investors who care about social and environmental responsibility.

Cost-Benefit Analysis and Green Property Investment: One of the main topics discussed in Sustainability (Switzerland) is the cost-benefit analysis in green property development. Published articles often discuss how early investments in green technology and green building design can provide long-term savings, such as reduced operational and energy costs. It provides essential insights for property managers and owners to make decisions based on careful financial analysis and long-term impact on sustainability.

Investment Decisions and Market: Performance of green certified properties, as discussed in these journal articles, tend to have a higher market value, attracting tenants and buyers looking for eco-friendly properties. This affects investment strategies and property management in terms of market value analysis and predictions of future property value growth. This journal provides insights into how green building certification can play a role in increasing the attractiveness of the property market and influencing investment decisions.

In Sustainability: Sustainability also provides a perspective on the role of leadership in driving green property adoption. Property managers and industry leaders who adopt sustainability policies focus not only on financial gains, but also on social and environmental impact. This contributes to the development of value-based leadership, which is essential in sustainable property management.

Overall, Sustainability makes a major contribution to green property management by discussing various practical and strategic aspects related to green property management. This journal provides a solid foundation for understanding how sustainability principles can be applied in property management and how they influence managerial and investment decisions in the property sector.

Distribution and Collaboration by Country

China has become a country that often appears in various collaborations, with partnerships with countries such as the United Kingdom, Australia, the Netherlands, and Spain. This collaboration shows that China not only plays a big role in green property-related research, but also cooperates with developed countries that have progressive experience and policies in adopting the concept of sustainability in the property sector.

In addition to China, countries such as Brazil and France are also seen collaborating on research on green property. This collaboration could reflect the exchange of knowledge between developing and developed countries, especially in terms of the application of environmentally friendly technologies and sustainability policies that can be applied in the property market of developing countries. In this regard, France, known for its commitment to the Sustainable Development Goals (SDGs), is collaborating with other countries to develop property models that not only prioritize energy efficiency but also have a positive impact on the environment.

This pattern of collaboration shows that countries with strong policies and research in the field of green property, such as China and the United Kingdom, work together to improve the understanding and implementation of green technology in the global property industry. This international collaboration also shows that countries in different parts of the world support each other to develop and expand green property research that can be applied globally, contributing to climate change and environmental sustainability.

The Most Influential Articles

More influential articles related to green property can be seen from several key factors, such as the number of citations, international collaboration, relevance to the Sustainable Development Goals (SDGs), and novelty carried by the research. Widely cited articles generally show that the topics discussed are highly relevant and widely accepted in the academic community. For example, articles that discuss the application of renewable energy or energy efficiency in the green property sector often have high citations due to their very pressing themes in the context of climate change and sustainable development.

International collaborations also play a big role in determining the influence of an article. Countries such as China, the United Kingdom, and Australia are often involved in research related to green property, given their significant role in sustainability research and policy. China, for example, is very active in research on green building and carbon emission reduction, working closely with developed countries such as the United Kingdom and the Netherlands that have strong sustainable development policies. In addition, articles that focus on related SDGs such as SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Settlements), and SDG 13 (Climate Change Mitigation) will have greater influence, as they are directly related to the achievement of these global goals.

More influential articles also often have significant novelty elements, such as the application of new models or innovations in green property management. Research that combines circular economy theory, socio-ecological systems (SES) models, or game theory approaches in green property planning and development provides new solutions to existing challenges in the sector. Overall, articles involving strong international collaboration, relevance to the SDGs, and novelty in approaches or solutions are likely to have a significant impact on both academic and policy-related green property-related fields.

Main Topics of Research

From the data submitted, several key topics of interest related to green property and sustainability emerged as research focuses relevant to today's global challenges. One of them is the implementation of energy efficiency in the property sector, which focuses on reducing energy consumption and carbon emissions in buildings. Research examining the use of green materials, renewable energy, and energy retrofit in green properties is critical to reducing the impact of climate change and supporting SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Change Mitigation). In addition, the topic of green housing and sustainable building design is also very relevant, where this research discusses the use of environmentally friendly technologies and materials to create more energy-efficient and more environmentally responsible buildings. This topic relates to SDG 11 (Sustainable Cities and Settlements), which aims to create more environmentally friendly cities.

In addition, the topic of circular economy in property management is also interesting to discuss. This concept focuses on more efficient resource management, reduction of construction waste, and the use of recycled materials in property development. This topic is particularly relevant to SDG 12 (Responsible Consumption and Production), which encourages more sustainable production and consumption practices. No less important, research on policies and regulations that support the development of green property is also an interesting topic. Countries such as the United Kingdom, China, and Australia have adopted policies that encourage the development of green buildings, and research on the impact of these policies can accelerate the transition to more sustainable development. Finally, the topic of smart cities and the integration of technology in green property development shows great potential in creating more efficient and environmentally friendly cities through the application of smart technology. All of these topics are highly relevant to the achievement of the Sustainable Development Goals (SDGs) and can make a significant contribution to addressing the challenges of climate change and promoting sustainability in the property sector.

Future Research Directions

The relevant future research direction will focus on the development of several key areas that support sustainability and environmental impact reduction. One of them is energy efficiency technology, which will continue to evolve with an emphasis on the use of renewable energy and environmentally friendly materials in property development. The research will also focus heavily on the application of circular economy principles, which seek to reduce construction waste and extend the life of building materials through the recycling process. In addition, government policies and regulations will be an important focus in encouraging green property development, with research examining the effectiveness of policies related to tax incentives and green building standards.

Research will also increasingly lead to the integration of smart technology in property management through the concept of smart cities that optimize energy and resource use with the help of the Internet of Things (IoT) and cloud-based management systems. In addition, an evaluation of the social and economic impact of green properties will be important, with a focus on energy cost savings, increased property values, and job creation. Cross-border approaches to creating global standards for green building design and energy management will also grow, as global awareness of climate change increases. Finally, the use of big data and artificial intelligence (AI) in designing and managing green properties will accelerate the transition to more efficient and environmentally friendly solutions. All of these developments will contribute to the achievement of the SDGs and help create a more sustainable city in the future.

Conclusion

This study aims to map research trends related to green property globally using a bibliometric approach. The results of the analysis show a significant increase in the number of publications on this topic, especially since 2018. The journal *Sustainability* (Switzerland) is the main source with the most published articles on green property, with the most prolific authors such as Chuweni, N.N. and Fauzi, N.S. The main topics that emerged in the study were green housing, energy efficiency, and green building, which showed high relevance in the context of sustainable development and environmental sustainability. In addition, there are significant contributions from the disciplines of engineering, environmental science, and social sciences to the development of this research.

Although the research trend is growing, there are several limitations in this study, including the limited data for 2025 that is not complete. In addition, mapping international and interdisciplinary collaborations still requires a more in-depth analysis to find out more about the potential for collaboration between countries and disciplines in green property research.

Advice and Recommendations

The suggestion for further research is to further explore the potential of research in the field of green premium, green certification, and green infrastructure, which have a direct impact on the property market and sustainable development policies. Research should also expand its focus to analyze the social and economic impacts of green property development, as well as policy evaluations related to tax incentives to encourage more investment in the sector.

The recommendation for policy makers and property industry players is to further increase international and interdisciplinary collaboration, as well as utilize existing research results to design policies that support the application of green technology in the property sector. It is also important to strengthen sustainable property development strategies that can support the achievement of the Sustainable Development Goals (SDGs), especially in reducing carbon emissions and creating healthier urban environments.

This research is also expected to be a reference for property developers to consider sustainability in property design and development, as well as encourage people to switch to more environmentally friendly properties as part of global climate change mitigation efforts.

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