

The Role of Islamic Social Finance on Environmental Issue: A Review

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Abstract: The environment is an essential entity in the order of life. Today, issues are increasingly being discussed in various countries, ranging from using carbon emissions and climate change to global warming. To overcome these problems, Islamic Social Finance (ISF) plays a vital role in environmental issues. The purpose of this study is to see the development of ISF research and its relationship to global environmental issues published by journals with this theme. This study uses a qualitative method with a bibliometric analysis approach. The data consists of 59 Dimension-indexed research publications, then processed and analyzed using the VosViewer application to know the bibliometric map of the development of Islamic Social Finance Environment research in the world. The study results explain the authors and keywords related to Islamic Social Finance Environmental. Furthermore, the author mapping bibliometric analysis results in cluster density show that the authors who create the most applications with the theme of Islamic Social Finance Environment are Bejaoui, Mohamed, Arslan-Ayaydin, Ozgur, and Shakespeare, Rodney. Four clusters were obtained in the bibliometric analysis of keywords mapping, which later became the research path. And the words that become research trends on this theme are Sustainable Development Goals (SDGs) and Environment. Then, keyword trends based on the most recent year are divided into four colour clusters, each indicating a year. The updated keywords are Covid, sustainable development goals, environmental performance, and technology.

Keywords: Islamic Social Finance, Environmental, Bibliometric, VosViewer.

INTRODUCTION

The environment is one of the essential elements in a living ecosystem, which consists of biotic and abiotic aspects (Cholili, 2016). Furthermore, Cholili (2016) also explains that humans, as the main actors in the order of life, play a role in maintaining the balance of the environment and nature. However, the exploitation activities carried out by humans have exceeded the limits of the ability of natural regeneration, which in the end, led to various ecological crisis problems, such as climate change, global warming and so on. Today, the issue of global warming or other environmental issues is increasing in managing natural resources in almost all parts of the world. The increasing awareness of the world community about environmental conditions can be seen from the various efforts of environmentally friendly activities in all aspects of life (Cahya & Hanifah, 2017). Furthermore, from the economic aspect, which for the last two decades has prioritized development and economic growth without paying attention to adverse impacts, it has also contributed to fostering sustainable economic innovation that harmonizes with the economic, social and environmental aspects (Hayati et al., 2020).

Green projects are an effort to overcome environmental problems. With low capital costs, green project policies are expected to maintain environmental balance in a sustainable manner (Al-Ketbi & Nobanee, 2020). In addition, the agreement of the Kyoto Protocol by several countries is also a commitment to reduce carbon dioxide, emissions, and greenhouse gas waste and overcome global warming (Cahya & Hanifah, 2017). In this case, Islamic finance also plays an essential role in managing natural resources and overcoming various environmental problems, considering that the concept of nature conservation has been widely discussed in the Qur'an (Cholili, 2016). Furthermore, research by Al-Ketbi & Nobanee (2020) states that Islamic finance is represented as "ethical capitalism" and is a financial system that follows Islamic law, where Islamic finance is very concerned about the concept of a sustainable environment. Furthermore, Solarin in Al-Ketbi & Nobanee (2020) explains that the intended concept is based on the principles of equity and justice, which in turn has implications for the role of finance in environmental preservation.

In research, Ali & Kassim (2020) explain that waqf can affect overcoming environmental problems. The Indonesian Ministry of Religion added that along with the issue of food and marine sovereignty, an ecological commitment had been proclaimed as one of the targets for waqf utilization (Ali & Kassim, 2020). This adds to Islamic social finance's list of

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environmental issues' roles. Previously, several studies discussed Islamic social finance (ISF) with environmental issues, including Ali & Kassim (2020), which discussed the role of waqf in forest conservation and the achievement of SDGs. Bae et al. (2021) examined the determinants of climate finance and the effects of political moderation. More & Poggi (2016) discusses Islamic finance and renewable energy. Obaidullah (2018) examines the role of Islamic finance in managing climate change. Moreover, Muscari (2022) analyzed the integration of green Sukuk and cash waqf-linked Sukuk, Islamic finance, to combat climate change. Research conducted by Saripudin et al., (2022), Nurhasanah (2022), also concluded that the distribution of zakat productively by zakat institutions will be effective when paying attention to other factors that affect mustahik including environmental factors.

Along with the complexity of environmental problems, it is essential to understand the planning of solutions to environmental problems that the public needs. Therefore, further research is needed to see how far the development of environmental issues and ISF is in the world. Furthermore, supported by science's increasing productivity, which is marked by the ability to produce scientific publications (Franceschet & Costantini, 2011), it is necessary to measure how far research publications developed related to environmental issues and ISF. This can be measured using bibliometric analysis.

Bibliometric analysis can solve crucial problems in scientific publications, such as measuring the distribution of articles, article authors, article publishing organizations or institutions, and keywords along with their development trends which are discussed according to the research theme raised. Therefore, this study aims to conduct a thorough literature review by identifying the existence of GAP in research and to assist academics and practitioners in further exploring research on ISF and environmental issues in the future. In particular, this study answers three research questions:

1. How is the research development related to the ISF theme and global environmental issues?
2. Who has written and published the most journal articles related to ISF and global environmental issues?
3. How is the research development map seen from keywords and keyword trends every year related to ISF and global environmental issues?

LITERATURE REVIEW

Islam has a philanthropic configuration in its teachings, or Islamic social finance, consisting of zakat, infaq, alms, and waqf (ZISWAF). The implications of ZISWAF are not only to increase faith but also to eliminate materialistic, miserly and greedy nature, increase the human spirit, develop and clean property, and overcome various aspects of problems, be they social, economic or environmental (Iskandar et al., 2020). This explains that Islamic social finance has a vital and strategic role because it not only helps with social problems but can also solve environmental problems. Furthermore, Islamic social finance is also aligned with the Sustainable Development Goals (SDGs) (Obaidullah, 2018). One of

the goals of the SDGs is related to environmental issues. In this case, several Islamic social and financial instruments play a role in overcoming environmental issues such as climate change, including green Sukuk, waqf and so on (Musari, 2022; Obaidullah, 2018).

In this case, several studies discuss the role of Islamic social finance in addressing environmental issues, including Musari (2022), who explains the integration between green Sukuk and cash waqf and links Sukuk as Islamic financial instruments to address climate change. The background of integrating the two instruments is that addressing climate change requires high costs. In addition, public involvement will also play an essential role as investors who contribute to the fight against climate change, which has a long-term impact. Furthermore, Ali & Kassim (2020) also discussed the role of waqf in forest conservation and the achievement of the SDGs. Waqf forests provide various benefits, such as preserving forest ecosystems and maintaining climate, oxygen content and water supply. Of course, this is in line with the goals of the SDGs, especially on green environmental conservation.

Obaidullah (2018) analyzes the role of Islamic finance in managing climate change. In his research, it is explained that Islamic finance is very suitable to be used for environmental protection or sustainability. This can be achieved by realizing the objectives of environmental protection and climate management, which have similarities with the objectives of sharia and the SDGs. In addition, Morea & Poggi (2016) also discusses Islamic finance and its role in renewable energy, which is still related to environmental issues. Renewable energy in this study is intended to reduce energy use and carbon emissions, which significantly affect environmental conditions, health, and climate change.

RESEACH METHOD

This study uses various scientific journal publications from various sources ranging from 1987-2022 related to Islamic Social Finance Environment in the world. Data was collected by searching for journal publications indexed by the Dimension database by typing the keyword "Islamic Social Finance Environmental". Furthermore, articles or scientific journals relevant to the Islamic Social Finance Environmental research theme will be selected based on the published data that has been collected. The criteria of journals that are filtered and processed in software are journals that are equipped with DOI. Based on the search results, there were 59 journal articles published from 1987-2022, then analyzed using Microsoft Excel 2010. As for the development of publication trends related to research topics with the theme of the Islamic Social Finance Environmental in the world, they were analyzed using VOSviewer and R software, which will display a bibliometric map and allow it to be analyzed in detail.

In building the map, VOSviewer uses VOS, which stands for visualization similarity. In previous studies, the VOS mapping technique was used to obtain bibliometric visualization, which was then analyzed. Furthermore, VOSviewer can create and display author journal maps based on co-citation or keyword maps based on shared incident data. For this reason,

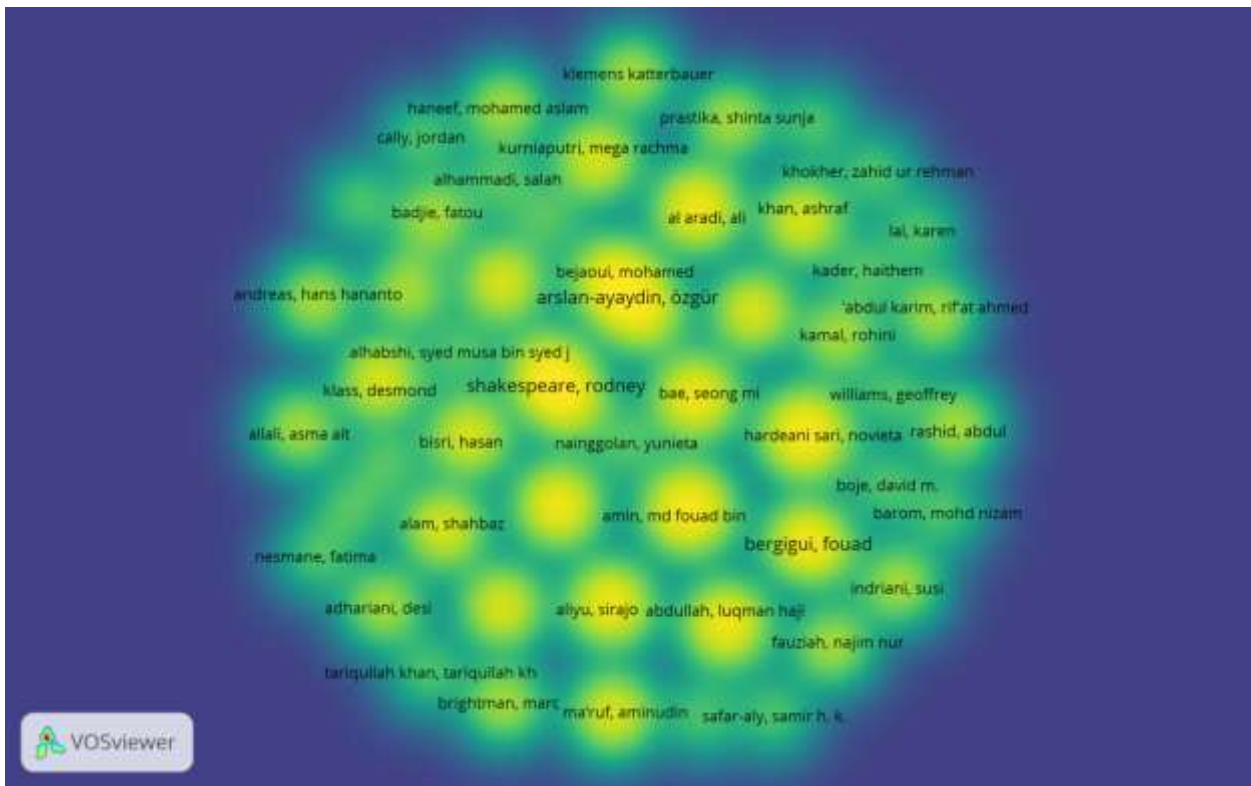


Fig. (1). Author mapping.

this study will analyze journal maps related to Islamic Social Finance Environmental, both author maps and keywords.

The approach used in this study is a descriptive qualitative approach with meta-analysis and a descriptive statistical literature study of 59 journal publications with the theme of the Islamic Social Finance Environmental. *Meta-analysis* is a method that integrates previous research related to a particular topic to evaluate the results of existing studies (Darmawanti & Suprayogi, 2020). Then the qualitative method used in this study is also called the constructive method. In the research process, scattered data will be found and constructed in a theme that is easier to understand and meaningful (Murdiyanto, 2020). Finally, the sampling technique used in this study is a purposive non-probability sampling method that aims to fulfil certain information per the desired research objectives.

RESULTS AND DISCUSSION

This research with the theme of Islamic Social Finance Environmental uses data from the publication of 59 journal articles indexed by Dimension with a range of 1987-2022. Naturally, the type of document that is most widely used and dominates this research is the form of scientific journal articles.

Bibliometric Graph Analysis

Bibliometrics is a calculation and statistical analysis of scientific output in the form of citations, patents, articles, publications, and other more complex indicators. The bibliometric analysis aims to evaluate research activities, laboratories and scientists, as well as country performance and scientific spe-

cialization. The steps in the bibliometric analysis are setting the background for bibliometric development research, presenting the database where the bibliometric is made, and the primary indicators used in the research.

In order to explore the results of the meta-analysis, a visual mapping chart from 59 journals published with the theme "Islamic Social Finance Environmental" will be presented in this section. The basis for mapping results from keyword mapping analysis along with important or unique terms found in specific journal articles. *Mapping* is a process that allows one to recognize elements of knowledge and their configuration, dynamics, interdependencies and interactions.

Sulistiyo-Basuki in Tupan et al. (2018) explain that science mapping is a method of visualizing a field of science, which will create a landscape map where topics will appear on the map from science. The results of network visualization from 59 journals with the theme "Islamic Social Finance Environmental" are explained in the following explanation.

Bibliometric Author Mapping

By using VOSviewer software, the author's bibliometric mapping was found, as shown below. Through the following picture, it can be identified the authors who publish journals related to Islamic Social Finance Environmental. The bigger and brighter the yellow dot, the more journals published by the author with the theme of Islamic Social Finance Environmental.

Based on the Fig. (1), it can be explained that the density of the cluster depends on the level of light or yellow colour. Moreover, the yellow colour on the map depends on the

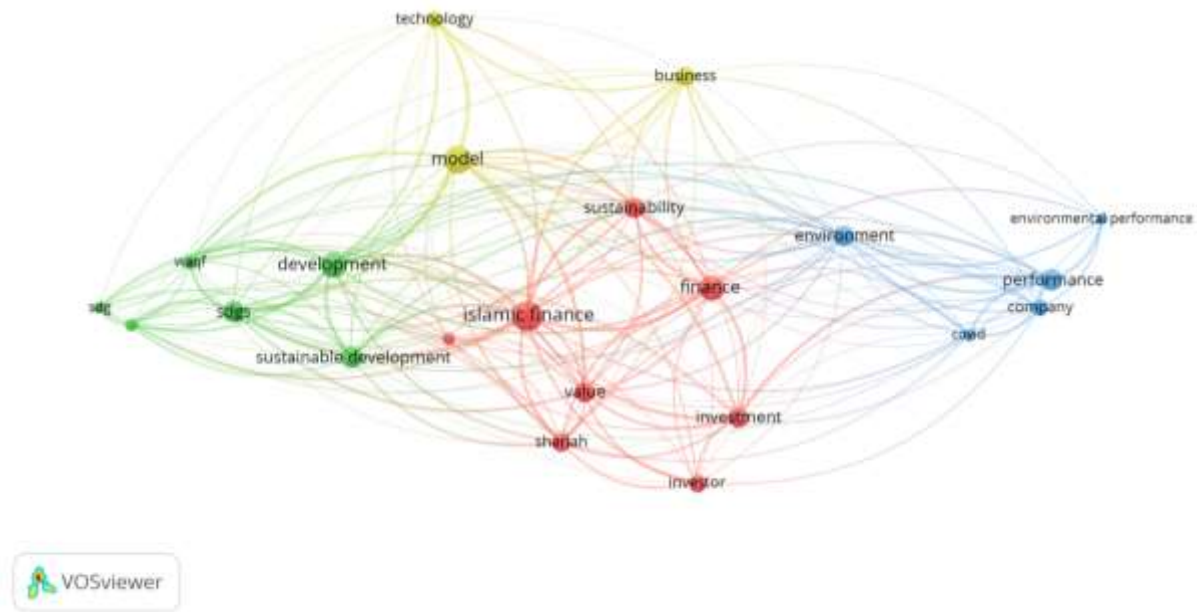


Fig. (2). Keywords mapping.

number of items associated with other items. For this reason, this section becomes an essential part of getting an overview of the general structure of a bibliometric map by paying attention to the parts or items that have the brightest colours or are considered essential for analysis. From this, it is possible to identify the authors who publish most of their works.

In general, every researcher or writer has different tendencies in each publication of his work. On some occasions, an author appears as the sole author, but on other occasions, the author co-authors with other authors or researchers, so this will affect the density of clusters, and some clusters show different densities. However, the author with a fairly large cluster density identifies that the author has published the most research on the theme of the Islamic Social Finance Environmental when compared to authors whose cluster density is lower, so the results found can be a reference for other researchers in the future.

Based on the results of the cluster density on the map above, looking at how big and bright the author's name is, the ones who publish the most with the theme of Islamic Social Finance Environmental are Bejaoui, Mohamed, Arslan-Ayaydin, Ozgur, and Shakespeare, Rodney.

Bibliometric Keyword Mapping

This section describes the most widely used keyword graphic visual mappings. The results of this analysis become the basis for mapping -essential terms often used in Islamic Social Finance Environmental publications. For example, from the picture below, it is clear that keywords with larger shapes identify that the word is most widely used in journal publications with the theme of the Islamic Social Finance Environmental Fig. (2).

| | |
|---------------------------|-------------------------|
| Cluster 1 | Cluster 2 |
| Climate Change | Development |
| Finance | SDG |
| Investment | SDGs |
| Investor | Sustainable Development |
| Islamic Finance | Sustainable Development |
| Shariah | Goals |
| Sustainability | Waqf |
| Value | |
| Cluster 3 | Cluster 4 |
| Company | Business |
| Covid | Model |
| Environment | Technology |
| Environmental Performance | |
| Performance | |

The keywords are divided into these 4 clusters, arranged in circles with different colours to show the type or cluster indicator. This data can be used to find the trend of keywords every year. Bibliometric analysis shows some of the most used keywords in the publications that are the object of research. The more keywords that appear, the bigger the circle. Then, the line that connects keywords identifies the magnitude of the relationship between a keyword and other keywords. In addition, clustering also represents these words in coloured clusters to determine grouping by considering the

relationship between one word and another. Based on this analysis, research related to Islamic Social Finance Environmental is divided into at least 4 clusters and research lines.

Cluster 1. Islamic Social Finance and Climate Change

The first cluster in this analysis has topics related to Islamic Social Finance (ISF) and climate change. Examples of empirical studies relevant to this matter include Bae et al. (2021), which examines the determinants of climate finance and the effects of political moderation. Specifically, this study aims to determine the critical elements of climate investment decisions by business management, where the research sample is financial sector companies that fund climate/green projects. His research found that climate finance was significantly and positively associated with Islamic law and media visibility and negatively and significantly associated with financial constraints. Furthermore, listing regulations do not have a significant effect on climate investment.

Meanwhile, political relations play a negative moderating role between the media and climate finance. Finally, it was emphasized that Islamic law promoting climate finance is the primary indicator for Islamic financial institutions. This is because climate investment can be an essential mechanism to reduce the impact of carbon emissions and environmental hazards and solve social problems.

Obaidullah (2018) examines the role of Islamic finance in managing climate change. In his research, it is explained that Islamic finance that seeks to improve people's welfare is very suitable to be used for environmental protection or sustainability. For this reason, Islamic social funds have great potential and play an essential role in realizing this. For example, Islamic social finance institutions, particularly waqf, can provide goods and services related to mitigation and adaptation, increasing research, public awareness and development, and more robust support for climate change mitigation actions. It is the same with Islamic Green Funds or Green Sukuk, which can contribute significantly to the climate change agenda.

Musari (2022) analyzed the integration of green Sukuk and cash waqf-linked Sukuk, Islamic finance, to combat climate change. Climate change has a high-cost impact on low-income and vulnerable communities. The integration between green Sukuk and CWLS is carried out by adopting the Esham model, which is used for fiscal funding to combat climate change. In addition, public involvement will also play an important role.

Cluster 2. Waqf and environmental SDGs

The next cluster is on Waqf and SDGs for the environment. There needs to be more research on this topic. Examples of research related to this include Ali & Kassim (2020), which discusses the role of waqf in forest conservation and the achievement of SDGs. The study's results explain that waqf forests provide intangible benefits and produce tangible benefits for forest development or conservation. Of course, this is in line with the goals of the SDGs, such as reducing poverty and maintaining climate, biodiversity and water supply.

Cluster 3. Islamic finance and sustainability

Next is related to Islamic finance and sustainability. Examples of research related to this topic include Akhtar (2008), which examines the sustainability and challenges of Islamic finance. His research explains that Islamic finance has an excellent opportunity to expand and deepen the financial intermediation process. In addition, Islamic finance is more acceptable to the public because it does not only focus on economic but also social goals, such as poverty alleviation and so on.

Then research from Morea & Poggi (2016) discusses Islamic finance and renewable energy. The background of this research is because of the government's reduced incentives, which results in a decrease in investment in the field of PV electricity production. For this reason, alternative funding is needed that can be utilized for the sustainability of renewable energy. The study results explain that sharia-compliant Sukuk instruments can be utilized to improve the process of technological innovation in the energy production sector. In addition, it can also provide policymakers with an overview of the various financing instruments that can be used for the renewable energy sector to reduce energy consumption, GHG emissions and the impact of climate change.

Cluster 4. Islamic Social Finance during Covid-19

The last cluster discussed the topic of ISF during the Covid-19 pandemic. Examples of research relevant to this topic include Ascarya (2021), which discusses the role of the ISF during the Covid-19 pandemic in Indonesia's economic recovery. The results of his research explain that ISF, with its various instruments, namely zakat, waqf and infaq, can be utilized and help the government to recover the economy from the crisis due to the Covid-19 pandemic. Furthermore, zakat and infaq can be used to provide medical assistance to save human lives, and waqf can be used for health care. In addition, the three instruments can also be used to save households, for example, with a graduation program, saving business actors, especially MSEs, and so on. On the other hand, to save microfinance institutions, they can develop cash waqf and adopt fintech and IICSF, especially Islamic financial institutions targeting MSEs.

Umar et al. (2021) discussed the potential of Islamic finance to alleviate poverty in the era of the Covid-19 pandemic. From the results of his research, it can be concluded that, with directly awareness and knowledge, ISF has the potential to contribute significantly positively to poverty alleviation during the pandemic, except for the zakat instrument, which has an insignificant positive contribution. This is due to the moderating effect of ethical orientation that changes zakat and waqf, each of which has significant positive, negative, and insignificant contributions. Therefore, only microfinance continues to contribute to poverty reduction.

Azman et al. (2021) analyzed the significance of ISF in maintaining the income stability of micro-entrepreneurs during the pandemic. The background of this research stems from the Covid-19 pandemic, which has dramatically impacted micro-entrepreneurs almost all over the world. Even though there is assistance or incentives from the government, it is just that these funds do not last long and may only last

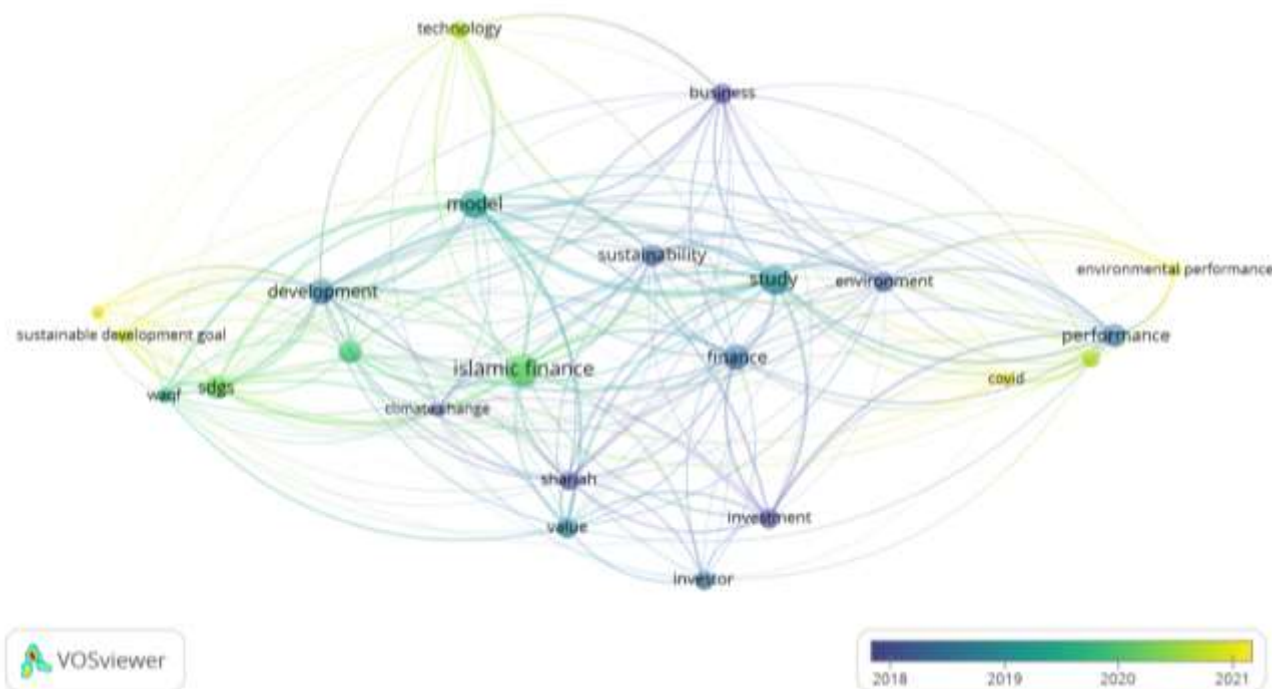


Fig. (3). Keywords mapping by years.

for three months. To that end, ISF can help and support micro-entrepreneurs to survive. The findings of this study state that ISF has an essential role in maintaining the income stability of micro-entrepreneurs during the pandemic.

AbdulKareem et al. (2021) researched almost the same thing related to mitigating the impact of the pandemic through the ISF. In his research, it was explained that ISF, through the integration between waqf and zakat, could be used to overcome the crisis due to Covid-19. This is because zakat and waqf can be utilized in the economy and community welfare. In addition, zakat and waqf can be used to fill financial gaps.

Moreover, other studies that are also relevant to this topic include Ali & Ibrahim (2021), who analyze the steps to free Islamic finance to overcome the negative impact of Covid-19 in Malaysia. Umar & Danlami (2021) explained the need to revitalize the ISF instrument during the pandemic and the role of digitization in it. Ainol & Siti (2020) examines the role of the ISF in the post-Covid-19 era. Purwanto et al. (2021) explained the role of ISF through ZISWAF and BMT during the Covid-19 pandemic. Othman et al. (2022) examined the role of the ISF Instrument in reviving the economy during the Covid-19 pandemic crisis in Malaysia. Finally, Faturohman et al. (2021) analyzed the potential role of ISF during the Covid-19 pandemic.

In addition to showing the number of keywords used in related research, bibliometric analysis on Keywords Mapping can also explain the trend of keywords appearing in publications in a particular year. The lighter the colour of the related keyword, the more recent the year it appeared. Vice versa, the darker the colour of the keyword, the longer the year the keyword appears. The results of the visualization of the keyword trend mapping network can be seen in the following image.

The mapping shows in Fig. (3) several words that appear in the publication of Islamic Social Finance Environmental in a particular year which is divided into 4 clusters, namely:

- Purple (2018): Business, environment, investment, shariah, performance, finance, sustainability, climate change, development.
- Dark Blue (2019): Investor, value, development, model, study, waqf
- Green (2020): Islamic finance, SDGs, waqf
- Yellow (2021): Covid, Sustainable development goals, environmental performance, technology.

The bibliometric analysis mapping in this section shows the development trends of keywords that have appeared in publications over the last four years. The lighter the colour, the more recently the keyword appears in publications with related themes. Throughout 2018-2021 the words that often occur are quite varied, but if you look at the keywords that often appear, the SDGs are one of the keyword trends that are still often discussed year after year. In addition, in 2021, the emerging Covid-19 pandemic phenomenon has also become a novelty in the world of research, accompanied by technology and environmental issues.

Fig. (4) displays relevant words in research on the topic of Islamic social finance related to environmental issues in the form of a word cloud. Word cloud is an image formed from a collection of words that appear most often in documents with a certain theme. Word cloud also displays words with various sizes, according to the quantity of occurrence of the word. Furthermore, in terms of word cloud placement it tends to be random but the dominating words tend to be in the middle position with a relatively larger size. This analysis is useful to get information about research-streams and



Fig. (4). Word cloud.

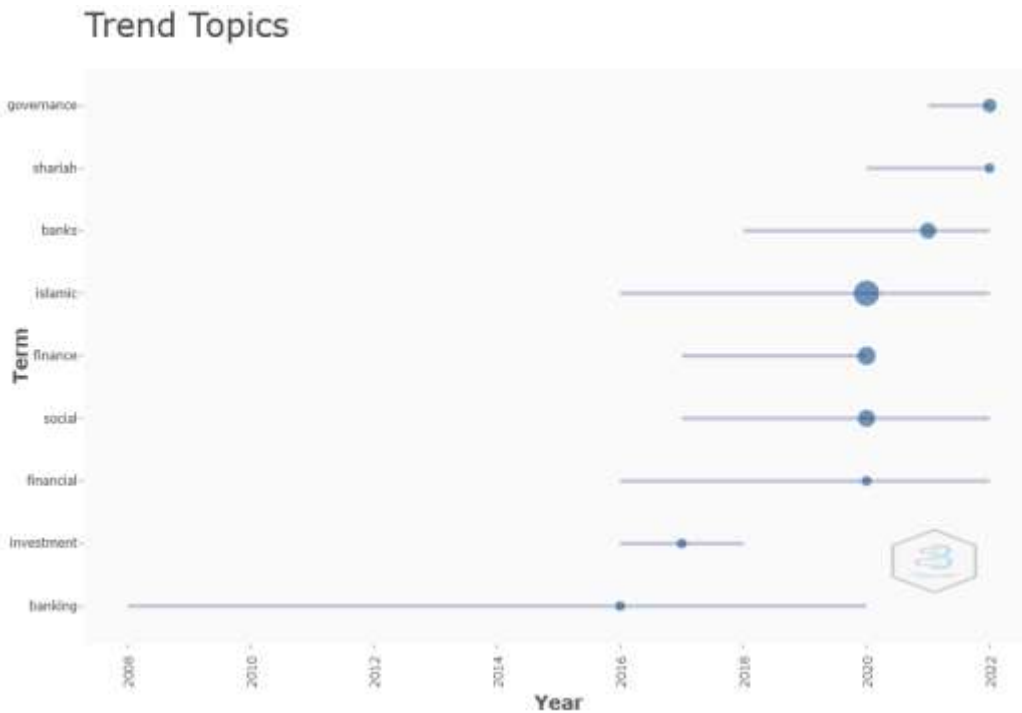


Fig. (5). Trend topics.

sub-streams, as well as to find out the words that are most often used (Wu, et.al 2021).

Based on word cloud analysis, "Islam" and "finance" are the most relevant words in research on the topic of Islamic social finance related to environmental issues. This is logical considering that the terms Islam and finance are words related to the main topic. The words that appear most frequently next are "accountability", "socially responsible investment", "Islamic countries", and "corporate governance". The term "socially responsible investment" or SRI is a topic related to

financial investments that tend to be environmentally friendly.

Interestingly, several words related to the environment such as "social responsibility", "ethical investment", and "poverty alleviation" also appear in the word cloud results. This shows that the issue of Islamic social finance is also quite a lot related to environmental issues both in general and more specifically.

Fig. (5) show topic trends are also part of this research, where the picture above shows an overview of the topic's

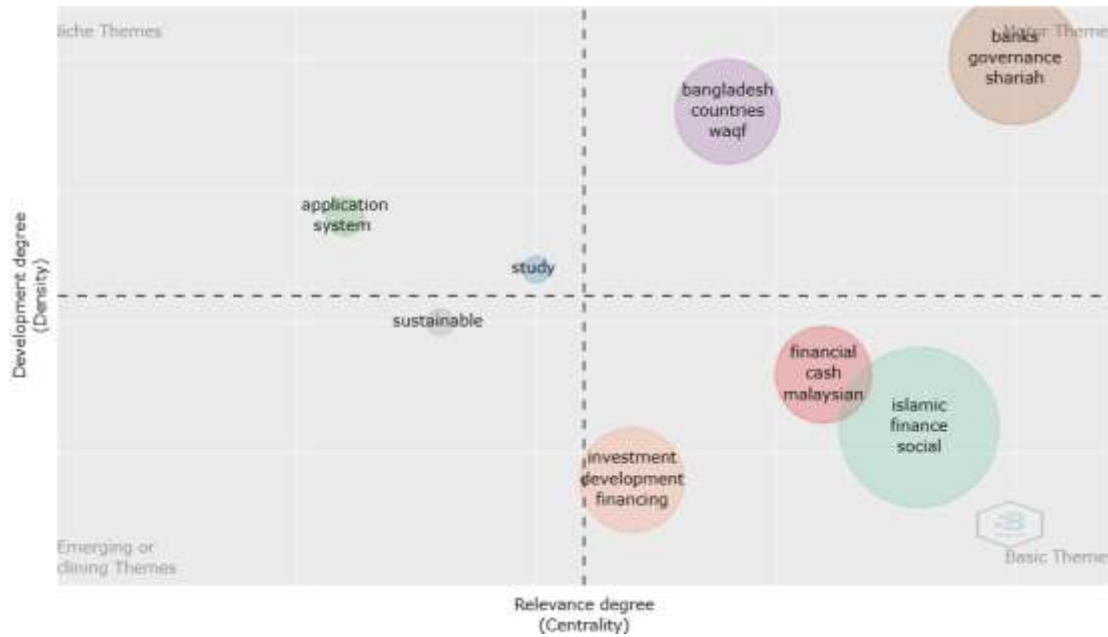


Fig. (6). Thematic map.

development from time to time with annual distribution. So that you can find out what topics have been used for a long time and what topics are currently trending. The emergence of this topic is also adjusted to the frequency of appearance of the word in research on the theme of Islamic social finance in environmental issues. The higher the more the word is used and the further to the right the newer the word is used. The development of the topic began to experience a significant increase since 2016.

Based on the description of the data above, this topic has been used since 2008 regarding "banking". Furthermore, in 2016 many topics related to "investment", "financial", "social", and "finance" began to appear. Even though it has been a long time, the quantity of the three topics that appeared under 2016 is still small. Topics that have emerged and become a trend starting in 2020 include "shariah" and "governance". These two topics are indeed widely used as studies, especially related to Sharia issues and governance in Islamic social financial institutions such as zakat and waqf institutions.

Fig. (6) displays the classification of relevant words in research related to Islamic social finance related to environmental issues in the form of a thematic map. Thematic maps display words on a certain topic in quadrant form based on the density and centrality of the words. These results are obtained from a semi-automatic algorithm on the metadata used.

The upper right quadrant represents the motor/drive theme, which is characterized by high density and centrality. Words in this quadrant are indicated as important and most discussed topics recently, including "banks", "governance", "shariah", "Bangladesh", and "waqf". Because of its relevance and good development, topics derived from words in this quadrant are suggested to continue to be developed in the future.

Furthermore, the upper left quadrant represents niche themes, describing topics that have started to become less relevant but are still experiencing good development. Meanwhile, the lower right quadrant contains basic topics, characterized by high centrality but low density, depicting the core of topics related to Islamic social finance related to environmental issues. This section, for example, relates to the terms "financial", "cash", "Islamic social finance", "investment", and "financing". Lastly, the lower left quadrant represents centrality and low density, describing topics that are quite relevant and developing. The term "sustainable" is in this quadrant.

CONCLUSION

This study aims to determine the development of the Islamic Social Finance Environmental discussed in the research world. The study results explain that research publications related to the Islamic Social Finance Environment from 1987 to 2022 have 59 dimension-indexed journal articles. Furthermore, based on the bibliometric analysis of author mapping seen from the density of clusters, it shows that the authors who publish the most works with the theme of Islamic Social Finance and Environmental issues are Bejaoui, Mohamed, Arslan-Ayaydin, Ozgur, and Shakespeare, Rodney. There are at least 4 clusters generated related to Islamic social finance and the environment, namely: Islamic social finance and climate change, waqf and environmental SDGs, Islamic finance and sustainability and Islamic social finance during covid-19 pandemic.

Furthermore, four clusters were obtained in the bibliometric analysis of keywords mapping, which later became the research path. Cluster 1 consists of 8 words, cluster 2 has seven words, cluster 3 has five words, and cluster 4 has three words. And the words that become research trends on this theme are Sustainable Development Goals (SDGs) and Environment. Then, keyword trends based on the latest year are

divided into four colour clusters, each showing a year. The darkest colour describes the old period, namely 2018, and the lightest colour, yellow, offers the latest keyword trend, 2021. And the keywords with the latest trends are Covid, sustainable development goals, environmental performance, and technology.

COMPETING INTERESTS

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

ETHICAL CONSIDERATION

This article followed all ethical standards for research without direct contact with human or animal subjects.

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DISCLAIMER

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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