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Global Trends and Developments in Environmental Law Research in Light of Maqashid al-Shariah: A Bibliometric Analysis from 1975 to 2024.

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ABSTRACT

Environmental law is a continuously evolving branch of law that focuses on the relationship between humans and nature, as well as environmental protection efforts for future sustainability. This study aims to analyze the development of research in the field of environmental law over nearly five decades (1975-2024) using data from the Scopus database through a bibliometric analysis approach, while also examining the relevance of this global trend within the framework of Maqadih al-Shariah. This study identifies publication trends, contributions by authors, institutions, and countries, as well as dominant research themes in environmental law studies. The analysis results show a significant increase in the number of publications, especially after 2000, with the United States being the most productive country in this research. Substantively, these findings show that global environmental legal efforts are very much in line with the basic objectives of Islamic law, especially in protecting life (hifz an-nafs), descendants (hifz an-nasl), and property (hifz al-mal). In addition, the involvement of communities, environmental organizations, and individuals is key to sustainable environmental management. These findings are expected to serve as a reference for researchers and policymakers in designing effective strategies to address current global environmental challenges.

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INTRODUCTION

In recent years, environmental issues have become a major concern worldwide. Environmental pollution, climate change, unsustainable use of natural resources, and the decline in biodiversity have created serious problems for ecosystems and human life. Therefore, there is a need for binding regulations governing wise and sustainable environmental management, known as Environmental Law.

Environmental law is a dynamic or ever-changing branch of law. This branch of law focuses on the relationship between humans and nature, and emphasizes environmental protection, responsibility for violations, and international cooperation to address global environmental problems such as biodiversity loss and climate change to ensure sustainability for future generations (Rybyanets & Moiseeva, 2024) . Environmental law encompasses several aspects and principles that are crucial for addressing current environmental challenges. The main principle of environmental law emphasizes the relationship between humans and nature, ensuring the responsible use of resources for both present and future generations. Furthermore, preventing environmental damage is also included in one of the principles of environmental law. This principle requires prior evaluation of potential negative impacts before taking actions that could damage or endanger the ecosystem (Rybyanets & Moiseeva, 2024) . For effective environmental governance, the involvement of pressure groups (environmental communities) and individuals is also required, as well as access to pollution information, the state of the air pollution atmosphere, air pollution control, and the planning of contaminated land maintenance (de Vilchez Moragues, 2022) .

International environmental law is formed from various agreements, conventions, declarations, and legal norms agreed upon by countries in the world to address global environmental problems (Hesselman, 2019). Countries, international organizations, and various stakeholders participate in this regulation. Some multilateral agreements and instruments that form international environmental law include the Ramsar Convention in 1971 which discusses the protection of wetlands for biodiversity, the CITES Convention in 1973 which regulates international trade in endangered flora and fauna, the Vienna Convention and the Montreal Protocol in 1987 which regulates the reduction of the use of ozone-depleting substances, as well as the Kyoto Protocol in 1997 and the Paris Agreement in 2015 which concerns addressing climate change by reducing greenhouse gas emissions. Important declarations in international environmental law include the Stockholm Declaration in 1972 which initiated global awareness of environmental issues and the Rio Declaration in 1992 which introduced the principles of sustainable development and Agenda 21 (Handl et al., 2012)

Environmental law, as an independent branch of law, has become the vanguard in responding to the global ecological crisis. The primary objective of environmental law is to maintain a balance between economic development and

sustainability . In an Islamic context, environmental protection efforts are firmly rooted in the concept of Maqashid al-Shariah, the fundamental objectives of Islamic law, including protecting religion (hifz ad-din), protecting life (hifz an-nafs), protecting reason (hifz al-aql), protecting descendants (hifz an-nasl), and protecting property (hifz al-mal). Therefore, to ensure the implementation of these regulations, several instruments are incorporated into them, such as licensing and supervision, environmental impact analysis, and law enforcement.

Bibliometric indicators are tools for assessing scientific research results, analyzing the relationship between science and technology, mapping various fields of knowledge, identifying research gaps, and serving as a basis for future strategic planning (Apriantoro & Maulana, 2025). The purpose of this study is to determine the development of environmental law using papers from 1975 to 2024 based on findings in the Scopus database. The findings of this study are expected to serve as a reference for researchers studying specific topics (Apriantoro et al., 2022). The results of this study can also be utilized by policymakers, practitioners, and the general public regarding the resolution of environmental problems.

It's crucial to analyze all existing research to open up new avenues of research and, given the numerous environmental issues that have emerged recently, to provide solutions. It's crucial to understand how a country contributes to its environmental condition and how aware its public is of its surroundings.

LITERATURE REVIEW

The evolution of global environmental law research over the past five decades (1975-2024) reflect a significant paradigm shift from anthropocentric approaches to a more holistic ecocentrism. Within this trajectory, bibliometric analysis has emerged as a crusial instrument of quantitatively maping research directions, authir productivity, and institutional collaboration networks (PutehSalin, 2024). Increasingly, the integration of religious ethics—specifically *Maqashid al-Shariah* (the objectives of Islamic law)—into global environmental discourse has gained traction as a robust normative foundation for ecological sustainability. Core principles such as the protection of life (*hifz al-nafs*) and the protection of property (*hifz al-mal*) are being reinterpreted to encompass ecosystem preservation as a prerequisite for human welfare (Arzam & Kusnadi, 2025).

A synthesis of the literature reveals that the concept of *hifz al-bi'ah* (environmental protection) has evolved from traditional *fiqh al-bi'ah* (environmental jurisprudence) into an integral component of the broader *Maqashid al-Shariah* framework (Khuluq & Indonesia, 2025). The implementation of the principle *jalbul mashalih wa dar'u al-mafasid* (securing benefits and preventing harm) serves as a legal cornerstone for modern environmental instruments, including environmental licensing and community-based natural resource management (Muchsin, 2025). Bibliometric trends from 1975 to 2024 highlight that nations such as Malaysia and Indonesia are leading the scholarly

output connecting Islamic law with sustainability, covering diverse topics such as green investment (*green sukuk*), Islamic environmental social responsibility (ESR), and environmental *waqf* governance (Muflih & Jamaludin, 2025).

Despite this positive growth, challenges remain in harmonizing global Sustainable Development Goals (SDGs) with Islamic legal frameworks. Several studies identify a persistent gap between normative theory and practical implementation, particularly in addressing the urgency of the global climate crisis. However, bibliometric data suggests that interdisciplinary collaborations between environmental law, Islamic economics, and ecotheology are strengthening. This confirms that *Maqashid al-Shariah* functions not merely as a theological doctrine but as a pragmatic guide capable of reinforcing ecological justice and global sustainability in the contemporary era.

METHOD

This research was conducted through a comprehensive bibliometric analysis, encompassing document analysis and network analysis (Apriantoro et al., 2024). The data was obtained through Scopus using the keyword "environmental law" from 1974 to 2024. The researcher also utilized software such as VOSviewer, Microsoft Excel, and R. The first step was a literature review on relevant subjects to ensure the research was relevant to the bibliometric topic (Apriantoro & Maulana, 2025). The literature review was also used to find relevant keywords and describe data for research references.

In the second stage, the researcher used the Boolean operator (TITLE-ABS-KEY (Law AND Environment) to search in Scopus, which resulted in a total of 76,582 documents. Then filtering was carried out with the Boolean operators (LIMIT- (Document type "Articles and Journals)), (LIMIT- (Subject area "economics, econometrics, and finance)), AND (LIMIT-TO (ENGLISH, "English")), resulting in a final document of 2,327 documents.

In the third stage, an analysis of the final document search was conducted using Scopus Analyzer and R to determine the number of documents per year, documents by year, author, affiliation, and country (Subhi & Putra, 2024). Following this, a document network analysis was conducted using visualizations from VOSviewer software and data processing using Microsoft Excel. The research procedure can be seen in Figure.

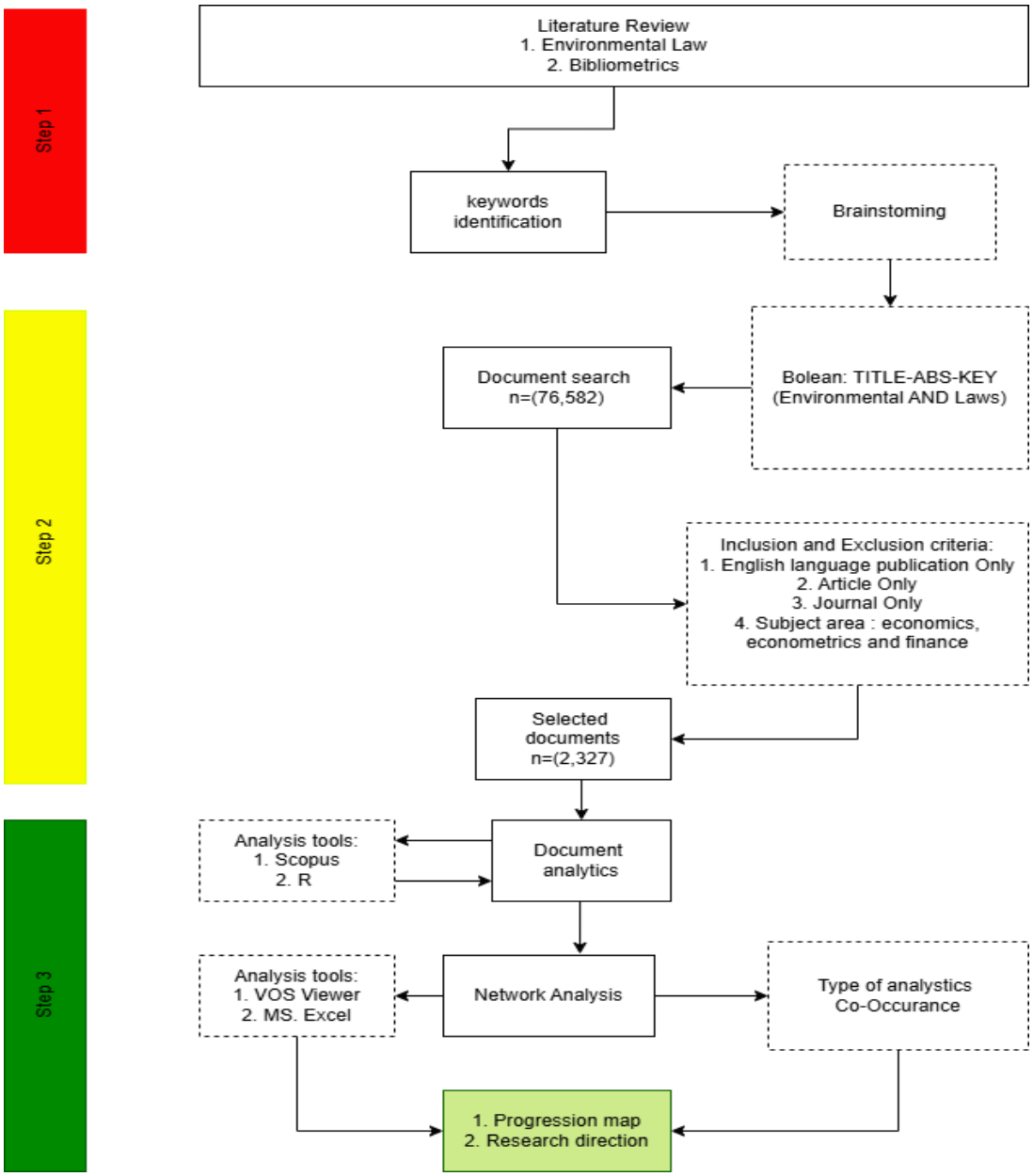

Figure 1 : Research Method

RESULTS & DISCUSSION

Document Analysis

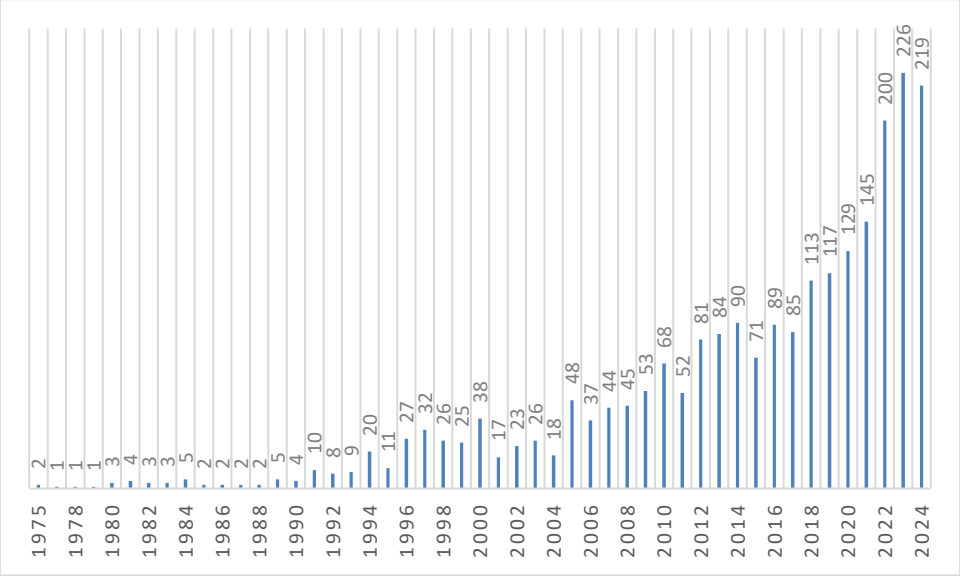

Figure 2: Development of Environmental Law Publications by Year

The data in Figure 2 shows that publications from 1975 to 2024 experienced significant growth, although the number of publications was relatively low at the beginning of the period. In 1975, there were only two publications, but over the next five years, there was a gradual but subtle increase. From the early 1990s to 1999, the number of publications increased significantly compared to the initial period. The number of publications during this period reached approximately 172, with a peak of 32 publications in 1997.

Entering the year 2000, publications showed an increasingly sharp increase. In 2020, 129 publications were recorded, and in just two years, this figure rose sharply to 200 in 2022. The peak during this period was in 2023, reaching 226 publications. However, data for 2024 showed a slight decline to 219 publications after several years of consistent increase.

2023 marked the peak of publication growth, so readers interested in researching Environmental Law can consult Scopus journals in 2023, as they will likely find numerous publications covering the topic. Furthermore, there's a unique fact. Publications increased between 2020 and 2022, despite global challenges, such as the COVID-19 pandemic, during that period. This suggests that during the pandemic, public awareness of the importance of environmental protection increased.

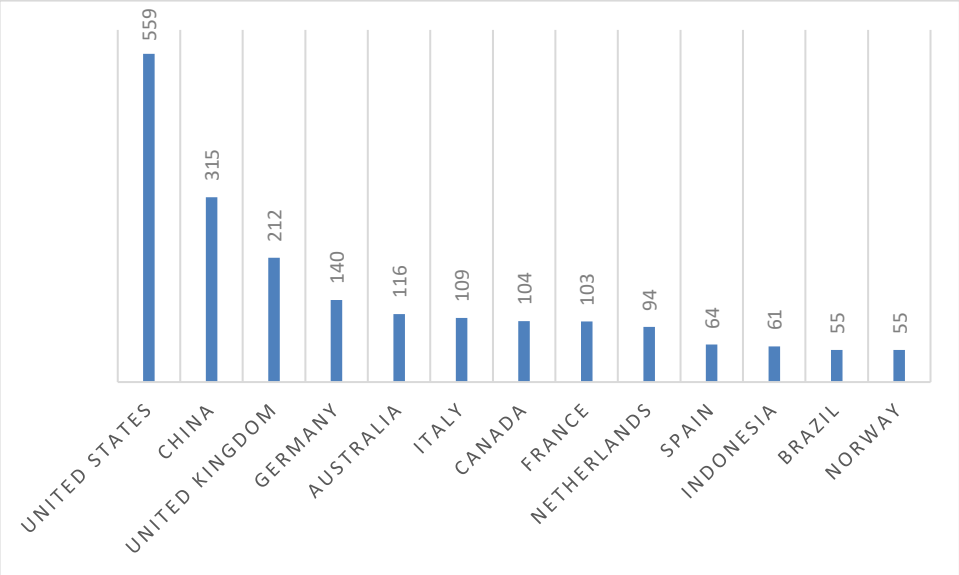

Figure 3 : Number of Publications by Country

Figure 3, which displays data analyzing the number of publications by country, shows that the United States significantly dominates with 559 publications, almost double China's 315. The United Kingdom, which ranks third with 212 publications, demonstrates a strong academic tradition. Meanwhile, Germany and Australia recorded 140 and 116 publications, respectively. Italy and France have almost the same number of publications , 109 and 103, respectively. The Netherlands also attracts attention with 94 publications, a figure that is quite high for a country with a small population.

Countries on the Asian continent are also starting to catch up, with Indonesia recording 61 publications, surpassing those in Norway and Brazil, both developed countries. This demonstrates that sound research policies can significantly impact publication numbers, even in developing countries.

Based on publication data by country, countries in the Americas and Europe produce the most publications on environmental law compared to countries in Asia, which in fact has a total forest area exceeding that of the Americas and Europe. Therefore, it can be concluded that countries in the Americas and Europe pay greater attention to environmental conditions than countries in Asia.

Overall, countries with a high number of publications, such as the United States, often have a high reputation, allowing publications in that country to gain international visibility. China is a pioneer in environmental policy, particularly regarding air pollution, water management, and renewable energy policies. Researchers interested in environmental law can focus their research on the legal aspects related to efforts to address major environmental issues. Furthermore, Indonesia, a country with abundant biodiversity, naturally faces numerous environmental issues and environmental policies. This provides an opportunity for

researchers to explore laws governing nature conservation, natural resource policies, and environmental management policies.

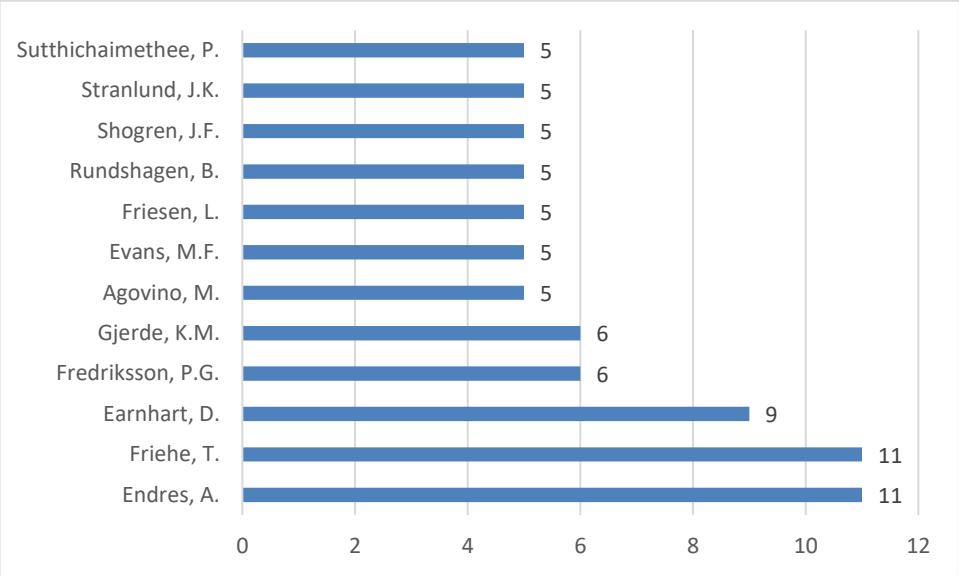

Figure 4: Publication Data Based on Author

Figure 4 shows that two authors occupy the top positions with 11 publications each, namely Endres, A, and Friehe, T. These two authors appear to be consistent in their research productivity. Their prominent presence may indicate that they play a significant role in a particular research field. Next in the ranking is Earnhart, D, who is in third place with 9 publications. Although slightly lower than Endres and Friehe, Earnhart also shows a high level of productivity and makes significant contributions to his field.

Meanwhile, other authors such as Fredriksson, PG and Gjerde, KM were recorded as having produced 6 publications each, as well as several other authors who produced 5 publications, such as Agovino, M. Evans, MF, Friesen, L., although they did not dominate the data on the number of publications, but still showed a consistent level of productivity in enriching scientific literature.

If we look at the graph in Figure 4, the comparison of the number of publications between authors does not show any significant difference, so it can be interpreted that there is equality in the mastery of the topic of Environmental Law by the authors.

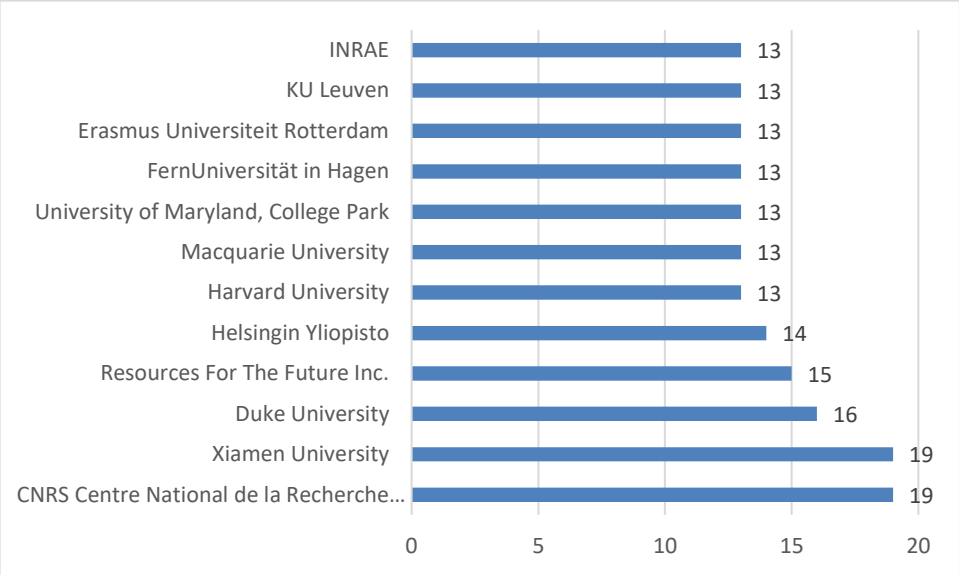

Figure 5: Publication Data Based on Institution

The publication data in Figure 5 shows the extent to which an academic institution contributes to research in various countries. Based on this data, Wageningen University & Research from the Netherlands tops the list with 20 publications. Next are CNRS (Centre National de la Recherche Scientifique) from France and Xiamen University from China, with 19 publications each, demonstrating their high productivity in academia and research. CNRS is the largest research institution in Europe and contributes significantly to a wide range of fields, from science to social sciences.

Several other institutions, such as Duke University with 16 publications and Resources For The Future Inc. with 15 publications, also made strong contributions. Furthermore, there are several institutions with between 13 and 14 publications, such as Helsingin Yliopisto (University of Helsinki) , Harvard University , Macquarie University , University of Maryland , FernUniversität in Hagen , Erasmus Universiteit Rotterdam , KU Leuven , and INRAE. The similarity in the number of publications among these institutions reflects the strong competition in producing quality scientific work.

Wageningen University & Research, CNRS, and Xiamen University outperformed traditionally dominant US institutions like Harvard University and Duke University. This demonstrates the strong role and contribution of Asian and European research institutions in the global research landscape. Furthermore, Resources For The Future Inc. , a non-profit organization not affiliated with a university, has successfully recorded 15 publications, confirming that contributions to research come not only from universities but also from independent institutions or bodies focused on specific issues such as public policy and the environment.

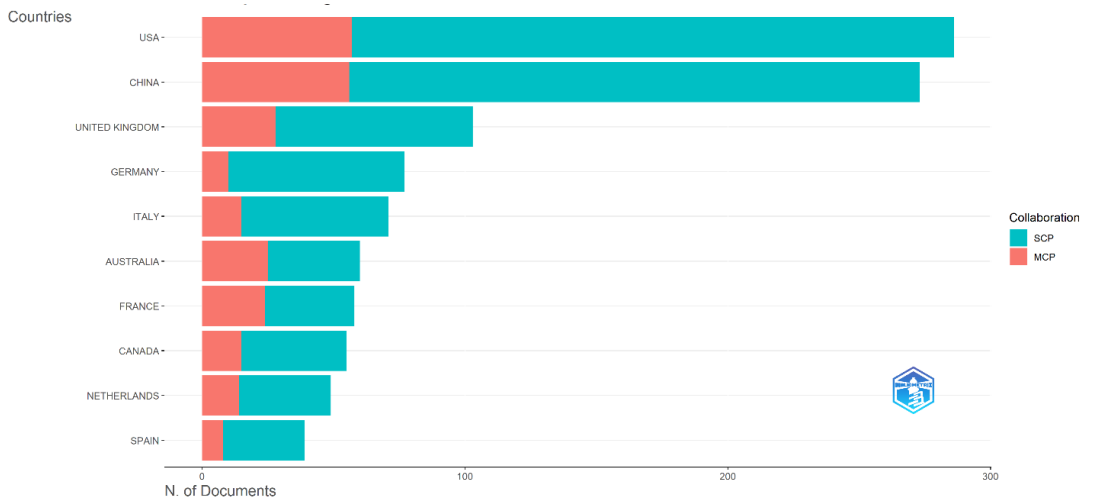

Figure 6 : Corresponding Author's Countries

SCP : Single Country Publication
MCP : Multiple Country Publication

From the graph in Figure 6, it can be seen that the top three countries with the largest number of publications on environmental law from correspondent authors are the United States (USA), China, and the United Kingdom (UK). The United States ranks first with the largest contribution coming from Single Country Publications (SCP), which is a very large comparison to Multiple Country Publications (MCP) in the US. This indicates that most environmental law publication collaborations involving correspondent authors from the US occur domestically. China is in second place with a publication pattern almost identical to the US. Collaboration between domestic institutions is more dominant than international collaboration. China ranks third with collaboration that occurs domestically is more dominant than international collaboration. Overall, the graph shows that Single Country Publications in each country are more dominant than Multiple Country Publications.

No	Paper	Total Citations	TC per Year
1	(Brunnermeier & Cohen, 2003)	1088	49.45
2	(Agrawal & Knoeber, 2001)	610	25.42
3	(Cole & Elliott, 2003)	603	27.41
4	(Konar & Cohen, 1997)	507	18.11
5	(Popp, 2006)	476	25.05
6	(Amore & Bennedsen, 2016)	453	50.33
7	(Gray & Shadbegian, 2003)	450	20.45
8	(Horváthová, 2010)	398	26.53

9	(Karpoff et al., 2005)	**394**	**19.70**
10	(Shen et al., 2013)	**392**	**32.67**

Table 01. Most Global Site Document

From the data in Table 1, it can be seen that the paper with the largest Total Citation is Brunnermeier Sb, 2003, J Environ Econ Manage with 1088 Total Citations. While the paper with the largest TC Per Year is the paper Amore Md, 2016, J Environ Econ Manage with 50.33 citations per year which only has a Total Citation of 453. The TC Per Year exceeds the paper with the largest TC, this shows that Total Citation does not affect how much TC Per Year a paper has. If seen from the year of publication, the Total Citation owned by a paper is also not affected by the year of publication. The year of publication cannot guarantee more or less total citations owned by a paper, proven in the data that papers that were published earlier are not guaranteed to have many total citations or vice versa, papers that have just been published do not guarantee also have many total citations.

No	Document	Local Citations	Global Citations	LC/GC Ratio (%)
1	(Konar & Cohen, 1997)	13	507	2.56
2	(Fang et al., 2021)	12	156	7.69
3	(Laplante & Rilstone, 1996)	12	218	5.50
4	(Brunnermeier & Cohen, 2003)	10	1088	0.92
5	(Fang et al., 2021)	12	156	7.69
6	(Laplante & Rilstone, 1996)	12	218	5.50
7	(Brunnermeier & Cohen, 2003)	10	1088	0.92
8	(Naysnerski & Tietenberg, 1992)	10	55	18.18
9	(Endres et al., 2007)	9	23	39.13
10	(Innes, 1999)	9	94	9.57
11	(EMAR & ABU ISSA, 2021)	8	13	61.54
12	(Amore & Bennedsen, 2016)	8	453	1.77
13	(Shimshack & Ward, 2005)	8	216	3.70

Table 02. Most Local Site Documents

From the data in Table 2, it can be seen that the papers with the largest Global Citations are Brunnrmeier SB (2003) with a global citation count reaching 1088, Konar S (1997) with a global citation count of 507, and Amore MD (2016)

with a global citation count of 453. Judging from these data, the size of the Global Citation count does not seem to be affected by the number of Local Citations it has. Conversely, the size of the Global Citation count will not significantly affect the number of Local Citations of a paper, this is proven in the paper that has the most global citations (Brunnermeier SB, 2003) but the number of local citations it has is low. This shows that a paper can have low Local Citations but high Global Citations, depending on the extent of the paper's global impact. The LC/LG ratio provides an indication of the scope of the paper's influence, a low ratio indicates a greater global influence, while a high ratio indicates the dominance of local citations.

Networking Analysis

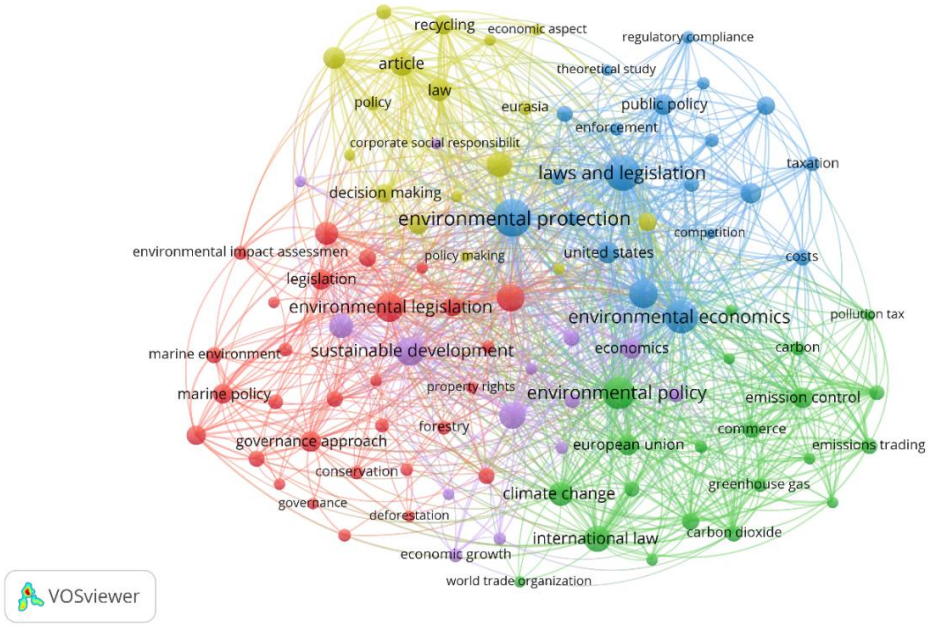

Figure 7: Network Visualization

Figure 7 shows five main clusters represented by different colors: green, blue, yellow, red, and purple. Each cluster represents keywords frequently appearing in the research literature and forms a complex network connecting various fields such as environmental policy, economics, and law. This network map was obtained through VOSviewer using the Co-Occurrence analysis type, all keyword analysis units, the full counting method, 101 keywords, and a threshold of 30, resulting in five clusters, each with a minimum cluster size of 10. From here, the algorithm forms a keyword network, with each node representing a keyword. The lines connecting this network indicate the strength of the relationship between the keywords. The most frequently occurring keywords are grouped into different clusters, each represented by a different color.

The red cluster which is the first cluster covers various topics such as law enforcement with a total link strength of 705 and a total occurrence of 164,

environmental legislation with a total link strength of 746 and a total occurrence of 185, and environmental management with a total link strength of 612 and a total occurrence of 120. These three topics are the most dominant topics in the first cluster, from the three keywords it can refer to one of the relevant themes, namely Sustainable Environmental Governance, this theme includes aspects of legal regulation, law enforcement, and integrated environmental management to ensure environmental sustainability.

The second cluster is the green cluster. In this cluster, the dominant topics are Environmental Policy with a total link strength of 1,348 and a total occurrence of 233, International Laws with a total link strength of 833 and a total occurrence of 158, and Emission Control with a total link strength of 704 and a total occurrence of 92. Of these three dominant topics, one theme can be chosen that represents all three, namely the International Policy on Emission Control and Environmental Protection.

Some of the dominant themes in the blue cluster or the third cluster are Environmental Protection with a total link strength of 1653 and 321 occurrences, Laws and Legislation with a total link strength of 1673 and 282 occurrences, and Environmental Economics with a total link strength of 1450 and 246 occurrences. From these three topics, one relevant theme can be produced, namely Sustainable Environmental Economic Policy, this theme covers how environmental regulations and legislation are implemented to protect the environment effectively and take into account the economic impact of the policy.

Decision Making with a total link strength of 438 and a total occurrence of 76, Recycling with a total link strength of 632 and a total occurrence of 89, and Environmental Impact with a total link strength of 843 and a total occurrence of 144 are the dominant keywords in the fourth cluster or the cluster in yellow. These three keywords can produce one theme that is related to each other, namely Recycling Optimization with Environmental Impact Considerations.

Finally, there's the fifth cluster, or the purple cluster. In this cluster, the three dominant topics are Sustainable Development with a total link strength of 879 and a total occurrence of 191; Sustainability with a total link strength of 621 and a total occurrence of 134; and Economics with a total link strength of 595 and a total occurrence of 92. These three topics form a relevant theme, Sustainable Economics in Sustainable Development. This theme focuses on the balance between economic growth, environmental preservation, and social welfare.

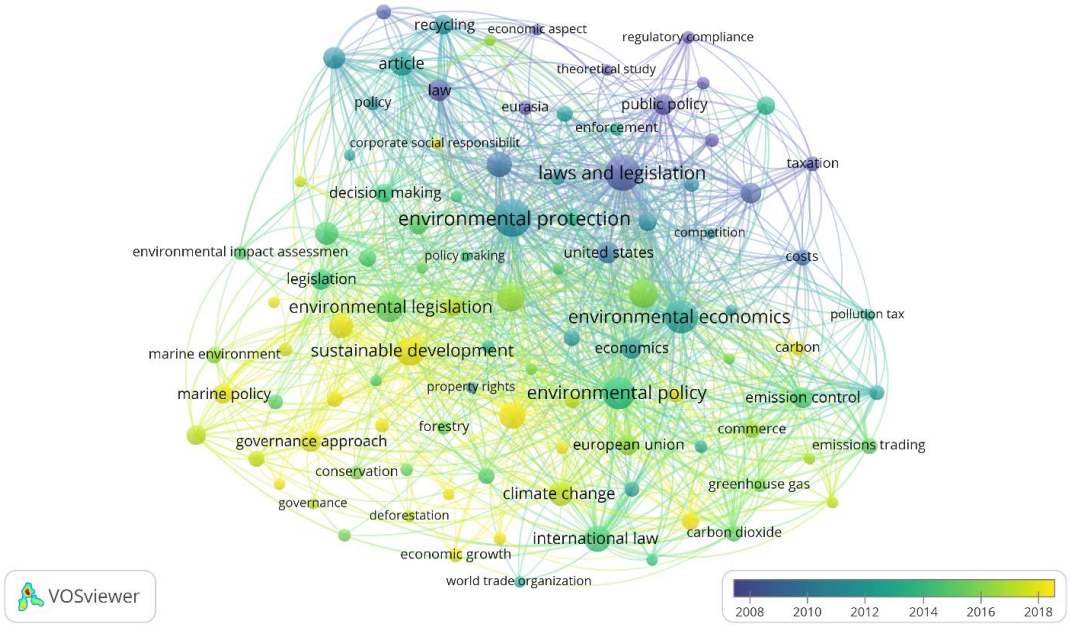

Figure 8: Overlay Visualization

Figure 8 shows an overlay-based keyword network analysis. This visualization map was created using VOSviewer and depicts the temporal development of the Environmental Regulation research topic, with a particular focus on the temporal distribution of the research topic from 2008 (in the blue spectrum) to 2018 (in the yellow spectrum). This temporal coverage allows us to observe the evolution of the topic over the years.

The prominence of keywords such as Environmental Protection, Laws and Legislation, and Public Policy at the center of the network and having a blue to green color indicates that these topics were the focus of research at the beginning of the analyzed period around 2008 to 2012. This can be interpreted that in the early period, research focused on the legal and policy bases related to environmental protection.

Over time, research topics shifted. From mid-2012 to early 2016, more specific topics such as Emission control and greenhouse gas were observed. Yellow-colored topics such as Carbon, Marine Policy, and Sustainable Development indicate that they have become the center of attention in recent years. Research began to shift from policy formation to the implementation of sustainable practices, climate change issues, and solutions for reducing greenhouse gas emissions. If readers are interested in researching recent environmental issues, they can take topics that have a yellow spectrum in Figure 8, such as Carbon, Marine Policy, and Sustainable Development.

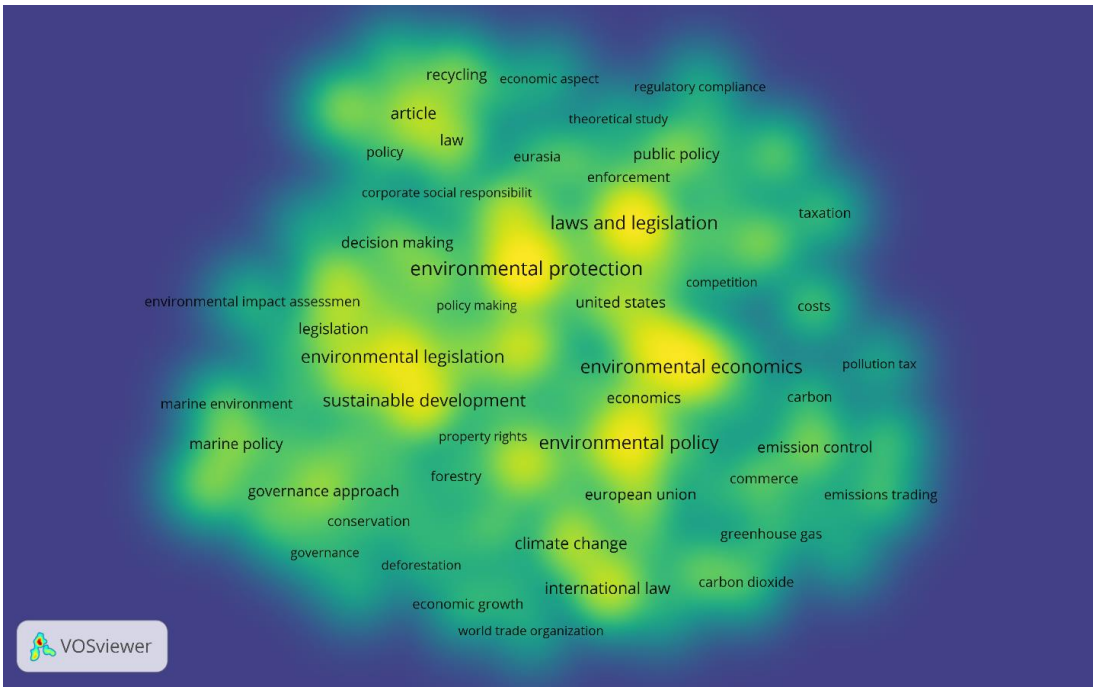

Figure 9: Density Visualization

Figure 9 shows that keywords with the highest density are marked with bright yellow data, such as Environmental Protection, Environmental Economics, and Sustainable Development. In addition, there are also keywords that are rarely researched, these keywords are marked with faint yellow data, such as Pollution Tax, Deforestation, and Carbon Dioxide. The fading of publications on these topics could mean that the environmental problem in question has been resolved or perhaps conversely, the problem has not been resolved but new problems have emerged that are more interesting to study. Therefore, readers interested in conducting research on the environment can focus on topics that have been rarely researched to provide clarity on the progress of addressing these environmental problems.

The Relevance of Global Environmental Law to Maqashid Al-Sharia

Research on trends and developments in Global Environmental Law shows a deep relevance to the principles of Maqashid al-Shariah, namely the basic objectives of Islamic law that focus on protecting the five main elements (al-Dharuriyyat al-Khamsah): protecting religion (hifz ad-din), protecting the soul (hifs an-nafs), protecting the mind (hifz al-aql), protecting descendants (hifz an-nasl), and protecting property (hifz al-mal). In essence, all efforts regulated in environmental law, including those reflected in the surge in global scientific publications analyzed bibliometrically, aim to achieve the public good (maslahah) which is the core of Maqashid al-Shariah.

Global environmental issues, such as pollution, climate change, and ecosystem degradation, directly threaten this essential level of necessity (Apriantoro & Andriyani, 2024). Therefore, environmental law serves as an

essential positive legal instrument for realizing these objectives of the Shari'a. Specifically, environmental protection is an absolute prerequisite for preserving the soul (hifz an-nafs), as environmental damage can impair the quality of water, air, and food, which directly impacts human health and survival. In line with this, the principle of sustainable development, a key pillar of international environmental law (including the 1992 Rio Declaration and the 2015 Paris Agreement), directly corresponds to preserving descendants (hifz an-nasl) and property (hifz al-mal). Sustainable management of natural resources and prevention of environmental damage (al-fasad) are mandates that must be carried out by humans as khalifah (vicegerents) on earth to ensure the availability of resources for present and future generations. Thus, the development trend of environmental law research that shows increasing global attention to ecosystem protection and environmental justice is a reflection of the strengthening of the legal-ethical framework that substantially strengthens and fulfills the objectives of Maqashid al-Shariah.

CONCLUSION

This research aims to identify the development and direction of Environmental Law research between 1975 and 2024. The analysis was conducted at five levels of comprehensive bibliometric indicators, namely scientific production in each year, author level, country level, affiliation or institution, and source or journal by placing these findings in the ethical perspective of Maqashid al-Shariah. This study also provides insights and the latest trends for prospective researchers in Environmental Law through bibliometric analysis. This study also revealed that the topic of Environmental Law is most often carried out in the United States. This research is limited to articles indexed in the Scopus database. This bibliometric analysis serves as a descriptive tool, revealing information about the most influential articles. Therefore, it is hoped that future authors can conduct more in-depth studies regarding Environmental Law by applying this bibliometric analysis, so that it is easier to understand and also includes document citations from Scopus and other sources.

REFERENCES

Agrawal, A., & Knoeber, C. R. (2001). Do Some Outside Directors Play a Political Role? *The Journal of Law and Economics*, *44*(1), 179–198. https://doi.org/10.1086/320271

Amore, M. D., & Bennedsen, M. (2016). Corporate governance and green innovation. *Journal of Environmental Economics and Management*, *75*, 54–72. https://doi.org/10.1016/j.jeem.2015.11.003

Arzam, A., & Kusnadi, K. (2025). *Maqā ṣ id al- Sharī ' ah and Ecotheology : A Philosophical Analysis of the Normative Foundations of Islamic Law in Ecological Issues Maqasid al-syari ' ah dan Ekoteologi : Analisis Filosofis terhadap Dasar Normatif Hukum Islam dalam Isu Ekologis*. *8*(4), 902–916. https://doi.org/10.58824/mediasas.v8i4.473

Brunnermeier, S. B., & Cohen, M. A. (2003). Determinants of environmental innovation in US manufacturing industries. *Journal of Environmental Economics and Management*, *45*(2), 278–293. https://doi.org/10.1016/S0095-0696(02)00058-X

Cole, M. A., & Elliott, R. J. R. (2003). Determining the trade–environment composition effect: the role of capital, labor and environmental regulations. *Journal of Environmental Economics and Management*, *46*(3), 363–383. https://doi.org/10.1016/S0095-0696(03)00021-4

EMAR, O., & ABU ISSA, H. (2021). The Legislative Shortcomings Aspects in the Jordanian Environmental Law. Comparison with International Law. *Journal of Environmental Management and Tourism*, *12*(7), 1850. https://doi.org/10.14505/jemt.v12.7(55).10

Endres, A., Bertram, R., & Rundshagen, B. (2007). Environmental Liability Law and Induced Technical Change – The Role of Discounting. *Environmental and Resource Economics*, *36*(3), 341–366. https://doi.org/10.1007/s10640-006-9021-3

Fang, Z., Kong, X., Sensoy, A., Cui, X., & Cheng, F. (2021). Government's awareness of Environmental protection and corporate green innovation: A natural experiment from the new environmental protection law in China. *Economic Analysis and Policy*, *70*, 294–312. https://doi.org/10.1016/j.eap.2021.03.003

Gray, W. B., & Shadbegian, R. J. (2003). Plant vintage, technology, and environmental regulation. *Journal of Environmental Economics and Management*, *46*(3), 384–402. https://doi.org/10.1016/S0095-0696(03)00031-7

Horváthová, E. (2010). Does environmental performance affect financial performance? A meta-analysis. *Ecological Economics*, *70*(1), 52–59. https://doi.org/10.1016/j.ecolecon.2010.04.004

Innes, R. (1999). Remediation and self-reporting in optimal law enforcement. *Journal of Public Economics*, *72*(3), 379–393. https://doi.org/10.1016/S0047-2727(98)00101-7

Karpoff, J. M., Lott, Jr., J. R., & Wehrly, E. W. (2005). The Reputational Penalties for Environmental Violations: Empirical Evidence. *The Journal of Law and Economics*, *48*(2), 653–675. https://doi.org/10.1086/430806

Khuluq, M. K., & Indonesia, U. I. (2025). *HIFZ AL-BI ' AH AS PART OF MAQASHID AL-SHARI ' AH AND ITS RELEVANCE IN THE CONTEXT OF GLOBAL CLIMATE CHANGE*. *7*(2). https://doi.org/10.20885/ijiis.vol7.iss2.art3

Konar, S., & Cohen, M. A. (1997). Information As Regulation: The Effect of Community Right to Know Laws on Toxic Emissions. *Journal of Environmental Economics and Management*, *32*(1), 109–124.

https://doi.org/10.1006/jeem.1996.0955

Laplante, B., & Rilstone, P. (1996). Environmental Inspections and Emissions of the Pulp and Paper Industry in Quebec. *Journal of Environmental Economics and Management*, *31*(1), 19–36. https://doi.org/10.1006/jeem.1996.0029

Muchsin, A. (2025). *RelationshipBetween Environmental Permitting Laws and Economic Development from the Perspective of Maqashid al-Shariah*.

Muflih, B. K., & Jamaludin, M. A. (2025). *Environmental preservation from maqasid shariah and islamic perspective: A literature review*. *1*, 1–8.

Naysnerski, W., & Tietenberg, T. (1992). Private Enforcement of Federal Environmental Law. *Land Economics*, *68*(1), 28. https://doi.org/10.2307/3146741

Popp, D. (2006). International innovation and diffusion of air pollution control technologies: the effects of NOX and SO2 regulation in the US, Japan, and Germany. *Journal of Environmental Economics and Management*, *51*(1), 46–71. https://doi.org/10.1016/j.jeem.2005.04.006

PutehSalin, A. S. A. (2024). *2 2 , 2 1*. *16*(3), 899–912.

Shen, L., Olfat, L., Govindan, K., Khodaverdi, R., & Diabat, A. (2013). A fuzzy multi criteria approach for evaluating green supplier's performance in green supply chain with linguistic preferences. *Resources, Conservation and Recycling*, *74*, 170–179. https://doi.org/10.1016/j.resconrec.2012.09.006

Shimshack, J. P., & Ward, M. B. (2005). Regulator reputation, enforcement, and environmental compliance. *Journal of Environmental Economics and Management*, *50*(3), 519–540. https://doi.org/10.1016/j.jeem.2005.02.002