THE SUSTAINABILITY REPORTING WITHIN THE ASEAN COUNTRIES;
A BIBLIOMETRIC ANALYSIS REVIEW

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Abstract
Sustainability reporting is one of the company’s efforts to present non-financial information to stakeholders. It is hoped that this will increase the company’s transparency in all its activities related to the environment, social and economy. This study used a bibliometric analysis related to the previous studies related to the issue of sustainability reports. The current study was conducted by using data from the Scopus sources. The keyword used is sustainability reporting with a total data of 428 documents. The current study was carried out only for the ASEAN countries. The research identified several things including research contributions by countries, journals, topics, keywords, authorships, and affiliations. The finding shows that the ASEAN countries dominating the so-called studies related to the sustainability reporting is Malaysia and Indonesia. The mostly-used keywords are sustainability and sustainability reporting. This study also presents the data on journal affiliations and publishers who contributed to this study. The results have limitations including data sources and supporting software used. Sources of data only come from articles accredited by Scopus, then the data obtained is processed using only 1 software. The novelty of this research is to analyze the sustainability report issues by using a Bibliometric model in the ASEAN countries. It is expectedly used to provide more insight towards researchers and academia interested in discussing under sustainability reporting issues.

Keywords: Bibliometric Analysis, Sustainability Reporting, ASEAN Countries

Introduction
The concept of sustainability has become a global concern, from the national to
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international levels. In 1972 the United Nations held a conference in Stockholm on environmental issues (UN, n.d.). Environmental issues were also discussed at the 2015 Paris Agreement meeting, in which 195 countries committed to limiting global warming below 2 degrees Celsius (Bissoondoyal-bheenick et al., 2023). Other parties such as the accounting standards board also pay attention to a sustainable environment in order to improve the quality of financial reports (Effah et al., 2023). In fact, this issue has become the concern of international organizations, where they have developed frameworks and procedures to support companies disclosing social, environmental and governance issues such as those developed by the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB) to the United Nations Global Compact (UNGC) (Ould & Ellili, 2021). The environmental and social issues are as the sustainability ones. Even though several companies like in Indonesia make a separate report from the annual report which discusses this issue in the sustainability report. For example, PT Aneka Tambang Tbk, which regularly publishes sustainability reports from 2019-2022 (ANTAM, n.d.). Companies in other ASEAN countries such as Malaysia Airlines also publish sustainability reports. The issues raised in the report relate to environment, social, governance and safety (Malaysiaairlines, 2021).

This sustainability report is also a concern for academics and researchers. Several studies link sustainability reports with several other issues. Some researchers associate sustainability reports with corporate value (Atasel et al., 2020; Yondrichs et al., 2021), profitability (Atasel et al., 2020), ESG performance (Imperiale et al., 2023), and corporate governance (Pasko et al., 2022). In addition, some researchers make literature reviews using bibliometrics related to sustainability reports as done by (Bosi et al., 2022; Effah et al., 2023; Pasko et al., 2021). This study will conduct a bibliometric analysis on sustainability reports. In recent years, bibliometric analysis has experienced a significant increase, this has been followed by an increase in multidisciplinary methods and software programs (Ould & Ellili, 2021). In this study, bibliometric analysis will raise the issue of sustainability reports, considering that this issue is still being researched to date. Research conducted by (Pasko et al., 2021) shows future research directions with the keywords sustainability report being higher than CSR, Sustainable Development, and governance. The same thing was also stated by (Effah et al., 2023) which showed that research using the keywords sustainability report was more dominant than CSR and performance.

Furthermore, the research will only use data from 11 ASEAN countries, where only Singapore has developed country status. The countries that are members of ASEAN have a
meeting agenda among the members, in 2023 Indonesia will host the meeting. Among the declarations written in the ASEAN Indonesia 2023 report, related to the issue of sustainability, which emphasized the important role of electric vehicles to achieve net-zero emission and energy security (ASEAN, 2023). Based on a report published by Sustainalytics (2022) ASEAN countries have a higher ESG risk than countries in Europe and North America (Pratama et al., 2022). The report also describes not much change in the quality of ESG disclosure in ASEAN countries for the 2016-2022 period (Pratama et al., 2022).

Based on previous research that conducted research related to sustainability reports using a Bibliometric approach (Bosi et al., 2022; Effah et al., 2023; Pasko et al., 2021) none of these studies focused on countries in ASEAN. In addition, this research is also the latest because the data will be used from 1993-May 2023. Therefore, the purpose of this study is to present previous research using a bibliometric analysis approach to Scopus-accredited journals related to sustainability reports, especially research- research conducted in ASEAN countries with a time span of 1993-May 2023. To achieve these research objectives, research will conduct bibliometric analysis (Pasko et al., 2021; Shoeb et al., 2022) using an Artificial Intelligent tool, namely VOS Viewer (Hyk et al., 2022; Tubarad et al., 2022). The objectives of the bibliometric analysis in this study include (1) providing future researchers and readers in general with an overview of published articles on Scopus relating to sustainability reports in ASEAN countries, (2) to identify contributions by country, journals, topics, and authors (Pasko et al., 2021) in ASEAN countries (3) to identify the most used and least used keywords. This will encourage to identify further research. The the following section discussed several scientific stages including discussion of literature reviews and research methods. This is followed by a discussion of the results of the bibliometric analysis in the form of tables and figures, then a discussion section that interprets the results of the bibliometric analysis and the last section is the conclusion.

**Literature Review**

**Sustainability Reports**

Sustainability reports are developing in several countries and provide a mandate for companies to publish their social, environmental and governance performance (Benameur et al., 2023). Several international organizations offer frameworks and standards to be used as guidelines by companies in compiling sustainability reports such as the GRI Standard issued by the Global Reporting Initiative (Gerged & Salem, 2023). The company's efforts to create
corporate sustainability will of course be supported by stakeholders to ensure the company's business continuity (Hardiyansah et al., 2021).

Communicating sustainability goals much more effectively to stakeholders is a crucial thing to achieve the successful sustainability practices (Osobajo et al., 2022). Environmental, social and governance (ESG) disclosure is also to increase company legitimacy (Hammami & Hendijani Zadeh, 2020). This is considering that the company's activities can affect environmental changes such as mining companies or high profile manufacturing. As an example of the case in Indonesia, Lapindo Brantas Inc. released hot mud which resulted in the sinking of residential areas, schools and industrial areas (Sendari, 2022). The company is obliged to account for its activities to the citizens who are harmed. Meanwhile, based on the theory of corporate legitimacy which discloses environmental issues such as carbon emissions to gain legitimacy from stakeholders and improve the company's image (Hardiyansah et al., 2021). The public is more interested in knowing that the company is truly committed to preventing the environment from climate change, pollution and other environmental influences arising from company activities (Wahyuningrum et al., 2023). Thus, environmental responsibility should be disclosed by companies so that stakeholders know about company activities, because legitimacy is assumed to be influenced by information disclosure (Newson & Deegan, 2002).

The Bibliometric Analysis and The Previous Studies

The bibliometric analysis method is used to make statistical data from the number of scientific publications in certain research fields, presenting previous research, the current situation, to trends from certain research fields through statistical tables and figures (Pasko et al., 2021). Bibliometric analysis is considered a significant source of information and is commonly used to validate research policies, funding, progress, and to guide and support research projects based on the most influential scientific literature (Shoeb et al., 2022). Several previous studies have conducted bibliometric analysis which linked several issues including social accounting information (Rodrigues et al., 2021), green technology innovation and financial performance (Qing et al., 2022), sustainability reports (Effah et al., 2023; Pasko et al., 2021), environmental disclosure (Arslan et al., 2022; Shoeb et al., 2022), and integrated reporting (Hyk et al., 2022).

The study conducted by (Effah et al., 2023) examined sustainability reports with bibliometric analysis using data from the Web of Science (WoS). The results show that the 3
journals that contribute the most to this issue are the journal of cleaner Production, Sustainability, and Accounting, Auditing, and Accountability Journals. A study similar to (Effah et al., 2023) was conducted by (Bosi et al., 2022) who used data from Scopus using the VOSViewer software. The results suggest that CSR and sustainability reports have a stronger social focus as they focus on environmental benefits and impacts. This can also be seen in terms of the topics discussed in the 2014-2018 timeframe relating to CSR and Reporting Initiatives, while 2020 and above relates to the disclosure of ESG and sustainable development goals (Benameur et al., 2023).

Methods

This research will complement previous research that has been done by presenting past research related to sustainability reports (Benameur et al., 2023; Bosi et al., 2022; Effah et al., 2023; Pasko et al., 2021) using countries in ASEAN (Wahyuningrum et al., 2023). Data is taken only from the Scopus database (Dewayanto, 2021; Tubarad et al., 2022; Wahyuningrum et al., 2023) considering that Scopus is one of the most popular and widely involves academic databases that provide reputable journal articles, references, and publications for research and development (Mohanty et al., 2023). Data searches in the Scopus Database will use the keyword “Sustainability Reporting” with restrictions based on countries in ASEAN, namely Indonesia, Malaysia, Singapore, Thailand, Cambodia, the Philippines, Brunei Darussalam, Vietnam, Laos and Myanmar. Timor Leste is excluded from this study, because the country was recognized as part of ASEAN countries on November 11, 2022. The data was taken from 1993-May 28, 2023. Then, this study limits the scientific subject areas including (1) business, management, and accounting, (2) social science, (3) environmental science, and (4) economics, econometrics, and finance.

The use of bibliometric analysis will be analyzed using the VOSViewer software (Ramirez et al., 2022; Tubarad et al., 2022), where this software will provide a more attractive and easy-to-use database visualization. The research will analyze and present past research by country, journals, topics, authors, and keywords. The following is presented flow diagram adopted from (Bosi et al., 2022; Tubarad et al., 2022):
Results

Documents-Based Analysis

This study uses articles accredited by Scopus to review previous research related to sustainability reports, especially research conducted by ASEAN countries. Based on the search results, a total of 428 documents were used. Based on Figure 2, it can be seen that the documents collected were sourced from 7 types, where the type of article was the most numerous at 78%, followed by conference papers at 9% and reviews at 8%.
Meanwhile, articles published relating to sustainability reports in ASEAN countries based on their affiliation, Universiti Teknologi MARA with a maximum of 39 documents. Furthermore, Universiti Utara Malaysia 31 documents and followed by Universiti Sains Malaysia. Meanwhile, an affiliate from Indonesia, namely Airlangga University is in fourth place with 17 documents and Diponogoro University is in sixth place with 15 documents. National University of Malaysia ranks fifth with 15 documents and the Graduate School of Business with 15 documents.

The most cited article is The influence of governance structure and strategic corporate social responsibility towards sustainability reporting quality written by (Amran et al., 2013). This article was cited 325 times, while the second article written by (Mardani et al., 2019) was cited 298 times, and was followed by (Amran & Haniffa, 2011) which was cited 178 times.
times. Details can be seen in Table 1. The number of research citations related to sustainability reports in ASEAN countries from 2010-2022 has increased based on Figure 4. In 2023 the graph appears to decrease, this does not illustrate a decrease in research related to sustainability reports. This is because the research data used is data as of May 27, 2023.

Table 1. The Most Influential Articles about the Sustainability Reporting Issues

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Author</th>
<th>Citation</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The influence of governance structure and strategic corporate social responsibility toward sustainability reporting quality</td>
<td>(Amran et al., 2013)</td>
<td>325</td>
<td>Business Strategy and the environment</td>
</tr>
<tr>
<td>2</td>
<td>Carbon dioxide (CO2) emissions and economic growth: A systematic review of two decades of research from 1995 to 2017</td>
<td>(Mardani et al., 2019)</td>
<td>298</td>
<td>Science of the Total Environment</td>
</tr>
<tr>
<td>3</td>
<td>Evidence in development of sustainability reporting: A case of a developing country</td>
<td>(Amran &amp; Haniffa, 2011)</td>
<td>178</td>
<td>Business Strategy and the environment</td>
</tr>
<tr>
<td>4</td>
<td>Protective functions and ecosystem services of global forests in the past quarter-century</td>
<td>(Miura et al., 2015)</td>
<td>107</td>
<td>Forest Ecology and Management</td>
</tr>
<tr>
<td>5</td>
<td>Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework</td>
<td>(Shad et al., 2019)</td>
<td>106</td>
<td>Journal of Cleaner Production</td>
</tr>
<tr>
<td>6</td>
<td>A comprehensive literature review on, and the construction of a framework for, environmental legitimacy, accountability and proactivity</td>
<td>(Alrazi et al., 2015)</td>
<td>97</td>
<td>Journal of Cleaner Production</td>
</tr>
<tr>
<td>7</td>
<td>Delocalizing Communities: Changing Forms of Community Engagement in Natural Resources Governance</td>
<td>(Ojha et al., 2016)</td>
<td>94</td>
<td>World Development</td>
</tr>
</tbody>
</table>
Co-authorship of countries & keywords-Based Analysis Methods

Based on the co-authorship of countries, the articles are divided into 7 clusters. Figure 7 shows Cluster 1 is dark yellow, cluster 2 is dark green, cluster 3 is dark blue, cluster 4 is tosca green, cluster 5 is purple, cluster 6 is light blue, and cluster 7 is orange. As seen in Table 2, it shows that among ASEAN countries, Malaysia has published the most articles related to sustainability reports, totaling 217 with a total link strength of 163, followed by Indonesia with 147 documents with a link strength of 78, then Singapore with 33 documents with 34 links strength. Details can be seen in Table 2. Meanwhile, Laos is not detected in the image, because the selection of the threshold for the minimum number of documents of a country that is input in the software is 2, while Laos only has 1 document. In addition, there are no documents related to this research in Cambodia.
Based on Table 3 it can be seen that the most used keywords are “sustainability”, “sustainability reporting”, “sustainable development”, “Malaysia”, “Indonesia”, “corporate social responsibility”, “corporate governance”, “integrated reporting”, and “stakeholder” and “sustainability report”. The keyword "sustainability" occurs 133 times and the link strength is 749, then the "sustainability reporting" occurrence is 93 with the link strength 418 and the "sustainable development" occurrence is 73 with the link strength 493.

Table 3. Co-occurrence of all Keywords

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Occurrences</th>
<th>Total Link Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability</td>
<td>133</td>
<td>749</td>
</tr>
<tr>
<td>Sustainability reporting</td>
<td>93</td>
<td>418</td>
</tr>
<tr>
<td>Sustainable development</td>
<td>73</td>
<td>493</td>
</tr>
<tr>
<td>Malaysia</td>
<td>48</td>
<td>259</td>
</tr>
<tr>
<td>Indonesia</td>
<td>37</td>
<td>223</td>
</tr>
<tr>
<td>Corporate social responsibility</td>
<td>37</td>
<td>178</td>
</tr>
<tr>
<td>Corporate governance</td>
<td>36</td>
<td>170</td>
</tr>
<tr>
<td>Keywords</td>
<td>Occurrences</td>
<td>Total Link Strength</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>---------------------</td>
</tr>
<tr>
<td>Integrated reporting</td>
<td>24</td>
<td>79</td>
</tr>
<tr>
<td>Stakeholder</td>
<td>20</td>
<td>174</td>
</tr>
<tr>
<td>Sustainability report</td>
<td>19</td>
<td>84</td>
</tr>
</tbody>
</table>

Figure 8. The Co-occurrence of all Keywords

Figure 9. The Co-occurrence of Authors’ Keywords

The Citations and the Bibliographic Coupling-Based Analysis

The figure 10 shows the number of citations by organization or journal publisher. Journal sources with the most citations came from business strategy and the environment journals with 620 citations, followed by the journal of cleaner production 567 citations, then sustainability (Switzerland) 511 citations, science of the total environment 305 citations, Ecological indicators 216 citations, journals social responsibility 2016 citations, and Asian review of accounting 93 citations. Meanwhile, based on Figure 10 it can be seen that among ASEAN countries the most cited articles came from Malaysia with 3,314 citations, followed
by Indonesia with 973 citations, Singapore 320 citations, Vietnam 266 citations, Thailand 236 citations, and the Philippines 146 citations.

Based on the bibliographic coupling portrait, Malaysia and Indonesia are still higher than the ASEAN countries in which the total link strength of each country is 17.902 and 8.958. Then, it is followed by Vietnam 3.344, Singapore 3.327 link strengths, Philippines 3.189, and Thailand 3.118. The bibliographic coupling is grouped into 7 clusters in which the ASEAN countries nominating into cluster 1 is Brunei Darussalam and Vietnam, cluster 3 is Malaysia, cluster 4 is Philippines. While Indonesia, Myanmar, Thailand are in cluster 5, and Singapore is in cluster 6.
Discussion

The current study aims at investigating the bibliometric analysis of the sustainability reporting in ASEAN countries. It suggests that Malaysia and Indonesia dominate the numbers of studies on the sustainability reporting rather than the other ASEAN countries do. It can be drawn based on the affiliation in which the Malaysian organizations, that is Universiti Teknologi MARA, Universiti Utara Malaysia, Universiti Sains Malaysia are on the top three positions. Then the top four position is filled in by an Indonesian state university, Universitas Airlangga.

To achieve the second objective of the current study is to identify the contribution based on the journals and the authorships described in table 1 and figure 5. The table 1 shows the more cited articles is *The Influence of Governance Structure and Strategic Corporate Social Responsibility toward Sustainability Reporting Quality* (Amran et al., 2013). The article was published in Business Strategy and the Environment, in which it have been cited 325 times. Moreover, the table reports that the author is the author having the most cites and he has two articles nominating as the top seven mostly-cited articles. All articles have cites ranging from 325 and 178 times.

The third objective of the current study is to identify the mostly-used keywords and the leastly-used keywords. Based on the table 3, figure 8, and figure 9, these report the data related to the keywords. Table 3 shows that the keyword of *Sustainability* are 133 occurrences, the keyword of *Sustainability Reporting* are 93 occurrences, and the keyword of *Sustainable Development* are 73 occurrences. However, the leastly-used keyword is 1 occurrence in the forms of *Economic Aspect, Global Economy, Digital Technology, Environment Conservation*, along with *Environmental Management System*.

Conclusion

The sustainability reporting is a non-financial reporting presented by companies for stakeholders related to environmental, social and economic issues. This study used the bibliometric analysis method to evaluate as well as to analyze the studies related to sustainability reporting. This current study focuses on the ASEAN countries and used 428 documents analyzed. Data is obtained from the journals accredited by Scopus using the keyword *Sustainability Reporting*. The data is then processed using the VOSViewer software. It helps the researchers to identify several things including research contributions of the countries, the journals, topics, authorships, and the affiliations. Based on the bibliometric analysis conducted,
it can be concluded that Malaysia and Indonesia are more dominant in conducting studies on sustainability reportings between ASEAN countries. It can be seen based on countries’ contribution, affiliations, bibliographic couplings, and citations. Then the keywords that are mostl-used are: sustainability and sustainability reporting. This study is carried out to encourage further researchers to develop the issues and to fill in the gaps in the research that has not been done or is still little done.

Likely, other studies has limitation. The first limitation is that the data is sourced from the Scopus data base. There are other data sources such as WoS and Goggle Scholar. Therefore, this research has not comprehensively described the issues of sustainability reporting in ASEAN countries. The second limitation is that data analysis only used VOSViewer software. Thus, the future researches can use other softwares to do the bibliometric analysis.

References


Hyk, V., Vysochan, O., & Vysochan, O. (2022). Integrated Reporting of Mining Enterprises:


