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Land Policy Research Development: A Bibliometric Analysis

Sinta Ningrum[1*], Salwa Nurfaiziya [2]
[1]Department of Public Administration, Faculty of Social and Political Sciences, Padjajaran University, Jawa Barat, Indonesia

*Corresponding Author: sinta.ningrum@unpad.ac.id

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Abstract: Research on land policy has received attention from researchers. Since the land policy was first published in 1916, research trends have continued to grow and expand. However, only some articles explain the development of issues discussed in research on land policy. Hence, this study aims to analyse bibliometric characteristics and content of papers on land policy published in Scopus-indexed journals from 1916-2023**.** We used protocol to analyse 1265 articles using VOSviewer. The result shows that there are five group topics discussed by scholars, namely land policy, land use, land tenure, land ownership, and China. The United States has the most publications and citations. The Chinese Academy of Science and Thomas Hartmann are recognised as institutions and authors who published most on this topic. The Land Use Policy Journal is the most essential source. China seemed to overtake US dominance in Land Policy research but was not followed by other Asian countries. There are topics for further investigation, namely land relations, land transfer, rural land, and land policy change.

Keywords: Bibliometric analysis, Land policy, VOSviewer.

INTRODUCTION

The world faces a food crisis due to declining agriculture productivity, shrinking farmland, and reduced farmer households (Chien, 2015; Muyanga & Jayne, 2014; Tagliarino et al., 2018; Xie & Jiang, 2016). Massively, land use has changed from agricultural land to industrial land or others. There has been a decline in the number of agricultural households worldwide (Ceballos et al., 2021; L. Chen et al., 2021; Karim & Mohammadghasemi, 2021; Mahmud & Riley, 2021; Zhu et al., 2022). Food and Agriculture Organization reports that 638 and 720 million people met hunger in 2024.

The increasing world population, especially in urban areas, has increased the need for land to meet the needs of people's homes (Firmansa et al., 2020; Hosseinifarhangi et al., 2019; Rini et al., 2021). In contrast, horizontal housing is still the primary choice of residents. In some countries, especially developing countries, it is rather difficult to change the habit of residents living at home from horizontal dwellings to vertical dwellings (apartments).

The world is also experiencing environmental changes caused by climate change that threaten the sustainability of ecosystems (Cai et al., 2021; Estoque et al., 2020; Z. Li et al., 2021). Uncontrolled exploitation of natural resources and deforestation to meet human needs can harm the environment and natural ecosystems (Binte Mostafiz et al., 2021; Z.

Chen et al., 2021; Hosseini et al., 2021; Mihajlović & Đorđević, 2022). This phenomenon can cause natural disasters such as landslides, floods, and soil erosion, threatening natural resources and the vision of sustainable development (Du et al., 2014; Liu & Feng, 2016; Saint-Macary et al., 2010).

Food crises, increasing housing needs, and environmental changes show the increasing importance of land availability to overcome these problems (Debrunner & Hartmann, 2020; Fitton et al., 2019; Huambachano & Cooper, 2021; Virtriana et al., 2022). The availability of agricultural land is the main prerequisite for increasing food production to reduce hunger levels while reducing the poverty rate of the earth's population (Mengesha et al., 2023; Reilly et al., 2012; Renzaho et al., 2017). Ensuring food security is essential for every country in the agricultural sector (Pawlak & Kołodziejczak, 2020). In contrast, the world's land capacity and carrying capacity to produce food in quantity and quality are declining (Abdullina et al., 2018; Das & Nonhebel, 2019). The sustainability of the agricultural sector has been damaged and neglected so that farmers' capacity to meet people's food needs has decreased (Jongerden et al., 2019).

Formulating land policy as a strategy for the protection and sustainable use of agricultural land is crucial.(Kalfas et al., 2023; Q. Li & Zhang, 2022; Wang et al., 2012). Land policy is part of public policy that solves problems with principles, directions, and guidelines the government has agreed upon (Auzins et al., 2022; Han & Zhang, 2014; Rugema et al., 2022). The policy lies at the heart of the country, aiming to increase productivity and contribute to social, economic, political, and environmental development and poverty alleviation related to land management (García-Ruiz & Lana-Renault, 2011; Nyamah et al., 2017; Turok & McGranahan, 2013; Zhou et al., 2019). Inappropriate implementation will become a severe obstacle to the sustainable development of a country (Bardhan et al., 2015; Simbizi et al., 2014). Only regions with a wealth of superior farming resources and the superiority of a dominant agricultural industry still survive (Albasri et al., 2023; Fan et al., 2023).

Research conducted by scholars is vital to study so that we can find out the tendency of researchers' thinking to face current world problems and predict and anticipate future circumstances. In addition, knowing the history of thought through issues/topics discussed by previous researchers can help us plan, consider alternative policies to be taken, and develop further research.

The bibliometric method is widely used because it is computerised and statistically reliable for obtaining literature and information reviews and identifying research trends on specific topics (Abdul & Yu, 2020; Chaturvedi & de Vries, 2021; Hung, 2017; Krefis et al., 2018). This research uses bibliometric analysis to identify published records and evaluate research in specific fields (Y. Zhang et al., 2020; Zhao et al., 2018). So we analyze bibliometric characteristics and content of papers on land policy published in Scopus-indexed journals

from 1916-2023 in terms of The Top Ten rankings of each research indicator, the year of publication, country, institution/affiliation, author productivity, journal sources, and articles with the most citations. While prior studies on land policy development have predominantly employed qualitative assessments, focusing on legislative reviews, policy narratives, or case-based descriptions. This research addresses this gap by introducing a quantitative analytical approach, thereby providing measurable insights that differentiate it from the largely descriptive body of existing literature.

METHODS

This paper is an evolutionary literature review study to find issues trending and related in the land policy area from 1916 to 2023. The research stage was conducted with an initial search based on "Article title, Abstract, Keywords" using the keyword "land policy" on February 24th, 2023, on Scopus. The search results obtained a total of 1,927 documents. Furthermore, the navigation was restricted to papers in English, limited to "Document type" generated from Article, and limited "Source type" developed from the journal, with the initial year of publication being limited from 1916 to 2023. The research strategy used a search operation consisting of TITLE-ABS-KEY ("land policy") AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j")) so that we get 1,265 articles.

We obtained articles from the Scopus database based on the year of publication, country, institution/affiliation, author productivity, journal sources, and journal with the most citations. Then, we analysed based on the top 10 rankings using Microsoft Excel 2016. Continued, we made a map based on network and density visualisation using VOS viewer version 1.6.16 software. The number of occurrences of keywords is at least 5 out of a total of 4927; 413 meets the threshold. The performed steps and protocol of this study are illustrated in Figure 1.

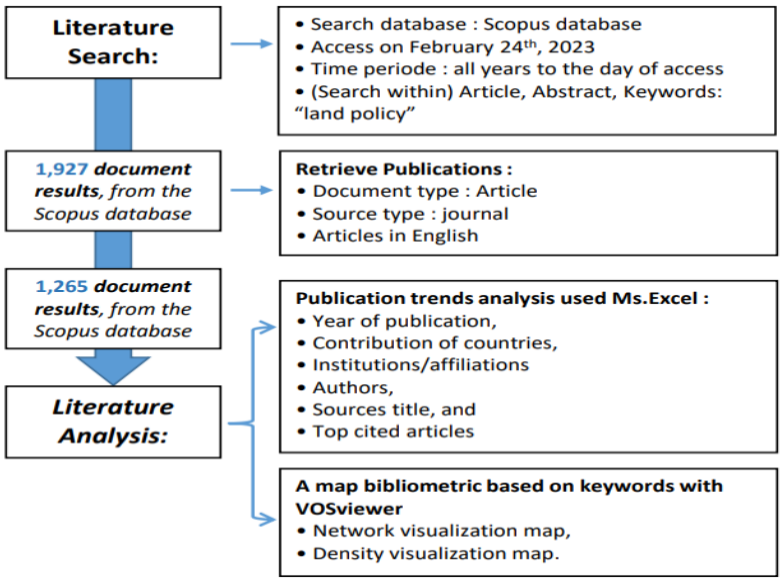


Figure 1. Retrieval Process and Literature Analysis of this Study
Source: Author, 2025

RESULTS AND DISCUSSION

Land Policy Research by Year Publication

From 1916 to 2022, publications on land policy have continued to grow. It began with one publication on land policy in the Scopus database in early 1916. Then, in the 2000s, a minimum of 10 articles were published, which continued to increase with the highest number of publications (199) in 2022. According to Figure 2, this topic has attracted researchers.

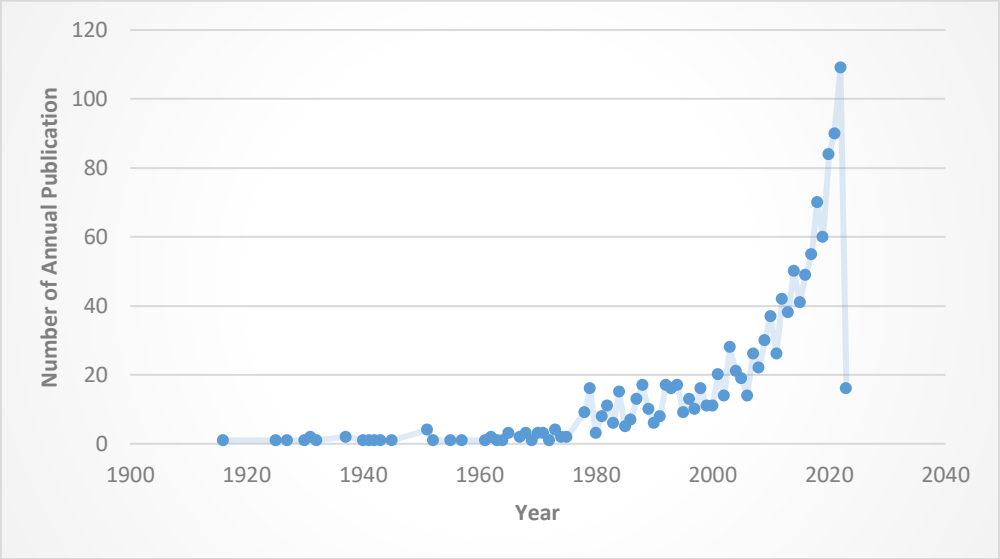
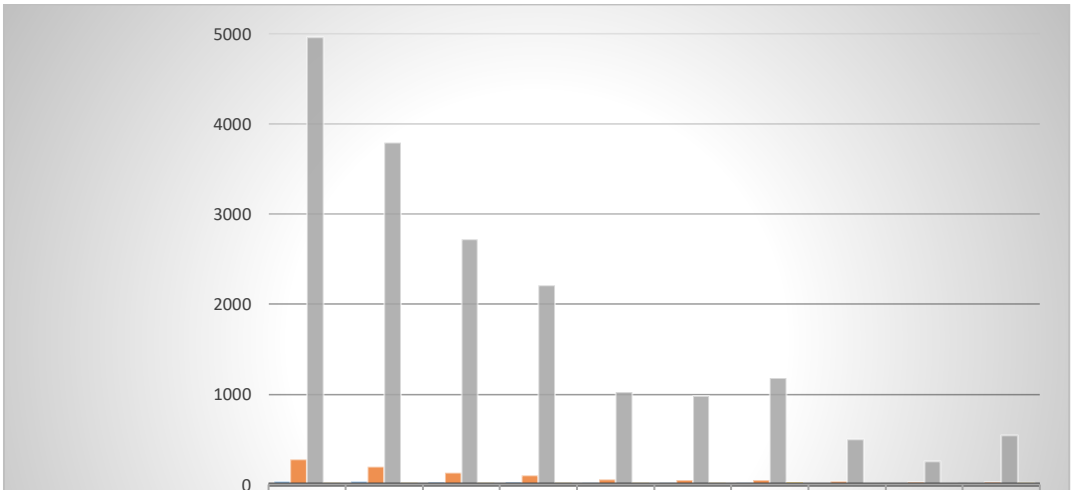


Figure 2. Trends in Land Policy publication in Scopus Database from 1916-2023
Source: Research Data Process (2023)

Land Policy Research by Country

Based on the growth of publications from the Scopus database, the topic of land policy is attracted origin authors from 100 countries. The United States is listed as the country with the most published sources on the topic of land policy (4,960 citations), followed by China (3,790 citations), United Kingdom (2,719 citations), and the Netherlands (2,208 citations). However, regarding the quality of the Paper calculated based on the number of sources public shows that articles from Australia have the best quality (24.6), followed by Hong Kong (21.9), the Netherlands (21.6), the United Kingdom (20.9), and the United States (17.8). Although the US has more articles published in the last decade, China has recently begun dominating with more articles published and cited.



	United States	China	United Kingdom	Netherlands	Canada	Germany	Australia	South Africa	Ethiopia	Hong Kong
H-Index	37	36	27	26	18	18	21	12	9	12
Total Papers (TP)	279	201	130	102	55	50	48	32	25	25
Total Citations (TC)	4960	3790	2719	2208	1030	983	1180	503	259	547
Quality of Papers (TC/TP)	17.8	18.9	20.9	21.6	18.7	19.7	24.6	15.7	10.4	21.9

Figure 3. Top 10 Countries Publishing Land Policy Research
Source: Research Data Process (2023)

Land Policy Research by Institutions /Affiliation

The result of bibliometric analysis based on author affiliation shows that from 1916 to 2022, 160 institutions contributed to research on land policy. Table 1 shows the ten most affiliated institutions that issue research results on land policy in the Scopus database. The first Article included in the "10 most affiliated" category was published in 1996 by Delft University of Technology. As shown in Table 1, the Chinese Academy of Sciences occupies the top ranking of affiliated institutions that publish land policy topics (41 articles) and becomes the affiliate with the most citations (1353 times) with a publication. In addition, five institutions in China are the top ten Institutions Publishing Land Policy Research.

Table 1. Top 10 Institutions Publishing Land Policy Research

Rank	Institutions	1st Paper (years)	H-Index	Total Paper	Total Citation	Quality of Paper
1	Chinese Academy of Sciences	2001	17	41	1353	33.0
2	Institute of Geographical Sciences and Natural Resources Research Chinese Academy of Sciences	2006	14	24	831	34.6
3	Delft University of Technology	1996	10	18	334	18.6
4	Radboud University	1997	11	18	397	22.1
5	Utrecht University	2001	10	17	250	14.7
6	University of Chinese Academy of Sciences	2007	9	15	552	36.8
7	Zhejiang University	2011	6	14	155	11.1
8	Wageningen University & Research	1998	8	14	182	13.0
9	Renmin University of China	2008	6	13	161	12.4
10	Nanjing University	2007	8	12	234	19.5

Source: Research Data Process (2023)

Land Policy Research by Author

The Scopus database recorded 433 authors who make articles individually or in groups. Table 2 describes the top 10 authors who have published articles on land policy. It is noted that Thomas Hartmann from Wageningen University & Research has published 13 articles since 2009 and has been cited 177 times. This was followed by Edwin Buitelaar from Universiteit Utrecht, Netherlands, with nine papers cited 227 times. Although Borras Saturnino M from China Agricultural University only published six papers, he is ranked first in all cited sources (696). Compared with Hartmann, who published more articles (13) but have been less cited (177).

Table 2. Top Ten Authors Based on Published Articles

Rank	Author Name	Institutions	1st Paper (Year)	Total Paper	Total Citation	Quality of Paper
1	Hartmann, Thomas	Wageningen University & Research, Wageningen, Netherlands	2009	13	177	13.6
2	Buitelaar, Edwin	Utrecht University, Utrecht, Netherlands	2007	9	227	25.2
3	Borras, Saturnino M.	China Agricultural University, Beijing, China	2007	6	696	116.0
4	Needham, Barrie	Radboud University, Nijmegen, Netherlands	1988	6	148	24.7
5	Njoh, Ambe J.	University of South Florida, Miami, U.S.	1994	6	79	13.2
6	Azadi, Hossein	Ghent University, Ghent, Belgium	2011	5	136	27.2
7	Deininger, Klaus	The World Bank, USA, Washington, D.C., United States	1993	5	451	90.2
8	Franco, Jennifer C.	Transnational Institute (TNI), The Hague, Netherlands	2008	5	580	116.0
9	Thiel, Fabian	Frankfurt University of Applied Sciences, Frankfurt am Main, Germany	2016	5	7	1.4
10	Wang, Jing	Beijing Forestry University, Beijing, China	2007	5	549	109.8

Source: Research Data Process (2023)

Land Policy Research by Source Publication

We obtained 1265 articles on land policy topics that were published in 848 journal sources. Table 3 shows that Elsevier Publisher is the main and most cited reference source by researchers in the world, followed by Wiley-Blackwell, where three of the top ten source articles were published. Then, the Multidisciplinary Digital Publishing Institute (MDPI) Publisher, whose journal Land and Sustainability ranked third as a reference source for land policy researchers. Table 3 also shows that Land Use Policy is the journal with the most published land policy topics (179) and has been cited 4170 times. Regarding the quality of the paper, the top ranking was the Journal of Agrarian Change, which published ten articles with 623 citations.

Table 3. Top 10 Sources Publication Based On Research Articles

Rank	Source Article	Publisher	CiteScore (2021)	SJR* (2021)	SNIP (2021)	TP	Total Citation	Quality of Paper
1	Land Use Policy	Elsevier	9.9	1.635	2.008	179	4170	23.3
2	Country	MDPI	3.2	0.685	1.294	42	224	5.3
3	Habitat International	Elsevier	9.7	1.252	1.8	41	872	21.3
4	Sustainability Switzerland	MDPI	5	0.664	1.31	33	481	14.6
5	American Journal of Agricultural Economics	Wiley-Blackwell	6.7	1.861	2.328	17	17	1.0
6	Land Reform Land Settlement and Cooperatives	Food and Agriculture Organization of the United Nations	-	-	-	17	132	7.8
7	Journal of Peasant Studies	Taylor & Francis	10.1	2.833	3.445	13	597	45.9
8	American Journal of Economics and Sociology	Wiley-Blackwell	1.4	0.55	1.345	11	60	5.5
9	Urban Studies	SAGE	8	1.907	2.427	11	471	42.8
10	Journal Of Agrarian Change	Wiley-Blackwell	5	1.507	2.059	10	623	62.3

*SJR = ScImago Journal Rank; SNIP = Source Normalized Impact per Paper

Land Policy Articles with The Most Citations

The land policy publications have recorded 1265 articles in the Scopus database with 17,932 citations. The first publication, entitled "General Botha's native land policy" (Harris, 1916), has never been cited. Table 4 displays the top 10 articles with the most citations. Land Use Policy Journal published three of ten papers with the highest citations. Land Use Policy Journal is the dominant publication source.

Table 4. Top 10 Articles with The Most Citations

Rank	Title Article (Author, Year)	Author, Year	Source Title	Total Citation
1	Land policy reform in China: Assessment and prospects	Chengri Ding, 2003	Land Use Policy	397
2	Land grabbing in Latin America and the Caribbean	Borras, Franco, Gomez, Kay, & Spoor, 2012	Journal of Peasant Studies	360
3	Who owns CLand's Land? Policies, property rights, and deliberate institutional ambiguity	Peter Ho, 2001	China Quarterly	312
4	The evolution of the World Bank's land policy: Principles, experience, and future challenges	Deininger & Binswanger, 1999	World Bank Research Observer	266
5	Land-use changes and policy dimension driving forces in China: Present, trend, and future	Wang, Chen, Shao, Zhand, & Cao, 2012	Land Use Policy	256
6	Testing for Strategic Interaction Among Local Governments: The Case of Growth Controls	Jan K. Brueckner, 1998	Journal of Urban Economics	216
7	Global land-water nexus: AgricuLandal Land and freshwater use embodied in worldwide supply chains	Chen et al., 2018	Science of the Total Environment	202
8	Customary vs. private property rights? Dynamics and trajectories of vernacular land markets in sub-Saharan Africa	Chimhowu & Woodhouse, 2006	Journal of Agrarian Change	195
9	Land-use changes and land policies evolution in China's urbanization processes	Wang, Lin, Glendinning, & Xu, 2018	Land Use Policy	191
10	Long-term urban growth and land use efficiency in Southern Europe: Implications for sustainable land management	Zitti, Ferrara, Perini, Carlucci, & Salvati, 2015	Sustainability (Switzerland)	190

Source: Research Data Process (2023)

Bibliometric of Scopus Indexed Land Policy Research Based on Keywords

Network Visualization Map of The Land Policy Issues

Using VOSviewer, we found 5 clusters of policy issues. Cluster 1 (in red), with 109 items, consists of land use, agricultural Land, sustainable development, environmental policy, and policy. Cluster 2 (in green), with 96 articles, consists of land policy, land use planning, land market, and urban development. Cluster 3 (in blue), with 79 items, consists of land management, land tenure, land reform, urban planning, and land ownership. Cluster 4 (in yellow) presents 71 articles on policy approaches, rural policies, rural areas, land policies, and rural development. Cluster 5 (in purple), with 58 items, consists of China, land use change, urbanization, Eurasia, and Asia.

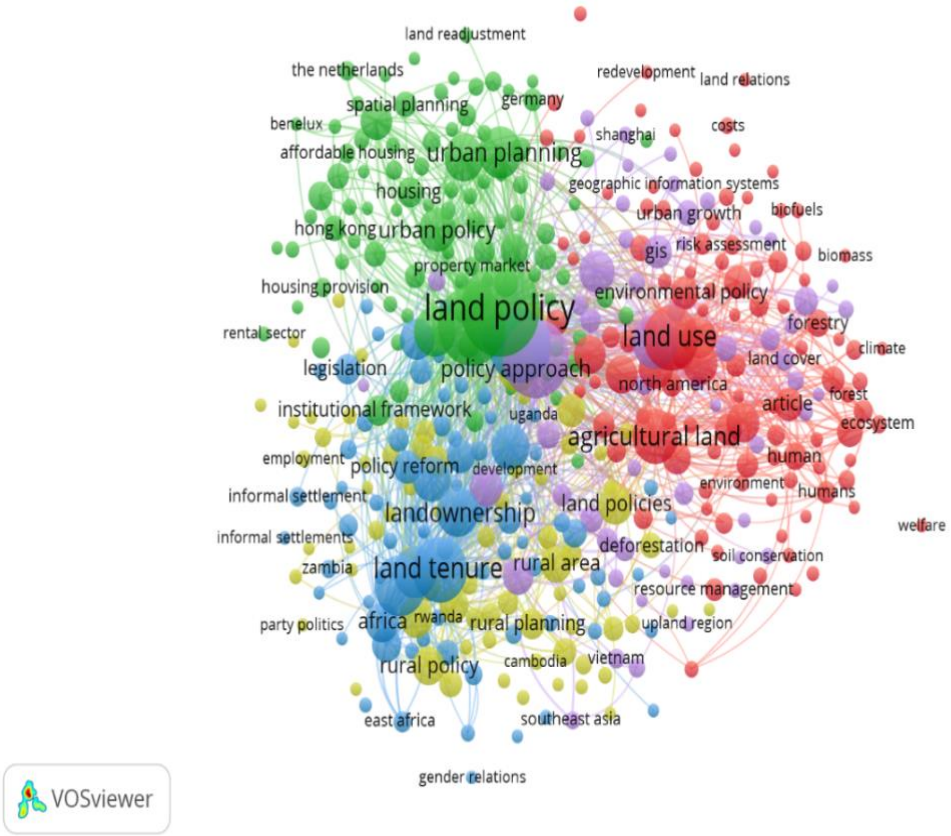


Figure 4. Network Visualization Map of Land Policy Research Based on Keywords
Source: Author, 2025

Figure 4 shows network visualization of 1265 Land Policy Research that co-occurrence divided into 13,095 links and 22,081 total link strength. Table 5 shows the top 10 keywords with the highest occurrences and full link strength. It found four keywords with the most occurrences: land management, land tenure, land reform, and land ownership.

Land management is defined as using land resources to meet human needs through appropriate management practices according to its features and requirements to maximize the economic and social benefits of the Land (Román-Chaverra et al., 2023; Swardhana &

Jenvitchuwong, 2023; Yegizaw & Ejegu, 2021). It is hoped that land management can maintain and increase the long-term potential and ecological support function of these land resources (Abab et al., 2023; Setiabudhi et al., 2023; Wale et al., 2021). Improper land management can disrupt production and the natural balance of Land Fields(Okumah et al., 2021). The discussion of land management is attractive for writers because of the broad debate on controlling use and efforts to increase land resources to create sustainable land management.

Furthermore, the keywords land tenure and land ownership have the same meaning as "to hold" because they relate to regulations and arrangements as legal or customary rights among people as individuals or groups. Land tenure determines how ownership rights to Land constitute access to the right to use, transfer, allocate, manage, and control land resources as an essential part of the social, political, and economic structure (Ajefu & Abiona, 2020; Ekesa et al., 2020; Gao et al., 2017). Land tenure is often categorized as private, communal, open access, and state, et al.(Achiba & Lengoiboni, 2020; Kansanga et al., 2020; Nyenyezi Bisoka & Ansoms, 2020; Rigolon et al., 2021).

Many governments in various countries are implementing the land reform concept, namely changes to the land ownership system intended to improve community welfare (Mendola & Simtowe, 2015; M. Zhang & Xia, 2022). Land reform is done by redistributing Land from people who own large areas to farmers or communities who work on it (Vasconcelos, 2020). The concept of land reform varies from time to time according to the function of the Land itself, ranging from a production factor, a store of value and wealth, a status symbol, and even a source of social and political influence (Resosudarmo et al., 2019; Rusenga, 2020; Vilpoux et al., 2021).

Table 5. Top 10 Keywords with Density "Occurrences" and "Total Link Strength" on Land Policy Research

Rank	Keywords	Cluster	Occurrences	Total Link Strength
1	Land policy	Cluster 2	222	1194
2	Land use planning	Cluster 2	160	1133
3	China	Cluster 5	159	1070
4	Land management	Cluster 3	142	981
5	Land use	Cluster 1	110	815
6	Country tenure	Cluster 3	110	792
7	AgriLandural Land	Cluster 1	74	589
8	Land use change	Cluster 5	77	576
9	Land reform	Cluster 3	93	561
10	Land ownership	Cluster 3	65	506

Source: Research Data Process (2023)

The density visualization shows the density/emphasis on the research group, which is used to see parts of research that are mostly or rarely done. Figure 5 shows that research topics on land policy were discussed by researchers in 5 large clusters (marked in bright yellow), consisting of land policy, land use, land tenure, land ownership, and China. China has come to the attention of researchers as a subject, object, and locus of research. Meanwhile, the topics marked in blue are rarely discussed, such as ecosystem, gender relations, land readjustment, land contamination, and welfare.

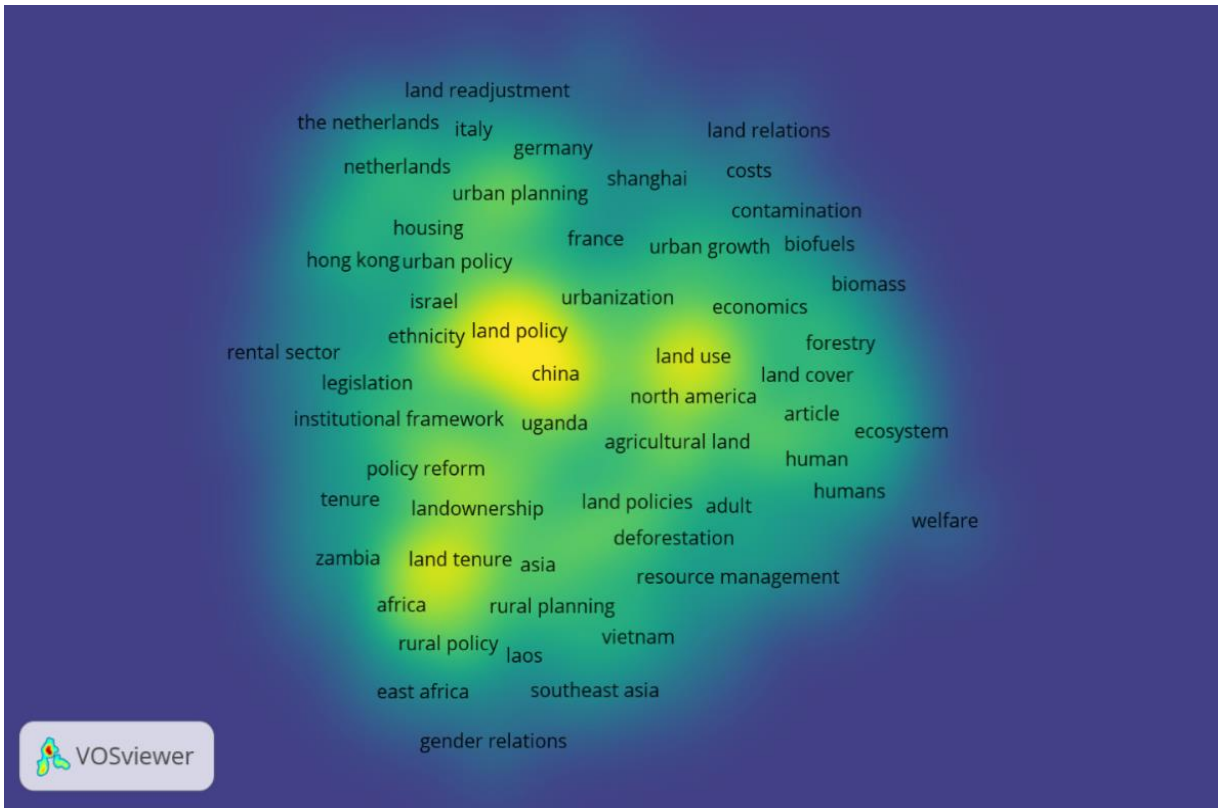


Figure 5. Density Visualization Map of Land Policy Research Based on Keywords
Source: Research Data Process (2023)

Table 6 shows keywords with the lowest occurrences and total link strength, including land relations, land transfer, rural, policy change, welfare, capacity building, property, territory, land tenure security, and Mozambique. These keywords are rarely researched but might find a novelty for future research.

Table 6. Keywords with Rarely Occurrences on Land Policy Research

Rank	Keywords	Cluster	Occurrences	Total Link Strength
1	Land relations	Cluster 1	5	10
2	Land transfer	Cluster 4	5	15
3	Rural	Cluster 3	5	15
4	Policy change	Cluster 2	5	17
5	Welfare	Cluster 1	5	17
6	Capacity building	Cluster 3	5	19
7	Property	Cluster 3	5	19
8	Territory	Cluster 3	5	20
9	Land tenure security	Cluster 4	5	22
10	Mozambique	Cluster 4	5	22

Source: Research Data Process (2023)

The Trend of Land Policy Publications

The bibliometric analysis result shows that the trend of land policy publications for more than a century (1916-2022) had increased. While at the beginning of 1916, there was only one published Article, but in 2022, it was recorded as producing 109 article publications, and even at the beginning of 2023, in February, there were already 16 articles published in Scopus.

The United States has the most article production (279), followed by China (201). The number of published articles is in line with the number of citations. The United States has the most citations (4,960), followed by China, with 3,790 sources. However, if calculated based on the quality of the Paper, Australia gets the first position with a score of 24.6, while the United States is in the eighth position with a score of 17.8.

The institution that published the most journals and citations was the Chinese Academy of Science (41), which cited 1,353 times, even though the first publication was still new (in 2001). The highest quality of affiliated papers was obtained by the University of Chinese Academy of Sciences (36.8). Thomas Hartmann, Edwin Buitelaar, and Satursino Borras are the most productive authors in publishing on land policy topics compared to 433 other authors. Land Use Policy, Land, Habitat International, Sustainability Switzerland, and the American Journal of Agricultural Economics are the journals that publish the most articles on land policy topics. It is also known that three of the top ten journals are published by Wiley-Blackwell, followed by Elsevier and MDPI. It is recorded that 1,265 articles in the Scopus database have obtained 17,932 citations, and the Article that occupies the top position with the most citations is entitled "Land Policy Reform in China: Assessment and Prospects," published by the journal "Land Use Policy" with a total of 397 sources.

In addition, the result mapping articles based on keywords using VOSviewer on a network visualization map found that research in the field of land policy is divided into 5

clusters, consisting of cluster 1 land policy (109), cluster 2 land use (96), cluster 3 land tenure (79), cluster 4 land ownership (71), and cluster 5 China (58).

The most dominant cluster is cluster 3, which consists of land management, land tenure, land reform, and land ownership. The most common keywords in article publications are land policy and land use planning (cluster 2). Furthermore, the lowest keywords or topics in the publication of land policy articles consist of land relations, land transfer, rural, policy change, and welfare. Land and environmental issues are future research topics that might have the possibility of finding a novelty.

CONCLUSIONS

Research on land policy has attracted attention from researchers. The research trends on land policy issues have continued to grow and expand. Most land policy research is carried out by the U.S., followed by countries in Europe and, in the last decade, dominated by China. The Chinese Academy of Science and Thomas Hartmann are recognized as institutions and authors who published most on this topic. At the same time, The Land Use Policy Journal is the most essential source.

Over the past century, the tendency of researchers in the field of land policy can be classified into 5 group topics, namely land policy (109), land use (96), land tenure (79), land ownership (71), and China (58). However, for further research, the issues of land relations, land transfer, rural Land, and land policy change might be hot issues to be conducted and help us develop alternative policies.

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