Analysis of Agrarian Transformation Research

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ABSTRACT

Research on Agrarian Transformation is important because it touches on how a change or transformation occurs in the agricultural sector, which will also affect the condition of society. This research focuses on bibliometric analysis that seeks to analyze how research related to agrarian transformation is carried out. In this study, VOSviewer and Publish or Perish are used to facilitate data search and depiction. Data from the Scopus database is searched through Publish or Perish, with the keyword "Agrarian Transformation". Furthermore, to visualize the data, VOSviewer version 1.6.19 is used to view network visualizations, overlays, and densities. The results showed that there were 7069 citations in all selected results, 706.90 citations per year, and 35.25 citations per paper. In addition, this study shows the 10 most influential authors in terms of the number of citations displayed. In network visualization, the networks that appear most often are land and production. The overlay visualization shows that before 2016 and after 2019, not much research or publication was done on the topic. Meanwhile, density visualization shows that the keywords that most often appear are agrarian transformation, transformation, agrarian change, development, land, and production, and agriculture. The limitation of this study is that the data is only taken through the Scopus database and the year of publication is taken only for ten years.

Keywords: Agrarian Transformation, VOSviewer, Publish or Perish

ABSTRAK

Penelitian tentang Transformasi Agraria penting karena menyentuh bagaimana suatu perubahan atau transformasi terjadi di sektor pertanian, yang juga akan mempengaruhi kondisi masyarakat. Penelitian ini berfokus pada analisis bibliometrik yang berupaya menganalisis bagaimana penelitian terkait transformasi agraria dilakukan. Dalam penelitian ini, VOSviewer dan Publish or Perish digunakan untuk memudahkan pencarian dan penggambaran data. Data dari database Scopus dicari melalui Publish or Perish, dengan kata kunci Transformasi Agraria. Selanjutnya, untuk memvisualisasikan data, VOSviewer versi 1.6.19 digunakan untuk melihat visualisasi jaringan, overlay, dan kepadatan. Hasil penelitian menunjukkan bahwa terdapat 7069 sitasi pada semua hasil yang dipilih, 706,90 sitasi per tahun, dan 35,25 sitasi per makalah. Selain itu, penelitian ini menunjukkan 10 penulis paling berpengaruh dalam hal jumlah sitasi yang ditampilkan. Dalam visualisasi jaringan, jaringan yang paling sering muncul adalah lahan dan produksi. Visualisasi overlay menunjukkan bahwa sebelum 2016 dan setelah 2019, tidak banyak penelitian atau publikasi yang dilakukan tentang topik tersebut. Sementara itu, visualisasi kepadatan menunjukkan bahwa kata kunci yang paling sering muncul adalah

transformasi agraria, transformasi, perubahan agraria, pembangunan, lahan, dan produksi, serta pertanian. Keterbatasan penelitian ini adalah data hanya diambil melalui database Scopus dan tahun publikasi hanya diambil selama sepuluh tahun.

Kata kunci: Transformasi Agraria, VOSviewer, Publish or Perish

INTRODUCTION

Since its inception, the topic of Agrarian Transformation has been a part of the social sciences, and to this day, it remains a concern (Bennike et al., 2020). Traditional theoretical literature related to intensification usually focuses on agrarian transformation and its relationship to non-agricultural economies (Brockington & Noe, 2021). The changes that are taking place in the world do not make studies related to agrarianism any less relevant. On the contrary, it becomes very relevant, only in different contexts, where there is political involvement, pluralism and internationalism that can foster new meanings that are also manifested in new ways (Borras, 2023). The incorporation of a sustainability governance framework into critical agrarian studies will provide a path to understand and act on sustainable transformation (Liao et al., 2024). This is certainly related to the three main driving factors of agrarian transformation, which consist of spatial, economic, and social (Pandit, 2017).

In the perception of many people, change is not only about changing the criteria used, but about the content of each of those criteria (Brockington & Noe, 2021). In fact, through the agrarian transformation, the new agrarian structure provides opportunities for farmers to diversify their livelihoods and participate in the global commodity market with relative autonomy granted by landowners. The challenge that arises in agrarian transformation is the return of neoliberal orthodoxy under the new government, which allows the cancellation of the benefits of the agrarian transformation process that should have been obtained by farmers (Mkodzongi & Lawrence, 2019).

In some studies, agrarian transformation is seen more profoundly. For example, in the study of Shatucck et al., classical agrarian problems have taken on a new form and intensity. It is mapped into four dimensions consisting of urbanization and labor, social care and reproduction, global finance and food systems, and social movements (Shattuck et al., 2023). In a study conducted by Nguyen et al., it was stated that in the case of the three communes they raised, rural economic growth and structural changes did not directly result in a decline

in rice farming. Nguyen et al. see this through the shadow of History because the changes that occur will put pressure on the present and be wary of people's feelings about what will happen in the future (Nguyen et al., 2020). Meanwhile, Bennike et al. show how the horrific picture of land grabbing in a cruel way, industrialization and extraction, in which people or groups navigate economic, social, and political, all of which have shifted from the transformation of rural spaces that are currently underway (Bennike et al., 2020). In another study, it was stated that the rights of farmers and the occurrence of agrarian violence are very important because of several things, namely farmers and post-transition communities are contaminated by complex patterns of non-war violence directly or indirectly, there is a just intervention in communities experiencing large-scale agrarian protests, the origin of conflicts lies in the structure and process of agrarian change, and poverty and marginalization provide opportunities for the birth of populism authoritarian (Hoddy, 2021). Other research also talks about agrarian archaeology as part of agrarian transformation, in which researchers assume that agrarian archaeology provides an experimental research perspective, provides the possibility of questioning conceptual language, questioning historical narratives and reframing personal practical thinking, in addition to simply providing the promotion of open science that is close to society. Fernandez et al. believe that cultural heritage must be understood as a process of social construction that has meaning, a forum for debate, and the transformation of social innovation (Fernández Mier et al., 2022).

RESEARCH METHODS

Research on Agrarian Transformation has been widely produced. However, it is important to conduct research that analyzes how the research results are. Through bibliometric analysis, it can be shown how research trends, authors who write on similar topics, and how they relate to other topics. The purpose of this study is to show the research landscape on Agrarian Transformation, where the researcher focuses on the following five things: 1) knowing the citation metrics related to agrarian transformation research; 2) knowing who are the authors who are influential in agrarian transformation research; 3) how to visualize networks in Agrarian Transformation research; 4) How to visualize overlays in agrarian transformation research.

All the articles analyzed in this paper are from Scopus taken using Publish or Perish. Scopus itself is a journal database that is considered credible and can display qualified academic information. This research was carried out by searching the Scopus database using publications or perishing with the keyword "Agrarian Transformation". The search period is from 2014 to 2024, which is ten years. The documents generated from the search are 200 documents. The document is then saved in a CSV. The file is then used in VOSviewer version 1.6.19 to view network visualizations, overlays, and densities. In this study, both VOSviewer and Publish or Perish, were used to collect data and also analyze the research topics that had been collected.

RESULTS AND DISCUSSION

Citation metrics are calculated by publish or destruction

The results of the research shown in **Table 1.** of the document citation metrics are calculated by Publish or Perish, through the keyword "Agrarian Transformation". The year of publication indicates the year of publication that researchers are looking for in Publish or Perish, which is from 2014 to 2023. Through this search, it means that the year of the quote shown is ten years, from 2014 to 2024. This search yields a total of 200 papers or documents that have been selected. In addition, there are 7069 citations in all selected results. If you look at the citations per year, it is 706.90, with citations across all papers being 35.35. The average number of Authors per paper is also displayed, which is 1.00. Furthermore, the resulting h-index is 41, with g-index 65, Hi, norma 41, Hi, annual 4.10, ha-Index 15, and Papers with ACC Papers with ACC > = 1,2,5,10,20, i.e. 200,188,84, 29, 6. ACC is the calculation of the number of annual citations.

Through the metrics cited by this document, it can be seen that many researchers around the world have the same interest in Agrarian Transformation. This topic is a very important topic that is widely cited, which is about 7069 citations, with 706.90 citations per year. In the future, these citations will increase in line with new issues on the topic of Agrarian Transformation and the need for knowledge on the same topic.

Table 1. Citation metrics are calculated by publish or destruction

No	Metric		Description
1	Year of Publication	:	2014-2023
2	Year of Quotation	:	10 (2014-2024)
3	Paper	:	200
4	Quotation	:	7069
5	Quotes/year	:	706.90
6	Quotes/papers	:	35.35
7	Author/paper	:	1.00
8	H Index	:	41
9	G Index	:	65
10	hI, norm	:	41
11	hI, annual	:	4.10
12	hA Index	:	15
13	Paper with ACC > = 1,2,5,10,20	:	200,188,84,29,6

Source: processed by researchers via Publish or Perish

The Most Influential Author in Agrarian Transformation Research

The results of the study shown in **Table 2.** show the ten authors who are most often used as references in writing articles related to Agrarian Transformation. M. Duque Acevedo is in first place with 340 citations or 85 citations per year. In second place is Levidow et al, who have been quoted as many as 184 or 18.4 citations per year. Third is Caceres, with 182 citations, which is 20.22 citations per year. In fourth place is Wu et al. who have 178 citations with 19.78 citations per year. Fifth is Isakson with 175 citations, which means per year is 17.5. The next author is M. Al Mamun et al who have 151 citations or 15.1 citations per year. Followed by Taylor, where Taylor has 142 citations, which is 14.2 citations per year. The eighth author is Leguizamon who has 118 citations or 11.8 citations per year. Fischer et al are in the next position, with 99 citations or 9.9 citations per year. Lastly are King Santhi and Mutuswangy who have 88 citations or 88 citations per year.

Table 2 The Most Cited Document Globally on Agrarian Transformation

Writer	Title	Quote	Quotes Per Year
M. Duque-Acevedo (Duque-Acevedo et al., 2020)	Agricultural waste: An evolutionary review, approach, and perspective on alternative uses	340	85
L. Levidow (Levidow et al., 2014)	Agroecology Research: Adapting — or Changing the Dominant Agro-Food Regime?	184	18.4
D.M. Cáceres (Cáceres, 2015)	Accumulation by dispossession and socio-environmental conflicts caused by the expansion of agribusiness in Argentina	182	20.22
J. Wu (Wu et al., 2015)	Dynamics of the historical landscape of Inner Mongolia: patterns, drivers, and impacts	178	19.78
S.R. Isaacson (Isakson, 2014)	Food and finance: the financial transformation of agro-food supply chains	175	17.5
M. Al Mamun (Al Mamun et al., 2014)	Regional differences in the dynamic linkages between CO_2 emissions, sectoral output and economic growth	151	15.1
M. Taylor (Taylor, 2015)	Political ecology of climate change adaptation: Livelihoods, agrarian change and development conflicts	142	14.2
A. Leguizamón (Leguizamón, 2014)	Modifying Argentina: GM soybeans and socio-environmental changes	118	11.8
M. Fischer-Kowalski (Fischer-Kowalski et al., 2014)	Anthropocene sociometabolic readings: Modes of livelihood, population size, and human impact on Earth	99	9.9
A. Raja Santhi (Raja Santhi & Muthuswamy, 2023)	Industry 5.0 or industry 4.0S? Introduction to industry 4.0 and a peek at prospective industry 5.0 technologies	88	88

Source: processed by researchers via Publish or Perish

Visualization of Topic Areas with Network Visualization using VOSviewer

After conducting an analysis using VOSviewer, the researcher found that there were 11 clusters that were shown with different colors, namely orange, green, gray, black, purple, blue,

red, brown, yellow, light brown, and light green. Nine groups show the relationship between one topic and another in the same science.

Table 3 Clusters and Items generated from VOSviewer regarding Agrarian Transformation

| Group	Items
1 (orange)	Agrarian questions, agricultural enterprises, agriculture, applications, conditions, economic transformation, roles, technology, transformation.
2 (green)	Agrarian urbanism, cities, income, migration, mobility, resources, villages, the world.
3 (gray)	Agrarian change, antrhopocene, commodity borders, culture, impacts, revolutions, space.
4 (black)	Capitalist transformation, comparative studies, food, politics, resistance, social mobilization, violence.
5 (purple)	Agrarian political economy, agribusiness, land reform, boundaries, neo developmentalism, farmers.
6 (blue)	Agrarian systems, capital, climate change, dynamics, resilience, vulnerability.
7 (red)	Agrarian transformation, land, landscape transformation, political economy, production, tenant capitalism.
8 (brown)	Agrarian capital, state, evidence, gender, policy.
9 (yellow)	Accumulation, dispossession, implications, rural land use.
10 (light brown)	Challenges, development, political ecology.
11 (light green)	Case studies, rural, urbanization.

Source: processed by researchers via VOSviewer

In this study, the researcher uses VOSviewer to present data visualization in the form of network visualization, overlay visualization, and density visualization which are all shown in **Figure 1-3**. Through network visualization, interconnected networks can be seen, both in the same cluster and in different clusters. **Figure 1.** shows a network visualization of the keyword "Agrarian Transformation". In the cluster obtained from VOSviewer, Agrarian Transformation is in the seventh cluster, with its relationship to land, landscape transformation, political economy, production, and tenant capitalism. In the seventh cluster (red line) where Agrarian Transformation is located, the networks that appear the most are land and production. Meanwhile, for landscape transformation, political economy and rentier capitalism tend to be invisible. In other words, it can be said that there is a close relationship between land and production in the same cluster.
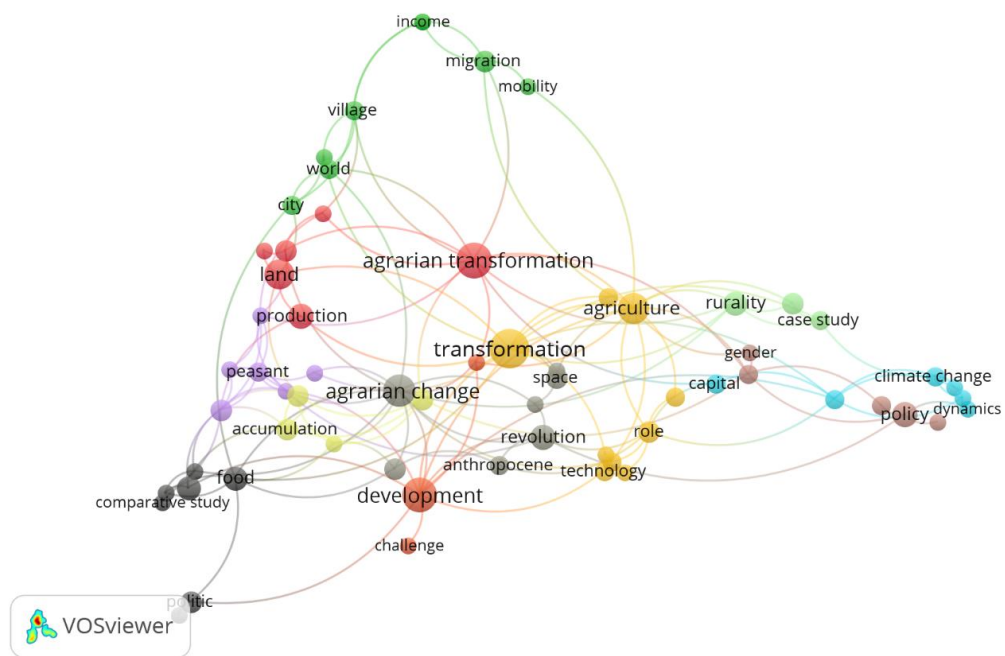
Figure. 1 Network Visualization

Source: processed by researchers via VOSviewer

Visualization of Topic Areas with OVerlay Visualization using VOSviewer
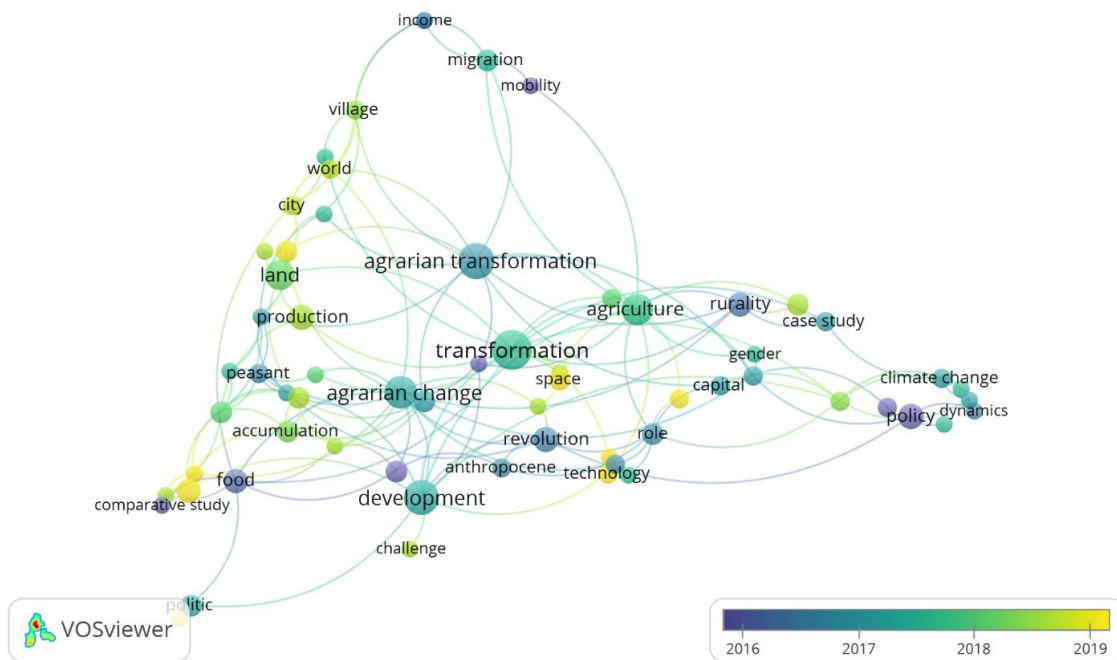
Figure. 2 *Overlay Visualization*

Source: processed by researchers via VOSviewer

Through overlay visualization, the publication trends of Agrarian Transformation from 2014 to 2024 can be seen. This overlay visualization divides publications according to the old and new publications displayed. In 2016, the color shown was dark blue, which means the document was published over a longer period of time. In 2019, the color shown is bright yellow, which means the publication is the latest or most recently published. We can see from the nodes seen in **Figure 2**, for example food, comparative studies, and income, which have a dark blue color. This means that the documents associated with it are in the older year of publication. While in cities, the world and space, for example, they have lighter colors, so it can be said that the publications associated with them are present in more recent times. In addition, through this visualization, it can also be seen that publications related to Agrarian Transformation were mostly carried out from 2016 to 2019. Therefore, it can be concluded that before 2016 and after 2019, not much research or publication was done on this topic.

Visualization of Topic Areas with Density Visualization using VOSviewer

The density visualization in **Figure. 3** shows the depth of the study.

Figure. 3 *Density Visualization*

Source: processed by researchers via VOSviewer

The brighter the colors displayed; the more research related to the topic is often carried out. Conversely, the dimmer the colors displayed, the less often the topic is used. Agrarian transformation, transformation, agrarian change, development, land, and policy, are examples of topics that are often done because they are the brightest in color compared to others. Meanwhile, villages, income, migration, mobility, and politics, with dimmer colors are topics that are rarely raised in research.

Through **Figure 1-3**, it can be seen that the keywords that most often appear are agrarian transformation, transformation, agrarian change, development, land, and production, and agriculture. From these data, we can find the novelty of Agrarian Transformation research. For example, the relationship between Agrarian Transformation and gender would also be interesting. The depth is also unquestionable. This research will also be important because what is seen is gender and changes in the agricultural sector, including how the agrarian transformation affects gender, or vice versa.

CONCLUSION

Research on Agrarian Transformation is very important research because it relates to how changes or transformations occur in the agricultural sector, and how the influence or impact results from a change. The relationship is of course for all levels of society, not just farmers or the government. This Bibliometric analysis-based research proves that there is agreement from researchers around the world to research similar topics, although their development became weaker after 2019. In addition, from the keyword Agrarian Transformation, the closest relationship is in the discussion around land and production. Topics related to villages, income, migration, mobility, and politics are the deepest topics that can continue to be carried out so that they can fill the scientific gap related to Agrarian Transformation. In this case, the researchers project how research related to Agrarian Transformation will develop in the future. The nature of changes that will continue to occur will also affect agriculture as one of the focuses of development. The researchers look through important agricultural issues that continue to emerge from time to time. So, research related to this topic will continue and develop well. This study has limitations in the data taken. To better represent research in the world related to Agrarian Transformation, data collection can be done outside of Scopus data,

for example Google Scholar or Web of Science. Another limitation is the data collection year which is only ten years. Further research may include longer publication periods.

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