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A Scoping Review: Issues in Agriculture Land Use

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Abstract
The population expansion with resulting land use competition could result in land scarcity and the need for development. In addition, most world cities are starting to lose agricultural land. As a result, the sustainability of the environment in agricultural land use is crucial for sustaining quality of life. Therefore, this study aimed to identify literature issues by scoping review. This study guides land authorities and urban planners in providing knowledge to facilitate informed decisions to achieve the highest and best use of land.

Keywords: Agricultural Land Use; Issues in Agriculture Land

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1.0 Introduction

The agriculture sector is the backbone of a country's economic growth. It significantly contributes to gross domestic product (GDP) and other economic sectors. However, the agriculture sector is facing enormous challenges as the global population grows, causing changes in the economic-environmental landscape and increasing demands on agricultural land use. Protecting agricultural land is critical to the long-term sustainability of ecosystems and quality of life, particularly food security. As the need for food is increasing, and the environment changes, agricultural land use is under stress and a pivotal issue to explore. Recently, global land use was recorded as unsustainable. Most countries are experiencing declining and intensifying agricultural land use due to the rising global population.

From 1950-2005, Africa, Asia, and Latin America recorded population growth at 3.9%, 2.9%, and 4%, while Europe and North America were at 1.2% and 1.9%, respectively (UN, 2006). However, between 2000 and 2030, the urban population in developing countries is predicted to double, and built-up areas are projected to triple if current trends remain. Various land use issues arose throughout the process, including land loss, pollution, erosion, etc. The pressure on land use creates imbalances in allocating land use and becomes unsustainable, particularly for agricultural land use. This significantly affected biodiversity ecosystems, food chain supply, renewable energy, poverty, and others. This leads to more severe issues such as climate change and loss of habitat. An estimated 25% of animal and plant species is threatened and the degradation of 74% of terrestrial surface (Diaz, et al.,2019; Montanarella, 2018). In many notions,

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urban expansion due to urban growth resulted in the agricultural and natural land loss. Consequently, the land loss could lead to environmental problems and quality of life outcomes such as reduction in agriculture and fisheries, loss of biodiversity and ecology, waterlogging, flooding, pollution, the decline in vegetation, depletion of groundwater, and increase in temperature. Environments are the basis for human society while providing resources for the valuable economy and long-term sustainable development. Crops, fish, and freshwater are examples of visible ecosystem services offered. Others include erosion control, carbon sequestration, and pest control. Reduction in agricultural land use has been identified as the primary cause of environmental and sustainability problems. Thus, safeguarding agricultural land use is essential because it is one of the drivers towards sustainability. Agricultural land use has become a challenging situation nowadays that is crucial to investigate as the world's population grows and the environment changes. Despite abundant studies on agricultural land use, efforts to scoping review these studies are still lacking. Most of the studies focus on quantifying land use changes, focusing on technical aspects. There is still a lack of research using scoping reviews to study the issues in agricultural land use. This is a foundation for understanding and establishing knowledge about agricultural land use issues. Therefore, this article attempts to bridge the knowledge gap by developing a conceptual framework for agricultural land issues. It is important to note that this paper will focus on two objectives: to identify issues in agricultural land use and to analyze the evidence on the agricultural land use issues and how it impacts socio-economic and environmental aspects.

2.0 Literature Review

Population growth and urbanization have been identified as the two most critical social drivers of land use around cities (Abd-Elmabod et al., 2019 and Abd EL-kawy et al., 2019). The rapid increase in population impacts the need for community on the land (Riadi et al, 2018). Such a condition indicates apprehension, as agricultural land is likely to be narrowed due to massive conversion to new land use, such as settlement or another more profitable land use. Furthermore, population pressure on the land can affect agricultural productivity conditions (Chamberlin and Headey, 2014). Food security begins with the soil and thus addresses one of the most pressing issues confronting the global food situation. Unsustainable land use near these water resources also causes soil erosion and, thus, deterioration of river water.

Thus, understanding agricultural land use based on sustainability dimensions is fundamental for understanding and establishing practical, sustainable use of agricultural land. Producing sustainable agricultural land use with the highest and best use of land is impossible without properly defining the significance of agricultural land use as it reflects to the land use sustainability based on the specific issues (clearly evaluate the outcome) and countries' land use significant contribution in sustainability. Thus, problems must be clearly identified to determine the ultimate goals of sustainability implementation. Hence, the significance of agricultural land use is discussed below by considering sustainability dimensions and issues.

Table 1. Significance of Agricultural Land Use based on Sustainability Dimensions and Issues

Issues	Significance	Authors
Rising of Population	In the sense of the issue of rising population and development, sustainability of agricultural land use could achieve through protecting the ecosystem functions and biological diversity and could use intensive technologies of land use	Tscharntke et al., (2012)
Food Security	For food security, sustainability of agricultural land use could achieve through concern on the intensity of land use through improving technology to protect soil, water, and natural resources	Lal (2000)
Declining Quality and Ecosystems	Deal with declining quality and ecosystem, sustainability of agricultural land use could measure in terms of favorability for humans and the environment, effect on nature, and harm to health and others.	Kotykova and Babych (2021)

(Source:) Author

3.0 Methodology

The scoping review was carried out following the methodological steps outlined in Arksey and O'Malley's (2005) framework. It is complying the first five stages of the six-stage framework: 1) defining the research question, 2) identifying relevant studies, 3) study selection, 4) data charting, 5) data collation, summarization, and reporting. The sixth level, which consists of stakeholder consultation, is optional and was not included in this study. To clarify this approach, the analysis is presented following the Preferred Reporting Items for Systematic Reviews guidelines and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR). Regarding the time element, recent publications within five years were selected (between 2018 and 2022). This is to give the latest overview in agriculture land use issues literature. The methodological steps for this scoping review are as follows:

3.1 Identification of the Research Question

This study was to investigate and analyze the evidence concerning agricultural land use issues and how it impacts socio-economic and environmental aspects. Therefore, the scoping review aimed to identify the issues and analyze evidence on the agricultural land use issues and impacts on socio-economic and environmental aspects. Therefore, the main research question was; How do agricultural land issues

impact the socio-economic environment? Moreover, the other guiding research questions included; What are the agricultural land use issues?

3.2 Identification of relevant studies

The articles were found using two electronic journal databases: Web of Science (WoS) and Scopus. WoS is a robust database producing quality articles and publications from various disciplines. Scopus is one of the largest abstract and citation databases of peer-review literature. The following search string has been used while searching articles.

Table 2. Search String

Databases	Search String
Web of Science (WoS)	"agriculture land use issue" OR "agricultural land use" AND (conflict) (All Fields)
Scopus	TITLE-ABS-KEY ("agriculture land use" OR "agricultural land use" AND (conflict))

(Source:) Author

3.3 Selection of Studies for Review

Several inclusion and exclusion criteria are determined. First, regarding the time element, a recent publication within five years was selected (between 2018 to 2022). This is to give the latest overview of agricultural land use issues. Only journal articles with empirical data were selected in literature, meaning review articles, book series, books, book chapters, and conference proceedings are excluded. To avoid any confusion and difficulty in translating, only articles published in English were selected for review. To enhance the quality of reviews, the remaining articles also go through the eligibility process. At this stage, all the articles are examined thoroughly manually by the author to ensure they fit the criteria required.

Table 3. Inclusion and Exclusion Criteria

Criterion	Eligibility	Exclusion
Literature Type	Journal (research articles)	Book Chapter, Review paper, conference paper, book, editorial documents
Language	English	Non English
Time Line	2018-2022	<2018

(Source:) Author

3.4 Data Charting

The data was extracted by reading through the abstract first, then an in-depth read of full articles to identify the agricultural land use issues. Finally, the data on agricultural land use issues and their impact was extracted and associated based on the themes (social, economic, and environmental).

3.5 Summarizing and Reporting Results

Through compiling the various findings of this scoping review, the author autonomously reviewed the various extracted studies several times. To improve the overall authenticity, the findings were again critically accessed.

3.6 Consultation

According to Arksey and O'Malley (2005), consultation in the scoping review is optional. As a result, it was not considered for this specific scoping review because those steps were sufficient to help meet the study's objective.

4.0 Findings

The findings were presented in a flow chart of a systematic framework that consists of the process involved in scoping review. Of the 54 articles identified using the search criteria for eligibility of this review, only six studies were able to meet the inclusion criteria. The 48 articles were excluded because the study does not fall within the scope of study involving engineering, natural foods, and chemical and is more towards technical studies.

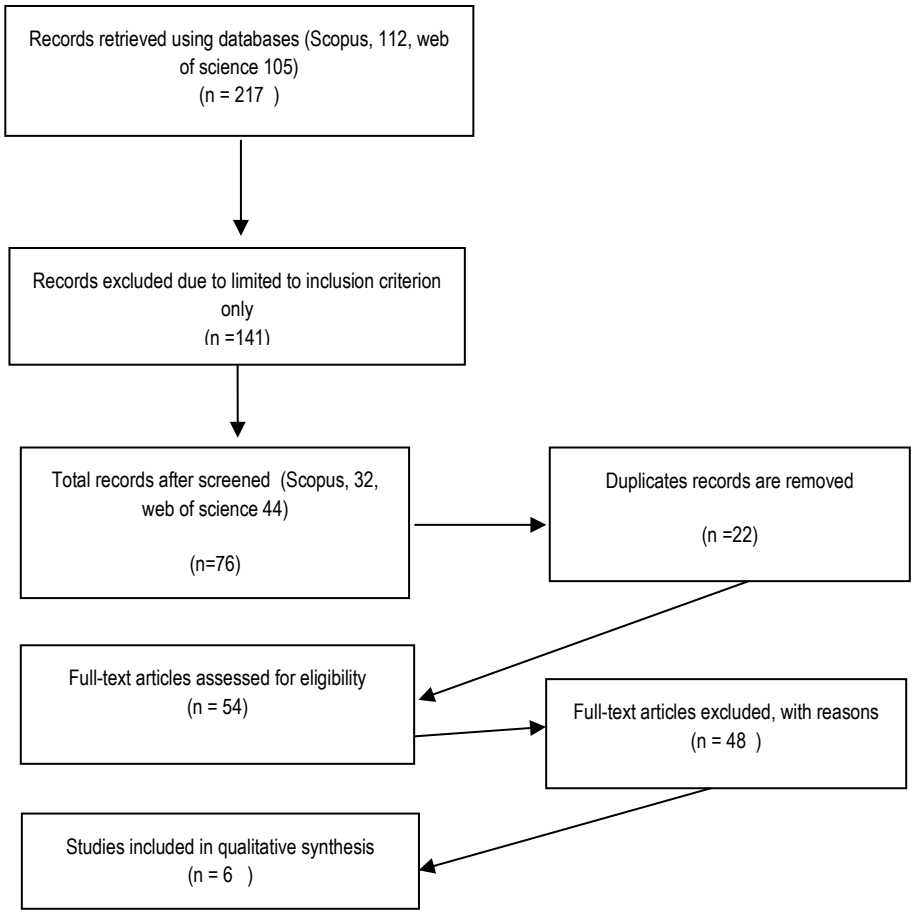

Fig 1. Flowchart selected articles through a scoping review
(Source:) Author

4.1 Identification of Issues

According to Figure 2, although the issues were identified, it is significant if the themes could distinguish them. Therefore, the analysis issues in agriculture land use were identified according to themes of social, economic, and environmental illustrated in Figure 2 below:

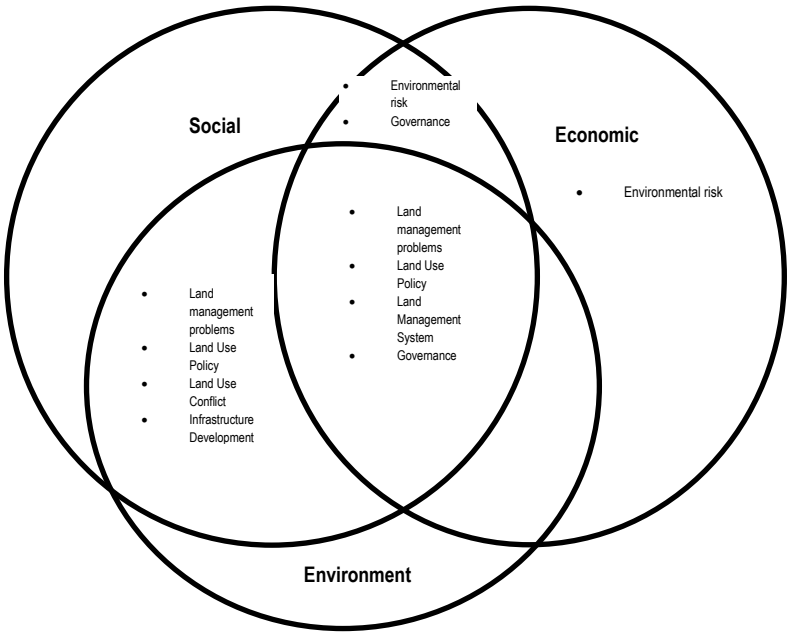

Fig 2. Analysis issues in agriculture land according to themes
(Source: Author)

Based on Figure 2, it was found that four significant issues related to agricultural land use are land management problems, land use policy, land management system, and governance, are brings a substantial impact, particularly in social and environmental as well as economic aspects. Generally, creating sustainable agricultural land use with the highest and best use of land is only possible if the significance of agricultural land use is established as it reflects land use sustainability based on specific issues. Hence, all these problems might hinder farming activities and impact the efficiency of land. In particular, sustainable development is allocating resources to ensure its long-term viability. This entails considering current and future imperatives, such as environmental and natural resource preservation and social and economic equity. Besides that, environmental risk issues often affect society's quality of life and lead to environmental costs.

5.0 Discussions

According to Table 4, agricultural land use issues are mainly from six (6) sources: land management problems, environmental risk, land use conflicts, land use policy, governance, and infrastructure development.

Table 4.Analysis of Literatures

Authors	Issues	Impacts		
		Social	Economic	Environment
Petrescu-Mag RM at al (2018)	Land Management Problems	• Scarce of young farmers	• Loss high natural values of farmland	• Land Fragmentation • Land Grabbing
Qi. Xiaoxing et al (2018)	Environmental Risk		• Excessive use agrochemicals affects efficiency of land • Affect Environmental cost	
Ihemezie EJ and Dallimer M (2021)	Land Management Problems; Land Use Conflicts; Land Use Policy; Infrastructure Development	• Farmers are loss of interest		• Land Use Change • Cropland abandonment • Clearing of forest vegetation • Soil degradation • Change from large scale to subsistence farming
Ghadami et al (2022)	Land Use Policy; Land Management System; Governance	• Change attitude of farmers	• Rising land prices	• Land Use Change
Foster & Chilton (2021)	Governance; Environmental Risk	• Institution act in 'silos' and separately	• Lack of Incentives at appropriate level	
Palsova, L; Melichova, K; Meliskova I (2019)	Land Use Conflicts	• Geopolitical Imbalances • Owner's less motivation		• Withdrawal of agricultural land

(Source:) Author

5.1 Land Management Issues

Land management issues such as land fragmentation and land grabbing are problems that often occur in the aspect of land use in many countries (Petrescu-Mag RM at al, 2018). Land fragmentation means that one land is divided into several plots with various land uses such as housing development, agriculture, urban development, etc. Land fragmentation prohibits the land from developing correctly and from being productive. If the plot land has a different owner or lives far away, it also prevents farmers from cultivating. Additionally, high population density and the number of children per household resulted in land fragmentation. When the family grows and forms a new family, it is expected that the family plot land will be handed over to the family members for complying with legal instrument purposes. Therefore, it causes pressure on the land and the inability to lay parts of the land fallow, which is very important for regeneration and improving soil fertility, particularly in agricultural land. Meanwhile, land grabbing is also often an issue. Land grabbing is large-scale land acquisitions through buying or leasing large pieces of land by domestic and transnational companies, governments, and individuals. The land itself is a scarce resource and resulted from competitors of land for urban and agricultural development by investors. Since it involves large-scale land acquisition, land grabbing is a serious issue that affects the environment, economy, social welfare, and human rights.

5.2 Environmental Risk

Many developing nations adopted several measures to ensure enhancing productivity, agriculture land use, and national food security, including increases in agricultural chemical input, tackling pollution, and advancements in agronomic technology. However, although using chemical input, particularly chemical fertilizer and pesticide inputs, has significantly increased agricultural output, the overuse of agricultural chemicals has led to poor resource use efficiency and high environmental costs (Xuejun and Fusuo, 2011).

5.3 Land Use Policy

According to Ihemezie EJ and Dallimer M (2021), Nigeria is characterized by rapid population growth, necessitating additional infrastructures such as houses and roads. Nigeria's Land Use Act of 1978 permits state governors and local governments to control and manage all lands. The state governors grant land users the right of occupancy. However, the vast majority of land in Nigeria, particularly agricultural land, remains unregistered with no proof of the right of occupancy. As a result, the majority of farmers continue to face tenure insecurity. Indeed, most farmers are socially insecure, economically excluded, and lack resources. On the other hand, land in Malaysia is governed by the National Land Code enacted to consolidate land laws, land tenure, transfer of land, land registration, etc. Any dealings and transfers must be registered to secure land tenure through this provision. However, land insecurity occurs when the farming land employs a temporary occupation license (TOL). The TOL provides the owners of the farm the temporary right to farm with the state's permission. Thus, land insecurity has prevented farm owners from investing in new infrastructure and equipment to improve farming technology.

5.4 Land Use Conflicts

Urban expansion and demand for the development lead to land use change. Land use change involves the process through which human activities alter the natural landscape, revealing how the land has been utilized and emphasizing the function of the land (Bimal and Harun, 2017). Soil qualities may also be impacted by changes in land use, depending on the intensity and kind of land use. For example, despite legal protection, agricultural property is constantly converted to non-agricultural land yearly. According to Turner et al. (2007), territorial ecosystems could also change due to land use changes.

5.5 Governance

Another issues arise in agricultural land use is governance issues. Most institutions (agriculture, water resources, environmental planning, municipal land-use administration) frequently function in separate "silos" (Foster & Chilton, 2021). Thus, it is crucial to foster vertical and horizontal collaboration between the national and local levels and affected decision-making processes. In some cases, it is strongly affected, in particular, by the need for clear incentives for key players to act at the appropriate level and over the required area for a problem that only partially falls within their field.

5.6 Lack of Interest among young farmers

The change of agricultural land use or reducing the rate of activity in the agricultural sector might occurs due to the traditional agricultural sector's severely restricted capacity to create job opportunities and generate income (Ghadami et al, 2022). As a result, farmers interests in agricultural activities change; therefore, fewer young farmers. In addition, because of the rapid rise in agricultural land prices, some farmers decide to sell their farmland. This results in the loss of high-value natural farmland.

6.0 Conclusion & Recommendations

This study aims to determine and understand the issues arising in agricultural land use. Although the abundance of agricultural land use studies, efforts to conduct a scoping review of these studies are still lacking. Most of the research has concentrated on quantifying land-use changes, focusing on the technical aspects. However, there still needs to study on the underlying issues in agricultural land use. Therefore, this article attempts to bridge the knowledge gap by developing a conceptual framework for agricultural land use issues. This paper will focus on two objectives: to identify issues in agricultural land use and to analyze the evidence on the agricultural land use issues and how it impacts socio-economic and environmental aspects. This is a foundation for understanding and establishing knowledge about agricultural land use issues.

The research identified the agricultural land use issues, namely land management problems, environmental risk, land use policy, land use conflict, governance, and lack of interest among young farmers. Based on the identified issues, four significant issues are land management problems, land use policy, land management system, and governance, which are found to have substantial impacts on social, economic, and environmental aspects.

The research findings are based on brief reviews of the available articles; therefore, more comprehensive reviews are needed. Extending the research by including multi-dimensional data sources will validate the issues. The brief findings, however, will benefit sustainable land use proponents by informing the scarcity of agricultural land use and possible strategies to apprehend. This study guides land authorities and urban planners in providing knowledge to facilitate informed decisions to achieve the highest and best use of land. The possible strategies for creating efficient land use, particularly in specific regions, could be adopted for future research.

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Paper Contribution to Related Field of Study

This article aims to fill a knowledge gap and identify problems with agricultural land use. This is critical for comprehending and establishing knowledge about the drivers of agricultural land use issues in order to protect agricultural land use. Protecting agricultural land use is critical because it is one of the drivers of sustainability.

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