

Challenges and Opportunities for the Young Generation in Sustainable Agricultural Development

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ABSTRACT

Young people around the world face significant challenges and opportunities in taking a key role in sustainable agricultural development. The growth of the agricultural sector is facing serious challenges, especially with a significant decline in the number of young farmers and an increase in old age farmers. The Journal aims to detail the structural changes of the agricultural workforce with a focus on the phenomenon of peasant aging and the decline of young farmers. In addition, the journal will identify the factors causing such changes and detail the policies needed to support the involvement of young farmers in the agricultural sector. The research methods used include descriptive analysis and data tabulation, with the results of the analysis showing that these challenges are getting worse in Indonesia. Several factors caused the decline in the number of farmers in the agricultural sector, including agricultural modernization, social change, lack of profits, the approach of retirement age. One of the Indonesian government's strategies to overcome the challenges of the younger generation industry is through the development of technology-based startups by providing business incubation facilities. The results of this study show that the lack of young workers in the agricultural sector is due to a lack of interest and confidence in the agricultural sector which is considered less promising for the future. However, young workers in the agricultural sector are needed to maintain and advance food in Indonesia. The crisis of young farmers must be addressed so as not to threaten Indonesia. The crisis of young farmers must be addressed so as not to threaten Indonesia's food security, food security is a strategic aspect, and experience in various countries shows that successful development often depends on previous food security achievements.

Keywords: Young people, agricultural sector, technology, crisis, food security

INTRODUCTION

Agriculture and food are two aspects that are closely interrelated, because almost all food products come from the agricultural sector (Setiani et al., 2021). The agricultural sector plays a crucial role in meeting the food needs of the Indonesian population, as well as providing employment, especially for the younger generation. It is important to give priority to the agricultural sector, because in addition to meeting the needs of the national economy, it is also crucial in providing food for the population. Failure to meet food needs can result in various economic, social, security, and even political instability problems. The role of farmers is key in the progress of a country, because they are the main providers of food that are very vital. Indonesian farmers need to ensure that the country remains able to provide food through the domestic agricultural sector. The success of agricultural production is influenced by various factors, including the quality of Human Resources. If the supporting factors of farmers are met, agricultural production will be optimal, and the sustainability of Indonesia's food supply will be guaranteed. However, with the times, farmers face challenges such as the rapid growth of technology and high levels of education.

Currently, the agricultural sector in Indonesia is declining, not only in the number of farmers but also the quality of agricultural ecosystems, technology, knowledge, and education. Research shows that the decline in the number of young farmers is closely related to limited agricultural

land tenure, as well as perceptions of less prestige and low income in the agricultural sector. Many young people consider that a career as a farmer has less promising prospects, so they tend to choose urbanization to improve the quality of life. Therefore, the government needs to create a strategy to attract the younger generation back to the agricultural sector. It is also important for all parties to pay attention to the problem of aging farmers, because if food management is only carried out by the older generation, the number of farmers will continue to decrease from year to year. The limited access of the younger generation to agricultural land, capital, and modern technology is a serious obstacle. Not all regions or youth groups have equitable access to sustainable agricultural technology. Low levels of education can be an obstacle to adopting more sustainable agricultural practices.

The imbalance between food availability and population growth raises fears of a food crisis. The importance of food security is becoming a strategic aspect, and experience in various countries shows that successful development often depends on previous food security achievements. To maintain the stability of the country and reduce the risk of food crisis due to the condition of farmers in Indonesia, efforts need to be made. With the increase in population, the demand for food will be higher, and Indonesia must be

able to ensure food availability to meet the needs of its population. The hope is an increase in the number of young workers in the agricultural sector and sufficient rice production to meet the basic food needs of the community, as a step towards national food security.

This journal aims to describe the structural changes in the agricultural workforce through the phenomenon of aging farmers and the decline in the number of young workers in the Indonesian agricultural sector, explain the various factors causing structural changes in the agricultural workforce and the disapproval of young workers to engage in the sector, discuss policies needed to support the participation of young workers in the agricultural sector. It involves efforts to improve the welfare of farmers, minimize negative impacts on the environment, as well as ensure the sustainability of food and natural resource production. Specifically, these goals include increasing agricultural productivity, diversifying farmers' sources of income, environmental protection, and empowering agricultural communities. Sustainable farmer development aims to achieve a balance between economic, social, and ecological sustainability in the context of agriculture.

The opportunities of young people in sustainable agricultural development have a significant positive impact on various aspects, including economic, social, and environmental. Some of the impacts of involving young people in sustainable agricultural development include, Innovation and Technology: Young people tend to bring innovative ideas and new technological skills to the agricultural sector. Digital skills and technological knowledge can be used to optimize agricultural processes and increase productivity. Increased Productivity: The participation of the younger generation can increase agricultural productivity through the adoption of modern and efficient practices. They may be more open to sustainable agricultural technologies. Income Diversification: Young people often have an interest in diversifying economic activities in the agricultural sector, such as agrotourism, sustainable animal husbandry, or processing of agricultural products, which can increase income and financial sustainability. Food Security and Food Security: The involvement of young people in sustainable agriculture can improve food security and food security through diversification of production and sustainable management of resources.

LITERATURE REVIEW

Indonesia, as an agricultural country with a large land area, has the potential to utilize the agrarian or agricultural sector not only as a source of livelihood, but also as a driver of economic growth. Agriculture is a sector that dominates people's income, especially because the majority of Indonesia's population works as farmers. The agricultural sector attracts attention in national development, especially in the management and utilization of produce, especially food commodities.

The importance of the agricultural sector in the national economy and public welfare shows its strategic role. As a significant contributor to GDP, job creators, and domestic food providers, agricultural development requires increased production to meet national food needs as population increases and consumption increases.

In the context of agricultural development, several conditions need to be met, such as the existence of a market for agricultural products, technological developments, production stimulus for farmers, the availability of local materials and tools, and smooth distribution and transportation in marketing. These conditions are the basis for ensuring success and sustainability in the development of the agricultural sector.

Some of the purposes of this library may include: Identifying Career Opportunities: Presenting research or case studies that identify the types of career opportunities available to young people in the context of sustainable agriculture. Analyzing Challenges and Barriers: Assess literature that addresses challenges and barriers young people may face in engaging in sustainable agriculture, including factors such as negative perceptions, limited access to resources, or lack of policy support. Explaining the Benefits of Sustainability: Highlighting literature that addresses the economic, social, and environmental benefits of young people's involvement in sustainable agricultural development. Discussing Innovation and Technology: Presenting research or analysis results on innovations and technologies that can attract young people to the agricultural sector, as well as support sustainable agriculture. Presenting Young Farmer Development Practices: Provides references to practices that have successfully integrated young people in sustainable agriculture initiatives, including examples of success and learnings. Supporting Development Policy: Consider literature detailing policies or initiatives that support the development of young people in the context of sustainable agriculture, including government measures or non-governmental organizations.

The agricultural sector involves aspects of food production, improving the welfare of farmers, and preserving the environment. As an agricultural country, the majority of Indonesia's population plays a role as farmers, with the view that agriculture has a significant role in supporting economic growth, especially through increasing the country's foreign exchange and focusing on food commodities. Agricultural development is considered crucial to achieve food security, given the sector's contribution to food availability and stability. Farmers, as a key human resource in agriculture, have a central role in the food production process. Increasing the productivity of the agricultural sector can be achieved through empowering farmers, which includes providing new information to open mindsets, increase insight, and enrich

farmers' knowledge, with the hope of having a positive impact on agricultural productivity.

Domestic food security must be maintained, and if a crisis arises, the government must immediately deal with it because it can trigger political, social, and economic problems. Maintaining food security is crucial, given the potential for political turmoil and rising food prices due to scarcity. Food security can be realized if everyone has economic access to get sufficient, safe, nutritious food, and meet the needs of healthy living. In this context, the role of the younger generation becomes important, especially those who have high potential to grow into independent and responsible individuals. The younger generation is expected to have broad insight, forward mindset, innovation, and high enthusiasm to advance the country. The progress of a nation depends largely on the contribution of the younger generation, which involves critical thinking, new ideas in technology and information in the era of globalization, as well as the ability to create welfare and justice in the nation and state. With the spirit and spirit of nationalism, it is hoped that the younger generation will be able to face the current social reality and contribute to nation building positively.

METHOD

This journal research adopts a qualitative approach, because the issues discussed are related to fundamental aspects of human life that require deep understanding through observation. The qualitative approach is a method oriented towards in-depth analysis through observation (Setiani et al., 2021).

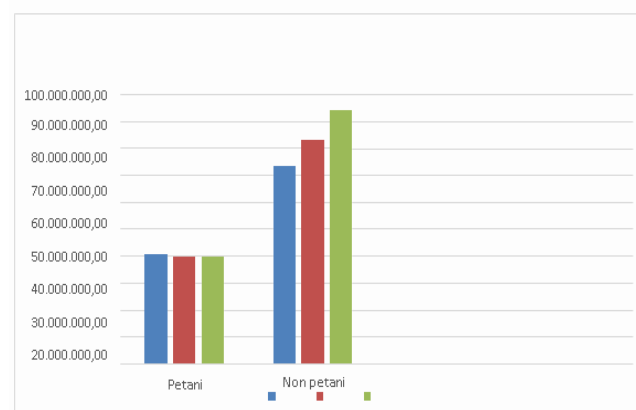
The purpose of this study is to reveal the important role of young workers in the agricultural sector to encourage agricultural progress and maintain food security in Indonesia. The availability of young workers in the agricultural sector is considered crucial to prevent a domestic food crisis. The analysis method used is qualitative descriptive analysis, which aims to analyze, describe, and summarize various conditions and situations based on pre-existing data.

The qualitative approach applied in this journal aims to conduct in-depth observations and collect comprehensive data related to behavioral phenomena, actions, motivations, and perceptions experienced by young workers who are reluctant to work in the agricultural sector. The farmer crisis, which is not new, is in focus especially when analyzed from a food security perspective. The involvement of farmers has a significant impact on the progress of the food sector in Indonesia, and the role of young workers is considered very important in maintaining and developing the agricultural sector to ensure food security in the country.

RESULT AND DISCUSSION

Young people around the world face significant challenges and opportunities in taking a key role in sustainable agricultural development. One of the main challenges is

the demographic shift, where most farmers are currently aging, while the younger generation tends to switch to the non-agricultural sector. This poses a risk of decreasing the number of experienced farmers, low interest of the younger generation in the agricultural sector because they prefer careers in technology, business, or other sectors that are considered attractive (Arvianti et al., 2019). Therefore, the younger generation who have a commitment to building the agricultural sector is one of the success factors for sustainable agricultural development (Susilowati, 2016).



Based on the graph above, the decline in the number of farmers from 2013 to 2022 could be due to several factors, including agricultural modernization, social change, lack of profits, the approach of retirement age. Below are some possible explanations:

1. **Agricultural Modernization:** Developments in agricultural technology such as modern machinery and more efficient farming methods have reduced the need for agricultural labor. This can cause farmers to switch to other jobs.
2. **Social Change:** Social factors such as education and changes in family values can also influence a person's decision to remain a farmer or switch to another job.
3. **Lack of Profit:** Difficult farming conditions, fluctuations in agricultural commodity prices, and other economic constraints can make working as a farmer less financially attractive.
4. **Retirement Age Approach:** Many farmers are aging and no generation is ready to replace them. This can lead to a decrease in the number of farmers.

The combination of these factors could lead to a decline in the number of farmers from 2013 to 2022, depending on the region and economic conditions.

However, the younger generation also has a great opportunity to bring about positive change. They grow with wider access to technology, information resources, and social networks that can be used to optimize agricultural production (Hermawan, 2018). In addition, awareness of environmental issues is increasing among the younger generation, encouraging them to develop more environmentally friendly agricultural practices. Intergenerational collaboration, where traditional

knowledge from senior farmers is combined with younger generations, can strengthen sustainable agriculture.



Indonesia as an agrarian is a considerable advantage, where as a young generation can have a great opportunity to develop the potential of production products, especially in agriculture (Setiani et al., 2021). With the help of agricultural technology, farmers can increase agricultural productivity, sustainability, and resilience, which is critical to meet growing food needs along with global population growth (Arham et al., 2019).

Governments and agricultural organizations need to support young people with policies that facilitate access. Access includes land, capital, training, and fair markets. With the right investment, young people can play an important role in maintaining global food security, reducing agriculture's negative impact on the environment, and creating sustainable economic opportunities. With the spirit of innovation, entrepreneurial spirit, and commitment to sustainable agriculture, the younger generation can be a positive force in advancing the agricultural sector in a further direction.

Akses Teknologi	Ketersediaan akses ke teknologi seperti komputer, smartphone, dan internet dapat memengaruhi kemampuan petani untuk mencari informasi pertanian.
Pendidikan	Tingkat pendidikan petani juga memainkan peran penting. Petani dengan pendidikan yang lebih tinggi cenderung lebih mampu mencari dan memahami informasi pertanian secara efektif.
Akses Keuangan	Keuangan juga dapat mempengaruhi akses petani terhadap informasi. Memiliki akses ke keuangan yang cukup dapat memungkinkan mereka untuk membeli sumber informasi atau teknologi yang diperlukan.
Ketersediaan Layanan Penyuluhan	Layanan penyuluhan pertanian yang baik dan mudah diakses dapat membantu petani dalam mendapatkan informasi terbaru tentang praktik pertanian yang efektif.
Ketersediaan Sumber Informasi	Faktor ini mencakup ketersediaan buku, majalah, seminar, dan sumber informasi lokal seperti penyuluh pertanian. Ketersediaan sumber informasi ini di daerah tempat tinggal petani dapat mempengaruhi akses mereka.

Based on the table above, it can be seen that access to information in agriculture is very important because Overall, access to agricultural information plays a key role in increasing productivity, sustainability, and welfare in the agricultural sector, which has a major impact on food and the global economy

One of the Indonesian government's strategies to overcome the challenges of the younger generation industry is through the development of technology-based startups by providing business incubation facilities. The Ministry of Industry has actively encouraged the birth of technology-based entrepreneurs and established several techno-parks in various regions of Indonesia. The role of technology in the agricultural sector is also very crucial, covering aspects of pre-harvest, post-harvest, and marketing of agricultural products to meet the current and future needs of society. Thus, it is not an exaggeration if the need for labor in the field of agricultural industry technology will increase in the future (Izzwah Nauroh, 2022).

In the context of sustainable agriculture, it is important to consider the role of youth given the ever-increasing global population growth. This condition has led to an increase in the world's food needs, while the youth population is also growing rapidly. Unfortunately, this increase was not offset by adequate job opportunities, which resulted in an increase in unemployment (Ningsih & Syaf, 2015). The situation is getting worse because the interest of the younger generation in agriculture is declining, even though this sector has great potential to absorb a significant number of workers. It is desirable that the younger generation, especially millennials, can change their mindset in finding a job, switching from just looking for a job to creating new job opportunities (Kartika et al., 2022). The imbalance between food availability and population growth raises fears of a food crisis. The importance of food security is becoming a strategic aspect, and experience in various countries shows that successful development often depends on previous food security achievements (Chaireni et al., 2020). Therefore, the regeneration of the agricultural sector is important to pay attention to (Sostenes Konyep, 2021).



Farmer regeneration includes succession and inheritance in agricultural activities, aiming to replace farmers who are no longer productive. This involves a consistent process of introducing new substitutes into the agricultural business world.

Some of the factors that are considered to determine the regeneration of farmers involve the characteristics of the

younger generation, support from families, communities, governments, and markets, as well as the role of agricultural extension workers. The identification of elements such as land tenure, income, stability, perceptions of job prestige, and education level, is a driver for young people to leave the agricultural sector. Partially, income level, education, and social status have a negative influence on the perspective of agricultural business. Regarding the meaning of farmers for the younger generation, their perceptions tend to consider farmers as an unpromising profession, which makes them less interested in agricultural activities (Polan et al., 2021).

Mindset, or mindset, is a collection of beliefs and ways of thinking that influence a person's behavior and attitude, and play a role in determining the level of success in life. The challenge in the future is to change the mindset of the younger generation related to agriculture so that its potential is optimally utilized. The process of mindset formation begins in the womb and continues throughout life. Information, whether from parents, teachers, friends, or other media, is an important element in shaping mindsets (Sostenes Konyep, 2021). Thus, the move to attract the interest of the younger generation in agriculture involves disseminating agricultural information through media, both print and electronic. Developing agriculture as an innovative and technology-based industry from upstream to downstream can create high economic opportunities. The application of agricultural bioindustry is an important and strategic approach to achieve this goal.

CONCLUSION AND RECOMMENDATION

The success of a farmer depends largely on the factors that support him, including the positive contribution of young people in the agricultural sector. Attention to agriculture by young workers is influenced by internal and external aspects. Internal aspects involve conditions or circumstances at the individual or sector level, such as limited land, low wages, incompatibility with education, lack of development of the agricultural industry, and others. Meanwhile, external aspects include perceptions of young workers who tend to see the non-agricultural sector or industry in the city as a more attractive option, although such jobs may not remain. A decline in the number of farmers could pose serious risks to food security in Indonesia. Agriculture and food have a central role in development, and without the support of farmers, food needs will not be adequately met. Therefore, farmer regeneration needs attention, especially from the government. The government's efforts are expected to be responsive by taking appropriate policies, including the development of modern agriculture, providing incentives to novice farmers, organizing training to increase capacity, and empowering young farmers to keep food production stable.

REFERENCE

Arham, I., Sjaf, S., & Darusman, D. (2019). Strategi Pembangunan Pertanian Berkelanjutan di Pedesaan

- Berbasis Citra Drone (Studi Kasus Desa Sukadamai Kabupaten Bogor). *Jurnal Ilmu Lingkungan*, 17(2), 245. <https://doi.org/10.14710/jil.17.2.245-255>
- Arvianti, E. Y., Masyhuri, M., Waluyati, L. R., & Darwanto, D. H. (2019). Gambaran Krisis Petani Muda Indonesia. *Agriekonomika*, 8(2), 168–180. <https://doi.org/10.21107/agriekonomika.v8i2.5429>
- Chaireni, R., Agustanto, D., Wahyu, R. A., & Nainggolan, P. (2020). Ketahanan Pangan Berkelanjutan. *Jurnal Kependudukan Dan Pembangunan Lingkungan*, 1(2), 70–79. jkpl.ppj.unp.ac.id/index.php/JKPL/article/view/13
- Hermawan, A. (2018). Agenda Penguatan Teknologi Informasi untuk Komunikasi Pertanian Berkelanjutan: Pendekatan Penyuluhan Berbasis Media Baru. *Prosiding Konferensi Nasional Komunikasi*, 2(1), 526–538.
- Izzwah Nauruh, I. F. (2022). Teknologi Industri Pertanian: Analisa Kualitatif Menghadapi Tantangan Global Menuju Pertanian Berkelanjutan Di Indonesia. *Change Think Journal*, 1(Perdagangan Internasional Booster Dalam Pertumbuhan Ekonomi), 151–157.
- Kartika, R., Fasa, M. I., & Suharto, S. (2022). Perkembangan Ekonomi Kreatif Dikalangan Generasi Millenial Muslim Dengan Melihat Peluang Di Kemajuan Zaman. *Jurnal Bina Bangsa Ekonomika*, 15(1), 257–266. <https://doi.org/10.46306/jbbe.v15i1.150>
- Ningsih, F., & Syaf, S. (2015). Faktor-Faktor yang Menentukan Keterlibatan Pemuda Pedesaan pada Kegiatan Pertanian Berkelanjutan. *Jurnal Penyuluhan*, 11(1), 23–37. <https://doi.org/10.25015/penyuluhan.v11i1.9929>
- Polan, T. S., Pontoan, K. A., & Merung, Y. A. (2021). Pemberdayaan Kaum Muda Untuk Mendorong Regenerasi di Sektor Pertanian. *COMSERVA Indonesian Jurnal of Community Services and Development*, 1(1), 26–34. <https://doi.org/10.59141/comserva.v1i1.95>
- Setiani, S. Y., Pratiwi, T., & Fitrianto, A. R. (2021). Tenaga Muda Pertanian dan Ketahanan Pangan di Indonesia. *Cakrawala*, 15(2), 95–108. <https://doi.org/10.32781/cakrawala.v15i2.386>
- Sostenes Konyep. (2021). Mempersiapkan Petani Muda dalam Mencapai Kedaulatan Pangan. *Jurnal Triton*, 12(1), 78–88. <https://doi.org/10.47687/jt.v12i1.157>
- Susilowati, S. H. (2016). SERTA IMPLIKASINYA BAGI KEBIJAKAN PEMBANGUNAN PERTANIAN Farmers Aging Phenomenon and Reduction in Young Labor: Its Implication for Agricultural Development. *Forum Penelit. Agroekon.*, 34(1), 35–55.