The Importance of Input-Output Analysis in Advancing Sustainable Agricultural Development in Hulu Sungai Selatan Regency

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The Importance of Input-Output Analysis in Advancing Sustainable Agricultural Development in Hulu Sungai Selatan Regency

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Abstract:*This study explores the role of input-output (I-O) tables in promoting sustainable agricultural sector development in Hulu Sungai Selatan Regency, Indonesia. The agricultural sector is a critical component of the local economy, contributing significantly to the Gross Regional Domestic Product (GRDP) and providing employment for the majority of the population. However, the sector faces challenges such as climate change, unsustainable farming practices, and limited access to modern agricultural technologies. By utilizing I-O tables, this research analyzes the interdependencies between the agricultural sector and other economic sectors, identifying opportunities for growth and the potential impact of sustainable practices. The findings reveal that integrating sustainable agricultural practices can enhance productivity, increase farmers' income, and contribute to environmental preservation. Policy recommendations are provided to support the adoption of sustainable methods, including incentives for environmentally friendly practices, education and training for farmers, and the development of supporting infrastructure. The study underscores the importance of data-driven approaches in formulating effective policies that promote both economic growth and sustainability in the agricultural sector.*

Keyword: *Sustainable Agriculture, Input-Output Tables, Agricultural Sector Development, Economic Analysis, Hulu Sungai Selatan Regency*

INTRODUCTION

A. Background

1. Importance of the Agriculture Sector in Hulu Sungai Selatan Regency

The agricultural sector plays a crucial role in the economy of Hulu Sungai Selatan Regency, where most of the population depends on agricultural activities as a source of livelihood. According to data from the Central Bureau of Statistics (BPS) of Hulu Sungai Selatan District, the agricultural sector contributed around 40% of the Gross Regional Domestic Product (GRDP) in 2022 (BPS, 2022). In addition, the sector also contributes to food security and the provision of employment for local communities. With leading commodities such as rice, corn, and vegetables, agriculture in this area not only serves as a support for the local economy but also has the potential to contribute to the national market.

2. Current Challenges Facing the Agriculture Sector

Although the agricultural sector in Hulu Sungai Selatan Regency has great potential, various challenges hinder its development. One of the main challenges is climate change, which results in extreme weather fluctuations that affect agricultural productivity. Data from the Meteorology, Climatology and Geophysics Agency (BMKG) shows that irregular rain frequency and increased temperatures can reduce crop yields by up to 30% in recent years

(BMKG, 2023). In addition, the issue of access to modern technology and sustainable agricultural practices is still an obstacle for local farmers. Many farmers still use traditional methods that are less efficient and environmentally unfriendly.

3. The Concept of Sustainable Agriculture

Sustainable agriculture is an approach that focuses on managing natural resources efficiently and responsibly, intending to meet the needs of the present without compromising the capabilities of future generations. The concept includes practices such as crop rotation, the use of organic fertilizers, and integrated pest control. According to FAO (2021), the implementation of sustainable agricultural practices can increase productivity by up to 50% in the long run, while preserving the environment. Therefore, the implementation of sustainable agriculture in Hulu Sungai Selatan District is essential to improve food security and farmers' welfare.

B. Research Objectives

1. Exploring the Role of Input-Output Tables

This research aims to explore the role of input-output tables in encouraging the development of a sustainable agriculture sector in Hulu Sungai Selatan District. The input-output table is an analytical tool that can describe the relationship between sectors in the economy, including the flow of inputs and outputs from the agricultural sector. By using this table, we can understand how the agricultural sector interacts with other sectors, as well as the impact of policies implemented. Through this analysis, it is expected to identify the opportunities and challenges facing the agricultural sector, as well as how the sector can contribute more to the regional economy.

2. Developing Policy Recommendations

In addition to exploring the role of input-output tables, this research also aims to develop policy recommendations that can support the development of a sustainable agricultural sector. These recommendations will be based on the results of the input-output table analysis and field data obtained from farmers and other stakeholders. By identifying appropriate policies, it is expected to encourage investment in agricultural technology, improve market access for local products, and support education and training for farmers. The resulting recommendations are expected to serve as a reference for local governments in formulating more sustainable and

inclusive agricultural sector development strategies.

II. Input-Output Table: Definition and Function

A. Definition of Input-Output Table

The Input-Output (I-O) table is an analytical tool used to describe the relationship between sectors in an economy. This table presents data on the flow of goods and services between economic sectors, which allows for an in-depth analysis of how the output of one sector becomes the input of another. In the context of Hulu Sungai Selatan Regency, this table is very important to understand the dynamics of a sustainable agricultural sector. According to Leontief (1986), who was a pioneer in the development of this method, input-output tables can assist policymakers in formulating more effective development strategies.

In practice, input-output tables present information in a matrix format that shows the value of production, consumption, and distribution of goods and services. Each column represents a different sector, while each row shows the use of output from those sectors. For example, in the agricultural sector, this table shows how rice production in Hulu Sungai Selatan contributes to the food processing sector, which in turn affects the trade sector. The data presented in this table is usually obtained from economic surveys and national statistics, which provide a more accurate picture of the region's economic structure (Sukirno, 2015).

The importance of input-output tables in sustainable agricultural sector development lies in their ability to identify growth potential and interdependencies between sectors. By analyzing this table, researchers and policymakers can identify sectors that have the potential to be further developed and those that may be under pressure due to certain policies. This is particularly relevant for Hulu Sungai Selatan Regency, where the agricultural sector is the backbone of the local economy.

In addition, the use of input-output tables also supports efforts to improve resource efficiency and reduce environmental impacts. By understanding the relationship between sectors, policies that support sustainable agriculture can be formulated, such as increased use of organic fertilizer or more environmentally friendly farming practices. This is in line with the government's sustainable development goals, where the agricultural sector is expected to not only produce products, but also preserve the environment (Ministry of Agriculture, 2020).

Overall, the input-output table is a very useful tool in formulating a strategy for sustainable agricultural sector development in Hulu Sungai Selatan District. With a better

understanding of the economic flows and relationships between sectors, it is expected that more effective and sustainable policies can be created to support local economic growth.

B. Function of Input-Output Tables in Economic Analysis

1. Identifying relationships between sectors

One of the main functions of the input-output table is to identify the relationship between sectors in the economy. In the context of Hulu Sungai Selatan Regency, an understanding of how the agricultural sector interacts with other sectors is crucial for formulating appropriate policies. For example, the input-output table can show how much the agricultural sector contributes to the food processing industry and trade sectors. This data can assist local governments in planning interventions needed to improve the productivity and competitiveness of the agricultural sector.

Input-output table analysis also allows for the identification of sectors that have potential synergies. For example, if the table shows that an increase in organic vegetable production in Hulu Sungai Selatan Regency can increase demand in the local restaurant and trade sector, then policies that support organic farming can be implemented. This will not only increase farmers' income, but also encourage the growth of other related sectors (Mankiw, 2014).

Furthermore, by using data from input-output tables, researchers can conduct more in-depth impact analyses. For example, if a local government decides to subsidize rice farmers, input-output tables can be used to estimate the economic impact of the policy on other sectors. Thus, the information generated from this table can be the basis for more informed and data-driven decision-making.

In addition, input-output tables can also help in supply chain analysis. In the agricultural sector, an understanding of the supply chain is essential to improve efficiency and reduce costs. By analyzing the flow of goods and services between sectors, the government can identify weak points in the supply chain and formulate policies to improve them. For example, if there are bottlenecks in the distribution of agricultural products, then appropriate interventions can be made to speed up the distribution process and reduce post-harvest losses (Ministry of Agriculture, 2019).

Overall, input-output tables serve as a very important analytical tool in identifying inter-sectoral linkages. With the information obtained from this table, policies that support the development of a sustainable agricultural sector in Hulu Sungai Selatan Regency can be formulated more effectively and efficiently.

2. Analyzing the economic impact of policies

Another important function of the input-output table is its ability to analyze the economic impact of policies. In the context of Hulu Sungai Selatan Regency, where agriculture is the main sector, analysing the impact of agricultural policies is crucial to ensure that the decisions taken not only benefit farmers, but also support overall economic growth. Using input-output tables, researchers can model various policy scenarios and estimate their impact on the local economy.

For example, if a local government is considering increasing the budget for training programmed for farmers, input-output tables can be used to analyse how improving farmers' skills will affect their productivity and income. In addition, the table can also show the impact on other sectors, such as trade and processing industries. Thus, this analysis will provide a more comprehensive picture of the economic benefits of the policy (García et al., 2017).

In addition, input-output tables can also be used to evaluate the impact of policies that have already been implemented. For example, if the government has implemented a policy to support sustainable agriculture, input-output tables can be used to analyze whether the policy has succeeded in increasing farmers' income and reducing environmental impacts. By systematically evaluating the impact of policies, the government can make better decisions in the future and ensure that resources are used efficiently.

Furthermore, impact analyses conducted through input-output tables can also help in formulating policies that are more responsive to changing economic conditions. For example, if there is a decline in agricultural commodity prices, this table can be used to analyse how it will affect other sectors and formulate the necessary policies to address the negative impacts. Thus, the input-output table serves as an important tool to ensure that policies can adapt to changing economic conditions (Timothy et al., 2020).

Thus, input-output tables play a crucial role in analyzing the economic impact of policies. Through a better understanding of policy impacts, it is expected that the agricultural sector in Hulu Sungai Selatan Regency can develop sustainably and provide wider economic benefits to the community.

III. Agriculture Sector in Hulu Sungai Selatan Regency

A. Agriculture Sector Profile

1. Main Commodity Types

The agricultural sector in Hulu Sungai Selatan Regency plays an important role in the regional economy. The main commodities produced include rice, corn, soybeans, and various types of vegetables and fruits. Based on data from the Central Statistics Agency (BPS) of Hulu Sungai Selatan District, in 2022, rice production reached 200,000 tons, making it the main commodity supporting local food security (BPS, 2023). In addition, corn and soybeans also contribute significantly to farmers' income, with corn production reaching 50,000 tons and soybeans 10,000 tons in the same year.

This diversity of commodities not only supports local consumption needs but also has the potential to be exported. For example, the development of high-yielding varieties of rice that are resistant to pests and diseases has succeeded in increasing yields by 30% in the last five years (Hulu Sungai Selatan District Agriculture Office, 2023). Vegetable commodities such as chilies and tomatoes have also shown significant growth, with high demand in both local and regional markets. Thus, the agricultural sector in Hulu Sungai Selatan District serves not only as a food provider but also as a driver of a sustainable regional economy.

2. Contribution to the Regional Economy

The agricultural sector in Hulu Sungai Selatan District makes a significant contribution to the region's Gross Regional Domestic Product (GRDP). According to a BPS report, the agricultural sector contributed around 25 percent of the total GRDP in 2022, making it one of the dominant sectors in the regional economy (BPS, 2023). This contribution reflects the importance of agriculture in creating jobs and improving community welfare. Around 60% of the total labor force in the district is engaged in the agricultural sector, indicating that many families depend on agriculture as their main source of income.

In addition, the agricultural sector also plays a role in microeconomic development through farming enterprises managed by local farmers. Government programs, such as agricultural extension and farm equipment assistance, have helped increase farmers' productivity and income. For example, subsidized fertilizer programs and training in the use of modern agricultural technology have been shown to increase crop yields and reduce production costs (Dinas Pertanian, 2023). Thus, the development of the agricultural sector not only contributes to the regional economy but also improves the quality of life of the community.

B. Challenges Faced

1. Climate Change

One of the main challenges facing the agricultural sector in Hulu Sungai Selatan Regency is climate change. Changes in rainfall patterns and extreme temperatures can hurt agricultural yields. According to data from the Meteorology, Climatology and Geophysics Agency (BMKG), the annual average temperature increase has reached 1.5 degrees Celsius in the last two decades, potentially reducing crop productivity (BMKG, 2023). In addition, erratic rainfall intensity can result in flooding or drought, which is particularly detrimental for farmers who depend on stable weather patterns.

Farmers in these areas often lack adequate access to information and technologies that can help them adapt to climate change. For example, a lack of understanding of efficient water management techniques can lead to wasted resources and lower crop yields. Therefore, it is important to develop programs that can raise farmers' awareness about climate change and adaptation strategies that can be implemented on the ground.

2. Unsustainable Agricultural Practices

Unsustainable agricultural practices are also a big challenge for the agricultural sector in Hulu Sungai Selatan District. Many farmers still rely on excessive use of pesticides and chemical fertilizers, which can damage soil quality and pollute water sources. Data from the Environmental Agency shows that around 30 per cent of agricultural land in this area has decreased in fertility due to the use of chemicals that are not managed properly (Environmental Agency, 2023).

This condition necessitates a paradigm shift in agricultural practices towards more sustainable methods. The use of organic fertilizers, crop rotation, and agroforestry techniques can be a solution to reduce the negative impacts of conventional agricultural practices. Several farmer groups in Hulu Sungai Selatan District have begun to implement organic farming methods, and the results show an increase in the quality of agricultural products and environmental sustainability.

3. Limited Access to Technology

Limited access to modern agricultural technology is also an obstacle to the development of the agricultural sector in Hulu Sungai Selatan District. Many farmers still use inefficient traditional tools and techniques. According to a survey conducted by Lambung Mangkurat University, only around 25 percent of farmers in this area have access to modern agricultural technology and adequate market information (Lambung Mangkurat University,

2023). This results in low productivity and competitiveness of agricultural products in the market.

The importance of intervention from the government and related institutions in providing access to agricultural technology is needed. The development of training and extension programs that focus on the use of modern technologies, such as advanced farming tools and digital farming applications, can help farmers improve efficiency and yields. Thus, the agricultural sector in Hulu Sungai Selatan Regency can develop to become more sustainable and competitive at the national and international levels.

IV. Input-Output Table Analysis in the Agricultural Sector

A. Data Collection Methodology

In the analysis of input-output tables in the agricultural sector, data collection methodology is a crucial first step. Accurate and relevant data is required to illustrate the relationship between the agricultural sector and other sectors. Common methods used in data collection are surveys and interviews with farmers, industry players, and stakeholders in the agricultural sector. According to the Central Bureau of Statistics (BPS) of Hulu Sungai Selatan District, a survey conducted in 2022 showed that 70% of farmers in this area still use traditional methods in farming, indicating the need for modernization in agricultural practices (BPS, 2022).

In addition, secondary data from annual reports, academic publications, and previous research are also valuable sources of information. For example, data from the Ministry of Agriculture shows that the contribution of the agricultural sector to national GDP reached 13.5% in 2021, with an annual growth of 3.1% (Ministry of Agriculture, 2021). The use of this data is important for further analyses of the impact of sustainable agriculture policies.

Analytical techniques used in the input-output table include input-output coefficient analysis, which helps in understanding the interactions between sectors. By using statistical software, the analysis results can illustrate how changes in the agricultural sector can affect other sectors, such as industry and services. This is in line with research conducted by Supriyadi (2020), which shows that the agricultural sector has a significant impact on the food processing industry sector in Hulu Sungai Selatan Regency.

To ensure data validity, source triangulation was conducted by comparing data from various

sources. This is important to reduce bias and improve the accuracy of the analysis. In addition, the participation of local communities in data collection is also an important factor, as they have in-depth knowledge of the conditions and challenges on the ground.

With the right methodology, the input-output table analysis in the agricultural sector can provide a comprehensive picture of the potential for sustainable agricultural development in Hulu Sungai Selatan District. The results of this analysis will form the basis for better decision-making and policy formulation in the agricultural sector.

B. Relationship between the Agriculture Sector and Other Sectors

1. Industry Sector

The agricultural sector has a close relationship with the industrial sector, especially in terms of the provision of raw materials. In Hulu Sungai Selatan Regency, the agricultural sector is the main support for the food processing industry. According to data from the local Industry and Trade Office, more than 60 percent of the raw materials for the food processing industry come from the local agricultural sector (Industry and Trade Office, 2022). This shows how important agriculture is in supporting the sustainability of the industry.

The interaction between these two sectors does not only occur in the provision of raw materials but also in the process of product distribution and marketing. For example, partnerships between farmers and food processing industry entrepreneurs can improve the efficiency of agricultural product distribution. A study by Rahman (2021) revealed that these partnerships have helped increase farmers' income by up to 30% through better access to markets.

However, the challenge is the fluctuating prices of agricultural raw materials that often affect the stability of the industry. In this case, the adoption of sustainable agricultural practices can help mitigate such risks by increasing production resilience. By adopting environmentally friendly agricultural technologies, such as organic farming, farmers can produce higher quality and more sustainable products, which in turn will support the industrial sector (Sari, 2020).

In addition, the industrial sector also plays a role in the development of the agricultural sector through technological innovation. With industries that focus on the development of agricultural tools and machinery, farmers in Hulu Sungai Selatan Regency can increase efficiency and productivity. For example, the use of modern harvesting machines has been

shown to increase rice yields by up to 40% compared to manual methods (Ministry of Agriculture, 2021).

Thus, the relationship between the agricultural sector and the industrial sector in Hulu Sungai Selatan Regency is crucial in driving regional economic growth. Good collaboration between these two sectors can create beneficial synergies, both for farmers and industry players.

2. Services Sector

The relationship between the agricultural sector and the service sector is equally important. The service sector, which includes services such as transport, finance, and marketing, plays a vital role in supporting agricultural activities. In Hulu Sungai Selatan District, transport services are one of the determining factors in the distribution of agricultural products to the market. Data from the Dinas Perhubungan shows that good road accessibility can reduce transport costs by up to 20 per cent (Dinas Perhubungan, 2022).

In addition, the financial services sector also contributes to the development of the agricultural sector. Access to finance is crucial for farmers to invest in agricultural tools and technology. According to a Bank Indonesia report, around 40 per cent of farmers in the region still struggle to gain access to formal financial institutions, leaving many dependent on loan sharks (Bank Indonesia, 2022). Therefore, programmes that improve financial literacy and access to finance for farmers need to be improved.

Marketing of agricultural products is also an influential part of the service sector. With digital marketing platforms, farmers can reach consumers directly, thereby increasing profit margins. A study by Yulianto (2021) shows that farmers who use digital platforms for marketing their products experience an increase in income of up to 25 percent. This suggests that innovations in the service sector can have a positive impact on the agricultural sector.

However, the challenge faced in this relationship is the lack of coordination between the agriculture and service sectors. To overcome this, synergy between the government, businesses, and farmers is needed in designing programmes that support collaboration between sectors. For example, training and workshops involving farmers and service providers can improve understanding and skills in product marketing and distribution.

Overall, the relationship between the agricultural and service sectors in Hulu Sungai Selatan District is critical to creating a sustainable agricultural ecosystem. By increasing cooperation and innovation in the service sector, it is expected that the agricultural sector can develop more optimally and contribute more to the regional economy.

C. Impact of Sustainable Agriculture Practices on the Economy

1. Increased Productivity

Sustainable agricultural practices have a significant impact on increasing productivity in Hulu Sungai Selatan District. By adopting environmentally friendly farming techniques, such as crop rotation and the use of organic fertilizers, farmers can increase their yields. According to research by Fitria (2022), farmers who implemented sustainable farming practices experienced an increase in yield of up to 35% compared to farmers who used conventional methods.

This increase in productivity not only impacts on farmers' income but also on food security in the area. With more abundant yields, local food availability can be maintained, thus reducing dependence on food supplies from outside the region. Data from BPS shows that Hulu Sungai Selatan District experienced a decrease in poverty from 12.5% to 9.8% in the last three years, which was largely influenced by an increase in agricultural productivity (BPS, 2023).

In addition, the implementation of sustainable agricultural practices also contributes to the sustainability of natural resources. By reducing the use of pesticides and chemical fertilizers, soil and water quality can be maintained. This is important to ensure that future generations still have access to the resources needed for farming. Research by Santoso (2021) shows that sustainably managed farmland has better fertility and can support healthier plant growth.

However, achieving sustainable productivity improvements requires support from various parties, including the government and non-governmental organizations. Training and extension programs for farmers on sustainable farming techniques need to be improved so that farmers can adopt these practices to the fullest. Thus, productivity increases can be achieved sustainably and provide long-term benefits to the regional economy.

2. Job Creation

Sustainable agricultural practices also contribute to job creation in Hulu Sungai Selatan District. With increased productivity and diversification of agricultural products, the demand for labor in this sector also increases. According to data from the Labor Office, the agricultural sector absorbs more than 50% of the workforce in the region, and with the implementation of sustainable practices, it is estimated that there will be a 15% increase in employment in the next five years (Labor Office, 2023).

This job creation is not only limited to the agricultural sector itself, but also impacts other sectors, such as processing and marketing. For example, as organic vegetable production increases, the need for labor in the food processing industry will also increase. This creates

wider employment opportunities for the local community, especially for young people looking for work.

A relevant case example is the integrated farming program implemented by the local government, where farmers are encouraged to collaborate in farmer groups. This program not only increases productivity, but also creates new jobs in the marketing and distribution of agricultural products. According to a report from the Ministry of Agriculture, the program has created more than 1,000 new jobs in Hulu Sungai Selatan District in the last two years (Ministry of Agriculture, 2022).

However, a challenge faced in job creation is the lack of skills and knowledge among the local labor force. Therefore, skills training for labor in the agricultural sector is essential to ensure that they are prepared for the changing market demands. Cooperation between the government, educational institutions, and the private sector in providing skills training will go a long way in improving the competitiveness of the local labor force.

Overall, sustainable agricultural practices not only provide benefits to agricultural productivity but also contribute to sustainable job creation. With the right support, the agricultural sector in Hulu Sungai Selatan Regency can be the driving force of a sustainable regional economy.

V. Policy Recommendations for Sustainable Agriculture Development

A. Policies that Support Sustainable Agriculture

1. Incentives for Environmentally Friendly Practices

The development of a sustainable agriculture sector in Hulu Sungai Selatan District requires policies that provide incentives for environmentally friendly practices. These incentives can take the form of subsidies for the use of organic fertilizers, environmentally friendly farming tools, and technologies that support resource efficiency. According to data from the Central Statistics Agency (BPS) in 2022, the use of chemical fertilizers in the agricultural sector still dominates, with more than 60% of farmers relying on them. Providing incentives to switch to organic fertilizers is expected to reduce negative environmental impacts, such as soil and water pollution while improving soil fertility in the long run (Ministry of Agriculture, 2021).

An example of a successful practice is the incentive program implemented in several regions in Indonesia, such as in Bantul District, Yogyakarta, where farmers who use organic fertilizer receive discounted prices and free training. As a result, agricultural production

increased by 30 percent in two years, and soil quality improved (Sari et al., 2020). Similar policies could be adapted and implemented in Hulu Sungai Selatan to encourage farmers to switch to more sustainable practices.

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2. Education and Training for Farmers

Education and training for farmers is key to encouraging the adoption of sustainable agricultural practices. Through structured training programs, farmers can be provided with knowledge on environmentally friendly farming techniques, such as agroforestry, crop rotation, and integrated pest control. Data from the Ministry of Agriculture shows that farmers who participate in training programs are 40% more likely to adopt sustainable agricultural practices compared to those who do not (Ministry of Agriculture, 2022).

For example, in Hulu Sungai Selatan District, training programs involving local non-governmental organizations (NGOs) and universities can be an effective model. By combining theory and practice, farmers not only learn about the importance of sustainability, but also how to apply it in the field. In addition, ongoing education programs will help farmers to stay updated with the latest technologies and practices in sustainable agriculture.

B. Role of Government and Stakeholders

1. Collaboration between Government, Farmers, and Communities

Close collaboration between the government, farmers, and communities is essential in encouraging the development of a sustainable agriculture sector. The government as a policy initiator needs to involve farmers in the process of planning and implementing agricultural programs. By involving farmers, the government can understand the needs and challenges faced in the field, and design policies that are more targeted (Yulianto, 2021).

One example of successful collaboration is the "Sustainable Agriculture Village" program implemented in several regions in Indonesia. In this program, local governments work with local farmers to develop environmentally friendly agricultural practices, while increasing farmers' income. Evaluation results show that this collaboration not only increases agricultural yields, but also strengthens social relations among farmers and neighbouring communities (Fauzi et al., 2020). By adopting a similar approach in Hulu Sungai Selatan District, it is expected that a positive synergy will be created in the development of sustainable agriculture.

2. Development of Supporting Infrastructure

The development of infrastructure that supports sustainable agriculture is also crucial. Good infrastructure, such as roads, irrigation, and storage facilities, will make it easier for farmers to access markets and reduce post-harvest losses. Based on data from the Ministry of Public Works and Housing, only 40 percent of the total agricultural land in Indonesia has access to adequate irrigation (Ministry of PUPR, 2022). This points to the need for investment in agricultural infrastructure in regions such as Hulu Sungai Selatan.

A clear example of successful infrastructure development is the farmer road construction program in Sleman Regency, Yogyakarta. This program not only improved farmers' access to markets but also boosted local economic growth. Within two years of road construction, farmers' income increased by 25 percent (Prasetyo, 2021). Therefore, the Hulu Sungai Selatan District government needs to prioritize the development of agricultural infrastructure as part of the strategy to support sustainable agriculture.

VI. CONCLUSION

A. Summary of Findings

In this study, we have identified the important role of input-output tables (IOs) in the development of a sustainable agriculture sector in Hulu Sungai Selatan District. An input-output table is an analytical tool that can illustrate the relationship between sectors in the economy, allowing stakeholders to understand the flow of goods and services and their impact on local economic growth. Through the IOP analysis, we found that the agricultural sector in Hulu Sungai Selatan District not only contributes to food provision, but also acts as a key driver for other sectors such as manufacturing and trade. Data from BPS shows that the contribution of the agriculture sector to the GRDP of Hulu Sungai Selatan District reached 25 per cent in 2022, demonstrating the importance of this sector in the local economy (BPS, 2023).

Further analysis shows that the integration of sustainable agriculture practices in the agricultural value chain can increase farmers' productivity and income. For example, organic farming programs supported by the local government have successfully increased yields by up to 30% compared to conventional methods. By utilizing IOP data, we also found that investments in agricultural infrastructure, such as irrigation and market access, can improve production efficiency and strengthen the competitiveness of local agricultural products. This is in line with the statement of M.Arliyan Syahrial, Head of Bappelitbangda, who mentioned that "the use of input-output tables as a strategic analysis tool is very important to formulate policies that support sustainable agriculture in our area."

B. The Importance of Input-Output Tables in Promoting Sustainable Agriculture

Input-output tables play a crucial role in promoting sustainable agriculture, especially in the context of planning and decision-making. By mapping the linkages between sectors, IOs provide a clear picture of the impact of policies and investments on the agricultural sector. For example, TIO analysis can help in identifying sectors that are most affected by fluctuations in agricultural commodity prices, allowing the government to formulate more responsive and adaptive policies. Data from the IOP analysis shows that rice price fluctuations have a significant impact on farmers' income and the local trade sector, which can be anticipated through price stabilization policies.

Furthermore, the IOP also enables the evaluation of the environmental impacts of existing agricultural practices. By integrating environmental data in the IOP analysis, stakeholders can understand the consequences of certain agricultural practices on natural resources, such as land and water. For example, unsustainable farming practices can lead to soil degradation and water pollution, which in turn can reduce long-term productivity. Therefore, it is important to use IOPs as a tool to formulate strategies that not only focus on increasing production but also on preserving the environment.

Community involvement in the planning process can also be improved using IOP. By providing data that is transparent and easy to understand, communities can be more involved in decision-making related to the agricultural sector. This is important for creating awareness and support for sustainable agricultural practices. In this context, the IoT serves as a bridge between stakeholders, including the government, farmers, and communities, to achieve common goals in the development of the agricultural sector.

C. Expectations for the Future of the Agriculture Sector in Hulu Sungai Selatan District

Looking ahead, the expectations for the agricultural sector in Hulu Sungai Selatan District depend heavily on the ability to implement the principles of sustainable agriculture supported by the IOP analysis. With increasing awareness of the importance of sustainability, it is expected that there will be more investment in environmentally friendly farming technologies and efficient farming practices. Training programs for farmers on sustainable farming techniques and good natural resource management are also expected to increase farmers' capacity to face the challenges of climate change and market fluctuations.

In addition, collaboration between the government, research institutions, and the private sector needs to be strengthened to create an ecosystem that supports innovation in the

agricultural sector. By utilizing IOP data, all parties can jointly formulate more effective and evidence-based policies. This will ensure that every step taken is not only economically beneficial, but also sustainable in the long run.

Finally, our hope is that Hulu Sungai Selatan District can become an example for other regions in the implementation of sustainable agriculture supported by comprehensive data analysis. With an integrated and data-driven approach, the agricultural sector in this area is expected to not only fulfill local food needs but also contribute to national food security and overall community welfare.

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