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ARTICLE

Unveiling the Policy Paradox: Fertilizer Subsidies and Their Impact on Farmer Welfare in Aceh

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ABSTRACT
This study examines the effectiveness of the fertiliser subsidy program in Aceh Province and its implications for farmer welfare. Although the program seeks to alleviate poverty by reducing production costs and increasing crop yields, the program has yet to yield the expected results. This study employed a qualitative case study approach to analyse the policy's implementation and challenges, focusing on Aceh's unique historical and social context. The study findings reveal that the effectiveness of the policy is hampered by some issues related to resource allocation, communication, administrative governance, and organisational structure. These constraints have prevented the policy from significantly improving the welfare of rice farmers. The study concludes that, although the fertiliser subsidy program has potential, it has not substantially reduced poverty among farmers in Aceh. A significant limitation of this study is its inability to fully assess the potential for increasing government capacity to support farmers due to differences in perceptions and preferences among government actors. This study highlights the need for a more integrated and responsive policy framework to address the unique challenges faced by the agricultural sector in Aceh.

A. INTRODUCTION

"The ultimate goal of farming is not growing plants, but maintaining life" (Anonymous, 2023). These pearls of wisdom about farmers are enough to describe how farmers should be respected for their important role in Indonesia and globally, as they provide the food necessary for survival. Despite their essential contributions, farmers, the providers of life, face a grim reality: they remain impoverished, with limited access to and inadequate support from government agricultural programs and policies. The Indonesian government claims to have implemented several flagship programs to reduce farmers' poverty. Nevertheless, 29.63% of the workforce, or over 40 million Indonesians, rely on agriculture for their livelihood, yet 25.9 million farmers live in poverty (BPS, 2023).

Several factors mutually influence poverty among farmers, especially rice farmers. These include (a) dependence on weather and vulnerability to climate change, (b) unequal access to necessary resources, (c) reliance on monoculture crops, (d) limitations and inefficiencies in

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marketing and distribution, (e) lack of access to agricultural financing and technological innovation; (f) demographic changes and urbanisation; and (g) low overall welfare, as more than 50% of poor households in Indonesia work in agriculture. Many of these farmers own less than two hectares of land and earn less than IDR 18.8 million per year, which prevents them from increasing productivity. This results in a vicious cycle of poverty, making it difficult for farmers to escape their impoverished conditions.

Agriculture is one of the critical sectors the Indonesian government targets to reduce poverty. World Bank report (2023) entitled Indonesia Poverty Assessment: Pathways Towards Economic Security mentioned that income from the agricultural sector can encourage poverty alleviation. However, many farmers remain poor due to challenges related to productivity, meeting basic living needs, and the rate of rice production. Many farmers in Indonesia remain poor because of agriculture conditions in Indonesia (Ikhsan et al., 2024; Sabariman & Susanti, 2021; Siswati & Nizar, 2014). Currently, 27.76 million people are living in poverty in Indonesia, 17.28 million of whom are farmers. One primary reason is that wages in the agricultural sector are lower than in non-agricultural sectors; 51.33% of poor households in Indonesia derive their primary income from agriculture (BPS, 2023).

This research addresses that gap by identifying a poverty paradox, in which subsidies intended to improve farmer welfare may exacerbate poverty. Previous research on farmers has primarily focused on increasing agricultural productivity, the latest technological advances, and the adaptation of discoveries in the farm sector (Charoenratana & Shinohara, 2018; Chen et al., 2024; Fahad & Wang, 2018). However, studies on farmer poverty and the impact of subsidised fertilisers in alleviating this poverty remain incomplete. This research addresses this gap by identifying the poverty paradox, in which subsidies intended to improve farmer welfare may exacerbate poverty.

However, farmer welfare is only briefly mentioned, and no studies have explored the connection between welfare and fertiliser subsidies. This research aims to fill that gap by investigating poverty alleviation among farmers through a holistic approach, uncovering the paradoxical effects of poverty. It emphasises thoroughly addressing fertiliser subsidy policies to reduce farmer poverty. Figure 1 presents a research map on farmers and poverty, compiled from 387 articles and books using VOSviewer software. Thick red dots indicate areas with significant research, while thin dots and faint lines show underexplored fields. The analysis shows that productivity, adoption, and technology dominate the discussion on farmers, with fertiliser also being a significant topic.

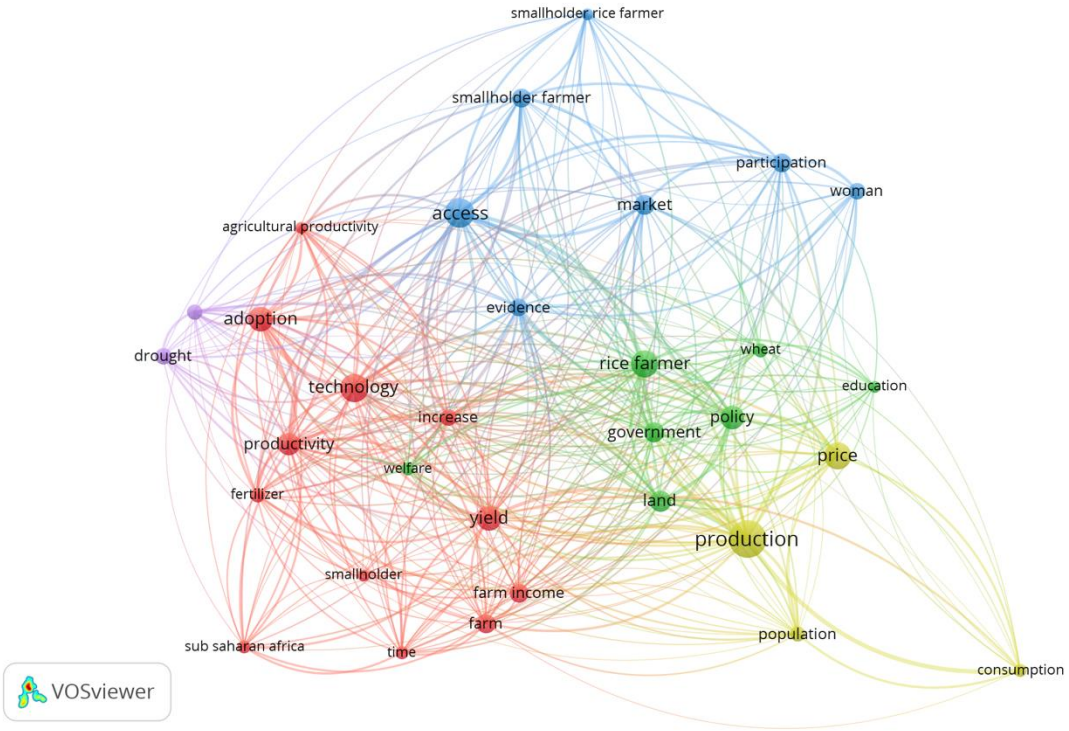


Figure 1. Research Map on Farmers and Poverty
Source: Processed by Researchers using VOSviewer Software (2023)

Fertiliser is an essential need in agriculture and is a strategic step to increase agricultural productivity. So, the government can provide farmers with fertiliser through a subsidised method (Ilham et al., 2016). The fertiliser subsidy policy was started in 1969 to encourage an increase in national food productivity while improving the welfare of farmers (Darwis & Supriyati, 2016). Aceh Province has unique characteristics regarding fertiliser subsidy policies and poverty alleviation in the agricultural sector. With a history of prolonged conflict and special autonomy status, Aceh faces various challenges in developing the farming industry. With a population that is primarily working as farmers, Aceh continues to face significant levels of poverty. Table 1 presents poverty rates and the amount of fertiliser subsidies in Aceh.

Table 1. Poverty Rates and Amount of Fertilizer Subsidies in Aceh

No.	Year	Poverty Rates (%)	Fertiliser Subsidies (tons)
1.	2022	14.64%	259,917
2.	2023	14.45%	221,321
3.	2024	14.23%	103,316

Source: Aceh Central Bureau of Statistics (2024)

Table 1 shows that while the poverty rate in Aceh has not significantly decreased, the allocation of subsidised fertilisers has steadily declined from 259,917 tons in 2022 to 103,316 tons in 2024. This is concerning, as subsidised fertilisers are crucial for Aceh's predominantly farming population, helping to lower production costs and boost incomes. The Indonesian government allocates fertilisers under regulations to enhance agricultural output, ensure food security, and reduce farmer poverty. However, implementation challenges persist. Distribution inconsistencies, shortages, and administrative difficulties hinder the policy's effectiveness. Additional factors such as low agricultural productivity, limited market access, and poor

infrastructure exacerbate poverty. Indonesia's approach to fertiliser subsidies is unique compared to other developing countries.

In Indonesia, subsidies bridge the gap between production costs and the government's retail prices. Despite intentions to improve farmer welfare and reduce poverty, doubts remain about the policy's success, particularly in Aceh. Given Aceh's unique conditions, this study evaluates the fertiliser subsidy policy's effectiveness in alleviating poverty and enhancing farmer welfare. It examines the definition of subsidised fertilisers, the impact of government policies, and their ability to create welfare and reduce poverty among Aceh's farmers.

B. LITERATURE REVIEW

Farmers and Poverty

Poverty among farmers is a complex phenomenon influenced by various economic, social, and environmental factors. As a significant group within rural populations, farmers often face structural challenges that exacerbate their financial conditions. Previous studies have explored the relationship between farmers and poverty from various perspectives, including access to resources, markets, technology, and government policies. Access to resources is one of the main factors hindering farmers from escaping poverty. Janvry et al. (2000) highlighted that rural farmers often lack access to fertile land, water, and capital. The absence of land ownership or access to productive farmland limits farmers' production capacity and income. Furthermore, limited access to irrigation water also negatively affects agricultural yields, especially in drought-prone areas. The inability to access the necessary resources for efficient production becomes a significant barrier to economic well-being.

Technology and knowledge are crucial factors in increasing farmers' productivity and income. Many farmers in developing countries still rely on traditional methods, which are less efficient, as noted by Feder et al. (1985). Adopting new agricultural technologies is often hampered by high costs and limited access to information. Technologies such as improved seed varieties, more effective fertilisers and pesticides, and modern agricultural tools can enhance crop yields and income, but access to them remains constrained. Natural disasters such as floods or droughts can damage farmers' crops and assets (Dercon & Krishnan, 2000). Pernet et al. (2019) noted that climate change significantly impacts agricultural production and food security. Saghir (2014) emphasised the importance of risk management strategies and agricultural insurance to protect farmers from unexpected losses.

There are several criteria for identifying poor farmers, although they vary depending on the context and country. These criteria include low income, limited access to resources, dependence on subsistence farming, lack of technology and knowledge, limited market access, poor health and well-being, low quality of life, and vulnerability to risks. Holden et al. (2011) indicated that restricted access to global markets and lack of government support contribute to low farmer incomes. Meanwhile, Mekouar (2018) noted that farmers' incomes often do not meet basic needs, exacerbating rural poverty. On the other hand, Kepe (2009) highlighted that many farmers lack adequate access to fertile land and efficient irrigation systems, contributing to poverty. Limited access to land, water, and resources is a significant obstacle for farmers and restricted access to credit hinders farmers' ability to invest in increasing production (White, 2020). Ellis (2006) saw it as a dependency on subsistence farming.

In his study on the Green Revolution, Pingali (2012) stated that adopting new technologies can significantly increase agricultural output. However, Barrett (2008) argued that agricultural extension and education for farmers remain essential in increasing their capacity to use efficient farm technology and access larger markets. Additionally, government policies in agricultural technology can improve farmer welfare. These government policies include agricultural subsidies, such as fertiliser subsidies and guaranteed minimum prices, which can help increase

farmer income and economic stability (Ravallion et al., 2007). However, ineffective implementation of fertiliser subsidy policies can worsen the situation. An uneven distribution of subsidies or corruption in distribution can diminish the benefits farmers receive. For example, the failure of subsidised fertilisers to reach eligible farmers can reduce their production and welfare.

Fertiliser Subsidy Policy for Farmers and Poverty Alleviation

Subsidies occur when the government covers part of the cost of goods, allowing domestic prices to remain lower than the international average for producing a particular commodity. In the case of subsidised fertilisers, the government regulates the procurement and distribution of subsidised fertilisers from the state budget. It delivers them through state-owned companies, government agencies, or third parties to ensure access to affordable prices. These subsidies are divided into production price subsidies and production factor subsidies, with fertiliser subsidies falling under the category of production subsidies (Sane et al., 2021). The purpose of fertiliser subsidies is to reduce production costs and increase the supply of agricultural products (Zulaiha et al., 2018).

The fertiliser subsidy policy is a crucial government initiative in the agricultural sector, providing farmers who produce essential food crops, such as rice, with lower-priced fertilisers. This aims to build national food security strategically. Subsidy policies have long been vital for supporting the agricultural sector in many countries, aiming to increase agricultural production, stabilise prices, and improve farmers' welfare. However, these policies have been controversial, especially regarding their effectiveness in alleviating poverty. Agrarian subsidies can be categorised into several types: input subsidies, such as fertilisers and seeds, price subsidies, and income subsidies (Mekouar, 2018). Fertiliser is vital in increasing crop production by up to 10%. To ensure the effectiveness of subsidies, it is essential to follow the six correct principles: type, quantity, place, time, quality, and appropriate price. Eligible recipients of fertiliser subsidies include farmers, planters, and livestock breeders with a maximum land area of 2 hectares and fish/shrimp farmers with a maximum area of 2 hectares, excluding companies (Indriasari & Sani, 2019).

In the short term, fertiliser subsidies have shown significant positive impacts. For instance, Pingali (2012) noted that fertiliser subsidies were crucial in increasing crop yields in many developing countries during the Green Revolution era. Kepe (2009) also recorded that price subsidies provide income security for farmers, reducing rural poverty and improving food security. These short-term benefits are reassuring, demonstrating the immediate positive impact of fertiliser subsidies. However, these subsidies can also lead to inefficient resource allocation, hinder innovation, create dependency on government support (Anderson, 2010), and lead to overproduction (Brooks, 2014), driving down market prices and harming small farmers. While fertiliser subsidies aim to increase productivity and income for smallholder farmers, they can also create excessive dependency, reduce incentives to adopt more sustainable farming practices, and ultimately harm the environment. The phenomenon is called the "poverty paradox," as Ravallion (2016) discussed.

Many countries have sought to reform their subsidy policies to address these challenges (Tadesse, 2014). For example, countries like India and Indonesia have shifted from fixed-price subsidies to more targeted direct subsidies for small farmers (Gulati & Pahuja, 2015). Rockström (2017) underscored that other policies, such as access to credit, agricultural education, and infrastructure development, must complement reforms. Zilberman (2013) proposed that Payments for Environmental Services (PES) could incentivise farmers to adopt more sustainable agricultural practices, benefiting both the environment and farmers' economic well-being.

C. METHOD

This study employed a qualitative research method with a case study approach (Creswell, 2019) to investigate the impact of fertiliser subsidy policies on the well-being of rice farmers in Aceh Province, Indonesia. This approach was chosen for its ability to provide an in-depth understanding of the context and personal experiences of individuals affected by the policy. Data were collected through several primary techniques: in-depth interviews, field observations, and document analysis. In-depth interviews were conducted with various stakeholders to obtain a comprehensive perspective on the fertiliser subsidy policy.

The primary sources for this research included farmers, Government Officials, NGO representatives, and researchers. Farmers who directly receive fertiliser subsidies are a crucial source of information regarding the policy's impact on their agricultural practices, crop yields, and economic well-being. As representatives from the agencies responsible for managing and implementing the fertiliser subsidy policy, government officials provide insights into the policy's objectives, execution, and challenges. NGO representatives and researchers NGO representatives and researchers, having studied fertiliser subsidy policies, offer perspectives on the effectiveness and implications of the policy from an external standpoint.

Interviews were conducted using purposive sampling, and participants were selected based on their relevance and experience with the fertiliser subsidy policy. Open-ended questions were used during the interviews to gather detailed information and identify emerging themes. In addition to interviews, field observations were conducted to examine agricultural practices, fertiliser use, and interactions between farmers and relevant stakeholders. These observations helped contextualise the subsidy policy's application in real-world settings. Document analysis was also utilised to gather secondary data, such as police reports, statistical data on fertiliser production and distribution, and relevant academic literature.

The collected data were analysed using a thematic analysis approach. The process began with transcribing interviews and documenting observations, then coding the data to identify key themes and patterns. Coding was conducted inductively, meaning themes and categories emerged from the data rather than pre-existing theories or hypotheses. After coding, a comprehensive analysis was performed to understand the relationships between themes and how they contribute to understanding the impact of the fertiliser subsidy policy. The study also considered the interaction of the policy with other factors, such as local economic conditions, farming practices, and institutional support.

Several strategies were employed to ensure the validity of the data. First, triangulation combined multiple data sources—interviews, observations, and documents—to cross-check information and provide a more comprehensive view of the policy's impact. This method helps to confirm findings and reduce bias. Second, member checking was conducted by sharing preliminary findings with some participants to verify the accuracy and authenticity of the data. This process ensured that participants' perspectives were accurately represented and allowed for necessary corrections. Third, peer debriefing was used, where the researcher discussed the findings and analysis with colleagues or experts to obtain feedback and ensure that interpretations were sound and free from personal biases.

However, several limitations of the study must be acknowledged. First, the interviews and observations were conducted in specific locations, so the findings may not be fully generalisable to all regions where fertiliser subsidy policies are implemented. Second, limitations in resources and time may have restricted the number of participants and the depth of interviews. Additionally, participants' biases, including farmers and government officials, may have influenced the data collected, and researchers must be mindful of potential subjectivity in data interpretation. Despite these limitations, this study provides valuable insights into how fertiliser subsidy policies affect rice farmers, hoping to contribute to developing more effective and sustainable policies in the future.

D. RESULT AND DISCUSSION

Challenges in Policy Implementation and Resource Allocation

Although designed to improve the welfare of farmers and support national food security, the fertiliser subsidy policy in Aceh Province faces various challenges in its implementation. In this context, it is essential to identify and analyse the multiple obstacles that affect the effectiveness of these policies, especially those related to resource allocation, communication deficiencies, and organisational inefficiencies.

Resource Allocation and Constraints in Implementation

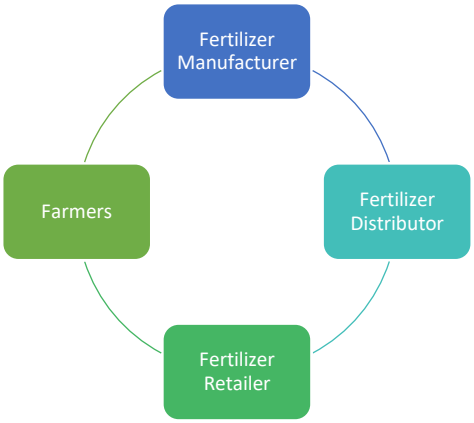
The Indonesian government designs fertiliser subsidies in Aceh Province to reduce production costs and increase the supply of agricultural products by providing farmers with more affordable fertiliser. The government allocates these subsidies from the state budget to be distributed through state companies, government institutions, or third parties that produce, sell, export, or import fertiliser (Yovo & Ganiyou, 2023). Subsidies are intended to lower fertiliser prices below international market levels, notably to support farmers producing essential crops such as rice. However, various resource allocation obstacles often hampered the implementation of this policy, leading to fertiliser shortages at the farmer level. These shortages decrease agricultural productivity and worsen farmers' welfare (Adnyana & Mohktar, 2019).

The uneven allocation of subsidised fertiliser is also a significant problem. Some regions may receive larger subsidised fertiliser quotas, while others face shortages. This unfair distribution can exacerbate inequality between farmers in various areas and hinder the overall effectiveness of subsidy policies (Bhandari, 2023). In Aceh Province, the problem is worsened by geographical conditions and limited infrastructure. Aceh's diverse and often difficult-to-reach topography, especially in remote areas, causes delays in fertiliser distribution, creating a significant gap between the policy's objectives and the reality on the ground. This underscores the urgent need for more equitable and efficient distribution practices.

Despite oversight by the Indonesian Ombudsman under Law Number 25 of 2009 concerning Public Services, especially Article 5 paragraph (1), which mandates comprehensive supervision of public services, including subsidised fertiliser, the distribution process in Aceh faces many obstacles. The supervision process is divided into upstream and downstream components. Upstream supervision includes the planning and budgeting stages, which involve determining the beneficiaries of subsidised fertiliser. The agricultural extension centre manages this planning at the sub-district level, where farmer groups are registered and assessed for their eligibility based on the Definitive Group Needs Plan. Meanwhile, downstream supervision relates to distributing subsidised fertiliser in Aceh. The distribution flow, from initial planning to final fertiliser delivery to farmers, is depicted in Figure 2.

In Aceh, problems also arise related to the management and administration of fertiliser distribution. Local governments and relevant stakeholders often struggle with coordination and communication. For example, there have been reports of insufficient communication between the central and regional governments regarding subsidised fertiliser quotas and discrepancies in data on subsidy recipients. This inefficiency is exacerbated by administrative problems such as errors in registering farmers eligible for subsidies, or inaccurate field fertiliser needs data. Access to adequate allocation of subsidised fertiliser is also a significant problem in Aceh. Access to a sufficient allocation of subsidised fertiliser is a substantial challenge in Aceh. Some regions receive larger quotas, while others face shortages, exacerbating inequalities among farmers in different areas and undermining the overall effectiveness of subsidy policies (Bhandari, 2023). In Aceh, these challenges are compounded by social tensions and local conflicts, which affect distribution and access. Farmers in conflict areas or regions that

frequently experience natural disasters may experience more difficulty obtaining subsidised fertiliser than farmers in more stable regions.



(Source: Processed by Researcher (2024))
Figure 2. The Distribution Flow of Subsidized Fertilizer

Communication Mistakes and Organisational Inefficiencies

Implementing the fertiliser subsidy policy in Aceh Province faces significant challenges in communication and organisational efficiency. Fertiliser subsidies, designed to reduce production costs and increase the supply of agricultural products by providing more affordable fertiliser prices for farmers, often struggle with effectiveness due to these issues. Communication problems and organisational inefficiencies are the two main factors hindering the implementation of this policy, especially in Aceh, which faces unique geographical and administrative challenges. Communication issues are critical to the success of the fertiliser subsidy policy. Communication issues are essential in the effectiveness of fertiliser subsidy policy implementation. In Aceh, challenging geography and cultural diversity often exacerbate communication barriers. The region's vast and dispersed rural areas usually make disseminating accurate and timely information to all farmers difficult.

Many remote farmers have limited access to information about fertiliser subsidies. Lack of clear information regarding distribution mechanisms and conditions for receiving subsidies can cause misunderstanding among farmers and increase the risk of misuse (Indriasari & Sani, 2019). For instance, farmers in some remote areas of Aceh have reported difficulties understanding the registration procedures for subsidised fertiliser. Many do not receive adequate information about distribution schedules, fertiliser quotas, or the conditions they must meet to qualify. This lack of information often creates uncertainty and confusion during the distribution process. Farmers unaware of their subsidy eligibility may miss out on the benefits entirely. In contrast, others might be forced to purchase fertiliser at higher market prices, thereby reducing the intended impact of the subsidy policy.

Communication breakdowns also affect coordination between the various parties involved in the fertiliser subsidy program, including local governments, fertiliser supply companies, and supervisory agencies. Misalignment in communication between these parties often leads to duplication of tasks, resource allocation errors, and conflicts of interest. For example, in Aceh, there have been reports of discrepancies between local governments and fertiliser suppliers regarding distribution schedules and quotas, leading to delays in distribution and making it difficult for farmers to access fertiliser when needed (Nugroho et al., 2018).

Organisational inefficiency is also a significant obstacle in implementing the fertiliser subsidy policy in Aceh. Complex administrative processes and bureaucratic red tape frequently hamper budget expenditures and fertiliser procurement. This inefficiency is also evidenced in

the management of subsidised fertiliser distribution. Local governments and fertiliser supply companies often struggle to coordinate distribution effectively. Delays in procurement and poor coordination between the parties involved usually lead to gaps in fertiliser delivery to farmers. For example, farmers have had to wait months for subsidised fertiliser in some areas due to procurement and distribution issues. In some cases, In other cases, farmers were forced to purchase fertiliser at market prices because subsidised fertiliser was unavailable, undermining the policy's benefits and worsening farmers' welfare.

Despite efforts to improve monitoring, challenges remain in ensuring that every stage of the distribution process is conducted according to established guidelines. For example, organisational inefficiency that apparent in Aceh's monitoring and evaluation of fertiliser subsidy policies. Although the government and related institutions are trying to improve transparency and accountability, limited resources and a lack of training for supervisors often limit the effectiveness of supervision. Uncertainty regarding distribution policies and procedures makes it difficult for supervisors to carry out their responsibilities properly. Despite efforts to improve monitoring, challenges remain in ensuring that every stage of the distribution process is conducted according to established guidelines. Miscommunication and organisational inefficiencies in implementing fertiliser subsidies in Aceh Province indicate that this policy requires special attention and corrective action.

The Impact of Challenges on Farmer Welfare in Aceh

The fertiliser subsidy policy implemented by the Indonesian government aims to reduce poverty among farmers by lowering production costs and increasing post-harvest profits (Hutagaol & Asmara, 2016). While various agricultural policies exist, fertiliser subsidies are crucial to alleviating farmer poverty. However, this policy often faces problems and has yet to fully meet domestic fertiliser demand. Implementing the fertiliser subsidy policy in Aceh Province faces various challenges that significantly affect the welfare of rice farmers. Delays in distribution, uneven fertiliser allocation, uncertainty in availability, and unstable prices have seriously impacted farmers' productivity and income. Although these policies are designed to reduce production costs and increase crop yields, the outcomes often fall short of expectations.

Delays in Distribution and Unequal Allocation

The delay in fertiliser distribution is one of the main obstacles to the subsidy policy in Aceh due to its challenging geographical conditions, cultural diversity, and information dissemination issues, causing farmers to miss out on subsidised fertiliser. In addition, there is also an inequity in the allocation of subsidised fertiliser for Aceh. In 2023, Aceh Province received a fertiliser subsidy allocation of 221,321 tons. However, by the end of 2023, only 140,910 tons, or 63.67%, had been distributed. The allocation includes 163,074 tons of urea fertiliser, 105,368 tons of Nitrogen Phosphorus and Potassium fertiliser, and 14,051 tons of Special Formula Nitrogen Phosphorus and Potassium fertiliser (2023). In 2024, the fertiliser subsidy allocation for Aceh was reduced by only 103,316 tons or half of the previous year's allocation—despite no significant reduction in Aceh's poverty rate, which was 14.45% in 2023 and 14.23% in 2024 (2024).

Most rice farmers in Aceh are poor and dependent on uncertain rainfall. Many do not plant rice during the dry or extended drought seasons, which prevents them from accessing subsidised fertiliser from distributors. As a result, the absorption of subsidised fertiliser is hampered, leading to reduced allocations in subsequent years. This condition makes it difficult for many farmers to obtain subsidised fertiliser, resulting in lower crop yields and incomes and exacerbating their poverty. This is in line with Putra's research (2022), which found that delays in fertiliser distribution by the Indonesian government led to a 20% decrease in agricultural productivity, worsened poverty, and negatively impacted food security.

Uncertainty and Unstable Prices

Uncertainty in fertiliser availability and unstable prices also negatively impact farmers. The price of subsidised fertiliser in Aceh currently ranges from IDR 2,250 – IDR 2,300 per kg or IDR 112,500 – IDR 115,000 per 50 kg. On the other hand, the price of non-subsidised fertiliser can reach IDR 500,000 – IDR 600,000 per 50 kg. This significant price difference causes farmers to prefer subsidised fertiliser, but inconsistent pricing and availability hinder their access to the fertiliser needed to improve agricultural productivity. In some areas, such as Aceh Besar, the scarcity of subsidised fertiliser makes it difficult for many farmers to to find stock. Farmers report that even high-priced fertilisers are often not available in stores. In Southeast Aceh Regency, subsidised fertiliser is often higher than the regular price due to weak local government oversight of fertiliser distribution. As a result, farmers feel disadvantaged and are frequently forced to buy fertiliser at prices much higher than the subsidised rate.

The issues occurring in Aceh highlight a mismatch between the objectives of the fertiliser subsidy policy and the on-ground reality. Although the subsidy is designed to lower fertiliser prices and alleviate the production cost burden for farmers, fertiliser availability and pricing uncertainties undermine the policy's effectiveness. Price instability and distribution shortages erode the benefits farmers should receive and may even force them to pay more than the subsidised price. This circumstance not only places a financial strain on farmers but also has the potential to reduce their agricultural productivity, which could ultimately affect regional food security. However, the potential for change is within reach. Reforming the distribution and oversight systems for fertiliser subsidies is crucial to achieving the policy's goals. Strengthening the capacity of organisations managing subsidies, improving transparency, and enforcing stricter distribution oversight are essential steps to address these challenges. With better distribution and pricing management, fertiliser subsidies can more effectively support farmers' welfare and enhance food security in Aceh.

Long-Term Impact on Farmer Productivity and Income

In the long term, uncertain fertiliser availability and unstable prices can significantly impact farmers' investment decisions (Sari et al., 2023). The inability to obtain subsidised fertiliser promptly can lead to reduced crop yields and incomes, exacerbating poverty among farmers. Reliance on fertiliser subsidies without necessary improvements in distribution and allocation systems can hinder the adoption of more sustainable and innovative agricultural practices, ultimately compromising the overall productivity and sustainability of the farm sector. In the specific context of Aceh, these issues are particularly pronounced. For example, in Bener Meriah and Central Aceh Regencies, farmers have faced significant challenges due to the digitisation of the subsidised fertiliser distribution system. This transition, aimed at improving efficiency and transparency, has not been adequately communicated to the farmers.

The case of Aceh illustrates broader systemic issues in managing and distributing subsidised fertiliser. The process is designed to be strictly supervised by the Indonesian Ombudsman, as per Law Number 25 of 2009 concerning Public Services. This law mandates comprehensive oversight from the planning and budgeting stages (upstream) to the final distribution (downstream). However, in practice, there have been significant challenges. Upstream supervision, which includes registering farmer groups and assessing their subsidy eligibility, often suffers from bureaucratic inefficiencies and a lack of clarity. It was evident in the case of the Definitive Group Needs Plan registration, where delays and miscommunication resulted in eligible farmers being excluded from the list of beneficiaries.

The downstream process, which involves the actual distribution of fertilisers, is equally problematic. In Aceh Besar, for instance, the scarcity of subsidised fertiliser has been a recurring issue. Farmers have reported difficulties in purchasing subsidised fertiliser, not just because of insufficient supply but also due to inconsistent pricing. Even when available,

fertiliser is often priced higher than the regulated subsidy rate, partly due to weak local government oversight. This situation forces farmers to pay more or forgo the fertiliser, reducing agricultural productivity and income. A striking example of these issues is in Southeast Aceh Regency, where subsidised fertiliser was reported to be higher than the regular market price due to inadequate supervision. Such discrepancies not only undermine the purpose of the subsidy but also erode trust in the system. Farmers, who are supposed to benefit from these subsidies, end up feeling disenfranchised and financially burdened.

Reform of the Distribution System and Fertilizer Subsidy Planning

Reforming the distribution system and fertiliser subsidy planning is crucial to addressing the challenges farmers face in Aceh. The government's role in increasing transparency within the distribution process and improving communication between all involved parties—government agencies, fertiliser supply companies, and farmers—is vital. Strengthening the capacity of organisations responsible for handling fertiliser subsidies is essential to ensure resources are managed efficiently and aligned with policy objectives (Nasution et al., 2023). In Aceh Besar, for instance, introducing the Digital Farmer Card has received mixed reactions. While some farmers have adapted to the new system, others have struggled due to unfamiliarity with digital technologies and inadequate training.

This digital divide has resulted in delays in accessing subsidised fertilisers, with some farmers needing clarification about the new application procedures. These delays have, in turn, impacted the timely planting of crops, negatively impacting agricultural productivity and, consequently, farmers' incomes. A specific example of the challenges in the distribution system can be seen in Bener Meriah Regency. In Southeast Aceh Regency, cases have been reported where subsidised fertilisers were higher than the market price due to inadequate government supervision. Such anomalies undermine the subsidy program's objectives and place an additional financial burden on farmers, many already struggling financially. The inconsistency in pricing and availability of fertilisers has caused frustration and distrust among farmers, who feel disadvantaged by a system meant to support them.

E. CONCLUSION

This study critically evaluates the fertiliser subsidy policy in Aceh Province, revealing significant gaps between policy objectives and actual outcomes. The primary goal of the policy is to reduce poverty by lowering production costs and increasing crop yields. However, its implementation has not alleviated poverty among Aceh farmers. Key challenges include inefficient resource allocation, communication barriers, inadequate administrative governance, and organisational issues. These challenges have created what has been described as a "poverty paradox," where the intended benefits of subsidised fertilisers inadvertently worsen poverty among farmers in Aceh. The study shows that while the fertiliser subsidy policy can potentially increase agricultural productivity and food security, its impact on poverty reduction in Aceh Province has been limited. The policy's failure to address the underlying causes of poverty has led to continued hardship for farmers.

A significant limitation of this study is its inability to fully assess the potential for increasing government capacity to support farmers due to differences in perceptions and preferences among government actors. This study highlights the need for a more integrated and responsive policy framework to address the specific challenges faced by the agricultural sector in Aceh. The study's recommendations, including stricter monitoring mechanisms, targeted training and outreach programs, and adjustments to the fertiliser subsidy quota, can significantly improve the policy's effectiveness.

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Contributorship

Vellayati Hajad led the research initiative, playing a central role in study design, data analysis, the drafting of the initial manuscript, and coordinating author contributions. Ikhsan provided critical input to the research design, contributed additional data analysis, and offered detailed feedback on manuscript drafts. Herizal was responsible for data collection, conducting an extensive literature review, and developing the methodology section. Deni Setiawan focused on manuscript refinement through substantive writing, revision, and final editing. Ikhwan Rahmatika Latif contributed expert analysis on data interpretation, enhanced the discussion of findings, and conducted a comprehensive quality review to ensure the accuracy and rigor of the final manuscript.

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