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SUBSIDIZED FERTILIZER DISTRIBUTION THROUGH IBN ASHUR'S MASLAHAH PERSPECTIVE IN NORTH SUMATRA

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Abstract: *Subsidized fertilizer distribution plays a strategic role in supporting agricultural productivity and national food security in Indonesia. Despite continuous improvements in fertilizer distribution management, challenges related to regional disparities, distribution effectiveness, and equitable access remain significant. While previous studies have primarily examined fertilizer distribution from technical, managerial, and administrative perspectives, limited attention has been given to evaluating its effectiveness through Ibn Ashur's concept of al-maslahah al-'ammah. Therefore, this study aims to analyze the distribution of subsidized fertilizers at PT Pupuk Indonesia Regional 1A North Sumatra from the perspective of maslahah. This study employed a qualitative field research design using semi-structured interviews, field observations, and document analysis involving four officially appointed fertilizer distributors selected through purposive sampling. The findings indicate that subsidized fertilizer distribution is supported by a structured supply chain and digital governance through the e-RDKK and Web Customer Management (WCM) systems. However, regional disparities, together with interconnected financial, administrative, technological, and logistical challenges, reduce distribution effectiveness and limit equitable fertilizer accessibility. From Ibn Ashur's perspective, the distribution system has partially realized al-maslahah al-'ammah by promoting agricultural productivity and public welfare, although the principles of justice, equality, and social order have not yet been fully achieved. This study extends the application of Ibn Ashur's maslahah framework to the evaluation of agricultural distribution policy and provides practical implications for strengthening digital governance, supply chain resilience, and equitable fertilizer distribution.*

Keywords: *Subsidized Fertilizer Distribution; Maslahah; Ibn Ashur; Maqasid al-Shariah; Agricultural Policy*

INTRODUCTION

Food security is one of the key indicators of sustainable national development because it reflects a country's ability to ensure the availability, accessibility, and stability of food for its population. As an agrarian country, Indonesia continues to rely on the agricultural sector as a strategic pillar for economic growth, employment, and national food security. Agricultural productivity, however, is highly dependent on the availability of production inputs, particularly fertilizer, which plays a crucial role in improving crop yields and maintaining soil fertility (Isyanto, 2024). Recognizing the strategic importance of fertilizer in supporting agricultural production, the Indonesian government has implemented a subsidized fertilizer policy to ensure that fertilizers remain affordable and accessible to eligible farmers. Through this policy, the government seeks not only to increase agricultural productivity but also to strengthen farmers' welfare and support the achievement of national food security.

The implementation of the subsidized fertilizer program is entrusted to PT Pupuk Indonesia (Persero), which is responsible for the procurement and distribution of subsidized fertilizers throughout Indonesia. To improve the accuracy and transparency of fertilizer distribution, the government introduced the Electronic Definitive Plan for Group Needs (*e-RDKK*), which serves as a digital database for identifying eligible farmers and determining fertilizer allocations (Rofiq & Khusnudin, 2025). In addition, PT Pupuk Indonesia has adopted the Web Customer Management (WCM) system to facilitate real-time monitoring of fertilizer distribution from production facilities to distributors and authorized retailers. These digital initiatives demonstrate the government's commitment to strengthening fertilizer distribution governance through more transparent, accountable, and efficient distribution mechanisms.

Despite these improvements, the implementation of subsidized fertilizer distribution continues to face numerous challenges. Ashari et al. (2023) reported that fertilizer distribution performance is strongly influenced by stock availability, transportation infrastructure, and logistics management. Likewise, Fatimah and Muhafidin (2024) found that inaccuracies in beneficiary data and weaknesses in distribution supervision frequently reduce the effectiveness of fertilizer subsidy programs. Kusuma et al. (2024) further explained that inconsistencies in agricultural databases often result in discrepancies between government fertilizer allocations and the actual needs of farmers. Besides these administrative constraints, limited digital literacy among retailers, inadequate transportation infrastructure, and weak coordination among relevant institutions continue to hinder the equitable distribution of subsidized fertilizers, particularly in geographically remote areas. Consequently, many farmers experience delays in obtaining fertilizers during critical planting periods, potentially reducing agricultural productivity and affecting their livelihoods.

These challenges are also evident in the implementation of subsidized fertilizer distribution at PT Pupuk Indonesia Regional 1A North Sumatra. Distribution realization data for 2025 further illustrate these issues.

Table 1. Actual Distribution of Subsidized Fertilizer in North Sumatra Province in 2025 (Sample of 10 Regencies)

Note: Green background $\geq 70\%$; Yellow background 60–69%; Red background $< 60\%$.

Regency/City	Urea Allocation (tons)	Urea Distribution Realization (tons)	(%)	NPK Allocation (tons)	NPK Distribution Realization (tons)	(%)
Simalungun Regency	26,758	22,730	84.9%	29,882	28,248	94.5%
Karo Regency	29,783	19,445	65.3%	32,780	24,429	74.5%
Deli Serdang Regency	23,418	19,846	84.7%	21,603	20,205	93.5%
Dairi Regency	23,196	18,461	79.6%	31,609	25,034	79.2%
Langkat Regency	14,840	13,074	88.1%	15,854	14,442	91.1%
Serdang Bedagai Regency	16,720	13,982	83.6%	17,147	15,966	93.1%
South Tapanuli Regency	7,522	5,593	74.4%	7,820	6,808	87.1%
North Tapanuli Regency	12,393	6,996	56.5%	11,251	9,865	87.7%
Pakpak Bharat Regency	4,053	2,212	54.6%	3,134	2,369	75.6%
Samosir Regency	7,700	4,560	59.2%	9,200	6,039	65.6%
North Sumatra Province Total	233,254	176,527	75.7%	256,166	218,421	85.3%

Source: PT Pupuk Indonesia Regional 1A (2025), processed by the authors.

Table 1 Show the Distribution realization data for 2025 show that only 75.7% of the allocated urea fertilizer and 85.3% of the allocated NPK fertilizer were successfully distributed (PT Pupuk Indonesia Regional 1A North Sumatra, 2025). Furthermore, substantial disparities were observed among regencies. Simalungun and Langkat achieved fertilizer realization rates exceeding 84%, whereas Pakpak Bharat, North Tapanuli, and Samosir recorded realization rates below 60% (PT Pupuk Indonesia Regional 1A North Sumatra, 2025). These disparities indicate that the existing distribution system has not yet achieved equitable implementation across all regions. As a result, differences in fertilizer accessibility may reduce agricultural productivity, weaken farmers' welfare, and ultimately undermine the broader objective of national food security. Therefore, evaluating subsidized fertilizer distribution requires not only an assessment of its operational effectiveness but also an examination of whether the current distribution system is capable of delivering equitable benefits to all eligible farmers.

From the perspective of Islamic economics, public policies should be evaluated not only by their administrative efficiency but also by their ability to promote public welfare (*maslahah*). Ibn Ashur (2001) argues that *Maqasid al-Shariah* extends beyond the protection of the five essential necessities to include justice (*al-'adalah*), equality (*al-musawah*), freedom (*al-hurriyah*), and social order (*al-nizam*). Accordingly, public policies should maximize collective benefits while minimizing social harm (2013). Anusantari (2021) further emphasizes that *maslahah* provides a normative framework for assessing whether government policies genuinely improve social welfare. Therefore, evaluating subsidized fertilizer distribution through Ibn Ashur's perspective enables a broader assessment that considers both operational effectiveness and distributive justice.

Previous studies on subsidized fertilizer distribution can be synthesized into three major research trends. The first examines the technical efficiency of fertilizer distribution,

emphasizing operational factors such as logistics management, transportation infrastructure, stock availability, and beneficiary data accuracy as key determinants of distribution performance (Ashari et al., 2023; Fatimah & Muhafidin, 2024; Kusuma et al., 2024). While this stream provides valuable operational insights, it pays limited attention to distributive justice and public welfare. The second research trend evaluates the effectiveness of fertilizer subsidy policies, focusing primarily on targeting accuracy, administrative efficiency, and policy implementation (Fatimah & Muhafidin, 2024). Although several studies acknowledge the importance of generating broader social benefits (Fitrah et al., 2024; Imsar et al., 2024), policy effectiveness is still largely assessed through administrative and economic indicators. The third research trend applies Islamic economic principles to public policy by emphasizing *maslahah*, justice, and equitable resource distribution as fundamental objectives of governance (Harahap et al., 2024; Hasanah et al., 2024; Rengganis et al., 2023).

Despite these contributions, important theoretical and empirical gaps remain. Previous studies have predominantly evaluated subsidized fertilizer distribution from technical, managerial, and administrative perspectives, whereas studies grounded in Islamic economics have mainly examined *maslahah* in broader contexts of public welfare and economic governance (Ashari et al., 2023; Fatimah & Muhafidin, 2024; Harahap et al., 2024). Consequently, limited attention has been given to integrating operational analyses of fertilizer distribution with Ibn Ashur's concept of *al-maslahah al-'ammah*. This gap highlights the need for empirical validation of Ibn Ashur's framework to assess whether the current distribution system not only operates efficiently but also fulfills the principles of justice (*al-'adalah*), equality (*al-musawah*), and public welfare as the objectives of *Maqasid al-Shariah* (Ibn Ashur, 2001; Toriquddin, 2013). Therefore, this study analyzes the distribution of subsidized fertilizers at PT Pupuk Indonesia Regional 1A North Sumatra through the perspective of *maslahah*, offering a more comprehensive evaluation that integrates operational effectiveness with normative Islamic principles.

The originality of this study lies in integrating Ibn Ashur's concept of *al-maslahah al-'ammah* with the analysis of subsidized fertilizer distribution. Unlike previous studies that primarily emphasize technical efficiency or policy implementation, this study evaluates fertilizer distribution through both operational and normative perspectives by examining its alignment with the principles of justice (*al-'adalah*), equality (*al-musawah*), and public welfare as the objectives of *Maqasid al-Shariah*. This integrated perspective provides a more comprehensive understanding of subsidized fertilizer distribution within the context of Islamic public policy.

Therefore, this study aims to analyze the distribution of subsidized fertilizers at PT Pupuk Indonesia Regional 1A North Sumatra through the perspective of Ibn Ashur's concept of *maslahah*. Specifically, it seeks to examine the implementation of the distribution system, identify the major challenges affecting its effectiveness, and evaluate the extent to which the distribution practices fulfill the principles of justice, equality, social order, and public welfare. The findings are expected to contribute to the development of *Maqasid al-Shariah*-based policy evaluation while providing practical recommendations for improving

the fairness, effectiveness, and accountability of subsidized fertilizer distribution in Indonesia.

RESEARCH METHOD

This study employed a qualitative field research design to explore the implementation of subsidized fertilizer distribution at PT Pupuk Indonesia Regional 1A North Sumatra from the perspective of Ibn Ashur's concept of *maslahah*. A qualitative approach was considered appropriate because it enables researchers to examine social phenomena within their natural context and to gain an in-depth understanding of participants' experiences, practices, and perspectives (Waruwu, 2023)

The study was conducted at PT Pupuk Indonesia Regional 1A North Sumatra, focusing on the supply chain of subsidized fertilizer distribution from distributors to authorized retailers. Research participants were selected using purposive sampling based on two criteria: (1) being officially appointed as a distributor by PT Pupuk Indonesia for at least one year, and (2) representing distribution areas with diverse geographical characteristics across North Sumatra. Based on these criteria, four distributors were selected as research informants, as presented in table 2.

Table 2. Profile of Distributors as Research Informants

No.	Name of Distributor	Location	Established	Operational Area
1	CV Nasional Tani	Siborong-borong, North Tapanuli	Since 2000s	North Tapanuli
2	PT Perlingguman Sejahtera Abad	Laguboti, Toba Samosir	2023	South Tapanuli
3	CV NAOMI	North Sumatra	2017	Several Districts
4	PT Prima Tani	North Sumatra	±2018 (7 years)	Dairi, Toba, Karo

Source: Field interview data, 2025

Data were collected in 2025 through semi-structured interviews, field observations, and document analysis. Semi-structured interviews were conducted using an interview guide consisting of twelve key questions covering company profiles, fertilizer allocation mechanisms, distribution schedules, implementation of the Highest Retail Price (*Harga Eceran Tertinggi* HET), operational challenges, factors affecting distribution efficiency, impacts on retailers and farmers, and recommendations for improving the distribution system. Each interview lasted approximately 45–90 minutes and was audio-recorded with participants' informed consent for transcription purposes. Field observations were conducted at distributors' operational warehouses and transit warehouses (*Gudang Transit Sentral* GTS) to observe fertilizer unloading, inventory recording, and distribution activities.

Documentary evidence, including company reports, government regulations, and fertilizer distribution records, was also collected to complement and verify the primary data. The study utilized both primary and secondary data. Primary data were obtained from interviews and field observations, whereas secondary data consisted of company documents, government regulations, fertilizer realization reports, and relevant academic literature.

The data were analyzed using the qualitative data analysis framework proposed by Miles et al. (2020) which consists of three interactive stages: data reduction, data display, and conclusion drawing and verification. During data reduction, interview transcripts were coded thematically, and similar codes were grouped into broader analytical categories. This process generated seven major themes representing the principal challenges of subsidized fertilizer distribution, which are presented in table 4. The findings were subsequently interpreted using Ibn Ashur's *Maqasid al-Shariah* framework to evaluate the extent to which the distribution system fulfills the principles of *maslahah*, justice, and public welfare.

To enhance the trustworthiness of the findings, source triangulation was employed by comparing information obtained from the four distributors with field observations, company documents, and fertilizer realization data provided by PT Pupuk Indonesia (2025). This triangulation process strengthened the credibility of the findings by ensuring consistency across multiple sources of evidence.

RESULT AND DISCUSSION

Profile of PT Pupuk Indonesia Regional 1A North Sumatra

PT Pupuk Indonesia (Persero) is a State-Owned Enterprise (SOE) engaged in the production, distribution, and marketing of fertilizers, as well as the provision of agricultural solutions to support Indonesia's national food security. As the holding company of the national fertilizer industry, PT Pupuk Indonesia is responsible for ensuring the availability of both subsidized and non-subsidized fertilizers to farmers throughout Indonesia through an integrated distribution system (Fahmi & Purnama, 2023)

PT Pupuk Indonesia Regional 1A North Sumatra is one of the company's operational regions responsible for managing the marketing and distribution of fertilizers throughout North Sumatra Province. This regional office plays a strategic role in ensuring the availability of fertilizer stocks, supervising the distribution process through authorized distributors and retailers, and coordinating with local governments, agricultural agencies, farmer groups, and other relevant stakeholders to support the effective implementation of the government's fertilizer subsidy program (Nabila et al., 2024).

In implementing the subsidized fertilizer distribution program, PT Pupuk Indonesia Regional 1A North Sumatra adopts a multi-tiered distribution system that extends from fertilizer producers to authorized distributors, official retail kiosks, and ultimately to farmers as the end beneficiaries. This distribution mechanism is designed to ensure compliance with the Six Rights (6T) Principle, namely the right type, right quantity, right

quality, right price, right place, and right time, thereby promoting the effective and efficient delivery of subsidized fertilizers (Fahmi & Purnama, 2023).

In addition to its distribution function, PT Pupuk Indonesia Regional 1A North Sumatra is responsible for monitoring fertilizer stock availability at both the distributor and authorized retailer levels. This supervisory function is supported by digital technologies, including the electronic Definitive Plan for Group Needs (*e-RDKK*) system and the Web Customer Management (WCM) platform, which are used to monitor the distribution of subsidized fertilizers to farmers registered as subsidy beneficiaries (Lumban Gaol et al., 2023).

As a company with a strategic role in Indonesia's agricultural sector, PT Pupuk Indonesia Regional 1A North Sumatra is committed not only to ensuring the efficient distribution of fertilizers but also to supporting agricultural productivity, improving farmers' welfare, and strengthening national food security. Consequently, the effectiveness of the subsidized fertilizer distribution system represents a critical factor in promoting public benefit (*maslahah*) and enhancing the welfare of society, particularly farmers in North Sumatra Province.

Distribution Mechanism of Subsidized Fertilizer

The findings indicate that subsidized fertilizer distribution at PT Pupuk Indonesia Regional 1A North Sumatra follows a structured seven-stage distribution mechanism, as illustrated in **Figure 1**. The process begins with fertilizer allocation determined by the regency government based on the *e-RDKK* database of registered farmer groups. The subsidized fertilizer policy is one of the Indonesian government's strategic interventions to improve agricultural productivity, strengthen national food security, and enhance farmers' welfare. The policy aims to ensure that eligible farmers have access to fertilizers at affordable prices while promoting equitable distribution across agricultural regions. To improve targeting accuracy, the government introduced the Electronic Definitive Plan for Group Needs (*e-RDKK*), which serves as the primary database for identifying eligible beneficiaries and determining fertilizer allocations (Rofiq & Khusnudin, 2025). In addition, PT Pupuk Indonesia has implemented the Web Customer Management (WCM) system to support real-time monitoring and improve transparency throughout the fertilizer distribution process.

The implementation of this policy involves multiple stakeholders, including the Ministry of Agriculture, PT Pupuk Indonesia, distributors, authorized retailers, and farmer groups, each with specific responsibilities in ensuring effective fertilizer distribution. Despite continuous improvements in distribution governance, previous studies report that challenges such as inaccurate beneficiary data, logistical constraints, regional disparities, and administrative inefficiencies continue to affect policy implementation (Ashari et al., 2023; Fatimah & Muhafidin, 2024; Kusuma et al., 2024). These challenges indicate that evaluating fertilizer subsidy policies requires not only an assessment of distribution performance but also an examination of whether the policy achieves its broader objective of ensuring equitable access and improving farmers' welfare. Therefore, this policy context

provides the basis for analyzing subsidized fertilizer distribution through Ibn Ashur's concept of *maslahah* in the present study.

Distributors then submit purchase orders through the Web Customer Management (WCM) system, followed by payment verification and the issuance of a Sales Order (SO) by PT Pupuk Indonesia. Fertilizers are subsequently collected from the production warehouse (Line I), transported to the distributor's transit warehouse (*Gudang Transit Sentral* GTS), delivered to authorized retailers, and finally distributed to registered farmers at the government-regulated Highest Retail Price (*Harga Eceran Tertinggi* HET). This distribution mechanism integrates administrative verification, digital monitoring, and physical distribution to ensure that subsidized fertilizers reach eligible beneficiaries in accordance with government regulations.

Supply chain management (SCM) refers to the integration of activities involved in planning, procuring, distributing, and delivering products from producers to end users in an efficient and coordinated manner (Chopra & Meindl, 2016). In the agricultural sector, an effective supply chain ensures the timely availability of production inputs, reduces distribution costs, and improves accessibility for farmers. Consequently, supply chain performance depends not only on the physical movement of goods but also on information sharing, coordination among stakeholders, and efficient inventory management.

In Indonesia's subsidized fertilizer program, the supply chain involves multiple stakeholders, including the government, PT Pupuk Indonesia, distributors, authorized retailers, and farmers. The implementation of the Electronic Definitive Plan for Group Needs (*e-RDCK*) and the Web Customer Management (WCM) system has strengthened coordination and improved distribution transparency by supporting data integration and monitoring throughout the distribution process (Rofiq & Khusnudin, 2025). Nevertheless, previous studies indicate that distribution performance continues to be constrained by inaccurate beneficiary data, logistical inefficiencies, and disparities in regional infrastructure, which may reduce farmers' access to subsidized fertilizers (Ashari et al., 2023; Fatimah & Muhafidin, 2024; Kusuma et al., 2024). Therefore, supply chain management provides an appropriate analytical perspective for understanding how distribution processes influence the effectiveness of fertilizer subsidy policies.

Figure 1. Distribution Flow of Subsidized Fertilizer by PT Pupuk Indonesia Regional 1A



Source: Field interview data, 2025 (processed)

Although the distribution mechanism is systematically organized and supported by digital technologies, the findings reveal that its effectiveness depends heavily on the operational performance of the WCM platform. Respondent 1 (CV Nasional Tani) explained that technical disruptions during the purchase order and payment confirmation processes frequently delay fertilizer collection from Line I. These delays subsequently postpone stock replenishment at transit warehouses, slow fertilizer deliveries to authorized retailers, and ultimately affect farmers' access to subsidized fertilizers during the planting season. Thus, operational disruptions occurring at the early stages of the distribution process may generate cascading effects throughout the downstream supply chain.

These findings support Ilham et al. (2023), who argue that digital transformation has improved transparency and coordination within Indonesia's agricultural supply chain but remains constrained by system reliability and institutional capacity. Similarly, Ashari et al. (2023) emphasize that distribution effectiveness depends not only on transportation and logistics but also on the performance of information systems that coordinate supply chain activities. From Ibn Ashur's perspective, the integration of the e-RDKK and WCM systems reflects an institutional effort to realize *al-maslahah al-'ammah* by improving transparency, accountability, and equitable fertilizer allocation. However, recurring technical disruptions reduce distribution efficiency and may hinder the realization of justice (*al-'adalah*) and social order (*al-nizām*) by delaying farmers' access to essential agricultural inputs.

Distribution Performance and Regional Disparity Analysis

The 2025 fertilizer distribution realization data reveal substantial variation across regencies. These differences are not merely numerical discrepancies but reflect

fundamental disparities in infrastructure capacity, geographical conditions, and the maturity of distribution systems in each region.

Table 3. Fertilizer Distribution Realization by Regency in North Sumatra, 2025

No.	Regency	Fertilizer Quota (Ton)		Distribution Realization (Ton)		Realization Rate (%)		Category
		Urea	NPK	Urea	NPK	Urea	NPK	
1.	Simalungun	32,129	16,060	27,263	15,182	84.9	94.5	High
2.	Langkat	51,187	25,593	45,108	23,329	88.1	91.1	High
3.	Dairi	29,260	14,630	24,221	11,816	82.8	80.8	Moderate
4.	Toba	15,074	7,537	10,524	4,877	69.8	64.7	Moderate
5.	Humbang Hasundutan	7,588	3,794	5,941	2,940	78.3	77.5	Moderate
6.	Samosir	6,676	3,338	3,955	1,975	59.2	59.2	Low
7.	Pakpak Bharat	4,162	2,081	2,271	1,130	54.6	54.3	Low
8.	Asahan	5,301	2,651	4,048	2,025	76.3	76.3	Moderate
Total		151,377	75,684	123,331	64,274	81.5	84.9	-

Notes: Realization rate = (Distribution realization / Quota) × 100%

Source: PT Pupuk Indonesia Regional 1A North Sumatra, 2025 (processed)

Simalungun Regency (84.9% for urea and 94.5% for NPK) and Langkat Regency (88.1% and 91.1%, respectively) recorded the highest distribution realization rates. Both regencies benefit from relatively developed transportation infrastructure, the presence of multiple distributors, and strategic locations along the primary logistics corridor from Medan, enabling more efficient fertilizer distribution (Lumban Gaol et al., 2023).

In contrast, Pakpak Bharat and Samosir recorded the lowest realization rates. These findings indicate that geographical constraints, including mountainous terrain, limited road accessibility, and dependence on ferry transportation, significantly affect fertilizer distribution. Respondent 4 (PT Prima Tani) emphasized that poor road conditions and landslides frequently delay fertilizer deliveries to remote areas (1A, 2025).

Respondent 1 further explained that upstream supply disruptions also affect regional distribution performance. Flooding at fertilizer production facilities in Aceh reduced fertilizer availability in North Sumatra, demonstrating that disruptions at the production stage generate cascading effects throughout the distribution network.

These findings support Ashari et al. (2023) who identified logistics and transportation infrastructure as key determinants of fertilizer distribution performance. Similarly, Kusuma et al. (2024) argued that regional disparities continue to constrain fertilizer accessibility despite improvements in digital distribution systems. From Ibn Ashur's perspective, these disparities indicate that the principles of justice (*al-'adalah*) and equality (*al-musawah*) cannot be fully realized when farmers' access to subsidized fertilizers remains highly dependent on geographical conditions.

Distribution occupies a central role in Islamic economics because it aims to ensure the equitable allocation of resources and the realization of social welfare. Unlike conventional

economic approaches that often emphasize market efficiency, Islamic economics views distribution as a mechanism for achieving justice (*al-'adalah*), equality (*al-musawab*), and collective welfare (*maslahah*). Ibn Ashur (2001) Accordingly, the effectiveness of a distribution system should be assessed not only by its operational performance but also by its ability to provide fair access to economic resources for all eligible beneficiaries.

In the context of subsidized fertilizer distribution, these principles imply that government policies should ensure that fertilizers are distributed accurately, transparently, and equitably to eligible farmers. Harahap et al. (2024) argue that equitable resource distribution is essential for improving community welfare, while Hasanah et al. (2024) emphasize that equal access to agricultural production inputs contributes significantly to farmers' productivity and livelihoods. Similarly, Imsar et al. (2024) highlight that transparency, accountability, and public benefit are fundamental principles of Islamic economic governance. Therefore, evaluating subsidized fertilizer distribution through the perspective of Islamic economics enables a broader assessment of whether the policy fulfills its social objective of promoting justice and public welfare in addition to achieving administrative efficiency.

Distribution Challenges: Dynamics and Systemic Interrelationships

The thematic analysis identified seven major challenges affecting the implementation of subsidized fertilizer distribution, as summarized in Table 4. Rather than representing isolated operational constraints, these challenges interact to form an interconnected distribution system in which disruptions at one stage generate cascading effects throughout subsequent stages of the supply chain. The findings indicate that technical, financial, administrative, logistical, and infrastructural constraints collectively influence the continuity and effectiveness of subsidized fertilizer distribution. Consequently, the performance of the distribution system depends not only on addressing individual operational issues but also on strengthening coordination among stakeholders across the entire supply chain.

According to Ibn Ashur (2001), the state plays a central role in realizing *al-maslahah al-'ammah* by ensuring that public policies promote justice, equality, and social welfare. Within the framework of *Maqasid al-Shariah*, government intervention is justified when it protects public interests and guarantees equitable access to essential resources (Anusantari, 2021). Consequently, the effectiveness of public policy should be evaluated not only by its administrative performance but also by its contribution to improving societal welfare.

Table 4. Distribution Challenges and Their Systemic Interrelationships

Challenge	Key Findings	Systemic Implications	Respondent(s)
WCM Digital System	Technical disruptions during booking and payment confirmation, combined with limited digital skills among kiosk operators, frequently interrupt distribution activities.	Delays fertilizer redemption from Line I, postpones stock replenishment at transit warehouses, and slows fertilizer delivery to authorized retailers and farmers.	<i>Resp. 1</i>
Stock and Supply	Delays in initial fertilizer allocation and supply disruptions caused by natural disasters reduce fertilizer availability.	Interrupts supply continuity and delays fertilizer distribution across multiple regencies.	<i>Resp. 1, 2</i>
Weather and Seasonal Conditions	Extreme rainfall restricts transportation, while prolonged dry seasons reduce fertilizer demand.	Disrupts delivery schedules and affects inventory management throughout the distribution process.	<i>Resp. 2, 4</i>
Information Coordination	Delayed dissemination of policy changes results in distributors and authorized retailers operating under different regulations.	Increases verification time, creates inconsistencies in implementation, and delays fertilizer distribution.	<i>Resp. 3</i>
Accuracy of e-RDKK Data	Fertilizer allocation does not always reflect farmers' actual needs because beneficiary data are not updated promptly.	Reduces targeting accuracy and limits equitable access to subsidized fertilizers.	<i>Resp. 3</i>
Payment Delays	Delayed payments by authorized retailers reduce distributors' working capital and delay fertilizer redemption.	Creates a domino effect that disrupts stock availability, fertilizer delivery, and distribution continuity.	<i>Resp. 3</i>
Transportation and Infrastructure	Poor road conditions, mountainous terrain, and limited transportation capacity hinder fertilizer distribution, particularly in remote areas.	Reduces regional accessibility and contributes to disparities in fertilizer distribution performance.	<i>Resp. 1, 4</i>

Source: Field interview data, 2025 (processed).

As presented in table 4, delayed payments by authorized retailers emerged as the most influential challenge because they trigger a domino effect across the distribution process. Respondent 3 (CV NAOMI) explained that delayed payments reduce distributors' working capital, limiting their ability to redeem subsequent fertilizer allocations from PT Pupuk Indonesia. As a result, fertilizer collection from Line I is postponed, transit warehouse stocks decline, and fertilizer deliveries to authorized retailers and farmers are delayed. These findings demonstrate that financial constraints at the downstream level directly affect upstream and intermediate distribution activities, ultimately reducing the continuity of fertilizer supply.

The findings further reveal that administrative and technological challenges reinforce these operational constraints. Inaccurate *e-RDKK* data and delayed dissemination of regulatory changes frequently create inconsistencies between fertilizer allocations and farmers' actual needs, requiring additional verification before distribution can proceed. At the same time, technical disruptions in the Web Customer Management (WCM) system delay booking and payment confirmation processes, thereby slowing fertilizer redemption and stock replenishment. These findings support Kusuma et al. (2024) who identified weaknesses in agricultural information systems as a major factor limiting the effectiveness of fertilizer subsidy distribution in Indonesia.

Logistical constraints also remain significant, particularly in geographically remote areas. Poor road conditions, limited transportation capacity, and extreme weather frequently delay fertilizer deliveries, while supply disruptions caused by natural disasters further reduce fertilizer availability across distribution areas (Ancu et al., 2025). These findings indicate that regional infrastructure and supply chain resilience play a critical role in maintaining distribution continuity. Therefore, the effectiveness of subsidized fertilizer distribution is determined not by a single operational factor but by the interaction of multiple challenges throughout the distribution network.

From Ibn Ashur's perspective, these interconnected challenges reduce the realization of *al-maslahah al-'ammah* because they limit equitable access to subsidized fertilizers and weaken the principles of justice (*al-'adalah*) and equality (*al-musawah*). Although the existing distribution system is supported by digital technologies and institutional regulations, strengthening data accuracy, stakeholder coordination, system reliability, and logistical capacity remains essential to ensuring that subsidized fertilizer distribution effectively promotes public welfare in accordance with the objectives of *Maqasid al-Shariah*.

Analysis of Fertilizer Distribution from the *Maslahah* Perspective

The findings were evaluated using Ibn Ashur's concept of *al-maslahah al-'ammah* to examine the extent to which the subsidized fertilizer distribution system fulfills the objectives of *Maqasid al-Shariah*. *Maslahah* is a fundamental principle of Islamic economics that emphasizes the realization of public welfare as the primary objective of economic activities and public policies. Ibn Ashur (2001) broadened the concept of *Maqasid al-Shariah* beyond the protection of the five essential necessities (*al-daruriyyat al-khams*) by incorporating justice (*al-'adalah*), equality (*al-musawah*), freedom (*al-hurriyah*), and social order (*al-nizam*) as essential objectives of public policy. Accordingly, the effectiveness of government interventions should be assessed not only by their economic outcomes but also by their ability to promote collective welfare and equitable access to public resources (Toriquddin, 2013).

As summarized in table 5, the distribution system has made significant progress in supporting agricultural productivity and strengthening food security through fertilizer subsidies and digital governance mechanisms. However, the realization of *maslahah* remains partial because operational, geographical, and administrative constraints continue to affect distribution performance.

Table 5. Evaluation of Subsidized Fertilizer Distribution Using Ibn’ Asyur’s Framework

Maslahah Dimension	Evaluation Criteria	Empirical Findings	Assessment
<i>Al-Maslahah al-'Ammah</i> (Public Welfare)	Distribution improves farmers' welfare, agricultural productivity, and food security.	Distribution generally supports agricultural production; however, substantial regional disparities limit equal access to subsidized fertilizers.	Partially Fulfilled
<i>Al-'Adalah</i> (Justice)	Fertilizer is distributed fairly according to farmers' eligibility based on the e-RDKK system and government regulations.	Distribution follows formal procedures, yet realization rates vary considerably across regencies because of logistical and geographical constraints.	Not Fully Achieved
<i>Al-Musawah</i> (Equality)	Eligible farmers have equal opportunities to obtain subsidized fertilizers.	Differences in infrastructure, transportation accessibility, and regional conditions create unequal access among farmers.	Needs Improvement
<i>Al-Nizam</i> (Social Order and Good Governance)	Distribution operates transparently, systematically, and accountably through the e-RDKK and WCM systems.	Digital systems improve monitoring and coordination, but technical disruptions and data inaccuracies continue to affect distribution performance.	Partially Fulfilled

Source: Author's analysis based on field interviews (2025), PT Pupuk Indonesia Regional 1A North Sumatra, and Ibn Ashur's concept of *al-maslahah al-'ammah* (Ibn Ashur, 2001; Toriquddin, 2013).

The evaluation indicates that the principle of public welfare (*al-maslahah al-'ammah*) has been partially fulfilled, as subsidized fertilizer distribution generally benefits agricultural production but has not been experienced equally across all regions. Similarly, (Hukum & Syariah, n.d.) the principle of justice (*al-'adalah*) has not been fully achieved because substantial disparities in distribution realization remain evident among regencies despite the implementation of standardized allocation procedures through the *e-RDKK* system. These findings suggest that procedural compliance alone is insufficient to ensure distributive justice when geographical and logistical constraints continue to limit fertilizer accessibility.

The principle of equality (*al-musawah*) also requires further improvement. Although all eligible farmers are formally entitled to receive subsidized fertilizers, differences in infrastructure quality, transportation accessibility, and regional characteristics create unequal opportunities to obtain agricultural inputs. This finding supports Rengganis et al. (2023), who argue that equitable distribution should be evaluated not only by equal allocation but also by equal access to public resources.

Regarding *al-nizam* (social order and good governance), the findings demonstrate that the implementation of the *e-RDKK* and Web Customer Management (WCM) systems has strengthened transparency, coordination, and accountability throughout the distribution process. Nevertheless, recurring technical disruptions, delays in updating beneficiary data, and coordination challenges continue to reduce operational efficiency. Similar observations were reported by Fitrah et al. (2024) who emphasize that effective public governance requires not only institutional regulations but also consistent implementation to maximize public benefit.

Overall, the findings indicate that subsidized fertilizer distribution at PT Pupuk Indonesia Regional 1A North Sumatra has substantially contributed to the realization of *al-maslahah al-'ammah*. However, achieving the broader objectives of *Maqasid al-Shariah* requires continuous improvements in data accuracy, digital system reliability, logistical infrastructure, and inter-agency coordination to ensure that justice, equality, and public welfare are realized more comprehensively.

Managerial and Policy Implications

The findings of this study provide several managerial and policy implications for improving the effectiveness of subsidized fertilizer distribution in Indonesia. As summarized in table 6, the identified challenges indicate that distribution performance is influenced by the interaction of administrative, technological, logistical, financial, and infrastructural factors rather than by isolated operational issues. Khan (2023) Accordingly, improving fertilizer distribution requires an integrated approach that simultaneously strengthens data management, digital governance, supply chain resilience, and stakeholder coordination.

Table 6.Managerial and Policy Implications Derived From the Research Findings

Research Finding	Root Cause	Managerial Implications	Policy Implications
Inaccurate e-RDKK Data	Farmer database is not regularly updated, resulting in mismatches between fertilizer allocation and actual field requirements.	Strengthen coordination between distributors, agricultural extension officers, and farmer groups to conduct periodic data verification before each planting season.	Integrate e-RDKK updates with regency agricultural offices through a centralized digital verification system to improve allocation accuracy.
Technical Disruptions in the WCM System	System instability and limited digital literacy among kiosk operators delay booking and payment confirmation.	Provide continuous digital training and technical assistance for distributors and authorized kiosks, particularly in remote areas.	Improve WCM system reliability and establish a responsive technical support mechanism to minimize operational disruptions.
Regional Distribution Disparities	Geographical constraints, poor transportation infrastructure, and limited accessibility reduce fertilizer distribution performance in remote regencies.	Develop regional logistics planning based on geographical characteristics and establish strategic buffer warehouses in high-risk areas.	Prioritize infrastructure investment and improve transportation accessibility to ensure equitable fertilizer distribution across regions.
Supply Chain Vulnerability	Dependence on limited production plants and single distribution routes increases the risk of supply disruptions during natural disasters.	Diversify distribution routes and strengthen inventory management through contingency stock planning.	Develop national supply chain resilience strategies by expanding alternative production and transportation networks.
Delayed Payments by Authorized Retailers	Delayed payments reduce distributors' working capital and interrupt fertilizer redemption.	Introduce digital payment monitoring and strengthen financial coordination between distributors and retailers.	Facilitate financing schemes or short-term credit support for authorized retailers to improve cash flow and maintain distribution continuity.
Unequal Access to Subsidized Fertilizers	Differences in infrastructure and logistics limit equal access for farmers despite uniform allocation policies.	Strengthen distribution monitoring using regional performance indicators and regular operational evaluations.	Complement allocation-based policies with accessibility-based planning to ensure distributive justice and the realization of <i>al-maslahah al-'ammah</i> .

Source: Author's analysis based on interview findings and document analysis (2025).

From a managerial perspective, PT Pupuk Indonesia and its distribution partners should prioritize strengthening the accuracy of the *e-RDKK* database through regular data verification, improving the reliability of the Web Customer Management (WCM) system, and enhancing the digital competencies of distributors and authorized retailers. In addition, strengthening inventory planning, diversifying distribution routes, and improving financial coordination between distributors and retailers are essential to reducing supply disruptions and maintaining distribution continuity, particularly in geographically remote areas.

From a policy perspective, the findings suggest that fertilizer subsidy policies should extend beyond allocation accuracy to address regional accessibility and supply chain resilience. Strengthening inter-agency coordination, investing in transportation infrastructure, and integrating digital monitoring systems with regional agricultural offices would improve the equity and effectiveness of fertilizer distribution. Furthermore, accessibility-based planning should complement existing allocation mechanisms to ensure that eligible farmers have equal opportunities to obtain subsidized fertilizers regardless of geographical conditions(Pratama et al., 2024). These improvements would contribute to the realization of *al-maslahah al-'ammah* by promoting justice (*al-'adalah*), equality (*al-musawah*), and sustainable public welfare within Indonesia's agricultural sector.

CONCLUSION

This study aimed to analyze the distribution of subsidized fertilizers at PT Pupuk Indonesia Regional 1A North Sumatra through the perspective of Ibn Ashur's concept of *al-maslahah al-'ammah*. Using a qualitative field research approach, the study examined the fertilizer distribution mechanism, regional distribution performance, operational challenges, and the extent to which the distribution system fulfills the objectives of *Maqasid al-Shariah*.

The findings demonstrate that subsidized fertilizer distribution is supported by a structured supply chain and digital governance through the *e-RDKK* and Web Customer Management (WCM) systems, which improve transparency and distribution monitoring. Nevertheless, the effectiveness of the system remains constrained by interconnected financial, administrative, technological, logistical, and infrastructural challenges that generate cascading effects throughout the supply chain. These constraints contribute to regional disparities in fertilizer accessibility, indicating that while the distribution system has partially realized *al-maslahah al-'ammah*, the principles of justice (*al-'adalah*), equality (*al-musawah*), and social order (*al-nizām*) have not yet been fully achieved.

This study contributes theoretically by extending the application of Ibn Ashur's *al-maslahah al-'ammah* framework to the evaluation of agricultural distribution policy, demonstrating that policy effectiveness should be assessed not only through operational performance but also through its capacity to promote justice, equality, and public welfare. Practically, the findings highlight the importance of strengthening the accuracy of the *e-RDKK* database, improving the reliability of the WCM system, enhancing supply chain resilience, and reinforcing coordination among stakeholders to achieve more equitable fertilizer distribution.

This study is limited to the perspectives of fertilizer distributors within PT Pupuk Indonesia Regional 1A North Sumatra and therefore does not capture the experiences of other stakeholders, such as farmers, authorized retailers, or policymakers. Future research is encouraged to involve multiple stakeholder groups and broader regional contexts while adopting comparative or mixed-methods approaches to provide a more comprehensive evaluation of subsidized fertilizer distribution and its contribution to the realization of *Maqasid al-Shariah*.

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