

Chapter 1 Introduction

1.1 Background

Fertilizers play a pivotal role in global agriculture, yet supply disruptions threaten import-dependent nations like Indonesia. Throughout the years, the worldwide fertilizer business has evolved into an essential element of agricultural production, particularly in areas with inherently poor soil fertility or where intensive farming methods are predominant.

Indonesia's fertilizer imports are heavily diversified among several key suppliers, notably Canada, Russia, and China. According to OEC (2023), Canada accounted for over \$1.04 billion of Indonesia's fertilizer imports, followed by Russia (\$699 million) and China (\$459 million). Each supplier plays a distinct role based on fertilizer type: Canada and Russia predominantly export phosphate and potash fertilizers, while China supplies a significant share of nitrogen-based fertilizers, especially urea and NPK blends (International Fertilizer Association, 2023). Disruptions from Canada or Russia would primarily impact potash and phosphate availability, whereas disruptions from China would most strongly affect nitrogen fertilizer supply. Given that nitrogen fertilizers are critical for rice cultivation — Indonesia's staple food crop — a reduction in Chinese exports could have a relatively larger impact on production costs and yields, compared to disruptions from other suppliers. This view is supported by the World Bank (2023), which noted that nitrogen fertilizer supply shocks have faster and stronger effects on Southeast Asian agriculture than phosphate or potash shocks. Therefore, while China is not Indonesia's largest supplier by total value, its role remains strategically significant for certain key agricultural sectors.

The worldwide fertilizer supply system is susceptible to disturbances, as demonstrated by declines in China's fertilizer exports following the introduction of stricter export regulations. For example, China's fertilizer export value has been declining since the fourth quarter of 2021, when “mandatory inspections” were implemented for most fertilizer exports. According to UN Comtrade data, China's fertilizer export values were \$11.67 billion in 2021, \$11.47 billion in 2022, \$9.84 billion in 2023, and \$8.71 billion in 2024. This decline is associated with noticeable effects in the Indonesian market: while the prices for non-subsidized NPK fertilizer increased by more than 150% from 2021 to 2024, the prices of staple foods such as rice, fruits, and vegetables did not rise proportionally. This suggests that although fertilizer availability has

been strained, its immediate impact on food prices has been somewhat mitigated, potentially due to government interventions or market adaptations.

Consequently, countries that rely heavily on fertilizer imports, including Indonesia, face notable challenges such as rising costs, supply uncertainties, and potential impacts on agricultural production. Indonesia sources its fertilizer not only from China but also from other major exporters such as Canada, Russia, and the United States (UN Comtrade, 2024). Although the decrease in fertilizer imports from China — one of Indonesia's largest suppliers — has contributed to tightening domestic supply, it is not the sole factor driving these challenges. Global issues such as increased energy prices, export restrictions from multiple countries, and disruptions in international logistics have also significantly affected fertilizer availability (FAO, 2022). **According to UN Comtrade data, Indonesia's total fertilizer imports from China declined by nearly 30% between 2021 and 2024.** During the same period, the World Bank reported that global fertilizer prices reached historical highs, peaking in 2022 and remaining elevated through 2024 (World Bank Commodity Markets Outlook, 2024). These combined factors have intensified pressure on farmers and agricultural businesses, particularly in remote or underserved regions where input costs are already higher due to logistical difficulties and restricted access to inputs. The agriculture industry in Indonesia, which employs a considerable segment of the people and considerably contributes to the national GDP, is especially vulnerable to such disruptions. The nation's reliance on imported fertilizers highlights its susceptibility to foreign market disruptions, potentially impacting food prices, rural economies, and overall economic stability. These farmers face escalating challenges in financing inputs, resulting in less fertilizer application, reduced yields, and therefore decreased revenue.

The ramifications of these interruptions are furthermore evident in agricultural production results. Deficiencies in fertilizer supply may directly diminish yields, especially for high-demand commodities like rice, maize, and palm oil. Decreased productivity at a national level may impact food supply networks, alter market prices, and initiate widespread inflationary pressures. In severe instances, the amalgamation of elevated input expenses and diminished output may dissuade cultivation, jeopardizing Indonesia's capacity to fulfil internal food requirements and uphold its agricultural export obligations.

The significant impact of fertilizers on Indonesia's agricultural output and food security makes the consequences of other countries export cutbacks substantial. These advancements underscore the need for holistic policies to tackle urgent issues while fostering resilience in the

agriculture industry. Augmented local production capacity, diversity of import origins, and the advancement of sustainable agricultural methods are initiatives that may alleviate the effects of global market disruptions.

The need to enhance domestic fertilizer output is becoming more pressing. Although Indonesia has many local fertilizer producers, their production capacity is unable to satisfy the national need entirely. Augmenting domestic production may reduce reliance on foreign suppliers and provide more stability during periods of worldwide market volatility.

Simultaneously with manufacturing, it is essential to diversify Indonesia's sourcing strategy. Dependence on a limited number of nations, particularly those vulnerable to geopolitical or environmental instability, presents substantial dangers to the agricultural system. Investigating trading partnerships with other fertilizer-exporting countries and establishing regional supply agreements might provide a safeguard against any future interruptions.

Moreover, Indonesia needs to explore sustainable alternatives to traditional chemical fertilizers. The existing circumstances provide a chance to invest in and advocate for sustainable alternatives, including organic fertilizers, biofertilizers, and integrated soil fertility management strategies. These options provide environmental advantages, including the mitigation of soil deterioration and enhancement of long-term soil health, while also diminishing the nation's reliance on unstable foreign markets.

In this situation, policy assistance is also essential. Government action via subsidies, support programs, and education may facilitate farmers' shift to more resilient techniques. Facilitating smallholder farmers' access to cost-effective inputs, education on sustainable practices, and financial support during market fluctuations is crucial for sustaining agricultural production and food security.

This setting highlights the significance of examining the wider ramifications of Major countries about fertilizer export cutbacks on Indonesia's agriculture economy. By analyzing the connections between global supply chain dynamics and local agricultural systems, policymakers and stakeholders may get a clearer understanding of the difficulties and possibilities for achieving agricultural sustainability and food security in an increasingly linked world.

1.2 Problem Identification

Based on the background, the following problems can be identified:

1. The potential rise in fertilizer prices due to reduced imports from Major countries.
2. The vulnerability of smallholder farmers to increased production costs.
3. The influence of reduced agricultural productivity on food prices and national food security.
4. The need for strategies to address the dependency on imported fertilizers and promote sustainable farming practices.

1.3 Research Questions

- What is the current state of Indonesia's fertilizer import trade, and what trends can be observed over recent years?
- How Indonesia fertilizer imports reductions influenced fertilizer prices in Indonesia?
- What challenges and problems have arisen due to Indonesia's reliance on imported fertilizers?
- What strategies can be implemented to reduce dependency on imported fertilizers and improve sustainability in the agricultural sector?

1.4 Research Objectives

- To analyse the current state and recent trends in Indonesia's fertilizer import trade.
- To examine the impact of reduced fertilizer imports on domestic fertilizer prices.
- To identify the key challenges and issues associated with Indonesia's reliance on imported fertilizers.
- Propose strategic recommendations to reduce reliance on imported fertilizers and promote sustainability within the agricultural sector.

1.5 Research Significance

This study focuses on how Major countries cutbacks in fertilizer exports affect Indonesia's agriculture industry, specifically with regard to productivity and pricing. The importance of fertilizers in sustaining agricultural productivity, promoting food security, and boosting the national economy makes the subject very pertinent. Addressing the difficulties encountered by farmers and guaranteeing sustainable

agricultural growth in Indonesia need an understanding of the relationships between local agricultural performance and global trade dynamics.

Given Indonesia's significant dependence on imported fertilizers, the significance of this study is clear. OEC.world reports that Canada (1.04B), Russia (699M), China (459M), Jordan (303M), and Laos (142M) are Indonesia's top importers of fertilizers. Between 2021 and 2024, fertilizer imports from China, Russia, and Canada, Indonesia's main trading partners, have significantly decreased. Total fertilizer shipments from these nations to Indonesia fell by about 15%, according to UN Comtrade data (2024), which is more indicative of global supply chain disruptions than of specific national regulations. Due to significant price rises brought on by the ensuing fertilizer shortages, farmers' production expenses have increased. Given how crucial timely and enough fertilizer application is to the production of vital commodities like rice, palm oil, and maize, this situation poses serious concerns to Indonesia's food security.

The vulnerability of smallholder farmers, who make up the majority of Indonesia's agricultural labour, is further increased by this reliance. These resource-constrained farmers are disproportionately affected by higher input costs, which hinder their capacity to sustain productivity and jeopardize their livelihoods. The need of shielding this population from market fluctuations emphasizes how urgent it is to investigate workable legislative solutions.

This study tackles sustainability issues that go beyond economic ramifications. Indonesia's over dependence on chemical fertilizers has long been linked to environmental problems including diminished biodiversity, water pollution, and soil deterioration. Given the current difficulties in the fertilizer supply, there may be a chance to investigate more sustainable and ecologically friendly alternatives, including organic or biofertilizers. The research adds to the conversation of how Indonesia might shift to more sustainable farming methods without sacrificing output by bringing attention to these choices.

Furthermore, this research is important as it tackles important flaws in Indonesia's import and export commerce of fertilizers. Fertilizer imports from a small handful of top producing nations—including China, Russia, and Canada—are much relied upon by Indonesia. When these important exporters cut their supply for geopolitical or financial reasons, Indonesia's agricultural output and food security suffer immediately. As such, the results of this study have significant policy ramifications,

especially in terms of directing policies to maximize Indonesia's fertilizer import system. By encouraging a variety of import sources and thereby lessening their impact, Indonesia may improve trade resilience by lowering dependence on any one nation. The report also supports more general policy changes such as boosting local fertilizer production, giving farmers focused subsidies or financial support, and encouraging the adoption of locally accessible sustainable alternatives. These combined actions will strengthen the farm sector and improve its resistance against outside disturbances in the world fertilizer market.

