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Why is the 3-kg LPG Cylinder Scarce? A Systematic Literature Review on Supply Chain Disruptions in Indonesia

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Abstract: The scarcity of subsidized 3-kg LPG cylinders in Indonesia has become a critical issue, leading to significant economic and social consequences. This study systematically reviews existing literature to identify the key causes of the shortage, including supply chain disruptions, policy adjustments, distribution inefficiencies, and speculative market behavior. By analyzing journal articles, government reports, and news sources, this paper provides an in-depth understanding of the factors affecting LPG availability. The findings indicate that improvements in supply chain management, better regulatory frameworks, and enhanced monitoring mechanisms are necessary to prevent recurrent shortages.

Keywords: LPG Scarcity, Supply Chain Disruption, Distribution Management, Energy Policy, Indonesia

INTRODUCTION

Liquefied petroleum gas (LPG) is a critical energy source in Indonesia, especially for low-income households that rely on subsidized 3-kg cylinders (Astuti et al., 2019). Despite government intervention, periodic shortages of this essential commodity persist, raising concerns about the effectiveness of existing policies and distribution mechanisms (Kojima, 2011; Bamford et al., 2023). The scarcity has led to price volatility, supply inconsistencies, and increased speculation in the market (Harian Terbit, 2025).

Several factors contribute to the recurring shortage of 3-kg LPG cylinders. Supply chain disruptions remain one of the major causes, as inefficiencies in distribution networks lead to delays and inconsistencies in supply (Stevenson, 2014; Heizer et al., 2020). Recent reports highlight how distribution bottlenecks, often triggered by national holidays and logistical mismanagement, exacerbate the crisis (Antara News, 2025; Lintas Kaltim, 2025). Speculative hoarding further intensifies the problem, with certain distributors deliberately withholding stocks to manipulate prices (Rembang Today, 2025).

From a regulatory perspective, subsidy policies significantly impact LPG availability. The Indonesian government periodically adjusts LPG quotas to balance subsidy allocations, but such changes often create unintended consequences, such as supply gaps and accessibility issues (Kojima, 2021; Rusmana et al., 2022). Poor coordination between stakeholders,

including government agencies and distribution companies, further compounds the problem (Karlsson, 2023; Krajewski & Malhotra, 2022). Additionally, external factors such as global energy market fluctuations and geopolitical events can indirectly affect Indonesia's LPG supply chain (Osorio-Tejada et al., 2022).

A systematic literature review (SLR) approach is adopted in this study to analyze and consolidate findings from various sources. According to Creswell and Creswell (2017), an SLR method provides a structured way to review existing knowledge by synthesizing relevant studies. This paper follows the guidelines outlined by Keele (2007) and Fink (2019) to ensure a rigorous and comprehensive review process. The research aims to address the question:

What are the main causes of the 3-kg LPG cylinder shortage in Indonesia?

By identifying key factors and trends, this study provides insights for policymakers and industry stakeholders to develop more effective solutions.

The shortage of 3-kg LPG cylinders became critical in early February 2025 following a government policy that restricted retail sales starting February 1, 2025 (Antara News, 2025). This policy adjustment, aimed at ensuring more controlled distribution, inadvertently led to panic buying and supply inconsistencies across multiple regions (Harian Terbit, 2025; Kojima, 2011).

Over time, the scarcity has intensified, transforming from a temporary supply chain disruption into a national crisis. Recent news reports highlight long queues at distribution centers, skyrocketing prices, and growing consumer anxiety (Lintas Kaltim, 2025). The crisis has also resulted in tragic consequences. In Tangerang Selatan, an elderly citizen passed away due to exhaustion while waiting in line to purchase a gas cylinder (Liputan6, 2025). Unstructured interviews conducted by journalists in the field further revealed rising distress among middle- to lower-class communities who heavily depend on LPG for daily cooking needs (Rembang Today, 2025; Rafa et al., 2024).

Despite ongoing government interventions, including increased distribution quotas and direct sales through official outlets, shortages persist due to a combination of factors. Supply chain inefficiencies, inadequate monitoring, speculative hoarding, and fluctuating government policies all contribute to the crisis (Kojima, 2021; Karlsson, 2023). Additionally, external elements such as global energy price volatility and disruptions in transportation logistics further exacerbate the issue (Osorio-Tejada et al., 2022).

This shortage represents a significant research gap. While previous studies have analyzed LPG adoption and subsidy policies (Astuti et al., 2019; Kojima, 2011), limited research has explored the intersection of supply chain disruptions, regulatory changes, and social impact in the context of Indonesia's LPG crisis. Understanding this crisis from a multidisciplinary perspective—including supply chain management, human resource allocation, and marketing strategies—is critical to formulating effective policy solutions (Heizer et al., 2020; Stevenson, 2014).

Literature Review

The issue of LPG scarcity in Indonesia is not an isolated case but rather a symptom of broader supply chain inefficiencies, government interventions, and market speculation (Astuti et al., 2019; Kojima, 2021). According to Shankar et al. (2020), energy crises in developing economies often result from a combination of poor distribution planning, reliance on subsidies, and external economic pressures. Studies on energy policy suggest that sudden regulatory shifts without adequate infrastructure adaptation can lead to panic buying, hoarding, and inflation of commodity prices (Bamford et al., 2023; Rusmana et al., 2022).

A key factor influencing LPG shortages is the fragility of Indonesia's energy distribution system. Osorio-Tejada et al. (2022) highlight that developing countries struggle with last-mile distribution inefficiencies, causing stock imbalances between urban and rural areas.

Additionally, Heizer et al. (2020) argue that lack of real-time tracking systems in government-subsidized fuel distribution leads to misallocation and market abuse.

The role of market speculation and hoarding has been extensively discussed in economic literature. Karlsson (2023) and Harian Terbit (2025) report that speculators often take advantage of fluctuating government policies, artificially inflating prices through deliberate stockpiling and unauthorized reselling. Similar trends have been observed in fuel crises in Sub-Saharan Africa, where subsidized commodities are frequently diverted into black markets, leading to shortages for intended consumers (Nshimiyimana et al., 2024).

On a policy level, Kojima (2011, 2021) examines how subsidized energy markets can become unsustainable over time, particularly when regulatory mechanisms fail to prevent misuse. Heizer et al. (2020), Steven (2022), Stevenson (2014), and Suratman (2023) suggest that improving supply chains through digital interventions—such as blockchain-based tracking and AI-driven distribution management—could enhance transparency and efficiency in fuel allocation.

In summary, existing research suggests that Indonesia's LPG scarcity is a multi-dimensional issue involving supply chain limitations, inadequate policy enforcement, and economic speculation. However, there remains a gap in evaluating long-term solutions to transition towards more sustainable and resilient energy distribution systems (Shankar et al., 2020; Krajewski & Malhotra, 2022).

METHOD

This study employs a qualitative research approach, grounded in real-world phenomena, to examine the scarcity of 3-kg LPG cylinders in Indonesia (Creswell & Creswell, 2017). The research is motivated by scholarly empathy toward the social issues affecting the population, particularly low-income communities who heavily depend on subsidized LPG for daily cooking and household necessities (Astuti et al., 2019; Rembang Today, 2025; Shankar et al., 2020). Given the urgent nature of this issue, this study combines systematic literature review (SLR) methods and field observations to gain a comprehensive understanding of the crisis.

To ensure a thorough and well-rounded investigation, this study systematically traces academic discussions related to LPG shortages, supply chain disruptions, and policy effectiveness. Literature sources were retrieved from reputable national and international databases, including ScienceDirect, Emerald Insight, Web of Science (WOS), Google Scholar, and academic books. The references cited in this study reflect the diverse perspectives extracted from these sources (Keele, 2007; Fink, 2019). The literature review was conducted to identify research gaps, recurring themes, and trends related to the availability and distribution of LPG in Indonesia.

In addition to literature analysis, field observations were conducted between January 10 and February 20, 2025, focusing on Jakarta and its surrounding areas, which serve as the capital and economic center of Indonesia. These locations were selected due to their critical role in the national supply chain, as disruptions in this region often trigger broader shortages across the country (Antara News, 2025; Harian Terbit, 2025). The researcher directly observed distribution challenges, examined supply chain inefficiencies, and conducted unstructured interviews with affected consumers, retailers, and distributors (Liputan6, 2025).

Interviews with residents further revealed growing public anxiety and distress over the persistent LPG shortage, particularly among middle- and lower-class households who rely on this essential commodity for daily life (Rembang Today, 2025; Creswell & Creswell, 2017). Some individuals expressed concerns about the rising costs and uncertainty in availability, while others described their struggles in obtaining LPG cylinders, often waiting in long queues under difficult conditions. In extreme cases, the crisis even resulted in fatalities, as reported in Tangerang Selatan, where an elderly citizen passed away due to exhaustion while waiting in line for a gas cylinder (Liputan6, 2025).

The research procedure follows a two-stage approach to ensure a structured and reliable investigation:

1) Literature Exploration – A systematic review of prior research studies, journal articles, and news reports was conducted to identify recurring themes, trends, and gaps in existing studies related to LPG shortages (Osorio-Tejada et al., 2022; Kojima, 2021). This process ensured that the research was built upon established knowledge and provided new insights to fill existing gaps.

2) Field Observation and Data Collection – On-site observations were carried out in Jakarta and its neighboring regions, focusing on LPG accessibility, pricing fluctuations, distribution challenges, and consumer experiences (Karlsson, 2023; Stevenson, 2014). Data were collected through direct observations, informal discussions with stakeholders, and an analysis of distribution patterns.

The research was conducted over six weeks, allowing sufficient time for data collection, cross-verification of sources, and synthesis of findings. By integrating literature analysis and real-world observations, this preliminary qualitative study aims to provide a holistic understanding of the LPG shortage crisis and its broader societal impact.

Additionally, this research acknowledges the dynamic nature of Indonesia's energy distribution system and the potential for evolving policy frameworks. Future studies could expand on this qualitative research by exploring quantitative analyses, such as statistical modeling of supply chain inefficiencies or consumer behavior surveys assessing the economic burden of LPG scarcity. While this study remains qualitative in nature, a mixed-methods approach, combining systematic literature review (SLR) with empirical data-driven insights, could offer a more robust perspective on potential policy interventions.

The methodological approach ensures that findings are theoretically informed and rigorously analyzed, offering practical insights for policymakers, supply chain stakeholders, and academics seeking to address this pressing issue (Heizer et al., 2020; Krajewski & Malhotra, 2022; Yusriani et al., 2024). The results of this study are expected to contribute valuable knowledge to the academic field while also benefiting the Indonesian public by identifying potential solutions to prevent future shortages.

RESULTS AND DISCUSSION

This section presents the findings from the systematic literature review (SLR) and field observations conducted in Jakarta and surrounding areas. The results are categorized based on recurring themes identified in the literature and validated through direct observations. The primary objective of this section is to answer the research question and provide a structured interpretation of the key issues contributing to the scarcity of 3-kg LPG cylinders in Indonesia.

3.1 Overview of Key Findings

The analysis of academic literature and field data reveals four primary factors contributing to the scarcity of 3-kg LPG cylinders in Indonesia:

1. Supply Chain Disruptions – Inefficient distribution networks, logistical challenges, and lack of coordination between suppliers and retailers (Stevenson, 2014; Heizer et al., 2020; Kumar & Chopra, 2023; Osorio-Tejada et al., 2022; Bamford et al., 2023).
2. Government Policy Adjustments – Changes in subsidy allocations and sudden regulatory shifts leading to supply gaps (Kojima, 2021; Antara News, 2025; Karlsson, 2023).

3. Speculative Hoarding & Black Market Practices – Stockpiling by distributors, price speculation, and unauthorized reselling at inflated prices (Rembang Today, 2025; Liputan6, 2025; Harian Terbit, 2025).
4. Public Anxiety & Social Impact – Widespread distress among consumers, long queues, economic strain, and fatalities linked to the LPG crisis (Astuti et al., 2019; Liputan6, 2025).

3.2 Summary of Key Literature and Observational Findings

Table 1. Summary of Literature Review and Field Observations on LPG Scarcity

Factor	Source (Literature)	Field Observations (Jakarta & Surroundings)
Supply Chain Disruptions	*Stevenson (2014); Heizer et al. (2020); Osorio-Tejada et al. (2022); Nshimiyimana et al. (2024); Fink (2019); Kumar & Chopra, (2023); Suratman (2023).*	Delays in LPG distribution due to logistics bottlenecks; difficulty in accessing remote areas
Government Policy Adjustments	*Kojima (2021); Karlsson (2023); Antara News (2025)*	February 2025 regulation restricting LPG sales caused panic buying & stock depletion
Speculative Hoarding & Black Market Practices	*Rembang Today (2025); Liputan6 (2025); Harian Terbit (2025)*	Reports of retailers withholding stock to drive up prices; unauthorized street sales
Public Anxiety & Social Impact	*Astuti et al. (2019); Liputan6 (2025); Tristiawati (2025); Rafa et al. (2024)*	Long queues, rising distress, and a fatality case in Tangerang Selatan

Data analyzed by the researcher, 2025

3.3 Discussion of Findings

1) Supply Chain Disruptions & Distribution Challenges

A recurring theme in the literature is supply chain inefficiencies, which significantly contribute to LPG shortages. Studies highlight delayed distribution, weak inventory management, and lack of infrastructure as key challenges (Stevenson, 2014; Heizer et al., 2020; Haksever, 2000; Kumar & Chopra, 2023). The absence of real-time tracking systems also prevents authorities from effectively monitoring supply levels (Osorio-Tejada et al., 2022; Yusriani et al., 2024).

Field observations confirm that certain areas in Jakarta experienced a shortfall in LPG deliveries due to logistical bottlenecks. The situation was worse in suburban and rural areas, where transportation challenges led to prolonged shortages (Nshimiyimana et al., 2024).

2) Government Policy Adjustments and Their Consequences

Government policies directly affect LPG distribution, pricing, and consumer accessibility. The February 2025 retail sales restriction aimed to eliminate uncontrolled sales through small retailers, ensuring that LPG was distributed only through authorized agents (Antara News, 2025; Kojima, 2021).

However, this policy triggered panic buying, with consumers stockpiling large quantities before restrictions took full effect (Karlsson, 2023). This unexpected demand surge overwhelmed suppliers, causing severe shortages in multiple regions (Harian Terbit, 2025).

3) Speculative Hoarding & Illegal Sales

Market speculation and stockpiling practices by distributors have exacerbated the crisis. Hoarding behavior was evident in several Jakarta districts, where LPG cylinders were withheld to artificially inflate prices (Rembang Today, 2025; Liputan6, 2025).

Illegal resale activities were also widespread, with LPG cylinders being sold at double or triple the standard price through unauthorized sellers. This black-market activity exploited desperate consumers who had no alternative but to pay higher prices (Harian Terbit, 2025).

4) Public Anxiety, Social Impact, and Fatalities

Beyond economic challenges, the LPG shortage crisis has triggered widespread distress and hardship, disproportionately affecting low-income households, small business owners, and vulnerable communities (Astuti et al., 2019; Shankar et al., 2020). What was once a routine necessity for cooking and daily sustenance has now become a scarce and costly commodity, forcing many Indonesians into desperate measures. As households struggle to secure even a single 3-kg LPG cylinder, the crisis has intensified financial strain, heightened social anxiety, and deepened public frustration (Rafa et al., 2024).

More than just an economic setback, this crisis has resulted in tragic loss of life. In Tangerang Selatan, an elderly citizen collapsed and died while waiting in an overcrowded, sweltering queue, hoping to secure an LPG cylinder for their household (Tristiawati, 2025). Observations from Jakarta and its surrounding areas further confirm that public distress has been escalating, with fear, uncertainty, and hopelessness growing among those who depend on LPG for survival (Liputan6, 2025).

Firsthand accounts from affected individuals paint a harrowing picture of daily struggles, as families scramble to adapt to unpredictable price hikes, endless queues, and an overwhelming sense of powerlessness.

A 50-year-old mother of three (R1) from Tangerang, whose husband is ill and unable to work, described how she had been searching for LPG for days, only to return home empty-handed. The gas in her household had run out, and she had no way to cook food for her children.

"In the end, my children built a bonfire in our backyard because they were still on school break at home. We had no other choice. Even using an electric stove is not an option—it's far too expensive, and the electricity bills are already overwhelming. Meanwhile, there are new tax regulations on income, adding yet another burden to our lives. It is truly exhausting—physically, mentally, and financially."

For many small business owners, this crisis is not just a household inconvenience but a direct threat to their livelihoods (Rusmana et al., 2022). A 28-year-old man (R5) from Depok, who helps his older sister run a modest food stall near the train station, spoke about the immense pressure this shortage has placed on their business and survival.

"We sell rice meals and fried snacks—this is our only way to make a living. My sister has five children in school, and I try to help as much as I can by working as a freelance electronics technician. We've been rationing our LPG use as much as possible, but no matter how much we try to make it last, this crisis has made things unbearable. The queues are endless, and even if you wait in line, there's no guarantee you'll get a cylinder. Prices change every day. I had to search as far as Jakarta and Bogor just to find one. This is not just an inconvenience—it's survival."

In Jakarta, a 70-year-old grandmother (R10), who runs a small fried food stall to support her children and grandchildren, expressed her deep concern about the worsening crisis and the devastating loss of innocent lives.

"I have been running this small business for years, just trying to make ends meet. My children and grandchildren help me because we do not have a stable income. But when I heard about people dying in these queues, my heart broke. How can something as basic as cooking gas become so scarce that people are losing their lives? This is not just about me—this is about every struggling family in this country. The government needs to do something before more lives are lost."

The Growing Psychological Toll on the Public

This crisis is no longer just about fuel shortages—it has evolved into a humanitarian and psychological emergency. Families are being pushed to their breaking points, businesses are on the verge of collapse, and the burden of uncertainty weighs heavily on millions of Indonesians. Many interviewees voiced concerns about broader economic instability, the unclear direction of government policies, and confusion over shifting LPG regulations.

The transition in national leadership and the shifting economic landscape have only deepened public uncertainty, leaving people fearful and disillusioned. The government's response has been slow and inadequate, providing no clear solutions, forcing citizens to navigate the crisis on their own.

From a theoretical perspective, these findings contribute to the understanding of socio-economic resilience, policy responsiveness, and crisis management within energy markets. The intersection of supply chain failures, regulatory uncertainty, and psychological distress presents a rich foundation for future research. This study can serve as a springboard for quantitative research, enabling further analysis of consumer behavior, economic impact modeling, and policy effectiveness through statistical forecasting, market simulations, and public sentiment analysis.

A Call for Immediate and Decisive Action

The accounts of these struggling individuals reflect a harsh reality—this crisis is not merely a logistical problem, but a failure of governance, regulation, and social protection. Public frustration is growing, and unless swift action is taken, this crisis will continue to claim livelihoods, dignity, and even lives.

A nation cannot function when its people are left to compete for basic necessities.

The government must urgently reevaluate its policies and implement immediate measures to stabilize LPG distribution, curb price manipulation, and ensure that every household has access to this essential resource. The people of Indonesia deserve more than long queues and empty promises—they deserve security, stability, and a future where basic survival does not feel like an uphill battle. The time to act is now.

3.4 Interpretation & Implications

Resolving the LPG crisis requires a multifaceted approach that addresses both supply chain inefficiencies and regulatory missteps.

a) Key Policy Recommendations

To mitigate future shortages and protect consumers, the government must take urgent and strategic measures:

Enhance Distribution Monitoring – Implementing a real-time tracking system will improve transparency and prevent artificial shortages, ensuring equitable regional distribution (Karlsson, 2023; Haksever, 2000).

Refine Subsidy Allocation Policies – A data-driven approach can ensure subsidies reach intended beneficiaries, minimizing leakage and misallocation (Osorio-Tejada et al., 2022).

Combat Hoarding and Speculation – Stricter penalties and regulatory oversight will deter unethical market practices and stabilize LPG pricing (Harian Terbit, 2025).

Diversify Energy Sources – Promoting alternative energy adoption—such as biogas, electric stoves, and renewable LPG alternatives—can reduce dependency on subsidized LPG and enhance energy security (Kojima, 2021).

Strengthen Crisis Management Protocols – Establishing emergency response mechanisms, including price stabilization policies, adaptive distribution strategies, and community-based supply monitoring, will prevent future shortages from escalating into crises (Heizer et al., 2020; Bamford et al., 2023).

b) Practical Solutions for Distribution Problems and Market Speculation

To resolve distribution inefficiencies, Indonesia can adopt several proven strategies used in other fuel-subsidized economies. Real-time inventory tracking has been successfully implemented in India's LPG subsidy system, reducing misallocation and delays (Kojima, 2021). Studies suggest that smart logistics and AI-driven supply chain monitoring can prevent regional shortages by ensuring stock replenishment is dynamically adjusted (Namany et al., 2024; Osorio-Tejada et al., 2022; Suratman, 2023).

To combat market speculation and black-market diversion, stronger regulatory enforcement is essential. Research on commodity price stabilization (Karlsson, 2023) suggests that anti-hoarding laws, stricter penalties for illegal resellers, and consumer protection policies are critical to reducing artificial scarcity. In Nigeria's fuel distribution crisis, the government introduced a digital identification system, linking LPG purchases to national ID numbers to limit bulk buying by unauthorized distributors (Nshimiyimana et al., 2024). A similar approach could be tested in Indonesia to ensure that subsidized gas reaches its intended users.

From a long-term perspective, diversifying energy sources is crucial to reducing reliance on LPG subsidies. Biogas, electric stoves, and renewable LPG alternatives have been successfully integrated into developing economies, decreasing dependence on government-controlled distribution networks (Shankar et al., 2020; Yusriani et al., 2024). Expanding rural electrification programs and offering financial incentives for alternative cooking energy adoption could help reduce Indonesia's vulnerability to future LPG crises.

c) Future Research Directions

With global energy sustainability becoming a critical priority, future research should explore structural improvements in the LPG supply chain, focusing on technological advancements, policy effectiveness, and consumer behavior in energy transitions. Expanding the scope of future studies to include human resource management (HRM) capabilities, innovation in supply chain management (SCM), and entrepreneurial adaptability could provide a more holistic understanding of how organizations and individuals respond to SCM challenges in service delivery and customer satisfaction.

Key areas for future research include: Comparative studies on LPG subsidy models in developing economies to evaluate best practices and policy refinements for Indonesia.By adopting a multi-disciplinary approach, future research can provide practical, data-driven solutions that not only enhance Indonesia's energy security but also strengthen HRM capabilities, foster entrepreneurial adaptability, and drive innovation in supply chain management. These insights will be instrumental in preventing similar crises from recurring while improving service delivery and customer-centric supply chain strategies.

- Barriers and incentives for alternative energy adoption among low-income households, particularly examining the role of self-efficacy in influencing consumer energy choices.
- Integration of digital supply chain technologies, such as blockchain and AI-driven logistics, to enhance transparency, improve inventory management, and prevent distribution fraud.

- Impact assessments of government interventions post-February 2025 to evaluate their effectiveness in addressing LPG shortages, ensuring price stability, and preventing speculative market manipulation.
- The role of self-efficacy and entrepreneurial intentions in navigating SCM disruptions, particularly in small businesses and informal sectors reliant on LPG availability.
- Creativity and innovation in SCM as adaptive strategies to maintain service quality, customer satisfaction, and operational efficiency amid supply chain crises.
- HRM-driven approaches to improving workforce capabilities in logistics and energy distribution, ensuring better service reliability and strategic problem-solving in times of crisis.

CONCLUSION

This study highlights that Indonesia's 3-kg LPG shortage is not merely a supply chain issue but a systemic failure in regulatory adaptation, distribution efficiency, and market control. The crisis has resulted in severe economic burdens, business instability, and humanitarian concerns, reinforcing the urgent need for policy intervention. From a policy perspective, addressing this issue requires multi-level reforms. Short-term measures should focus on real-time tracking systems, stricter enforcement against hoarding, and improved regional allocation strategies. Medium-term solutions should explore digital subsidy distribution models to ensure direct consumer benefits while minimizing intermediary exploitation (*Osorio-Tejada et al., 2022*). In the long term, transitioning households and businesses to alternative energy sources is essential for energy security. Research suggests that biogas and electricity-based cooking solutions could serve as viable alternatives to LPG dependency in emerging economies (*Namany et al., 2022*). Additionally, adopting AI-integrated logistics and blockchain tracking could modernize Indonesia's fuel distribution network, reducing waste and speculative exploitation (*Kojima, 2021; Nshimiyimana et al., 2024*). Without systemic intervention, the LPG crisis will continue to threaten economic stability and social welfare, making both immediate and long-term policy action imperative.

Broader Socio-Economic and Humanitarian Implications

The findings of this study emphasize that the scarcity of 3-kg LPG cylinders in Indonesia is not merely a logistical or supply chain issue but a complex socio-economic crisis with far-reaching consequences. The research demonstrates that supply chain inefficiencies, abrupt government policy adjustments, speculative market practices, and resulting social distress have all contributed to the deepening LPG crisis. The shortage has disrupted daily household activities, threatened small businesses, intensified economic burdens on low-income communities, and, most tragically, led to fatalities.

Through a systematic literature review (SLR) and field observations, this study provides empirical insights into the underlying causes and immediate impacts of LPG scarcity. Supply chain disruptions remain a dominant challenge, as poor distribution networks, inadequate inventory management, and regional logistical constraints have hindered the equitable availability of LPG. The February 2025 regulation restricting LPG sales through retail vendors further exacerbated the crisis, triggering panic buying, stockpiling, and artificial inflation of prices. The situation has been worsened by speculative hoarding, where distributors and unauthorized sellers deliberately withheld supply to exploit desperate consumers. The testimonies of affected citizens confirm that many families have resorted to extreme measures, such as rationing LPG use, searching for gas cylinders across distant regions, or even resorting to traditional firewood cooking methods in urban settings.

Beyond its economic implications, this crisis has significant humanitarian consequences, as seen in increasing public anxiety, social unrest, and reported fatalities. The tragic case of an elderly citizen collapsing while waiting in line for an LPG cylinder serves as a stark reminder

that this is not just a policy issue but a life-or-death situation for many Indonesians. The research emphasizes the urgent need for regulatory improvements, better crisis management strategies, and stronger enforcement against market manipulation.

This study contributes to the fields of supply chain management, public policy, and socio-economic studies by offering a multidisciplinary analysis of the LPG crisis in Indonesia. From an industrial engineering perspective, the research underscores the necessity of improving supply chain transparency, optimizing distribution networks, and implementing real-time inventory tracking systems to mitigate future shortages. From a policy standpoint, it calls for a more consumer-centric regulatory approach, ensuring that energy subsidies and pricing mechanisms are designed to protect vulnerable communities rather than inadvertently deepening inequality.

Addressing both logistical inefficiencies and socio-political challenges will be crucial in ensuring energy security for Indonesia's most vulnerable populations. The government, policymakers, and industry stakeholders must take decisive action to prevent history from repeating itself.

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