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# Why Is the supervision of 3-kilogram LPG in Banggai Still Ineffective

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Abstract

**Abstract:** The supervision of 3-kilogram Liquefied Petroleum Gas (LPG) distribution in Banggai Regency remains problematic, particularly in achieving equitable access and effective regulatory enforcement. This study aims to analyze the implementation of supervision policies and identify factors affecting their effectiveness. Using a qualitative descriptive approach, seven key informants were selected through purposive sampling. Data were collected through in-depth interviews, field observation, and document analysis, and examined using Miles, Huberman, and Saldana's interactive model. The findings reveal that several policy implementation indicators—such as communication between stakeholders, the availability of supervisory personnel, access to information, and bureaucratic coordination—are still suboptimal. These issues reflect broader national challenges in distributing subsidized LPG, a critical energy source for low-income households and micro-enterprises in Indonesia. The study highlights the need for better policy communication, increased supervisory capacity, clearer Standard Operating Procedures (SOPs), and stronger coordination among government agencies and PT Pertamina. In addition, innovative, technology-based monitoring tools such as app-based reporting systems are recommended to improve transparency and accountability. These recommendations not only address local weaknesses in Banggai Regency but also provide insights applicable to other regions with similar challenges. Strengthening policy implementation at the regional level is key to improving the distribution of subsidized energy nationwide.

## Introduction

Energy is a fundamental necessity that supports economic and social activities within society. One of the most widely used energy sources in Indonesia is Liquefied Petroleum Gas (LPG), particularly the government-subsidized 3-kilogram LPG. This subsidized LPG is designated for low-income households and micro-enterprises as part of the energy subsidy policy aimed at reducing dependence on kerosene, enhancing energy efficiency, and promoting the transition to cleaner and more sustainable energy sources (Nugroho 2021).

The Indonesian government initiated the kerosene-to-LPG conversion program in 2007 as a strategy to mitigate the increasing burden of fuel subsidies. This program is regulated under various legal frameworks, including Law No. 22 of 2001 on Oil and Gas and Presidential Regulation No. 104 of 2007 concerning the Provision, Distribution, and Pricing of

3-Kilogram LPG (Ramadhan, Liesmana, and Putera 2020). In its implementation, the 3-kilogram LPG is subsidized by the government and produced by PT Pertamina (Persero) before being distributed to eligible recipients through authorized agents and distribution centers.

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However, in practice, the distribution of 3-kilogram LPG across various regions continues to face numerous challenges, including supply shortages, uneven distribution, and subsidy misallocation (Gunawan, Arifin, and Noor 2020). One region that experiences significant challenges in LPG distribution is Banggai Regency. Despite having six official LPG agents and more than 4,500 distribution centers, numerous issues persist in its distribution and oversight. Several districts face LPG shortages due to an insufficient number of distribution centers relative to community consumption needs. Additionally, the unauthorized sale of subsidized LPG has led to retail prices exceeding the government-mandated Highest Retail Price (HET) (Abdoellah, Y and Rusfiana 2016).

One of the primary factors contributing to LPG distribution issues is the weakness of the monitoring system. Local governments face limitations in terms of supervisory personnel and infrastructure necessary to ensure effective distribution (Dewi and Seroja 2023). A lack of coordination between local governments, PT Pertamina, and LPG agents further hampers efforts to enforce LPG distribution policies in accordance with existing regulations. Additionally, the suboptimal reporting system for LPG distribution has resulted in inaccuracies in distribution planning and the allocation of subsidized LPG.

Another issue is the low compliance rate among agents and distribution centers regarding the established distribution rules. Some agents fail to report the number of LPG cylinders they distribute regularly, making government monitoring efforts more difficult. Furthermore, malpractice such as hoarding and sales to unauthorized groups remains prevalent, exacerbating disparities in LPG distribution within Banggai Regency (Winarno 2012).

These issues are not unique to Banggai. Similar challenges have been documented in other parts of Indonesia and globally. For example, in Nigeria, subsidy mismanagement and supply chain inefficiencies have led to fuel scarcity and inflated prices (Akanle, Adebayo, and Adetayo 2014; Olujobi 2021; Uwak, Ekpenyong, and Ebong 2024). In Ghana, digital platforms like the National Petroleum Authority's monitoring systems have been introduced to prevent fuel diversion and improve transparency (Abudu and Sai 2020; Asomaning 2021; Effah-Kesse 2019). Meanwhile, Brazil has focused on geospatial mapping and beneficiary targeting to enhance energy subsidy effectiveness (Barroco Fontes Cunha et al. 2021; Jean et al. 2025).

This study seeks to analyze the supervision of 3-kilogram LPG distribution in Banggai Regency, with a focus on the implementation of policy mechanisms and their effectiveness. It aims to identify systemic barriers and propose adaptive, evidence-based recommendations—drawing both from domestic experiences and international best practices. The urgency of this issue lies in its direct implications for energy equity, public welfare, and the sustainability of Indonesia's subsidy regime. The findings of this study are expected to contribute to more accountable and efficient energy governance, both locally and nationally..

## Method

### Research Approach and Design

This study adopts a qualitative descriptive approach, chosen for its flexibility in examining policy aspects that cannot be quantified, thereby allowing for an in-depth analysis of policy implementation dynamics in the field. It enables an in-depth understanding of complex and contextual social phenomena, particularly in the implementation of the LPG 3-kilogram distribution supervision policy in Banggai Regency. Descriptive qualitative research facilitates the exploration of factors influencing policy effectiveness based on the experiences and perspectives of key stakeholders (Miles, Huberman, and Saldana 2014).

### Research Location and Participants

This study was conducted in Banggai Regency, Central Sulawesi, one of the regions receiving subsidized LPG 3-kilogram distribution. The location was selected based on indications of problems in implementing the LPG distribution policy, including uneven distribution, supply shortages, and weak supervision of agents and distribution centers.

Participants in this study were selected using purposive sampling, a non-probability sampling technique commonly used in qualitative research. This method allows researchers to intentionally select individuals who possess specific knowledge, experiences, or roles relevant to the research problem. The goal is not to generalize to a population, but to gain rich, contextual insights from information-rich cases (Patton 2002). These participants included:

- Government officials responsible for overseeing LPG distribution.
- Representatives of PT Pertamina as the supplier and distributor of LPG.
- LPG 3-kilogram agents and distribution center owners.
- The community as consumers of subsidized LPG.

A total of 7 to 10 informants were interviewed. While this number may appear limited in quantitative terms, it is consistent with the principle of data saturation in qualitative research. According to Guest, Bunce, and Johnson (2006), data saturation—the point at which additional interviews yield no new substantive information—often occurs within the first 6 to 12 interviews (Guest, Bunce, and Johnson 2006). In this study, interviews were conducted until recurring patterns and themes were observed, and no significant new insights emerged, thus achieving saturation .

### Data Collection Techniques

Data in this study were collected using several key techniques tailored to the need for an in-depth exploration of the studied phenomenon:

1. In-depth Interviews: Conducted to gather information from stakeholders regarding the implementation of LPG distribution supervision policies. The interviews followed open-ended questions to allow informants to provide broad and in-depth responses. This technique is based on a qualitative approach that emphasizes subjective understanding of the studied phenomenon (Creswell and Creswell 2017).
2. Field Observations: Conducted to directly observe the LPG distribution process, interactions between agents, distribution centers, and consumers, as well as the supervision mechanisms in place.
3. Documentation: Secondary data were collected from various sources, such as government reports, regulations related to LPG distribution policies, and data from PT Pertamina on LPG distribution in Banggai Regency.

### Data Analysis Techniques

The collected data were analyzed using the interactive model of Miles, Huberman, and Saldana (2014), which is recognized as effective for qualitative data analysis as it captures inter-variable relationships in a more dynamic and contextual manner (Miles et al. 2014). The analysis consists of three main stages:

1. Data Reduction: Selecting, simplifying, and focusing data obtained from interviews, observations, and documentation to make it more systematic.
2. Data Presentation: Reduced data are structured in tables, matrices, or descriptive narratives to facilitate further analysis.
3. Conclusion Drawing and Verification: After data presentation, interpretation is conducted to identify patterns and relationships between variables, followed by verification to ensure the validity and consistency of research findings. This process aims to enhance transparency and the reliability of analytical results.

### Data Credibility Testing

To enhance the validity and reliability of data, this study employs several credibility testing techniques in accordance with qualitative research standards (Lincoln and Guba 1985):

1. Source Triangulation: Comparing data from various sources, such as interviews with government officials, LPG agents, and consumers, to ensure accuracy and consistency of information.
2. Method Triangulation: Using various data collection methods (interviews, observations, and documentation) to ensure that the study's findings are not solely dependent on one technique and provide a broader perspective.
3. Member Checking: Confirming research findings with informants to ensure the accuracy of data interpretation and avoid interpretative bias.

With this systematic research methodology, it is expected that the study can provide a more accurate depiction of the implementation of the LPG 3-kilogram distribution supervision policy in Banggai Regency and the factors influencing it.

## A. The implementation of the 3-kilogram LPG distribution supervision policy in Banggai Regency

This study found that the implementation of the 3-kilogram LPG distribution supervision policy in Banggai Regency still faces various challenges. Based on interviews with informants, field observations, and document analysis, several key findings were obtained:

1. Distribution Inequality: The distribution of 3-kilogram LPG in Banggai Regency is uneven, with some districts having an adequate number of distribution points, while others suffer from shortages. Observational data indicate that Toili and Toili Barat districts receive a higher allocation of LPG than other districts, even exceeding that of central Luwuk. Data from the Regional Secretariat's Natural Resources Division show that Toili District receives 15% of the total LPG distribution in the regency, while several other districts receive only 5% or less.
2. Lack of Supervision: Weak government oversight has led to irregularities in LPG distribution, such as sales to ineligible consumers and hoarding by certain parties. Based on interviews with officials, some agents do not regularly report their distribution volumes to the local government, only to Pertamina. Observational data reveal that 40% of LPG agents in Banggai Regency did not report their distribution volumes to the local government between January and May 2023.
3. Limited Resources: The number of personnel responsible for supervision is still inadequate. The Integrated Supervision Team consists of 78 personnel from various government agencies and Pertamina. However, they have not been able to conduct comprehensive monitoring down to the distribution point level due to limited resources and incentives.
4. Regulatory Constraints: Standard Operating Procedures (SOPs) for LPG distribution supervision have not been consistently implemented. The absence of clear SOPs has led to poor coordination between related institutions and obstacles in policy enforcement. In interviews with relevant officials, it was mentioned that supervision is conducted based on internal policies of each institution rather than standardized SOPs.
5. Pricing Issues: The retail price of 3-kilogram LPG often exceeds the government-set Highest Retail Price (HET), especially in areas with limited access to official distribution points. This is due to unauthorized sales channels, such as unregistered retailers.

### a. Communication

Communication is a crucial factor in the successful implementation of LPG distribution supervision policies. However, the study findings indicate that communication between regulators and implementers remains suboptimal. Policy socialization is only conducted when problems arise, resulting in many agents and distribution points lacking a clear understanding of distribution and reporting regulations. This aligns with the findings of Gunawan et al. (2020), who reported that poor communication in LPG distribution policies leads to uncertainty in implementation (Gunawan et al. 2020).

### b. Resources

Limited resources are a major obstacle to the implementation of the supervision policy. Although an Integrated Supervision Team exists, field monitoring remains insufficient. Additionally, LPG agents lack the initiative to transparently report distribution volumes to the local government, making supervision more difficult. Comparisons with other regions show that regencies with a higher number of supervisors tend to have better monitoring. Ramadhan et al. (2020) also found that a lack of human resources in LPG distribution supervision can lead to weak policy enforcement (Ramadhan et al. 2020).

### c. Disposition (Policy Implementers' Attitudes)

The attitude and commitment of policy implementers also influence the effectiveness of LPG distribution supervision policies. Some agents and distribution points still do not comply with regulations. This issue is exacerbated by the lack of incentives for supervisory personnel, which negatively impacts monitoring effectiveness. Interviews with members of the Integrated Supervision Team revealed that 85% of them believe that the absence of incentives reduces their motivation to perform supervisory duties. These findings are consistent with Nugroho (2021), who emphasized that implementers' disposition is a critical determinant of policy success (Nugroho 2021).

### d. Bureaucratic Structure

The bureaucratic structure for LPG distribution supervision remains ineffective. The absence of clear SOPs for reporting and distribution has led to poor coordination between agencies. Uneven distribution of responsibilities has also weakened supervision. Winarno (2012) highlighted the importance of clear SOPs within the bureaucratic structure to enhance policy implementation effectiveness (Winarno 2012). Comparisons with other regions show that areas with stricter supervision SOPs, such as Makassar City, have successfully reduced LPG distribution irregularities by up to 30% compared to areas without clear SOPs.

## B. Comparison with Previous Studies

The findings of this study are consistent with several previous studies. For example, research by Gunawan et al. (2020) found that the distribution of subsidized LPG in various regions in Indonesia faces similar issues, such as uneven distribution and weak supervision. However, this study adds further contributions by specifically highlighting how the implementation of LPG distribution supervision policies in Banggai Regency encounters obstacles in terms of communication, resources, disposition, and bureaucratic structure. Meanwhile, research by Ramadhan et al. (2020) also found that weak coordination between local governments and PT Pertamina is one of the main factors causing inefficiencies in subsidized LPG distribution. This study reinforces these findings by adding empirical evidence from interviews and field observations.

This study also shares similarities with previous research on the implementation of subsidized LPG distribution policies in Indonesia. For instance, research conducted in Batam City (Dewi & Seroja, 2023) found that ineffective supervision of subsidized LPG distribution was caused by weak coordination between the local government and PT Pertamina, as well as low compliance levels among agents and distribution points. This aligns with the findings of this study, in which weak coordination among stakeholders in Banggai Regency also emerges as one of the main factors contributing to the ineffectiveness of the supervision policy.

Although this study confirms several findings from previous studies, it provides additional contributions by identifying more specific factors that hinder policy implementation in Banggai Regency. Thus, this study emphasizes the need for improvements in policy communication, strengthening supervision resources, and implementing stricter regulations to ensure that 3-kilogram LPG distribution operates more effectively and is well-targeted.

## C. Comparative Insights and Technological Innovations

Beyond Indonesia, the challenges faced in Banggai Regency reflect broader issues in the governance of subsidized LPG distribution in many developing countries. Weak enforcement, misallocation, and price manipulation are common problems that various governments have attempted to address through technological and institutional innovations.

In Nigeria, the fuel subsidy system has long been plagued by corruption and poor oversight, resulting in LPG shortages and black-market activity (Akov 2015). To tackle these issues, Nigeria has introduced mobile verification systems and biometric identification technologies aimed at improving the targeting and monitoring of subsidized energy distribution (Alabi 2022; Ogochukwu 2019). Ghana provides another relevant case, where the National Petroleum Authority has implemented real-time tracking systems to monitor the movement of LPG cylinders. This system has enhanced transparency and significantly reduced the volume of illegal resale (Asante Boakye, Zhao, and Ahia 2023; Asomaning 2021). In India, the PAHAL (Pratyaksh Hanstantrit Labh) program represents a strong model of technology-driven reform. It combines biometric beneficiary verification with direct subsidy transfers (DBT) to reduce fraud, prevent leakages, and ensure that subsidies reach eligible households. The program has shown measurable success in improving accountability and efficiency (Gelb, Mukherjee, and Navis 2018; Muralidharan et al. 2022; Sachan 2018). Similarly, Mexico has reformed its LPG distribution system by emphasizing decentralized monitoring and mobile-based consumer tools, such as apps that allow users to check official prices, report irregularities, and track delivery schedules. These tools empower consumers while also supporting regulatory enforcement (Alpizar–Castro and Rodríguez–Monroy 2016; González-López and Giampietro 2018; Ramírez, Ortiz-Arango, and Rosellón 2021). In Brazil, although the implementation of LPG-specific tracking is still evolving, some programs have begun to incorporate municipal-level socio-economic profiling to better target energy assistance to low-income households (Barroco Fontes Cunha et al. 2021; Luzia et al. n.d.)These efforts, though not always digitally integrated, reflect a growing recognition of the need for data-driven subsidy allocation.

These international experiences highlight the value of integrating digital tools, real-time monitoring, direct benefit transfers, and consumer feedback mechanisms into LPG subsidy governance. They demonstrate that with the right institutional design and technological infrastructure, common challenges—such as leakage, mistargeting, and weak enforcement—can be effectively mitigated.

In Indonesia, efforts to enhance LPG distribution transparency through technology have also begun to emerge. Pertamina has piloted digital systems for cylinder tracking using barcode and QR code technology in several major cities such as Jakarta, Surabaya, and Bandung (Katadata 2023; Kompas.com 2024; Timur 2024). These systems digitally tag each LPG cylinder, allowing it to be monitored throughout the supply chain—from filling plants to end users—helping to verify product authenticity and reduce illegal resale. Although still in the pilot stage, these initiatives show promise in improving distribution accuracy and

ensuring regulatory compliance. However, implementation in remote and rural areas like Banggai remains limited, highlighting a digital divide and the need for scalable, nationwide solutions. Compared to countries such as India and Ghana, where digital oversight has been institutionalized at the national level, Indonesia's approach remains fragmented and exploratory.

## D. Policy Implications

The research findings highlight the urgent need for structural, procedural, and technological reforms to improve the supervision of subsidized LPG distribution in Banggai Regency and similar regions across Indonesia. Key barriers—such as lack of transparency, limited oversight capacity, unclear SOPs, and weak coordination—require integrated policy responses informed by both domestic challenges and international experiences.

a. Enhancing Transparency through Digital Reporting

Local governments should implement standardized, real-time reporting systems to track LPG distribution volumes. Agents must submit routine reports to both PT Pertamina and regional supervisory bodies. This system should utilize mobile applications and web-based dashboards, inspired by digital governance tools adopted in Ghana and Mexico, to enable timely detection of anomalies and violations.

b. Strengthening Supervision Capacity with Technological Tools

Expanding the number of trained inspectors and providing adequate operational support is essential. Integrating GPS-enabled inspection schedules and digital verification tools, as used in Brazil, can improve monitoring reach and effectiveness, especially in dispersed and rural regions.

c. Developing Unified, Digitally Accessible SOPs

To address inconsistencies in enforcement, clear and enforceable SOPs must be developed and disseminated digitally across agencies. Drawing from the successful SOP implementation in Makassar, this approach can standardize practices and improve compliance nationwide.

d. Improving Interagency Coordination through a Centralized Platform

A national or regional LPG Supervision Task Force, supported by a centralized digital platform, can enhance coordination among stakeholders. This platform should facilitate real-time data sharing, collaborative enforcement, and periodic evaluation—similar to systems adopted in India and Ghana.

e. Incorporating Community-Based Feedback Mechanisms

Consumer involvement through mobile reporting tools (apps, SMS, or USSD systems) can strengthen public accountability and oversight. Countries like Mexico and Ghana have successfully empowered citizens to report violations, helping enforce compliance from the ground up.

f. Addressing the Widespread Digital Divide in Indonesia

Despite the benefits of technology, many regions in Indonesia—including but not limited to Banggai—face significant digital infrastructure gaps, low internet penetration, and

limited digital literacy. Policymakers must complement digital initiatives with investments in rural connectivity, offline-compatible solutions, and digital literacy programs. Without addressing this digital divide, technological reforms risk deepening inequality and excluding vulnerable communities from supervision systems.

By adopting these interconnected policy actions, the government can significantly improve LPG supervision not only in Banggai but across the country. Integrating technology with inclusive policy design will ensure that subsidized LPG reaches its intended recipients fairly, transparently, and sustainably—contributing to more accountable energy governance nationwide.

## Conclusion

This study finds that the supervision of 3-kilogram LPG distribution in Banggai Regency remains ineffective due to weak communication, limited resources, unclear SOPs, and poor coordination. These systemic issues hinder fair and transparent distribution of subsidized energy. To address this, the study recommends concrete actions: standardizing SOPs across agencies, expanding the number of trained inspectors, applying digital monitoring tools, and forming an integrated supervision task force. These steps can strengthen oversight and ensure subsidies reach rightful beneficiaries. Insights from countries like India and Ghana show that digital innovation and real-time tracking improve transparency and reduce leakage. Applying such approaches in Indonesia—especially in regions like Banggai—can enhance policy effectiveness. Improving supervision requires not only institutional reform but also adaptive technology use. Strengthening these aspects is vital for ensuring targeted, accountable, and sustainable subsidy distribution.

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