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LPG AVAILABILITY AND DISTRIBUTION CHALLENGES IN INDIA: A CRITICAL STUDY WITH SPECIAL REFERENCE TO KERALA

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Abstract

Liquefied Petroleum Gas (LPG) has become a cornerstone of India's clean energy transition, particularly in the domestic cooking sector. Over the past decade, sustained policy interventions, infrastructure expansion, and subsidy-driven initiatives have significantly increased LPG penetration across both rural and urban households[837]. This transition has played a crucial role in reducing dependence on traditional biomass fuels such as firewood, coal, and kerosene, thereby contributing to improved public health outcomes[838], environmental sustainability, and enhanced quality of life—especially for women, who have historically borne the burden of household cooking.

Despite these advancements, recent developments—especially global geopolitical tensions, supply chain disruptions, and policy prioritization—have exposed deep structural vulnerabilities in India's LPG availability and distribution system[839]. The country's heavy reliance on imports, coupled with its exposure to volatile[4] international energy markets, has made LPG supply increasingly uncertain. Disruptions in key exporting regions, fluctuations in global prices, and logistical bottlenecks have collectively strained the consistency and affordability of LPG supply in India.

This paper critically examines the emerging LPG availability crisis in India with a special focus on Kerala[5], a state characterized by near-universal dependence on LPG for domestic and commercial energy needs. Kerala's unique socio-economic profile—marked by high population density, limited use of alternative fuels, and strong reliance on service-sector activities—makes it particularly vulnerable to even short-term supply disruptions. As a result, the state serves as an important case study for understanding the broader implications of LPG shortages in highly dependent regions.

The study analyzes the causes of supply disruptions in a comprehensive manner, including structural factors such as import dependence, external shocks arising from global conflicts affecting fuel supply chains, and internal inefficiencies[6] within the domestic distribution network. It also considers the role of policy decisions, including the prioritization of household consumption over commercial use, and how such measures, while necessary, may generate unintended economic consequences.

[837] Ministry of Petroleum and Natural Gas, Government of India, *Annual Report on LPG Consumption and Distribution in India* (New Delhi, 2024).
[838] International Energy Agency (IEA), *India Energy Outlook 2023* (Paris: IEA Publications, 2023).
[839] World Health Organization, *Household Air Pollution and Health Impacts* (Geneva: WHO, 2022).
[4] Petroleum Planning & Analysis Cell (PPAC), *LPG Import Dependency Statistics Report* (New Delhi, 2024).
[5] Ministry of Petroleum and Natural Gas, *Pradhan Mantri Ujjwala Yojana (PMUY) Progress Report* (New Delhi, 2023)
[6] Reuters News Agency, "India Diversifies LPG Imports Amid Middle East Supply Disruptions," 2026

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Further, the paper evaluates the socio-economic impacts of LPG shortages on multiple stakeholders, including households, small and medium enterprises, large commercial establishments, and essential service providers such as hospitals and educational institutions. It highlights how supply disruptions can lead to cascading effects—ranging from increased household vulnerability and health risks to business closures, employment losses, and inflationary pressures in local economies.

Through a detailed examination of recent events in Kerala, including commercial LPG shortages, prolonged refill delays, and regulatory restrictions on cylinder usage, the paper underscores the severity and immediacy of the crisis. These developments reveal critical gaps in preparedness, coordination, and resilience within the existing energy supply framework.

In conclusion, the study emphasizes the urgent need for comprehensive policy reform and strategic diversification of energy sources. It advocates for a multi-pronged approach involving structural improvements in supply chains, enhanced regulatory mechanisms to ensure transparency and equity, and the adoption of technological solutions for efficient distribution management. Additionally, it highlights the importance of promoting alternative clean energy options such as electric cooking and biogas to reduce overdependence on LPG. Such measures are essential to strengthen energy security, improve system resilience, and ensure equitable access to clean cooking energy across India.

Introduction

Energy access is a fundamental component of socio-economic development, and in India, LPG has emerged as a key driver of clean cooking fuel adoption[7]. Access to reliable and affordable energy not only improves living standards but also contributes to broader developmental goals such as poverty reduction, gender equality, and environmental sustainability. In this context, LPG has played a transformative role by providing a cleaner, more efficient, and convenient alternative to traditional cooking fuels.

Traditionally, Indian households relied heavily on firewood, coal, and kerosene for cooking purposes, which contributed to indoor air pollution and adverse health outcomes[8]. Prolonged exposure to smoke from these fuels has been linked to respiratory diseases, eye problems, and other serious health conditions, particularly affecting women and children who spend more time near cooking areas. In addition, the use of biomass fuels has environmental implications, including deforestation and increased carbon emissions.

The transition toward LPG has been supported by government initiatives such as the Pradhan Mantri Ujjwala Yojana[9], which significantly increased LPG penetration in rural areas. Government initiatives have focused on expanding access, improving affordability, and encouraging behavioral change among households. These efforts have significantly increased LPG penetration across the country, including in rural and previously underserved areas. As a result, millions of households have shifted toward cleaner cooking practices, marking a significant achievement in India's energy transition.

Despite these advancements, LPG availability has increasingly become a matter of concern. While access to LPG connections has improved, ensuring consistent and timely supply remains a challenge. In recent years, India has witnessed fluctuations in LPG supply due to both domestic and international factors, revealing underlying vulnerabilities in the system. These fluctuations have affected not only availability but also

[7] NITI Aayog, *Clean Cooking Energy Transition in India: Challenges and Opportunities* (New Delhi, 2023).

[8] World Health Organization, *Household Air Pollution and Health Impacts* (Geneva: WHO, 2022).

[9] Ministry of Petroleum and Natural Gas, *Pradhan Mantri Ujjwala Yojana (PMUY) Progress Report* (New Delhi, 2023).

pricing and distribution efficiency. However, LPG availability remains inconsistent due to global and domestic supply constraints[10].

The situation became particularly acute in 2026, when global geopolitical tensions disrupted traditional supply chains, leading to shortages and delays across several regions. Disruptions in key exporting regions, particularly in the Middle East, affected the steady flow of LPG imports into India. According to recent reports, India's LPG consumption declined significantly during this period due to supply disruptions linked to these conflicts, highlighting the vulnerability of the country's import-dependent energy system. The 2026 crisis highlighted vulnerabilities in India's import-dependent energy system[11]. This decline is significant because it reflects not reduced demand, but rather constrained availability, indicating stress within the supply chain.

Kerala presents a unique case in this context. With high literacy rates, urban density, and limited reliance on traditional fuels, the state has a near-total dependence on LPG for cooking. Unlike many other states where fuel stacking is still common, households in Kerala predominantly rely on LPG as their primary cooking fuel. This high level of dependence makes the state particularly sensitive to supply disruptions.

Consequently, any disruption in supply has immediate and widespread effects on daily life, businesses, and institutional operations. Households face delays in cooking fuel availability, while restaurants, small businesses, and service institutions struggle to maintain operations. The impact extends beyond individual inconvenience to broader economic and social disruptions.

This paper seeks to explore these issues in depth, offering a comprehensive analysis of LPG availability challenges in India and Kerala. It aims to examine the structural, economic, and policy-related factors contributing to the crisis, assess its socio-economic implications, and propose strategies to enhance the resilience and sustainability of the LPG supply system.

Evolution of LPG Policy and Usage in India

The growth of LPG usage in India can be traced back to post-independence industrial and energy policies, when the country began developing its refining capacity and petroleum infrastructure as part of broader economic planning. In the early decades after independence, LPG was largely considered an urban convenience fuel, accessible mainly to higher-income households in metropolitan areas due to limited supply, inadequate distribution networks, and relatively high costs. Rural and low-income households continued to rely heavily on traditional fuels such as firewood, dung cakes, and kerosene.

However, it was only in the late 20th and early 21st centuries that LPG became widely accessible to households. Economic liberalization in the 1990s, combined with investments in energy infrastructure, played a significant role in expanding supply chains and improving availability. The expansion of distribution networks by public sector oil companies and the introduction of subsidy schemes played a crucial role in this transformation. These developments made LPG more affordable and physically accessible, gradually extending its reach beyond urban centers into semi-urban and rural areas.

Government initiatives significantly accelerated LPG adoption. Large-scale welfare-oriented policies aimed at providing subsidized LPG connections to economically weaker sections led to a substantial increase in LPG penetration across the country. These initiatives were not only designed to improve energy access but also to address public health concerns associated with indoor air pollution and to promote gender equity by reducing the burden of fuel collection on women. As a result, millions

[10] The Times of India, "LPG Consumption Falls as Global Supply Chain Crisis Hits India," 2026.
[11] National Sample Survey Office (NSSO), *Household Energy Consumption Survey* (Government of India, 2022).

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of households were brought into the formal clean energy network.

However, while access improved, sustained usage remained uneven due to affordability issues and supply constraints. Many beneficiaries, particularly in low-income and rural households, faced difficulties in regularly refilling cylinders due to rising prices or irregular income streams. This led to the continued practice of "fuel stacking," where households used LPG alongside traditional fuels rather than replacing them entirely. Thus, the gap between access and consistent usage emerged as a critical policy challenge.

India's LPG system is characterized by a complex distribution network involving production, import, storage, bottling, and delivery. Public sector companies dominate this sector, ensuring nationwide reach and playing a central role in implementing government policies. Their extensive infrastructure and administrative capacity have enabled the rapid scaling of LPG access across diverse regions.

Despite this, structural inefficiencies and logistical challenges persist, particularly in rural and geographically complex regions. Issues such as inadequate transportation infrastructure, delays in cylinder delivery, limited bottling capacity in certain areas, and administrative inefficiencies hinder the smooth functioning of the system. In remote and difficult terrains, last-mile connectivity remains a major challenge, often leading to delays and inconsistent supply.

Overall, the evolution of LPG policy and usage in India reflects a significant success in expanding access to clean cooking fuel. At the same time, it also reveals ongoing challenges related to affordability, infrastructure, and equitable distribution, underscoring the need for continued policy innovation and system strengthening.

Structure of LPG Supply and Distribution in India

India's LPG supply chain is highly dependent on imports, with a significant portion of demand being met through international sources. Over the years, domestic production has not kept pace with the rapidly increasing demand driven by population growth, urbanization, and government-led expansion of LPG access. As a result, imports constitute a major share of total LPG consumption in the country. A large share of these imports traditionally comes from the Middle East[12] owing to geographical proximity and established trade relationships, making the country particularly vulnerable to geopolitical disruptions in that region. Any disruption in this region directly affects India's energy security[13].Any instability—such as conflicts, sanctions, or disruptions in shipping routes—can directly affect the availability and pricing of LPG in India.

Recent developments have underscored this dependence, as supply interruptions forced India to seek alternative sources such as Russia and other countries. While diversification of import sources helps mitigate risk to some extent, it also introduces new logistical and economic challenges, including longer transportation distances, higher freight costs, and the need for new supply agreements. Additionally, fluctuations in global crude oil and gas prices further complicate procurement strategies, often leading to increased fiscal pressure on the government due to subsidy commitments.

The distribution system involves multiple stages, including refining, bottling, transportation, and last-mile delivery through authorized distributors. After import or domestic production, LPG is transported to refineries and fractionation plants, where it is processed and prepared for distribution. The distribution system involves multiple stages managed by

[12] Petroleum Planning & Analysis Cell (PPAC), *LPG Import Dependency Statistics Report* (New Delhi, 2024).
[13] India Ministry of External Affairs, *Energy Security and Geopolitical Risk Report* (New Delhi, 2025).

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public sector oil companies such as Indian Oil Corporation Limited[14]Bharat Petroleum Corporation Limited[15], and Hindustan Petroleum Corporation Limited[16].It is then moved to bottling plants, where it is filled into cylinders of various sizes for domestic and commercial use. From these bottling plants, LPG cylinders are distributed through a vast network of dealers and distributors who ensure delivery to households, businesses, and institutions. Despite its scale, inefficiencies in logistics and distribution persist[17].

While this system is extensive and designed to ensure nationwide coverage, it is also susceptible to bottlenecks at various stages. Constraints in bottling capacity, delays in transportation due to infrastructure limitations, and inefficiencies in inventory management can disrupt the smooth flow of supply. These challenges become more pronounced during periods of increased demand—such as festive seasons or sudden supply shortages—or during external disruptions like natural disasters and fuel crises. In geographically challenging regions, including hilly terrains and flood-prone areas, last-mile delivery becomes even more difficult, leading to regional disparities in availability.

Another critical feature of the system is the prioritization of domestic consumption. During shortages, the government often reallocates LPG supplies from commercial and industrial sectors to households in order to safeguard basic cooking needs. This policy reflects a welfare-oriented approach, recognizing cooking fuel as an essential commodity for daily survival. However, while this ensures that households are relatively protected, it creates significant challenges for businesses and institutions that rely heavily on LPG, such as restaurants, hotels, small-scale industries, and transportation services.

The diversion of supply away from commercial sectors can lead to reduced operations, increased costs, and in some cases, temporary closures. It also encourages the emergence of informal practices such as unauthorized diversion of domestic cylinders for commercial use, further distorting the distribution system. Thus, while the structure of LPG supply and distribution in India is comprehensive, its heavy reliance on imports, combined with logistical inefficiencies and policy trade-offs, highlights the need for systemic improvements to enhance resilience, efficiency, and equity in access.

Recent LPG Availability Issues in India (2025–2026)

The LPG availability crisis in India during 2025–2026 highlights the complex interplay between global and domestic factors that shape the country's energy security. While India has made significant progress in expanding LPG access, the events of this period revealed how external shocks can quickly destabilize domestic supply systems. The crisis was not caused by a single factor but emerged from a combination of geopolitical tensions, supply chain disruptions, and internal distribution constraints.

One of the primary causes has been geopolitical conflict in the Middle East, a region that accounts for a substantial share of India's LPG imports. Disruptions in this region—whether due to conflict, sanctions, or instability in key shipping routes—led to delays and reductions in LPG shipments to India. These interruptions strained existing supply arrangements and forced India to compete more aggressively in global markets for alternative sources of LPG. As a result, procurement costs increased, and supply timelines became less predictable.

This situation has been described as one of the most severe supply crises in recent years, prompting India to diversify its sources of LPG imports. The country began exploring and

[14] Indian Oil Corporation Limited, *LPG Supply Chain Operations Overview* (New Delhi, 2024).
[15] Bharat Petroleum Corporation Limited, *Distribution Network Efficiency Report* (Mumbai, 2023)
[16] Hindustan Petroleum Corporation Limited, *LPG Logistics and Infrastructure Assessment* (Mumbai, 2024).
[17] Comptroller and Auditor General of India (CAG), *Performance Audit on LPG Distribution System* (New Delhi, 2023)

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increasing imports from alternative suppliers such as Russia and other regions. However, diversification is not an immediate solution; it involves logistical adjustments, renegotiation of contracts, and higher transportation costs. Consequently, while diversification helped partially offset shortages, it could not fully stabilize supply in the short term.

The impact of these disruptions has been widespread and unevenly distributed across regions. In several cities, shortages have led to long queues at distribution centers, delays in cylinder refills, increased market prices, and reduced availability of LPG for commercial use. These challenges were particularly visible in densely populated urban areas where demand is consistently high. For instance, in Chennai, LPG shortages severely affected the autorickshaw sector, with drivers waiting for extended periods to access limited supplies. This not only reduced their daily earnings but also disrupted urban transportation services.

Beyond transportation, sectors such as hospitality, food services, and small-scale industries experienced significant operational difficulties due to limited access to commercial LPG cylinders. Many businesses were forced to scale down operations, switch to alternative fuels at higher costs, or temporarily shut down, leading to broader economic repercussions.

Additionally, the government has intensified enforcement measures to prevent black marketing and illegal storage of LPG cylinders. During times of scarcity, such practices tend to increase, as individuals and intermediaries attempt to profit from supply-demand imbalances. Authorities conducted inspections, raids, and monitoring activities to curb these illegal practices and ensure fair distribution. In one instance, authorities seized hundreds of illegally stored cylinders in Kerala, highlighting the scale of distribution irregularities and the challenges of maintaining regulatory control during a crisis.

While these enforcement actions were necessary, they also revealed systemic weaknesses in monitoring and distribution mechanisms. The persistence of black marketing indicates gaps in transparency, tracking, and accountability within the supply chain.

These developments indicate that LPG availability issues in India are not merely temporary disruptions but reflect deeper structural challenges in the energy supply system. Heavy dependence on imports, limited buffer storage capacity, logistical inefficiencies, and policy trade-offs between domestic and commercial consumption all contribute to the fragility of the system. The 2025–2026 crisis thus serves as a critical reminder of the need for long-term strategies aimed at enhancing resilience, improving supply chain efficiency, and reducing vulnerability to external shocks.

Kerala as a Case Study: Nature of LPG Crisis

Kerala provides a critical lens through which to understand LPG availability issues. The state has near-total dependence on LPG for cooking due to limited use of traditional fuels[18], making it highly sensitive to supply fluctuations.

In 2026, the state experienced severe LPG shortages that disrupted both household consumption and commercial activities[19]. Reports indicate that delays in cylinder refills and reduced commercial supply disrupted daily life across major cities such as Kochi and Thiruvananthapuram .

The impact on the hospitality sector was particularly severe. The hospitality sector was particularly affected, with nearly 40 percent of restaurants temporarily shutting down due to supply constraints[20]affecting not only business owners but also employees and consumers. Street food vendors and small-scale eateries, which form an integral part of Kerala's food culture, were also significantly affected.

[18] Kerala State Planning Board, *Energy Consumption and Distribution Report* (Thiruvananthapuram, 2024).
[19] Kerala Excise and Civil Supplies Department, *Report on LPG Seizures and Black Marketing Cases* (2026).
[20] Chennai Transport Department Report, "Impact of Fuel Shortages on Autorickshaw Sector," 2025.

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In response to the crisis, authorities implemented restrictions on commercial LPG usage, limiting the number of cylinders that businesses could stock. These measures were intended to prioritize domestic consumption but further exacerbated the challenges faced by commercial establishments

Causes of LPG Availability Issues

1. Import Dependence and Global Vulnerability

India's reliance on imported LPG is a fundamental structural issue. With a majority of supply sourced from international markets, any disruption in global supply chains has immediate consequences for domestic availability. The 2026 crisis demonstrated how geopolitical tensions can directly impact energy security.

2. Policy Prioritization and Redistribution

During shortages, the government prioritizes domestic LPG supply over commercial use. While this approach ensures household access, it leads to severe shortages in sectors such as hospitality, manufacturing, and transportation.

3. Distribution Inefficiencies

The LPG distribution system, although extensive, is not immune to inefficiencies. Delays in transportation, bottling constraints, and logistical challenges can lead to uneven distribution across regions.

4. Black Marketing and Illegal Storage

Illegal practices such as hoarding and black marketing exacerbate shortages. Enforcement actions, including the seizure of illegally stored cylinders, indicate the scale of this issue.

5. Natural and Geographic Factors

In states like Kerala, geographic factors such as heavy rainfall, floods, and terrain can disrupt transportation and distribution networks, leading to localized shortages.

Socio-Economic Impact of LPG Shortages

The impact of LPG availability issues extends beyond energy access, affecting various aspects of society and the economy.

1. Impact on Households

For households, delays in LPG refills can disrupt daily cooking activities, forcing some families to revert to traditional fuels. This has implications for health, particularly due to increased exposure to indoor air pollution.

2. Impact on Businesses

Commercial establishments, especially in the food and hospitality sector, are heavily dependent on LPG. Shortages can lead to reduced operations, closures, and financial losses. In Kerala, the shutdown of a significant portion of restaurants illustrates the severity of this impact.

3. Impact on Employment

The closure of businesses due to LPG shortages results in job losses and reduced income for workers, particularly in the informal sector.

4. Impact on Essential Services

Institutions such as hospitals, hostels, and community kitchens rely on LPG for daily operations. Any disruption in supply can affect their ability to provide essential services.

Government Response and Policy Measures

The government has implemented several measures to address LPG availability issues. These include increasing domestic production, diversifying import sources, and prioritizing household consumption.

In Kerala, the state government held high-level meetings to address the LPG crisis and sought increased allocation of cylinders from the central government . Additionally, regulatory measures such as limiting commercial cylinder usage and implementing booking restrictions were introduced to ensure equitable distribution.

Authorities have also taken steps to prevent black marketing and ensure transparency in distribution. However, these measures have had mixed results, as they often address symptoms rather than underlying structural issues.

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Challenges and Policy Gaps

Despite government efforts, several challenges persist. The heavy reliance on imports remains a critical vulnerability. Additionally, the prioritization of domestic supply, while necessary, creates imbalances in the distribution system.

Another significant challenge is the lack of alternative energy sources. While initiatives promoting electric cooking and biogas exist, their adoption remains limited. This underscores the need for a diversified energy strategy.

Furthermore, coordination between central and state governments is essential for effective crisis management. The Kerala case highlights the importance of timely intervention and resource allocation.

Recommendations and Reforms

To address LPG availability issues, a multi-dimensional approach is required.

First, India must reduce its dependence on imports by increasing domestic production and exploring alternative energy sources. Investment in renewable energy and infrastructure for electric cooking can help diversify the energy mix.

Second, the distribution system must be strengthened through technological interventions, including real-time tracking and improved logistics management. This can enhance efficiency and reduce delays.

Third, stricter enforcement measures are needed to prevent black marketing and ensure fair distribution. Transparency in allocation and pricing can build public trust.

Fourth, policy reforms should focus on balancing the needs of domestic and commercial sectors. While household consumption is a priority, the needs of businesses and institutions must also be addressed.

Finally, public awareness campaigns can encourage responsible usage and reduce panic buying during shortages.

Critical Analysis of LPG Availability and Distribution System in India

While India's LPG expansion is often presented as a major success in clean energy transition, a closer examination reveals several structural, policy, and implementation-level limitations that challenge this narrative. The existing LPG framework, though extensive, reflects a model that prioritizes rapid expansion over long-term sustainability and resilience.

One of the primary criticisms lies in the **overemphasis on access rather than sustained usage**. Government policies have largely focused on increasing the number of LPG connections, but insufficient attention has been given to affordability and refill consistency. Many households continue fuel stacking due to affordability constraints, indicating that LPG adoption has not fully replaced traditional fuel usage. This exposes a gap between policy intent and actual outcomes, raising questions about the effectiveness of subsidy targeting and long-term behavioral change.

Another critical issue is the **structural dependence on imports**, which undermines energy sovereignty. India's LPG system remains highly vulnerable to external geopolitical and market fluctuations. The 2025–2026 crisis clearly demonstrated that diversification of import sources is a reactive rather than preventive strategy. Without substantial investment in domestic production or viable alternatives, the system remains inherently fragile.

The **policy of prioritizing domestic consumption over commercial usage** also presents a significant contradiction. While socially justified, this approach disrupts economic activities by shifting the burden of shortages onto businesses and informal sector workers. It reflects a narrow welfare perspective

that does not fully account for the interconnected nature of household welfare and economic stability. In states like Kerala, where the service sector dominates, such policies can have disproportionately negative economic effects.

Further, the LPG distribution system suffers from **institutional inefficiencies and governance gaps**. Despite a vast network, issues such as delayed deliveries, uneven regional distribution, and lack of real-time monitoring persist. The continued presence of black marketing and illegal diversion of cylinders indicates weak regulatory enforcement and inadequate transparency mechanisms. This undermines both efficiency and public trust in the system.

Another important limitation is the **lack of integration with alternative energy strategies**. While LPG is promoted as a clean fuel, it is still a fossil fuel and not a long-term sustainable solution. Policy frameworks have not sufficiently promoted viable alternatives such as electric cooking, solar-based solutions, or biogas at scale. This creates a paradox where a transitional fuel is being treated as a permanent solution, potentially delaying the shift toward truly renewable energy systems.

Additionally, the **regional disparities in impact and preparedness** highlight a major policy gap. States like Kerala, with high LPG dependence and limited fallback options, face greater risks during supply disruptions. However, national-level policies often fail to account for such regional variations, resulting in uneven crisis management and resource allocation.

Finally, the government's response to LPG shortages tends to be **reactive rather than anticipatory**. Measures such as usage restrictions, enforcement drives, and emergency reallocations address immediate symptoms but do not resolve underlying structural weaknesses. There is limited focus on building buffer stocks, strengthening infrastructure resilience, or developing predictive supply management systems.

In summary, while India's LPG program has achieved significant success in expanding clean cooking access, it is constrained by critical shortcomings related to affordability, import dependence, policy trade-offs, institutional inefficiencies, and lack of long-term energy planning. Addressing these issues requires a shift from a short-term, expansion-focused approach to a more integrated, resilient, and sustainability-oriented energy strategy.

Conclusion

The LPG availability issues in India and Kerala reflect broader challenges in the country's energy system. While significant progress has been made in expanding access to clean cooking fuel, ensuring consistent and equitable availability remains a critical concern. The gap between access and reliability highlights structural weaknesses in supply chains, policy frameworks, and infrastructure, which must be addressed to sustain the gains achieved in clean energy adoption.

The 2026 crisis serves as a wake-up call, highlighting the urgent need for structural reforms and the development of a more resilient and adaptive energy strategy. The disruptions experienced during this period demonstrated how external shocks—such as geopolitical conflicts and global supply chain instability—can quickly translate into domestic shortages. By addressing import dependence, improving distribution systems, strengthening storage and logistics infrastructure, and promoting alternative energy sources, India can enhance its energy security and reduce vulnerability to such disruptions in the future.

Kerala's experience underscores the importance of regional analysis in understanding national issues. As a state with high LPG dependence and limited reliance on traditional fuels, Kerala illustrates how supply disruptions can have immediate and far-reaching consequences across households, businesses, and essential services. Its experience provides valuable insights into the

challenges of managing energy transitions in regions with high consumption dependency, as well as the need for localized policy responses that account for geographic and socio-economic conditions.

Furthermore, the crisis highlights the importance of balancing competing demands within the LPG distribution system. While prioritizing domestic consumption is essential from a welfare perspective, the needs of commercial establishments, small businesses, and public institutions must also be considered to avoid broader economic disruptions. This calls for more nuanced and flexible policy mechanisms that can respond effectively to varying levels of demand and supply constraints.

Ultimately, achieving energy security requires a holistic and forward-looking approach that integrates policy, technology, and social considerations. Strengthening coordination between central and state governments, leveraging digital technologies for supply chain management, and encouraging behavioral changes among consumers are all essential components of this strategy. In addition, accelerating the adoption of alternative clean energy solutions—such as electric cooking, biogas, and other renewable options—can reduce overdependence on LPG and create a more diversified and sustainable energy ecosystem.

Only through coordinated, inclusive, and long-term efforts can India ensure that LPG continues to serve as a reliable, affordable, and accessible source of clean energy for all sections of society, while also building resilience against future uncertainties in the global energy landscape.

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