

**THE IMPACT OF PANIC BUYING ON THE SOCIAL STRUCTURE OF SOCIETY:
A STUDY OF THE FUEL CRISIS IN WEST ACEH, INDONESIA**Nesriani¹⁾, Afrizal Tjoetra²⁾*, Haliza Abdul Rahman³⁾^{1,2}Program Studi Magister Sosiologi, FISIP Universitas Teuku Umar Meulaboeh, Aceh,
Indonesia³Departement Environmental & Occupational Health Universiti Putra Malaysia, Malaysia*Corresponding Author: afrizaltjoetra@utu.ac.id**ABSTRACT**

This research aims to examine the extent to which panic buying fuel during the crisis in West Aceh affected community social solidarity. This study employs a qualitative method with a descriptive approach. Data was collected through primary observation at fuel stations in Meulaboh City, West Aceh, as well as through literature studies from books, scientific journals, research reports, and documents related to energy crises and community social behavior. Data analysis utilized Emile Durkheim's theory of social solidarity. The research findings indicate that panic buying of fuel weakens mechanical social solidarity due to the emergence of individualistic attitudes, distrust, and competition among residents. However, on the other hand, this crisis also fosters organic solidarity through cooperation and mutual assistance among residents in obtaining fuel and seeking joint solutions. Fuel scarcity can be addressed in various ways, one of which is by optimizing village funds. Village funds can be used to build small-scale pyrolysis facilities that will convert local plastic waste into economically valuable materials. The successful implementation of plastic pyrolysis technology as a long-term solution depends heavily on three main pillars. First, community education and training to ensure proper technology management. Second, infrastructure and funding utilizing village funds to establish communally managed facilities. Third, outreach and government support from the regional to national levels to encourage project adoption and sustainability.

Keywords: Fuel Crisis, Panic Buying, Social Solidarity, Social Structure, Community**ABSTRAK**

Penelitian ini bertujuan untuk mengkaji sejauh mana perilaku panic buying BBM selama krisis di Aceh Barat memengaruhi solidaritas sosial masyarakat. Penelitian ini menggunakan metode kualitatif dengan pendekatan deskriptif. Data dikumpulkan melalui studi literatur dari buku, jurnal ilmiah, laporan penelitian, dan dokumen terkait krisis energi serta perilaku sosial masyarakat. Analisis data menggunakan teori solidaritas sosial Emile Durkheim. Hasil penelitian menunjukkan bahwa perilaku panic buying BBM menyebabkan melemahnya solidaritas sosial mekanik karena munculnya sikap individualistik, ketidakpercayaan, dan persaingan antarwarga. Namun, di sisi lain, krisis ini juga menumbuhkan solidaritas organik melalui kerja sama dan saling membantu antarwarga dalam memperoleh BBM dan mencari solusi bersama. Kelangkaan BBM dapat diatasi melalui berbagai cara, salah satunya dengan optimalisasi dana desa. Dana desa dapat digunakan untuk membangun fasilitas pyrolysis skala kecil yang akan mengubah limbah plastik lokal menjadi bahan yang bernilai ekonomi. Keberhasilan implementasi teknologi pyrolysis plastik sebagai solusi jangka panjang sangat bergantung pada tiga pilar utama. Pertama, pendidikan dan pelatihan bagi masyarakat untuk memastikan pengelolaan teknologi yang tepat. Kedua, infrastruktur dan pendanaan yang memanfaatkan dana desa untuk mendirikan fasilitas yang dikelola secara komunal. Ketiga, sosialisasi dan dukungan pemerintah dari tingkat daerah hingga pusat untuk mendorong adopsi dan keberlanjutan proyek.

Kata Kunci: Krisis BBM, Panic Buying, Solidaritas Sosial, Struktur Sosial, Masyarakat

INTRODUCTION

Indonesia has been experiencing a severe crisis since 1998, which impacted other sectors, such as politics and social issues, initially caused by the global economic crisis. Then, in 2019, Indonesia was also confronted with COVID-19, which caused a crisis in all aspects of life. Economic growth worldwide slowed, including in developed countries such as the United States, Europe, China, and Japan (Alam et al., 2022). Before the impact of the virus had fully subsided, the world was again confronted with the Russian-Ukrainian war in 2022 (Shaik et al., 2023; Gopal et al., 2025). Consequently, prices for various necessities, such as wheat, corn, vegetable oil, and fertilizer, rose significantly. These crises clearly had a significant impact on Indonesia. Therefore, these crises caused disruptions to global supply chains, geopolitical tensions, and global warming, all contributing to the emergence of three major crises: fuel, food, and financial (Tambunan & Arifin, 2024).

The energy crisis, particularly regarding fuel oil (BBM), is a serious problem for Indonesia because domestic needs must be imported. Therefore, when world oil prices rise, the Indonesian economy could be seriously affected. Indonesia has one of the largest populations in the world and a high demand for fuel, similar to China and India. The government's implementation of a fuel subsidy scheme has the potential to benefit urban and high-income groups. This form of price subsidy has the disadvantage that all income groups can afford subsidized fuel and LPG. Several developing countries are addressing the negative impacts of fuel subsidies, which are politically and economically relevant to conditions in Indonesia (Abimanyu & Imansyah, 2023).

These various crises, especially the fuel crisis, which is directly visible in society, have the greatest impact on vulnerable and poor households. The three main crises negatively impacted household consumption, with the fuel and food crises showing significant impacts, while the financial crisis did not directly affect consumption. Therefore, government policy is to compensate households for the negative impacts of the crisis by providing a number and type of policies. Furthermore, it is advisable to consider the timing and opportunities for collaboration during the implementation phase and establish policy success indicators for macro and micro evaluations (Tambunan & Arifin, 2024). For example, the Direct Cash Assistance (*Bantuan Langsung Tunai/BLT*) and the Family Hope Program (*Program Keluarga Harapan/PKH*) implemented by the government for the poor have helped lower-income communities, but in the long term, they have not been able to significantly address these issues.

Like other communities in Indonesia, in Aceh, particularly West Aceh, fuel is a crucial resource that supports transportation, livelihoods, and daily life. In 2025–2026, Aceh experienced fuel stress due to disaster disruptions and global energy uncertainty. However, evidence shows that panic buying, triggered by fear and misinformation, played a more immediate role in creating shortages than actual supply deficits (Jakarta Globe, 2026). Panic buying refers to sudden, excessive purchasing driven by perceived scarcity rather than real need, often leading to self-fulfilling shortages. Studies on panic buying indicate that such behavior often stems from perceived scarcity rather than actual supply shortages, yet it can generate real disruptions in distribution systems and exacerbate social inequality (Antara News, 2026; Jakarta Globe, 2026).

Fuel is essential for vehicle users for various purposes. Fuel supply in Indonesia is handled by the government, PT Pertamina (Persero), and the private sector. However, fuel is often difficult to obtain, especially if people sometimes believe hoaxes about fuel shortages. Most recently, information about fuel shortages has been circulating in Aceh, particularly in the South-Western region.

The scarcity of fuel, especially subsidized diesel, has become a serious problem in West Aceh and its surroundings. Coastal communities, especially fishermen and other local economic actors, rely heavily on subsidized diesel to support their daily activities, such as the operation of fishing boats and other transportation vehicles (Lita & Rahmahdian, 2023). However, the scarcity of subsidized diesel in this region has disrupted people's productivity, created long queues at public refueling stations (SPBU), and even halted economic activities. When individuals rush to purchase petrol or diesel for private vehicles out of fear of shortage, fuel stations quickly experience long queues and temporary depletion, limiting access for those who rely on fuel for essential transport services such as public vans, fishing boats, and goods delivery. This behavior creates an unequal distribution of resources, where those with greater financial means or faster access can secure fuel, while others particularly low-income groups face mobility constraints (Antara News, 2026; Jakarta Globe, 2026).

This article is important to study because the phenomenon of panic buying during a crisis is not only an economic matter, but also directly tests the resilience of community social solidarity. Crisis situations that trigger panic buying behavior have been documented repeatedly in Indonesian history. During the 1998 monetary crisis, for instance, social solidarity was severely strained as communities scrambled for basic commodities yet also gave rise to mutual aid networks at the grassroots level (Prasetyo & Subhan, 2021). Similarly, the COVID-19 pandemic in Indonesia (2020–2022) triggered widespread panic buying of necessities,

health equipment, and fuel, with studies showing that social solidarity was simultaneously weakened by individualism and strengthened through collective coping mechanisms (Yusuf et al., 2022; Hakim & Wibowo, 2021). In the context of West Aceh—a region still recovering from the legacies of post-conflict and post-tsunami reconstruction—this phenomenon of fuel panic buying represents a critical test of community cohesion that deserves careful sociological examination. Understanding how social solidarity responds to crisis in this specific context can contribute to more resilient and socially responsive disaster and energy management policies.

Reports Sumberpost (December 5, 2025) noted that after the flood and landslide disaster that hit Aceh at the end of November 2025, people experienced a panic buying phenomenon for various basic needs, including fuel. Many residents are willing to queue for hours at petrol stations to get fuel, even from the early hours of the morning. This condition is exacerbated by the existence of individuals who take advantage of the situation by selling retail fuel at high prices. The Aceh government, through the Energy and Mineral Resources Service (EMR) then appealed to the public not to make excessive purchases because the fuel supply was declared safe. This phenomenon shows how collective panic can trigger consumptive behavior and test the sense of social solidarity in society.

A similar situation also occurred in West Aceh. Based on an ANTARA report (December 9, 2025), long queues of vehicles at several petrol stations in the region occurred due to prolonged power outages after the flash flood disaster on November 26, 2025. Power outages make people buy fuel in large quantities, not only for motor vehicles but also for generator engine needs. The West Aceh Regency Government said that this phenomenon was triggered by public panic and panic buying behavior that caused disruption of traffic flow at various points.

Based on the author's observations at a few Public Fuel Filling Stations (SPBU) in Meulaboh City, West Aceh, it is almost certain that the queue of four-wheeled vehicles and trucks is long. In fact, the driver of the vehicle must stay at the petrol station to ensure that fuel is obtained. This condition not only affects the fishing sector, but also the transportation and trade sectors, which are vital sectors for the local economy.

According to the description above, the study of fuel scarcity in West Aceh and its surroundings is interesting to do. This study aims to examine the extent of behavior *panic buying* Fuel during the crisis in West Aceh affected the social solidarity of the community.

RESEARCH METHODS

Fuel scarcity in coastal areas such as West Aceh has led to increased operational costs for fishermen and communities who depend on oil-fueled transportation. This leads to a decline in people's economic productivity and reduced purchasing power, which in turn exacerbates structural poverty in the region (Daryono & Amanda, 2025; Fitria et al., 2023). The scarcity of diesel brings several chain effects to the economies of coastal communities:

1. Increased operational costs

Fishermen or freight carriers must wait a long time or even cancel operations because they do not get diesel which results in time costs, additional costs, and the potential for loss of catch/transportation.

2. Decreased productivity

Fishing or transportation activities are hampered, which causes the volume of fish catches or the distribution of marine and agricultural products to decrease. For example, fishermen who do not get diesel cannot go to sea.

3. Decrease in people's purchasing power

With decreased productivity, family income can also decrease, leading to reduced consumption ability.

4. Exacerbating structural poverty

Coastal communities that are already vulnerable (post-conflict and disaster impacts) are becoming increasingly economically depressed due to inadequate energy infrastructure, dependence on subsidies, and disruptions to local economic chains.

In analyzing the impact of diesel scarcity on the coastal communities of West Aceh, we can use the theory of social change in sociology to understand how these conditions trigger changes or even stagnation in the social structure of society. First, from the perspective of structural functionalism theory, society is considered to consist of various interrelated subsystems, such as economic, social, and political. If one of the subsystems is disrupted, for example the energy distribution system or fuel, then the social and economic function of the community will also be affected. In this case, the scarcity of diesel reflects a dysfunction in the energy distribution system and subsidies that cause economic disruption to coastal communities (Wijaya & Saptanto, 2014). For example, fishermen and the transportation sector that are heavily dependent on diesel supplies are affected, which ultimately disrupts the social, employment, and livelihood structures of these communities (Lita & Rahmahdian, 2023; Sahid & Fauzy, 2023) .

Second, the theory of conflict and social change explains that in social structures there is inequality, where weak groups, such as coastal communities, often have limited access to

resources such as subsidized fuel (Handoko & Patriadi, 2005; Wijaya & Saptanto, 2014). On the other hand, more powerful groups, such as large industries and commercial vehicles, often have easier access, and often even abuse these subsidies (Fitria et al., 2023; Wijaya & Saptanto, 2014). The scarcity of diesel can reflect conflicts between these groups, where the groups entitled to subsidies do not get it because they are abused by other parties (Wijaya & Saptanto, 2014). This then drives social change, which can be in the form of job shifts, economic migration, or changes in social stratification, where affected coastal communities can experience downward social mobility, with declining incomes and diminished opportunities (Anjani, et.al., 2022; Lita & Rahmahdian, 2023).

Finally, according to the theory of social evolution and adaptation, society will try to adapt when facing external pressures such as fuel scarcity. This adaptation can be in the form of changes in work patterns, such as fishermen going to sea closer or using more fuel-efficient machines, or it can be in the form of changes in the community, such as cooperation between fishermen to solve problems together (Handoko & Patriadi, 2005). However, if this adaptation does not occur or is difficult to do due to limited capital and access to technology, then people can experience stagnation or socio-economic regression, where they cannot survive and thrive in this stressful situation (Syarif et al., 2017).

The mechanism of social change that occurred in West Aceh because of diesel scarcity can be analyzed through several interrelated aspects. First, the scarcity of diesel disrupts the economic functioning of communities, especially fishermen and the local transportation sector, which are heavily dependent on the fuel. When the supply of diesel is limited, people's incomes decrease, which in turn puts economic pressure on households. This condition risks increasing the unemployment rate, encouraging temporary migration, and exacerbating economic instability with the emergence of alternative economic ventures that are less sustainable (Daryono & Amanda, 2025; Nugraha et al., 2018). Furthermore, inequality in access to subsidized fuel contributes to increasingly sharp social inequality. When diesel distribution is abused by unauthorized parties, such as large industrial vehicles, coastal communities who are already marginalized are more disadvantaged (Anjani, et.al., 2022; Lita & Rahmahdian, 2023). This inequality triggers the potential for social conflict, or even apathy towards a system that is perceived as unfair, exacerbating social tensions between different groups (Daryono & Amanda, 2025; Handoko & Patriadi, 2005).

In addition, the scarcity of diesel is causing changes in the structure of employment and social mobility in coastal communities. Fishermen who are unable to go to sea or have to wait

in long queues to get diesel are often forced to switch to alternative jobs, such as land transport or other sectors (Rizal et al., 2021). This indicates a shift in the work structure from the traditional fisheries sector to jobs that are more dependent on other less stable sectors (Alfiana et al., 2018). As a result, social mobility tends to lead to a decline in people's welfare or socio-economic stagnation. On the other hand, coastal communities are beginning to develop adaptation mechanisms to overcome diesel scarcity, such as sharing fuel supplies, creating community-based queuing systems, or looking for energy alternatives. This process indicates cultural and institutional changes that can potentially result in positive social change, especially if the system can develop further and be widely accepted by the community (Wijaya & Saptanto, 2014).

The implication of this analysis is that subsidized fuel management policies should consider aspects of local social structures by ensuring fair and adequate distribution to coastal communities, as well as minimizing abuses that exacerbate social inequalities. In addition, strengthening local institutions, such as fishermen's cooperatives and joint venture groups, needs to be carried out to ensure that coastal communities are not only policy objects, but also subjects of social change that are able to adapt to existing challenges (Diyata et al., 2018; Fitria et al., 2023). Village fund-based development programs must also focus on increasing community adaptation capacity in the face of disruption, including the development of fuel-efficient technology, alternative skills training, and the application of renewable energy in coastal areas (Nurhayatin et al., 2016). Therefore, it is important to remember that social changes that occur can lead to progress or even setbacks, so policy interventions must be proactive to avoid social stagnation.

RESULTS AND DISCUSSION

Panic Buying Against Social Structure

Based on various media reports, the scarcity of fuel in West Aceh, especially subsidized diesel, has caused significant disruption to the economic activities of coastal communities. In South Aceh, fishermen are forced to languish due to a shortage of diesel which has an impact on their activities which are heavily dependent on the fuel for fishing boats. Similar conditions also occur in Aceh Jaya, where the scarcity of bio-diesel hampers drivers and transportation activities in the area. Various media reports reveal that subsidized diesel, which is intended for the poor and certain sectors, is often abused. In a report by Aceh Tribun News, it was stated that there were allegations that subsidized diesel "fled" to the industrial sector, where a few industrial trucks illegally filled subsidized fuel that should be used for the public transportation

and fishermen sectors. This is due to a series of misappropriating behaviors, where petrol stations and related parties do not implement strict supervision in the distribution of subsidized diesel.

The report from RRI states that one of the causes of the diesel shortage in Aceh is the problem of distribution from Pertamina which is not in accordance with the quota set by BPH Migas. In some areas, the supply of diesel is insufficient to meet the needs of the community due to inadequate restrictions on excessive consumption, both by the industrial sector and private vehicles that are not entitled to subsidized diesel. According to Intelligence News, it is stated that subsidized diesel in West Aceh is often sold to industries and illegitimate parties. Petrol stations that are not properly supervised allow certain parties to access subsidized fuel in an illegal way. This practice is detrimental to people who should get diesel at subsidized prices to support their economic activities. A report from Antara News revealed that several industrial trucks in Nagan Raya often fill up with subsidized diesel, which clearly violates the distribution rules set by the government. This suggests the existence of organized crime involving stronger industrial actors, who take advantage of the lack of oversight to make a profit.

Durkheim put forward the theory of anomies to reveal that social instability and the failure of the system to meet the basic needs of society can lead to deviant behavior, including crime (Bernburg, 2002; Marks, 1974; Yan & Peng, 2025). In the context of diesel scarcity, inadequate fuel distribution systems and gaps between supply quotas and community needs can create social dissatisfaction. The failure of the state to provide enough fuel has caused some individuals or groups to try to access subsidized diesel illegally, because they feel pressured by an unfair system that harms them (Syamsiro, 2015). Coastal communities that rely on diesel for fishing boats, for example, will feel compelled to look for alternative solutions, even though this has the potential to give rise to criminal behavior.

Durkheim further explained that in building and managing social solidarity in facing crises, mechanical solidarity that emerges spontaneously through mutual cooperation, customs, and values of brotherhood, as well as organic solidarity that develops through cooperation between society, government, and digital communities in disaster management. Various factors such as customs, religion, and digital technology can strengthen social relations, while social inequality, fake news, and declining trust in government institutions can weaken this solidarity. Thus, Durkheim's arguments about solidarity and social cohesion remain relevant in contemporary society, as well as the importance of strengthening local values and digital

literacy skills so that social solidarity is maintained amidst increasingly complex challenges (Raharjo and Sari, 2025; Donny, & Drajadi, 2025). Specially in the context of Aceh, society has a fairly strong solidarity and social cohesion that has been proven throughout history.

Merton offers a strain perspective to explain that the inability to achieve desirable social goals through legitimate means can encourage individuals to behave defiantly (Farnworth & Leiber, 1989; Featherstone & Deflem, 2003). The scarcity of diesel and uneven distribution create injustice among coastal communities, who feel marginalized from their right to subsidized fuel. As a result, some parties feel compelled to use illegal means to obtain diesel, such as by taking advantage of lack of oversight and untargeted distribution. The criminal structure in organized fuel distribution can be seen in the abusive practices of subsidized diesel carried out by industry actors, petrol stations, and related parties who work together to utilize the subsidy system for personal gain (Handoko & Patriadi, 2005). These crimes are not committed by individuals sporadically but involve organized networks that seek to enrich themselves in ways that are detrimental to society. This organized crime in terms of diesel distribution reflects social inequality and an unbalanced power structure, where parties with greater access to resources can exploit the situation for personal gain (Anom & Lombok, 2020; Novita et al., 2021).

Social Solidarity Dynamics During the West Aceh Fuel Crisis

The findings of this study reveal a dual dynamic in community social solidarity during the fuel crisis in West Aceh. On one hand, panic buying behavior demonstrably weakened mechanical solidarity, the form of solidarity that arises from shared values, norms, and mutual dependence in traditional communities. This was clearly visible in the long queues at public fuel stations (SPBU), where residents competed to obtain fuel for personal and household needs, often at the expense of their neighbors. The emergence of fuel hoarding and the informal black market for retail fuel sales at inflated prices reflects a breakdown of collective norms that normally bind the community together. This is consistent with Durkheim's anomie theory, which posits that when social institutions fail to meet basic needs, normative bonds weaken and deviant behavior emerges (Bernburg, 2002; Yan & Peng, 2025).

On the other hand, the crisis also gave rise to expressions of organic solidarity, the form of solidarity built on interdependence arising from specialization and differentiation in modern society. This was evidenced by community-level cooperation in sharing fuel supplies, the formation of informal queuing systems organized by community leaders and local youth organizations (*Karang Taruna*), and collective efforts to find alternative fuel sources. In some

neighborhoods in Meulaboh, residents reportedly organized communal fuel-sharing arrangements to ensure that fishermen and essential services received adequate supply. These behaviors indicate that even amid acute resource scarcity, social cohesion did not entirely collapse; rather, it restructured itself around practical necessity. This finding aligns with research on community resilience during the COVID-19 pandemic in Indonesia, where scarcity of essential goods simultaneously triggered panic buying and community solidarity networks (Yusuf et al., 2022; Hakim & Wibowo, 2021).

The role of social capital in mediating these dynamics deserves special attention. In West Aceh, which retains strong *adat* (customary) institutions and Islamic communal values reinforced by the post-tsunami and post-conflict reconstruction process, social capital provides a buffer against complete social disintegration during crises. Research on social capital and crisis resilience in Aceh suggests that communities with stronger interpersonal trust and active local institutions are more likely to develop cooperative responses to scarcity (Prasetyo & Subhan, 2021). The West Aceh fuel crisis thus offers a revealing case study of how pre-existing social capital shapes the trajectory of solidarity—both its erosion and its reconstruction—during acute supply disruptions.

Furthermore, the structural dimensions of the crisis must not be overlooked. The fuel shortage in West Aceh was not simply the result of natural disaster disruption; it was also exacerbated by systemic failures in subsidized fuel distribution, including quota mismatches, abuse of subsidized diesel by industrial actors, and inadequate oversight mechanisms (Handoko & Patriadi, 2005; Fitria et al., 2023). This structural inequality placed the greatest burden on the most vulnerable members of the community—fishermen, small-scale traders, and low-income households—who were least equipped to cope with price spikes and supply disruptions. Merton's strain theory is instructive here: when legitimate pathways to fulfilling basic needs are blocked by structural barriers, individuals are compelled to seek alternative, and sometimes deviant, means (Featherstone & Deflem, 2003). The appearance of illegal fuel retail and hoarding behavior among some residents can be understood as a rational, if socially corrosive, response to structural deprivation.

Comparative perspective further enriches this analysis. The 1998 Indonesian economic crisis provides an important historical parallel: that crisis triggered widespread panic buying of basic commodities and significant social unrest yet also catalyzed the formation of community-based solidarity networks and cooperative institutions that persisted long after the acute crisis had passed (Prasetyo & Subhan, 2021). Similarly, the COVID-19 pandemic demonstrated that

crises can simultaneously weaken formal solidarity structures (such as market systems and state welfare institutions) while strengthening informal solidarity networks (such as neighborhood mutual aid groups and volunteer organizations). The West Aceh case follows this pattern, suggesting that fuel crises, like other forms of acute resource scarcity, serve as stress tests for community solidarity that reveal both its fragility and its adaptive capacity.

Community Empowerment Through Village Funds

Village funds have great potential to empower communities in overcoming fuel scarcity problems by implementing alternative energy solutions. Village funds can be used to develop environmentally friendly and sustainable technologies that can reduce dependence on fuel, for example by developing renewable energy systems or technology for the use of plastic waste.

One possible solution is plastic pyrolysis technology, which converts plastic waste into fuel oil. This process has the potential to reduce dependence on subsidized fuel while addressing the problem of plastic waste which is an environmental problem in many regions (Novita et al., 2021). The technology utilizes the process of heating plastic waste without oxygen to produce oil, gas, and black carbon, which can be used as an alternative fuel for vehicles and other engines (Anom & Lombok, 2020; Novita et al., 2021).

Plastic pyrolysis technology can be a promising solution, considering that West Aceh and other coastal areas have an abundant plastic waste problem. By converting plastic waste into liquid fuel (such as diesel), this technology can help create alternative energy sources that are more environmentally friendly and reduce dependence on subsidized fuels (Syamsiro, 2015). Therefore, the proper management of village funds in developing this technology can be a breakthrough in overcoming fuel scarcity and supporting more sustainable economic development in the coastal areas of West Aceh.

1. Application of Plastic Pyrolysis Technology in West Aceh

This technology can be applied by utilizing village funds to establish small-scale pyrolysis facilities that can process local plastic waste into fuel oil. In addition to providing solutions to fuel scarcity, this technology can also open up new business opportunities and jobs for the local community.

The use of village funds to fund plastic pyrolysis projects can be part of the economic empowerment program of coastal communities by developing green technology-based industries. In addition, the application of this technology is also in line with the increasingly important waste management program in coastal areas that are prone to plastic pollution.

2. Plastic Pyrolysis Technology as a Long-Term Solution

The Advantages of Plastic Pyrolysis Technology because this technology offers several advantages that are relevant to the needs of the people of West Aceh, namely:

a. Reducing Dependence on Subsidized Fuel

By producing fuel from plastic waste, this technology can reduce dependence on diesel and petalite.

b. Overcoming the Plastic Waste Problem

Plastic, which has been a waste that has not been managed properly, can be processed into products with economic value.

c. Increasing Energy Independence

People can manage their own energy without relying on limited fuel supply.

The implementation of plastic pyrolysis technology in West Aceh requires several steps, including:

1. Education and Training

The public must be given an understanding and skills about the management of this technology.

2. Infrastructure and Funding

Village funds need to be used to build pyrolysis facilities that can be managed by local communities.

3. Socialization and Government Support

In addition to village funds, support from local and central governments is essential to introduce and encourage the use of this technology.

The policy implications of these findings are significant. Governments and local authorities need to recognize that effective crisis management is not only a logistical challenge, but also a social one. Interventions that maintain or restore social solidarity—such as community-based fuel distribution systems managed through trusted local institutions, transparent communication about supply conditions, and equitable rationing mechanisms—can help prevent the corrosive effects of panic buying on community cohesion. At the same time, long-term solutions such as plastic pyrolysis technology, when implemented through community-managed village fund programs, can serve a dual function: providing energy security while also reinforcing organic solidarity through shared ownership and collective enterprise. The success of such programs depends critically on building the institutional

capacity of local communities to manage and sustain these initiatives, a process that itself contributes to the deepening of social solidarity over time.

Nevertheless, based on the research theoretically and practically, the solidarity and social cohesion of the Acehnese people have been proven to have strength that has been tested by various calamities, disasters, conflicts for decades, most recently the floods that claimed three provinces, Aceh, North Sumatra and West Sumatra. Solidarity and social cohesion are influenced by religious factors and local values, namely generosity, hospitality (Chairiyani, 2025; Umar, 2026). This factor is what causes the Acehnese people and Indonesia in general to survive calamities and disasters such as crises that come suddenly due to the global crisis that affects the social structure of Indonesian society, including in Aceh.

CONCLUSION

The fuel crisis in West Aceh illustrates how panic buying can transform perceived scarcity into real social disruption. Beyond economic effects, it reshapes social relations, deepening inequality, weakening cohesion, and eroding trust. The results of the study showed that the behavior of *panic buying* Fuel causes a weakening of mechanical social solidarity due to the emergence of individualistic attitudes, mistrust, and competition between citizens. However, on the other hand, this crisis also fosters organic solidarity through cooperation and mutual assistance between residents in obtaining fuel and finding solutions together. Thus, addressing such crises require not only technical solutions but also strong governance, effective communication, and community-centered approaches. Fuel scarcity can be overcome in various ways, one of which is by optimizing village funds. Sustainable community empowerment can be a solution through sustainable alternative energy, especially by utilizing technology *pyrolysis* plastic. This technology offers a dual solution: reducing reliance on subsidized fuels (such as diesel and pertalite) while effectively addressing the problem of plastic waste polluting the environment. In West Aceh, village funds can be used to build small-scale pyrolysis facilities that will convert local plastic waste into oil, gas, and black carbon fuels, all of which have economic value. This approach not only increases community energy independence and opens new business opportunities but is also in line with coastal community economic empowerment programs and green technology-based waste management.

Successful implementation of the technology *pyrolysis* Plastic as a long-term solution relies heavily on three main pillars. First, Education and Training for the community to ensure proper technology management. Second, Infrastructure and Funding utilize village funds to establish communally managed facilities. Third, Socialization and Government Support from

the regional to central levels to encourage the adoption and sustainability of projects. By optimizing village funds for pyrolysis projects, communities can achieve energy independence, reduce the burden of government subsidies, and significantly improve environmental conditions from plastic waste pollution. This article contributes to the academic study of social solidarity, crisis behavior, and social engineering in the context of Indonesian coastal communities. By applying Durkheim's theoretical framework to an empirically grounded case of fuel scarcity in West Aceh, it provides insights that are relevant not only to local policymakers and community development practitioners, but also to scholars engaged in the broader sociology of crisis and collective behavior. The findings underscore the importance of integrating social solidarity considerations into energy policy and crisis management frameworks, particularly in regions characterized by high vulnerability and limited institutional resources. Future research should employ primary data collection methods—including fieldwork interviews, focus group discussions, and direct observation—to further validate and deepen the findings presented here.

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