

## The Role of National Movement for Food Inflation Control (GNPIP) in Controlling Food Inflation in the Era of Climate Shock

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**ABSTRAK:** Perubahan iklim yang ditandai dengan meningkatnya frekuensi El Niño, La Niña, kekeringan, dan cuaca ekstrem telah memperkuat karakter inflasi pangan di Indonesia sebagai fenomena yang bersifat struktural dan berulang. Tekanan tersebut terutama terlihat pada komponen volatile food yang sangat sensitif terhadap gangguan produksi dan distribusi. Penelitian ini bertujuan menganalisis peran Gerakan Nasional Pengendalian Inflasi Pangan (GNPIP) dalam mengendalikan inflasi pangan di era climate shock serta mengidentifikasi tantangan implementasinya. Penelitian menggunakan pendekatan kualitatif dengan metode studi literatur deskriptif-analitis, memanfaatkan data sekunder dari laporan resmi Bank Indonesia, BPS, serta berbagai jurnal nasional dan internasional dalam rentang lima hingga sepuluh tahun terakhir. Hasil penelitian menunjukkan bahwa inflasi tahun 2025 relatif terkendali secara umum, namun komponen volatile food mengalami fluktuasi tinggi akibat gangguan iklim dan keterbatasan sistem distribusi. Implementasi strategi 4K GNPIP meliputi ketersediaan pasokan, keterjangkauan harga, kelancaran distribusi, dan komunikasi efektif, terbukti berkontribusi dalam meredam tekanan jangka pendek melalui penguatan koordinasi TPIP dan TPID, operasi pasar, serta kerja sama antar daerah. Namun demikian, efektivitas jangka panjang masih menghadapi kendala berupa keterbatasan data pangan real-time, sistem peringatan dini berbasis iklim yang belum optimal, serta ketimpangan kapasitas fiskal dan logistik antarwilayah. Oleh karena itu, penguatan integrasi kebijakan inflasi dengan strategi adaptasi iklim dan transformasi sistem pangan menjadi rekomendasi utama untuk menjaga stabilitas harga pangan secara berkelanjutan.

**Kata kunci:** inflasi pangan, climate shock, GNPIP, volatile food, stabilitas harga

**ABSTRACT:** Climate change, characterized by the increasing frequency of El Niño, La Niña, drought, and extreme weather events, has strengthened the structural and recurring nature of food inflation in Indonesia. These pressures are particularly reflected in the volatile food component, which is highly sensitive to production and distribution disruptions. This study aims to analyze the role of the National Movement for Food Inflation Control (GNPIP) in controlling food inflation in the era of climate shock and to identify its implementation challenges. The research applies a qualitative approach using a descriptive-analytical literature review method, utilizing secondary data from official reports of Bank Indonesia, Statistics Indonesia (BPS), and national and international academic journals published within the last five to ten years. The findings indicate that while overall inflation in 2025 remained relatively controlled, the volatile food component experienced significant fluctuations due to climate-related supply disturbances and distribution constraints. The implementation of GNPIP's 4K strategy: supply availability, price affordability, smooth distribution, and effective communication, has contributed to short-term stabilization through strengthened coordination between central and regional inflation control teams, market operations, and interregional cooperation. However, long-term effectiveness remains constrained by limited real-time food data, underdeveloped climate-based early warning systems, and disparities in regional fiscal and logistical capacities. Therefore, stronger integration between inflation control policies, climate adaptation strategies, and food system transformation is essential to ensure sustainable food price stability.

**Keywords:** food inflation, climate shock, GNPIP, volatile food, price stability

## 1. INTRODUCTION

The significant dependence on the agricultural sector in efforts to improve community food welfare is also closely related to policies on setting floor prices and maximum prices for commodities. The government plays an important role in determining these pricing policies to prevent price volatility, both during crop failures and when production is abundant. Inflation is a condition that can hinder the process of economic growth and development in a country. In addition, inflation also reflects the level of people's purchasing power as well as the value of a commodity during a certain period. Increases in commodity prices, especially food commodities, have the potential to trigger inflation in a region or country (Helbawanti et al., 2021).

Staple food commodities are included in the volatile food category, which comprises rice, chicken meat, beef, chicken eggs, shallots, garlic, red chili peppers, bird's eye chilies, cooking oil, and granulated sugar. Household consumption plays a very vital role in supporting human survival. Moreover, consumption is also the largest contributor to the formation of national income, with most countries recording a proportion of consumption expenditure reaching around 60–70%. According to Keynesian economic theory, inflation can be influenced by the monetary policies implemented. Meanwhile, Friedman argued that inflation has a strong relationship with the money supply in the long run. Inflation instability can negatively affect economic conditions and reduce the purchasing power of business actors (Rahmanta & Maryunianta, 2020).



Figure 1: Inflation Trends in 2024-2025  
Source: BPS-Statistika Indonesia (2026)

Climate change has become one of the main factors triggering the global food crisis. Rising temperatures, increasing frequency of extreme weather events, floods, droughts, and the high intensity of pest attacks have had a significant impact on declining agricultural production. These impacts are most strongly felt in tropical countries, where agricultural systems remain largely open and highly dependent on seasonal patterns (Savary et al., 2019).

These conditions are also reflected in the agricultural sector in Indonesia, which is highly influenced by seasonal climate stability. Most cultivation activities are still carried out on open land without technological support such as modern irrigation or greenhouses. Conventional production patterns result in high vulnerability to climate change, particularly variations in temperature, rainfall, and air humidity that can change significantly. Seasonal uncertainty and weather fluctuations make planting and harvesting schedules difficult to predict, thereby increasing the risk of crop failure and farmers' losses. The increasing frequency of extreme weather events, both prolonged droughts and high-intensity rainfall, further exacerbates the challenges faced by the national agricultural sector, which heavily depends on climate stability (Winne & Peersman, 2021).

The increasingly unpredictable El Niño and La Niña phenomena also disrupt planting cycles, cause harvest delays, and increase the potential for agricultural losses. El Niño events in 2015, 2019, and again in 2025 demonstrate tangible impacts on production stability. During this period, the provinces of Aceh, North Sumatra, and West Sumatra experienced inflation in December after previously experiencing deflation in November 2025. This condition was triggered by rising commodity prices due to major flooding that occurred at the end of November 2025.

Prolonged drought reduces the availability of irrigation water, accelerates land degradation, and increases the risk of crop failure, particularly in vulnerable areas such as East Nusa Tenggara. On the other hand, extreme rainfall causes waterlogging and erosion that damage soil structure and disrupt root development. Plant growth becomes less optimal and the risk of crop damage increases. These impacts are exacerbated by limited water management infrastructure and soil conservation in various agricultural regions. Prolonged waterlogging can also create anaerobic conditions around plant roots, thereby inhibiting nutrient absorption and slowing growth. These disturbances not only reduce productivity but also increase uncertainty in farming activities and weaken food security at both regional and national levels (Mariyanto, 2025).

Climate shock pressures not only affect the production sector but also influence economic stability. Economic stability is reflected in price stability, especially food prices, to prevent excessive fluctuations that harm both consumers and producers. Inflation and people's purchasing power are important factors in maintaining national economic growth (Hidayat, 2023). Formulating appropriate policies requires synergy between the government and Bank Indonesia to maintain food price stability amid climate change pressures.

Efforts to strengthen policy coordination are realized through the implementation of the National Movement for Food Inflation Control (Gerakan Nasional Pengendalian Inflasi Pangan, GNPIP) in various regions. This program plays a role in maintaining a balance between controlling food inflation and protecting people's purchasing power, especially when the risk of production disruptions increases due to climate change. Strategies to strengthen supply, ensure smooth distribution, and enhance synergy between central and regional policies are expected to mitigate food inflation pressures originating from climate disruptions. Controlled food inflation will maintain price stability and increase people's purchasing power. This stability ultimately contributes to more sustainable economic growth in Indonesia amid climate shock challenges (Triwahyuni, 2021).

Based on this background, this study aims to analyze the role of strategies and monetary policies implemented by Bank Indonesia, particularly through strengthening coordination within the GNPIP program, in controlling food inflation and maintaining people's purchasing power in Indonesia amid climate shock pressures

## **2. METHOD**

This research employs a qualitative research design using a descriptive-analytical literature review approach. The qualitative method is selected because the research seeks to understand institutional roles, policy coordination, and structural constraints rather than to test statistical relationships. Qualitative research emphasizes depth of interpretation, contextual understanding, and meaning construction drawn from various credible sources. As explained by Hardani et al. (2020), qualitative inquiry is appropriate when the objective is to explore complex social phenomena and interpret them holistically. Similarly, Sugiyono (2022) notes that qualitative methods are suitable for examining policy processes, institutional dynamics, and contextual interactions that cannot be reduced to numerical measurement. Mulyana et al. (2024) further highlight

that qualitative descriptive analysis enables researchers to synthesize information from multiple documents to generate comprehensive insights.

The case concerns the implementation of GNPIP as a national coordination framework to stabilize food prices during climate disturbances such as El Niño, La Niña, drought, flooding, and distribution disruptions. These climate shocks significantly affect agricultural production, particularly strategic commodities such as rice and horticulture, leading to increased food price volatility.

### **2.1 Types of Data and Sources of Information**

This research uses secondary data derived from peer-reviewed national and international journal articles published within the last five to ten years, official reports from Bank Indonesia, the Central Statistics Agency (BPS), and the Ministry of Agriculture, as well as policy documents and evaluation reports related to GNPIP and the Central and Regional Inflation Control Teams. These documents serve as credible sources for understanding policy performance, climate impacts, and institutional coordination mechanisms in line with qualitative research principles.

### **2.2 Data Collection Procedures**

Data are collected through systematic documentation and literature tracing. The researcher identifies relevant keywords, gathers scientific articles and official institutional reports, screens them based on relevance and credibility, and classifies selected documents into thematic categories such as climate impact on food inflation, 4K strategy implementation, and institutional barriers. This structured process ensures that all collected materials directly support the research objectives and reflect recent climate and policy developments.

### **2.3 Data Analysis Techniques**

Data analysis follows qualitative procedures consisting of data reduction, data display, and conclusion drawing, as outlined by Hardani et al. (2020). The researcher first selects and focuses on relevant findings related to climate shocks and GNPIP implementation, then organizes them into thematic patterns to identify relationships between climate disturbances and food price volatility. Finally, the study synthesizes the findings to assess GNPIP's effectiveness as a coordination instrument and to identify policy gaps and structural limitations requiring further strengthening.

## **3. RESULT AND DISCUSSION**

### **3.1 Inflation Dynamics in 2025 and Their Implications for Food Stability**

Inflation serves as a key macroeconomic indicator reflecting price stability and household purchasing power. Inflation stability constitutes a fundamental prerequisite for sustaining macroeconomic resilience and safeguarding household welfare, particularly in emerging economies where food expenditure accounts for a significant share of total consumption. Empirical evidence demonstrates that inflationary pressures, especially in food commodities, have direct implications for food accessibility and socioeconomic vulnerability. Olufemi-phillips et al. (2024) argue that persistent inflation erodes real income and weakens food security, disproportionately affecting lower-income households. Similarly, Juliannisa et al. (2025) emphasize that regional disparities in food security are closely linked to price volatility and structural weaknesses in production systems. In this context, analyzing the dynamics of inflation during 2025 becomes essential for understanding how price movements, particularly in the food sector, interacted with broader economic stability and vulnerability patterns in Indonesia.

Table 1. The inflation data in Indonesia for 2025

| Year/Month  | General/Headline | Core        | Administered Price | Volatile Good |
|-------------|------------------|-------------|--------------------|---------------|
| <b>2025</b> | <b>2,92</b>      | <b>2,38</b> | <b>1,93</b>        | <b>6,21</b>   |
| December    | 0,64             | 0,20        | 0,37               | 2,74          |
| November    | 0,17             | 0,17        | 0,24               | 0,02          |
| October     | 0,28             | 0,39        | 0,10               | 0,03          |
| September   | 0,21             | 0,18        | 0,06               | 0,52          |
| August      | -0,08            | 0,06        | -0,08              | -0,61         |
| July        | 0,30             | 0,13        | 0,09               | 1,25          |
| June        | 0,19             | 0,07        | 0,09               | 0,77          |
| May         | -0,37            | 0,08        | -0,02              | -2,48         |
| April       | 1,17             | 0,31        | 5,21               | -0,04         |
| March       | 1,65             | 0,24        | 6,53               | 1,96          |
| February    | -0,48            | 0,25        | -2,65              | -0,93         |
| January     | -0,76            | 0,30        | -7,38              | 2,95          |

Source: BPS-Statistica Indonesia (2026)

In Table 1, The inflation data for 2025 indicate that although headline inflation was recorded at 2.92% year on year, price movements throughout the year were characterized by substantial monthly fluctuations, particularly within the volatile goods component. Core inflation remained relatively stable at 2.38% annually, reflecting contained demand-side pressures and relatively anchored inflation expectations. In contrast, volatile goods experienced significantly higher annual inflation at 6.21%, underscoring the dominant role of food price variability in shaping overall inflation dynamics. Monthly data reveal pronounced volatility: in January, volatile goods rose by 2.95% despite a contraction in administered prices of -7.38%, while in March volatile goods increased by 1.96% alongside a sharp rise in administered prices of 6.53%, contributing to headline inflation of 1.65%. A similar pattern occurred in July and December, when volatile goods inflation reached 1.25% and 2.74% respectively, coinciding with relatively higher headline inflation rates. These movements demonstrate that short-term inflation spikes in 2025 were largely driven by fluctuations in food-related components rather than persistent core inflation pressures.

The data also show several periods of deflation, particularly in May and August, when volatile goods contracted by -2.48 % and -0.61 % respectively, contributing to headline deflation of -0.37 % in May and -0.08 % in August. Such reversals highlight the cyclical and supply-sensitive nature of food prices. Meanwhile, core inflation maintained a narrow monthly range between 0.06 and 0.39 %, reinforcing the conclusion that structural food supply factors, rather than aggregate demand expansion, were the primary drivers of inflation variability in 2025. The consistently higher annual inflation rate of volatile goods compared to headline and core inflation suggests that food price instability remained a structural challenge for economic stability. Consequently, even though aggregate inflation appeared manageable, the pronounced volatility in food components carried significant implications for food affordability and household purchasing power, particularly among vulnerable groups whose consumption baskets are heavily weighted toward staple commodities.

Table 2. Inflation Rate by Component Group, December 2025

| Component          | CPI<br>Desember<br>2024 | CPI<br>Desember<br>2025 | M-to-M<br>Inflation<br>Rate<br>December<br>2025 <sup>1)</sup><br>(%) | Y-to-D<br>Inflation<br>Rate<br>December<br>2025 <sup>2)</sup><br>(%) | Y-to-Y<br>Inflation<br>Rate<br>December<br>2025 <sup>3)</sup><br>(%) | M-to-M<br>Contributi<br>on<br>December<br>2025<br>(%) | Y-to-Y<br>Contributi<br>on<br>December<br>2025<br>(%) |
|--------------------|-------------------------|-------------------------|--|--|--|---|---|
| <b>Headline</b>    | <b>106.80</b>           | <b>109.92</b>           | <b>0.64</b>  | <b>2.92</b>  | <b>2.92</b>  | <b>0.64</b>   | <b>2.92</b>   |
| Core               | 105.35                  | 107.86                  | 0.20   | 2.38   | 2.38   | 0.12  | 1.53  |
| Administered Price | 108.80                  | 110.90                  | 0.37   | 1.93   | 1.93   | 0.07  | 0.38  |
| Volatile Foods     | 110.39                  | 117.24                  | 2.74   | 6.21   | 6.21   | 0.45  | 1.01  |
| Energy             | 106.95                  | 107.66                  | 0.33   | 0.66   | 0.66   | 0.04  | 0.07  |
| Foodstuff          | 109.29                  | 115.17                  | 2.27   | 5.38   | 5.38   | 0.47  | 1.09  |

Source: BPS-Statistica Indonesia (2026)

Data from Table 2 explained that in December 2025, headline inflation reached 2.92% year on year, with the Consumer Price Index rising from 106.80 in December 2024 to 109.92 in December 2025. On a month-to-month basis, headline inflation was recorded at 0.64%, while the year-to-date inflation rate also stood at 2.92%. The Core Component experienced year-on-year inflation of 2.38%, with the index increasing from 105.35 to 107.86. Its month-to-month inflation was relatively moderate at 0.20%, contributing 0.12% to monthly headline inflation and 1.53% to annual inflation. Commodities contributing to core inflation in December 2025 included gold jewelry, cooking oil, house rent, tuition fees for academies and universities, and ground coffee.

The Administered Price Component recorded year-on-year inflation of 1.93%, with the index rising from 108.80 to 110.90. Monthly inflation for this component reached 0.37%, contributing 0.07% to headline monthly inflation and 0.38% to annual inflation. Key contributors included piped water tariffs in several regions, machine-made kretek cigarettes, gasoline, and hand-rolled kretek cigarettes. Meanwhile, the Volatile Foods Component showed significantly higher inflation at 6.21% year on year, with the index increasing from 110.39 to 117.24. On a monthly basis, volatile foods recorded inflation of 2.74% and contributed 0.45% to headline monthly inflation and 1.01% to annual inflation. Dominant contributors within this component included red chili, fresh fish, bird's eye chili, rice, broiler chicken meat, shallots, and chicken eggs. These figures confirm that food-related commodities were the primary drivers of inflationary pressures in December 2025.

Table 3. National Inflation by Expenditure Group

| Expenditure Group  | CPI<br>Desember<br>2024 | CPI<br>Desember<br>2025 | M-to-M<br>Inflation<br>Rate<br>December<br>2025 <sup>1)</sup><br>(%) | Y-to-D<br>Inflation<br>Rate<br>December<br>2025 <sup>2)</sup><br>(%) | Y-to-Y<br>Inflation<br>Rate<br>December<br>2025 <sup>3)</sup><br>(%) | M-to-M<br>Contribution<br>December<br>2025<br>(%) | Y-to-Y<br>Contribution<br>December<br>2025<br>(%) |
|--|-------------------------|-------------------------|--|--|--|---|---|
| <b>Headline Inflation Rate</b>   | <b>106.80</b>           | <b>109.92</b>           | <b>0.64</b>  | <b>2.92</b>  | <b>2.92</b>  | <b>0.64</b>                                       | <b>2.92</b>                                       |
| Food, Beverages, and Tobacco   | 110.41                  | 115.47                  | 1.66   | 4.58   | 4.58   | 0.48  | 1.33  |
| Clothing and Footwear  | 103.38                  | 104.06                  | -0   | 0.66   | 0.66   | -0  | 0.33  |
| Housing, Water, Electricity,<br>and Household Fuel                     | 102.60                  | 104.26                  | 0.06   | 1.62   | 1.62   | 0.01  | 0.26  |
| Furnishings, Household Equipment,<br>and Routine Household Maintenance | 103.87                  | 104.08                  | -0   | 0.20   | 0.20   | -0  | 0.01  |
| Health   | 104.64                  | 106.55                  | 0.09   | 1.83   | 1.83   | -0  | 0.05  |
| Transport  | 109.48                  | 110.83                  | 0.55   | 1.23   | 1.23   | 0.07  | 0.15  |
| Information, Communication,<br>and Financial Services                  | 99.48                   | 99.20                   | -0.33  | -0.28  | -0.28  | -0  | -0.02   |
| Recreation, Sport, and Culture   | 104.26                  | 105.48                  | 0.10   | 1.17   | 1.17   | -0  | 0.02  |
| Education  | 104.92                  | 106.20                  | 0.01   | 1.22   | 1.22   | -0  | 0.07  |
| Food and Beverage Serving Services/<br>Restaurant                      | 106.64                  | 108.20                  | 0.13   | 1.46   | 1.46   | 0.01  | 0.15  |
| Personal Care and Other<br>Services                                    | 113.22                  | 128.31                  | 1.00   | 13.33  | 13.33  | 0.07  | 0.87  |

Source: BPS-Statistica Indonesia (2026)

Based on Table 3, In December 2025, the primary driver of headline inflation, both on a monthly and annual basis, was the Food, Beverages, and Tobacco expenditure group, reinforcing the central role of food prices in Indonesia's inflation dynamics. The group's CPI increased from 110.41 in December 2024 to 115.47 in December 2025, reflecting year-on-year inflation of 4.58 %, significantly above the headline rate of 2.92 %. On a month-to-month basis, this group recorded inflation of 1.66 % and contributed 0.48 %age points to headline monthly inflation of 0.64 %, making it the largest contributor among all expenditure groups. In annual terms, it contributed 1.33 %age points to overall inflation, again representing the dominant share. Key commodities driving monthly inflation included bird's eye chili, broiler chicken meat, shallots, fresh fish, and chicken eggs, while year-on-year pressures were mainly attributed to red chili, fresh fish, bird's eye chili, rice, and broiler chicken meat. Over the course of 2025, commodities such as gold jewelry, red chili, fresh fish, bird's eye chili, and rice consistently emerged as major inflation contributors, indicating that food-related price volatility remained structurally significant and had direct implications for food affordability and purchasing power stability.

From a theoretical perspective, supply-side inflation has significant implications for food security and household welfare. Olufemi-phillips et al. (2024) argue that inflation reduces real purchasing power and constrains access to essential food commodities, particularly among lower-income groups. In the Indonesian context, Juliannisa et al. (2025) emphasize that regional vulnerability to food insecurity is shaped by production instability and price volatility. Consequently, persistent price increases in essential commodities such as chili and poultry can amplify regional disparities and socioeconomic vulnerability.

Policy intervention therefore becomes essential in mitigating these pressures. Prahmana et al. (2026) demonstrate that targeted market operations can provide short-term stabilization effects when implemented with strong institutional coordination. Meanwhile, Rahmadani et al. (2025) highlight the importance of strengthening agricultural institutions and adaptive policy frameworks to support farmers facing climate-related risks and fluctuating commodity prices. Without structural improvements in production resilience and distribution efficiency, food price volatility is likely to persist in recurring cycles.

In summary, while headline inflation in 2025 remained within a manageable range, the dominant contribution of horticultural commodities to both monthly and annual inflation, combined with elevated producer price inflation in the agriculture sector, indicates that food price stability remains structurally fragile. These findings underscore the need for comprehensive and forward-looking inflation control strategies that integrate macroeconomic stabilization with strengthened food production systems and institutional resilience.

### **3.2 Climate Shock as a Structural Driver of Food Price Volatility**

Food price inflation in Indonesia increasingly reflects structural supply-side disturbances associated with climate change rather than merely cyclical or seasonal fluctuations. Although agricultural prices have historically followed planting and harvesting cycles, recent empirical evidence indicates that the growing frequency and intensity of climate anomalies have transformed seasonal variability into a more persistent source of instability. Andri & Priantoro (2020) document the impact of the 2015 El Niño episode in Subang Regency and demonstrate how drought conditions significantly reduced harvested area and rice output. Their findings show that rainfall shocks directly weaken production capacity, thereby tightening food supply and exerting upward pressure on prices.

At the national level, Malau et al. (2023) find that shifts in rainfall distribution and rising temperatures have systematically affected food crop productivity across Indonesia. These climatic changes have increased yield uncertainty and reduced output stability in several staple commodities. Unlike temporary weather disturbances, long-term climate change alters agroecological conditions and requires farmers to adjust planting calendars and cropping patterns. Such adjustments often occur gradually and do not immediately compensate for climatic shifts, resulting in recurring production gaps that translate into repeated price volatility. In this context, climate variability becomes embedded within the structural dynamics of food inflation rather than remaining a short-term disturbance.

From a macroeconomic perspective, Fajri et al. (2019) confirm that provinces exposed to El Niño and La Niña episodes experience statistically significant increases in food prices, particularly those that depend heavily on rain-fed agriculture. Supply contractions are transmitted to consumer markets through lower output volumes and distribution frictions, which amplify inflationary pressures. The effects frequently extend beyond the immediate climatic event and may persist across multiple production cycles. Comparative evidence by Kumar et al. (2026) in India supports this structural interpretation, as extreme weather shocks were found to propagate through agricultural production and distribution networks and generate sustained food inflation. Considering the similarities between India and Indonesia in terms of agricultural dependence and climate exposure, comparable transmission mechanisms are highly plausible.

Recent inflation developments further reinforce this structural linkage. The volatile food component recorded significant inflationary pressure in December 2025, primarily due to limited supply resulting from adverse weather conditions and higher production input costs. On a month-to-month basis, volatile food inflation reached 2.74% in December 2025, compared with 0.02% in November 2025 and 2.04% in December 2024. The increase was mainly driven by higher prices of red chili, broiler chicken meat, shallots, and chicken eggs. Limited availability of red chili and shallots was associated with extreme weather disruptions, including hydrometeorological disasters in Sumatra, while elevated feed corn prices contributed to increases in broiler meat and egg prices. As a result, volatile food inflation rose to 6.21% year on year in December 2025, exceeding 5.58% in the previous month and far above 0.12% recorded a year earlier.

Meteorological conditions during December 2025 significantly influenced supply dynamics. Around 81% of Indonesian regions had entered the rainy season, while 2.8% remained in the dry season. Increased rainfall intensity was linked to atmospheric phenomena such as Equatorial Rossby Waves and Kelvin Waves. In addition, the development of Tropical Cyclone 95B into Tropical Cyclone Senyar in November 2025 triggered hydrometeorological disasters in Sumatra and intensified rainfall in surrounding areas. Climate monitoring indicators show that the Indian Ocean Dipole index stood at minus 0.22, indicating a neutral phase, while the El Niño Southern Oscillation index registered minus 0.70, reflecting a weak La Niña condition that is expected to continue into early 2026 (Bank Indonesia, 2026).

Taken together, empirical findings and recent inflation data indicate that food inflation in Indonesia is structurally intertwined with climate dynamics. Recurrent ENSO cycles, shifting rainfall regimes, intensified extreme weather events, and associated supply disruptions systematically constrain agricultural production and increase cost pressures. When these factors interact with existing structural limitations, including irrigation gaps, fragmented supply chains, and uneven regional adaptive capacity, climate variability evolves from a seasonal fluctuation into a persistent driver of food price instability. This structural vulnerability highlights the importance of integrating climate adaptation measures with comprehensive inflation control policies to ensure long-term food price stability.

### **3.3 The Role and Effectiveness of GNPIP in Controlling Food Inflation**

The containment of inflation within its target range throughout 2025 reflects not only macroeconomic stability but also institutional coordination in inflation management. Official statements from Bank Indonesia emphasize that the preservation of inflation within the target corridor was achieved through consistent monetary policy and strong policy synergy between Bank Indonesia and the Government, particularly within the Central and Regional Inflation Control Teams (TPIP and TPID) (Bank Indonesia, 2025). In addition, the December 2025 Inflation Analysis Report highlights that inflation control efforts were reinforced through strengthened implementation of the National Food Security Program and the National Movement for Food Inflation Control (GNPIP), especially in response to volatile food pressures (Bank Indonesia, 2026). These policy communications indicate that inflation stabilization in 2025 was not solely demand-driven but relied heavily on coordinated supply-side interventions.

GNPIP operationalizes its framework through the 4K strategy: availability of supply, affordability of prices, smooth distribution, and effective communication. The supply availability pillar focuses on maintaining adequate food stocks and supporting domestic production, while affordability is pursued through market operations and targeted stabilization measures. Distribution efficiency is strengthened through interregional cooperation (*Kerja Sama Antar Daerah, KAD*), which facilitates commodity flows between surplus and deficit regions to reduce spatial price disparities (Bank Indonesia, 2023). Effective communication is implemented through transparent dissemination of price data and inflation outlooks, aiming to anchor public expectations. Publications such as *BICARA* (Bank Indonesia, 2022) underline that transparent information management is essential in preventing speculative behavior and excessive price volatility. The integration of these four pillars reflects a structured supply-management approach rather than reliance on monetary tightening alone.

The role of digitalization further strengthens GNPIP's responsiveness. Through the National Strategic Food Price Information Center (PIHPS), price developments are monitored in real time, enabling early detection of abnormal movements and faster policy intervention. Bank Indonesia (2026) notes that intensified TPIP–TPID coordination, supported by digital monitoring, contributed to mitigating volatile food pressures toward the end of 2025. This suggests that institutional synchronization and data transparency enhanced short-term stabilization capacity. Empirically, despite elevated volatile food inflation, headline inflation remained controlled, indicating that coordinated interventions helped prevent broader second-round effects.

The critical question concerns whether GNPIP functions primarily as a short-term shock absorber or as a structural resilience mechanism. Market operations and price stabilization policies are inherently reactive and effective in moderating temporary supply shortages. Yet, structural resilience requires strengthening agricultural capacity and diversification. Wardhana et al. (2022) argue that food diversification is a strategic response to global food crises, as it reduces dependence on limited staple commodities. Similarly, N et al. (2025), through a systematic literature review, demonstrate that diversification of local food sources enhances national food strategy resilience in the face of global disruptions. Complementing this perspective, Rahmadani et al. (2025) emphasize that agricultural institutional policies play a crucial role in supporting farmers confronting climate crises and commodity price volatility. These studies collectively suggest that without structural reinforcement of production systems, inflation control policies may remain predominantly short-term in nature.

From an adaptive governance perspective, GNPIP shows strong coordination capacity but faces challenges in fully internalizing climate risk into its long-term framework. While policy synergy between Bank Indonesia and TPIP–TPID has proven effective in containing inflation within its target range in 2025 (Bank Indonesia, 2025), sustained resilience requires integration between inflation control, agricultural

adaptation, and food system transformation. Therefore, GNPIP has demonstrated effectiveness in stabilizing inflation in the short run, yet its long-term success depends on embedding structural reforms, climate adaptation strategies, and food diversification into its core design. This evaluation is central to the study because it directly assesses whether Indonesia's inflation control architecture can move beyond reactive stabilization toward durable food price resilience.

#### 4. CONCLUSION

This research concludes that climate shocks manifested through El Niño, La Niña, and extreme weather have shifted the character of food inflation in Indonesia from seasonal fluctuations to a structural and systemic phenomenon. The findings highlight that production disruptions do not merely reduce output, but also exacerbate supply mismatches across regions due to infrastructure deficits and fragmented food stock data. Consequently, this systemic pressure primarily affects the volatile food group, reinforcing inflation as a recurring challenge that transcends simple supply-demand cycles.

The effectiveness of the National Movement for Food Inflation Control (GNPIP) underscores the critical role of the 4K approach in mitigating these pressures through integrated price stabilization and inter-regional cooperation. The policy implications suggest that strengthening food reserves and digitalizing supply chain data are essential to transition from reactive market operations to proactive structural resilience. Future research should explore the integration of climate-predictive modeling into fiscal and monetary coordination frameworks to enhance the precision of inflation targeting amidst increasing environmental volatility.

#### 5. REFERENCES

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