

# FOOD RESILIENCE POLICY 2012-2020: A PERSPECTIVE OF FOOD SUPPLY CHAIN AND LOGISTICS IN INDONESIA

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## ABSTRACT

*This paper presents a critical content analysis of food resilience policies based on a supply chain and food logistics perspective in Indonesia. The dominant policy approach to improving people's food resilience, especially during the Covid 19 pandemic. In-depth analysis was carried out on policy documents from 2012 to 2020.*

*Content analysis techniques are used to analyze food resilience based on a food supply chain and logistics perspective, take the form of policy documents and track any changes in selected content across policy periods and their implications for governance and individualization of responsibilities.*

*There are three pillars in food resilience, namely availability, affordability and stability. Indonesia is an archipelago country. The logistics distribution channel and the food supply chain have a very strategic role, especially during the Covid 19 pandemic. This role is mainly in handling the outbreak and meeting domestic consumption needs, especially related to food. The distribution process is more towards online markets or digitization.*

*The challenge for island nations is high logistics costs. In addition, logistical inefficiencies include duplication and repetition of documents, asymmetric information related to supply and demand, the absence of an integrated upstream to downstream logistics platform for all supply chain stakeholders and food logistics in Indonesia. The National Logistics System/ Sislognas Arrangement has been started from 2012 until now with the launch of the National Logistic Ecosystem/ NLE policy.*

*This analysis is the first analysis of the content of food resilience policies based on the perspective of the supply chain and food logistics in Indonesia. This analysis is expected to provide new insights into food resilience policies from a food supply chain and logistics perspective.*

**Keywords:** Food Policy, Food Resilience, Content Analysis, Governance, Supply Chain and Food Logistics

## INTRODUCTION

The sustainability of the food chain is an issue for all stakeholders, whether for consumers, policy makers, researchers, producers and food suppliers (Paciarotti & Torregiani, 2021). Based on the statement of the world food organization, the potential for a food crisis during a global pandemic Covid-19 is threatening the world, including Indonesia. The government, through Perum Badan Urusan Logistik/Bulog (Logistics Agency), in synergy with the Ministry of Agriculture, is trying to achieve food resilience in the midst of a pandemic. The key to strengthening national food is to strengthen the logistics system. Effective distribution mechanisms need to be a priority for the

government, including Bulog, in alleviating high logistics costs. On the other hand, there is the issue of sub-optimal productivity in several regions in Indonesia, which requires the right strategy in meeting food supply (Mardika, 2021).

During the global Covid-19 pandemic, according to TNP2K data, at the end of April 2020, the condition of staple food stocks was estimated to be a deficit in several regions. Rice has a deficit in seven provinces, namely in Riau, Bangka Belitung, Riau Islands, North Kalimantan, Maluku, North Maluku and West Papua. For maize, supply shortages are estimated to occur in 11 provinces, namely 3 provinces in Sumatra Island, 3 provinces in Java Island, 2 provinces in Kalimantan Island, 2 provinces in Papua, and Bali Province. Other food commodities experiencing a deficit are large chili peppers in 23 provinces, cayenne pepper in 19 provinces, chicken eggs in 22 provinces, chicken meat in 14 provinces, beef in 5 provinces, garlic in 31 provinces, granulated sugar in 30 provinces, and shallots in 1 province. Only cooking oil is in surplus supply in all provinces (TNP2K, 2020).

The main problem that needs to be taken into account by agricultural sector policy makers is the relatively low level of productivity in several regions. Areas with a rice supply deficit are regions with a lower level of rice production compared to the national average. Another problem in the food crop sector is that micro-scale farmers dominate the RTUP group. The results of the 2018 SUT show that as many as 58.7 percent of farmers are farmers with land tenure under 0.5 hectares. Short-term interventions that need to be carried out in this group are efforts to increase the productivity of land managed in accordance with the commodities relevant to the group (Diwangkara, 2020).

Fresh and perishable agricultural products have vulnerability to the harvest and production phases, which affect the supply of fresh and perishable products, as well as transportation and logistics resilience, which in fact guarantees the supply of products that can be stored to the final consumer (Coluccia et al., 2021; Routroy & Behera, 2017). The COVID-19 pandemic presents an unusual and unprecedented challenge for the authorities responsible for the national food safety surveillance system to continue to carry out routine functions and activities in accordance with national regulations and international recommendations. Policy makers during the Covid 19 pandemic must make the right decisions (Nikolopoulos et al., 2020). In the midst of the covid-19 pandemic situation, the governments of the countries in the world are implementing social distancing policies (Ashraf, 2020). The Indonesian government together with non-government organizations and the community responded with several quick actions (Djalante et al., 2020).

To ensure the sustainability of food resilience through increasing national food availability, as well as increasing the welfare of farmers, long-term and short-term policies are needed. In the short term, there is still a need for a policy to protect farmers by restricting imports of agricultural products, but it should also be supported by policies that encourage increased domestic production through efforts to increase the productivity of national agricultural products. In the long term, the import restriction policy can be gradually reduced, however, a policy to increase domestic production is still needed accompanied by an increase in Domestic/ Local Food Security. Agricultural technology development is also expected to be able to increase and make the agricultural sector more efficient (Prabowo, 2010). With the use of digital technology and on the institutional forces that limit (barriers) and drive (drive) the diffusion of digital food supply chains (Annosi et al., 2021). The same thing, namely the implementation of several policies on main food, especially rice and food safety, was also implemented by West Africa in dealing with the Covid 19 pandemic (Arouna et al., 2020).

The impact of this epidemic on supply chain performance is clear in terms of supply, demand or logistics (Grida et al., 2020). Food security is influenced by the performance of the supply chain, including supply management (Mu et al., 2021). The National Strategic Food Price Information (PIHPS) has shown an average rice price increase of 0.8 percent during the January-

March 2020 period. Therefore, as an anticipatory step towards rising prices, the government needs to make a food policy strategy on all fronts. This policy has a direct impact on supply chain performance at all scopes. The degree of impact varies from one supply chain to another, according to the activities provided by the supply chain (Grida et al., 2020). The supply chain must be able to overcome the challenging situations in the food supply chain at this time of the pandemic (Barman et al., 2021).

In Indonesia, starting in 2012 the Government has paid more attention to the logistics system, given the fact that Indonesia is an archipelago country. In 2012, the Government set up a National Logistics System. This is the beginning of Indonesia's next logistics system policy, until now the National Logistics Ecosystem policy is issued in 2020.

This research aim is to analyze the food resilience policies based on a supply chain and food logistics perspective in Indonesia. This analysis is the first analysis of the content of food resilience policies based on the perspective of the supply chain and food logistics in Indonesia. This is also the research implication.

## LITERATURE REVIEW

### Food Supply Chain

The food supply chain is a series of links and inter-dependencies, from farms to food consumers' plates, embracing a wide range of disciplines. Food Supply Chain Management brings together the most important of these disciplines and aims to provide an understanding of the chain, to support those who manage parts of the chain and to enhance the development of research activities in the discipline (Bourlakis et al., 2014; Bourlakis & Weightman, 2003).

Although there are different drivers for the developments in the food supply chain (e.g. globalization of markets, greater consumer choice, consumer and media concerns about safety and environment, changes in eating habits, etc.), the incorporation of environmental thinking in the supply chain management is still limited and mainly observed in the strategies of big, multi-national companies (Mintcheva, 2005).

### Food Policy

In setting the food supply chain policy, the Government can promote the domestic and export markets simultaneously so as to increase production efficiency. Supermarkets play an important role in connecting farmers to markets through direct procurement while improving the cultivation practices of participating farmers to improve product quality. A number of policy gaps still exist to protect the interests of farmers in maximizing their profits, and in the area of participation between the public and private sectors (Srimanee & Routray, 2012). The dominant policy approach through the food policy document, is used to monitor any changes in the entire policy period and their implications in terms of governance and individual responsibility (Burges Watson et al., 2021).

In the agri-food sector, there are severe institutional weaknesses, lack of incentives and structures to generate certainty and innovation capability. Therefore, underdevelopment and lack of competitiveness are direct consequences of innovation policies with minimum priority. For policymakers, in designing policies it is necessary to compare and facilitate the drafting of better regulations and public policy instruments that enable them to address and enhance economic vocations through innovation for local development (Solis-Navarrete et al., 2020).

In addition, a price reduction policy can coordinate the supply chain as long as the parameters meet certain analytical conditions. The benefits and risks that are expected in the supply chain will

increase when the e-marketplace is introduced optimal performance in the supply chain with the e-marketplace (Ning et al., 2011). The total supply chain costs are lower in the scenario, when the backorder costs are the same as the storage costs (Ambekar & Kapoor, 2019).

## Method

This research is used qualitative approach (Creswell, 2014), which presents a critical content analysis of food security policies based on a supply chain and food logistics perspective in Indonesia. The dominant policy approach to improving people's food resilience, particularly during the Covid 19 pandemic.

Content analysis techniques (Lune & Berg, 2017) are used to analyze food policy based on a food supply chain and logistics perspective. It took some policy documents and track any changes in selected content across policy periods and their implications for governance and individualization of responsibilities. In-depth analysis was carried out on policy documents from 2012 to 2020.

## RESULT AND DISCUSSIONS

### Result

During the pandemic, the Indonesian government focused its policies on food availability and accessibility as well as the affordability (stability) of food prices in Indonesia from production to consumption, or from upstream to downstream. There is a change in the pattern of the food supply chain. The application of social restrictions has an impact on the production to consumption process. Farmers begin to feel that production must conform to protocols and ensure quality before it reaches consumers. The distribution process is more towards online markets (Diwangkara, 2020).

### Identification and Sampling of Policy Documents

To develop a manageable sampling frame a comprehensive list of all Indonesian government policy documents related to food, food, food supply chain issues. The perspective was built from 2012 to 2020 (Table 1).

Each author compiled a list based on their knowledge of the policy and these lists are then compared, to ensure that important documents are not missed. The policy is the identity of the policy document and is complemented by web searches of government agencies related to the author's own knowledge of food policy. Six documents from the sampling frame were then selected for a more detailed analysis.

<b>Year</b>	<b>Title</b>	<b>Department</b>
2012	Food Resilience (Law No 18 in 2012) Sistem Logistik Nasional (Presidential Decree No 26 in 2012)	Ministry of Agriculture Presidential Decree
2016	1st Indonesia Logistics Reform	Presidential Decree
2017	15th Economic Policy Package (Presidential Decree No 44 Tahun 2018)	Presidential Decree
2018	2nd Indonesia Logistics Reform Government Policy in Development Policy Lending from World Bank	Presidential Decree
2020	National Logistics Ecosystem Inpres No 5 Tahun 2021	Presidential Instruction

## Analysis

Based on Law No. 18 in 2012 concerning food security, food resilience is a condition for the fulfillment of food for the state to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable, and affordable and does not conflict with religion, beliefs, and community culture, to be able to live healthy, active and productive in a sustainable manner.

Food security itself has three pillars, namely availability, affordability and stability. As the first pillar, food availability illustrates how an agricultural system can provide for the food needs of the community. The second pillar of affordability can be seen from the presence of food that is physically close to consumers with the economic capacity to be able to buy it (obtain it). Meanwhile, the third pillar of stability can be seen from the continuity of supply and price stability that households can expect at any time and place. The three pillars will be used as benchmarks for whether food security has been achieved or not.

It is a big challenge for a country in maintaining food resilience in the midst of the current pandemic. The Task Force (Gugus Tugas) for the Acceleration of Handling Covid-19 in collaboration with the Ministry of Agriculture must be able to secure the availability of foodstuffs. Food availability itself is affected by the availability of raw materials, which means it depends on production from agricultural activities. During this pandemic, farmers continue to work on their land with implementing production protocols to ensure the quality and the quantity and also the safety of food in the midst of pandemic (Diwangkara, 2020).

In accordance with the Joint Statement on Food Security and Nutrition in the Context of the COVID-19 Pandemic in Indonesia on May 14, 2020. The government and various organizations/institutions in Indonesia are working to protect citizens from Coronavirus Disease-2019 (COVID-19). The actions described in this statement cover six themes: healthy food; nutrition for mothers, babies and toddlers; management of malnutrition; micronutrient supplementation; providing nutritious food for school children, and nutritional surveillance. This Joint Statement was issued by the UN Leadership in Indonesia and is intended to provide recommendations on a series of prioritized actions and policy guidelines to support food and nutrition security in the context of the COVID-19 pandemic (United Nations Indonesia, 2020).

According to the Head of the Food Security Agency (BKP) of the Ministry of Agriculture, the national food security index fell from 44.10 to 40.10 in the first two months after the pandemic broke out. This shows that local governments need to coordinate with the central government and a number of stakeholders to make massive use of local food. The government is aware of the risk of a food crisis if the pandemic is prolonged. For this reason, one of the actions taken by the government is to take several measures such as by holding a program to expand new planted areas covering an area of nearly 165,000 hectares in Central Kalimantan Province to increase food availability. This was the subject of discussion in the Localise SDGs program discussion carried out by the United Cities and Local Governments Asia Pacific (UCLG Aspac) with the Association of City Governments throughout Indonesia (APKESI). The importance of optimizing local food sources and integrating logistics and food supply chains is one way to overcome the logistics system and food supply chain that has been disrupted due to the corona pandemic (COVID-19) (Julian, 2020).

In an effort to increase food production and keep farmers producing during the pandemic, the Ministry of Agriculture (Kementan) has several strategies, including relaxation of the people's business credit (KUR) in the agricultural sector and accelerating agricultural facilities and infrastructure assistance. In terms of KUR relaxation, the government provides exemption from interest payments and postponement of KUR principal payments and this will be followed by providing an extension of the term and additional ceiling. The strategy is expected to help farmers carry out agricultural activities, from planting to harvesting (Marpaung, 2020).

The availability of facilities and infrastructure has an important role in accelerating the fulfillment of food availability in the community. The Ministry of Agriculture focuses on accelerating the improvement of irrigation facilities, provision of agricultural machinery, seeds, fertilizers, animal feed, veterinary medicine, vaccines, and also other production facilities and support. Agricultural machinery such as tractors will speed up the production process compared to using buffalo or human power. Modern agricultural systems are proven to increase production value faster than conventional systems.

## DISCUSSION

The weakening economic condition certainly had an impact on the supply chain, especially national logistics transportation activities and based on data from BPS, the transportation and warehousing sectors experienced the deepest contraction, amounting to 30.84%. One of them is the contraction occurred in the decline in export imports and trade contraction as a result of the decline in people's purchasing power (Lusia, 2020).

Based on a logistical perspective, there is a series of actions that can be implemented to improve supply chains effectively: to make environmentally sustainable choices during all phases of food distribution, to optimize supply chain node locations, to improve distribution routes and to restructure supply chains. In addition to these actions, farmers are required to adopt an open approach to innovative distribution systems, vertical and horizontal collaboration, and collaboration with researchers. In other words, a holistic and integrated approach is needed in order to keep up with the dynamics of the future (Siddh et al., 2018). Other than that, to improve the performance of public distribution systems, optimization of inventory policies can help actors in the public distribution systems supply chain to select appropriate policy parameters in current inventory policies so as to reduce overall distribution costs (Ambekar & Kapoor, 2019).

Tax policy is one of the instruments that can be used by the government to achieve certain goals, including encouraging economic growth and the performance of logistics players in the transportation sector, but on the other hand, from the government's perspective, tax collection must be carried out efficiently so that it does not interfere with the main function of taxes in generate sustainable state revenue (revenue productivity aspect). This perspective further strengthens the urgency of formulating state levies policies that are able to support the resilience of the logistics sector without neglecting the state's interest in obtaining revenue from state levies in the long term. Strategic steps need to be taken by the government to revitalize the wheels of the economy while at the same time supporting the sustainability of business operations in various sectors, while still paying attention to world health protocols and the government to break the chain of the spread of COVID-19 (Lusia, 2020).

As a step to improve food security, the Ministry of Agriculture through the Agricultural Human Resources Extension and Development Agency has formulated 4 Ways of Action to achieve food resilience:

1. Increasing production capacity. The Ministry of Agriculture invites agricultural actors to accelerate the planting of rice planting Season II 2020 covering an area of 6.1 million ha, development of swamps in Central Kalimantan Province 164,598 ha, including the intensification of 85,456 ha swamps and extensification of agricultural land 79,142 ha.
2. Local food diversification. The Ministry of Agriculture will develop local food diversification based on local wisdom that focuses on one main commodity.
3. Strengthening food reserves and logistics systems by strengthening provincial government rice reserves (CBPP), then strengthening district/City Government Rice Reserves (CBPK).
4. The development of modern agriculture, through the development of smart farming, the development and utilization of screen houses to increase the production of horticultural commodities outside the planting season,

the development of farmer corporations, and the development of food estates to increase the production of main food (rice/corn).

In addition, the Ministry of Agriculture also has an agenda that is short, medium and long term in dealing with the Covid-19 pandemic. For the short term, the SOS or emergency agenda includes maintaining the stability of food prices and building a buffer stock. The medium-term agenda is realized by continuing labor-intensive post-Covid-19, diversifying local food, helping food availability in deficit areas, anticipating drought, maintaining agricultural work spirit through input and agricultural machinery assistance, encouraging family farming, helping smooth food distribution, increasing agricultural exports, strengthen Kostratani. Meanwhile, the long-term (permanent) agenda is carried out, among others by encouraging an increase in production by 7% per year and reducing losses to 5% (Reza, 2020).

The National Logistics System/ Sislognas Arrangement has been started from 2012 until now with the launch of the National Logistic Ecosystem/ NLE policy. Indonesia is an archipelago country, hence logistics distribution channel and the food supply chain have a very strategic role, especially during the Covid 19 pandemic. This role is mainly in handling the outbreak and meeting domestic consumption needs, especially related to food (Solis-Navarrete et al., 2020). The distribution process is more towards online markets or digitization (Annosi et al., 2021).

The challenge for island nations is high logistics costs. In addition, logistical inefficiencies include duplication and repetition of documents, asymmetric information related to supply and demand, the absence of an integrated upstream to downstream logistics platform for all supply chain stakeholders and food logistics in Indonesia. A comprehensive digitalization and technology implementation such as blockchain technology (Pólvora et al., 2020) to guarantee the transparency on information and financial flow and good change management governance.

Based on this analysis, identified three key driving factors. The first is integration of all stakeholders (Siddh et al., 2018) from upstream to downstream of national logistics, then comprehensive digitalization or technology implementation and good change management governance.

## CONCLUSION

Integration all stakeholders, comprehensive digitalization or technology implementation and good change management governance are the key driving factors to build the food resilience policy. This analysis is expected to provide new insights into food resilience policies from a food supply chain and logistics perspective as this research implication.

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