

Policy Paper

Transmigration as a Strategy for Strengthening National Food Security

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ABSTRACT

Indonesia is one of the largest agricultural countries in Southeast Asia, but it is also struggling with food security issues. The government's challenge is to ensure that domestic food needs are fulfilled. The covid-19 pandemic exacerbated this challenge, where countries faced the threat of food shortages due to limited movement of goods. Thus, Indonesia should focus on increasing the production and productivity of strategic food commodities. One of the alternative solutions is through the transmigration program. This research focused on how the transmigration program can contribute to food security. The study was carried out through a descriptive qualitative method. The result shows that transmigration contributes to food security because of its similarity to the food production process. However, this program faces five main challenges to support food security. Therefore, this study shows several pre-conditions that the government needs to fulfill to overcome these challenges.

Keywords: transmigration, food Security, regional development

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1. Introduction

The 1945 Constitution of the Republic of Indonesia mandates that food is a basic human need, where the needs of citizens for it must be guaranteed. According to Law No. 18 of 2012 concerning food, food is anything that comes from biological sources of agriculture, plantation, forestry, fishery, animal husbandry, water, and water products, processed or unprocessed, which is designated as food or beverage for human consumption, including food additives, food raw materials, and other materials used in the process of preparing, processing, and/or making food or beverages (Republic of Indonesia, 2012).

Several issues at the national level emerged related to meeting food needs. One of them is population growth followed by an increase in the amount of food needed. Based on the 2020 Population Census results, the total population in Indonesia in September 2020 was 270.2 million, increasing 32.56 million people compared to the 2010 Population Census (Badan Pusat Statistik, 2021). By 2050, Indonesia's population will reach 322 million people, the fifth largest in the world after China, India, Nigeria, and the United States of America (United Nations, 2019). This indicates that the rapid population growth will pressure the supply of food needs, especially on the international and national food stocks.

Sustainable production of several day-to-day food commodities, such as sweet potatoes, rice, maize, soybeans, eggs, meat, and chicken, determines food availability (Food and Agriculture Organization, 2020). For example, as one of the staple food sources, corn has become the commodity with the highest production for the last ten years. Meanwhile, rice production tends to fluctuate every year. The weather factors that occur in several areas, such as La Nina and the relatively low precipitation, cause adverse food production stocks. This will also affect the price index of these food commodities, as shown in Figure 1 below.

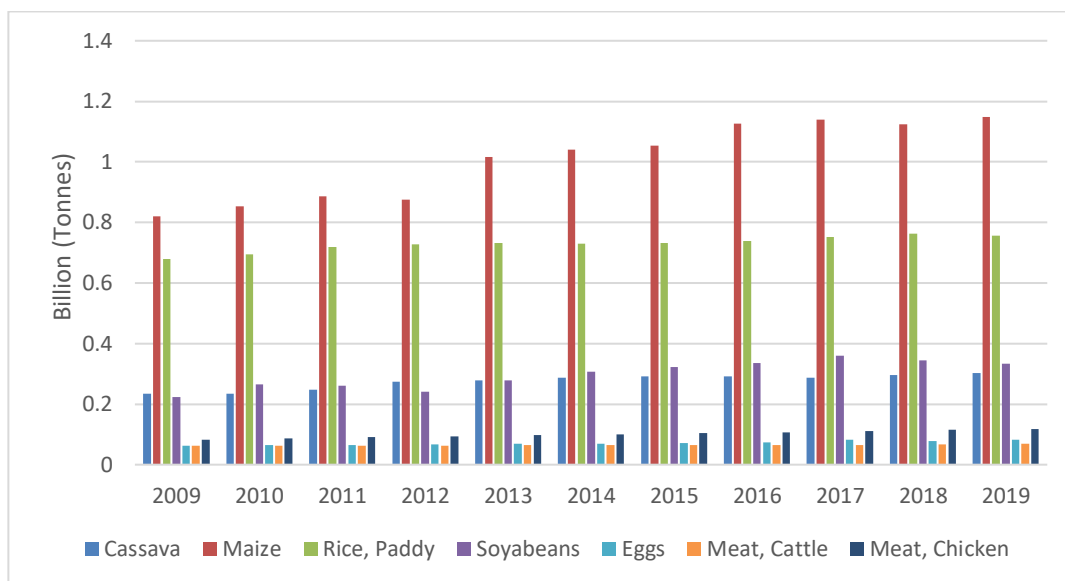


Figure 1. Production of Several World Food Commodities (Tons)
Source: FAO, 2020

When viewed from the development of the price index of several world food commodities in the period of 10 years (2009-2020), the Food Commodity Index averaged 113.3% (January 2021), 4.3% higher than in December 2020 (Food and Agriculture Organization, 2020). This indicates an increase for eight consecutive months and is the highest monthly average since July 2014. Several commodities also increase in the commodity price index, such as vegetable oil, cereals, and sugar (Food and Agriculture Organization, 2020). Thus, an increase in commodity prices may indicate scarcity in the production or distribution of food commodities both in the Southeast Asian region and on the global scale. This can be seen in Figure 2 below.

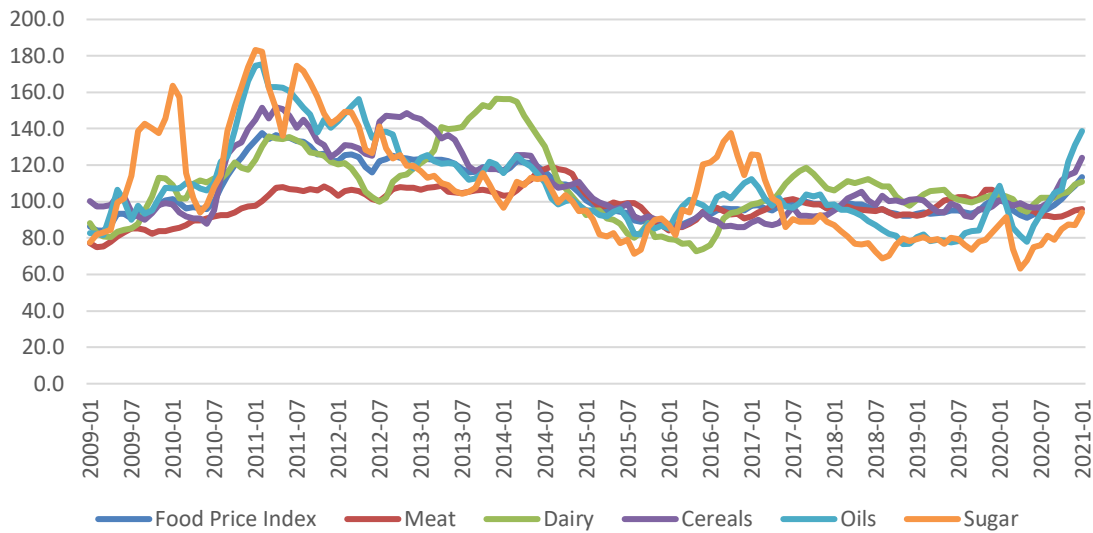


Figure 2. Development of Food Commodity Price Index (2009-2020)
Source: FAO, 2020

Regarding price dynamics for international rice commodities in the Southeast Asia region, price data from Thailand, Vietnam, and Indonesia are used. These countries are the major rice exporters in the Southeast Asia region. Thai and Vietnamese rice prices are relatively lower than Indonesian rice prices (Food and Agriculture Organization, 2020). Internal and external factors can influence the high price of rice in Indonesia. The development of the three countries' rice prices can be seen in Figure 3 below.

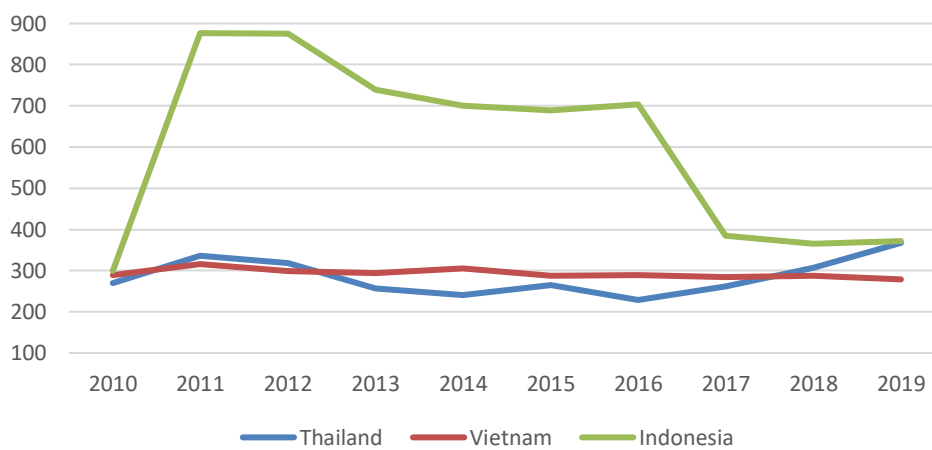


Figure 3. Southeast Asian Rice Producer Prices (USD / Ton)
Source: FAO, 2020

There are ten countries as the largest rice producers in the world (Food and Agriculture Organization, 2020). In the 1994-2019 period, Indonesia occupied the third position as the largest rice producer. Southeast Asia region's rice exports have an important contribution to world rice exports. This condition influences the rice prices in Southeast Asia and worldwide. The rice growth in Indonesia is predicted to be negative because Indonesia may experience erratic rain and a changing or delayed planting season (Food and Agriculture Organization, 2020). This can be seen in Figure 4 below.

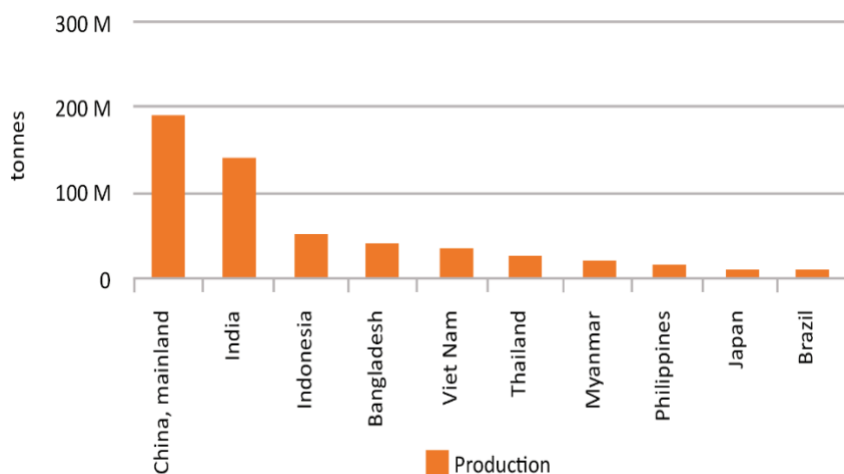


Figure 4. Ten Largest Rice Producing Countries in the World (1994-2019 Average)
Source: FAO, 2020

Besides that, the covid-19 pandemic intensifies food shortage that triggers price rises. The lockdown applied tightly in some countries has caused food distribution problems (Toffolutti, Stuckler, & McKee, 2020). As a result, limited food can be traded to other countries. The international food distribution problem also affects food availability in Indonesia since only limited food can be imported (Amanta & Aprilianti, 2020). To limit the spread of the covid-19 virus, people mobility restriction is also ordered in Indonesia starting in April 2020 (Sutrisna, 2020). This restriction disrupts food distribution (Masniadi, Angkasa, Karmeli, & Esabella, 2020). People living in the city buy food at higher prices due to food scarcity. On the other hand, farmers hardly sell their harvested products to consumers affecting prices at the farmer level.

According to Law Number 17 of 2007 concerning the National Long-Term Development Plan (RPJPN) 2005-2025 and Presidential Regulation Number 18 of 2020 concerning the National Medium-Term Development Plan (RPJMN) 2020-2024, food should be provided to the public as a form of domestic food security (Republik Indonesia, 2017). The urgency of food security is also mentioned in Presidential Regulation No. 86 of 2020 concerning the Government Work Plan (RKP) 2021 as one of Indonesia's development focus in 2021 and is in line with the recovery of the industry, tourism, and investment (Republic of Indonesia, 2020). Strengthening food security is expected to support the achievement of First National Priority's target in Strengthening Economic Resilience for Quality and Equitable Growth.

According to Law No. 18 of 2012 concerning food, food security is defined as "a condition to fulfill food by the state to individuals, which is reflected in the availability of sufficient food both in quantity and quality, safe, diverse, nutritious, equitable, and affordable food and does not conflict with the community's religion, belief and culture, in order for the community to live healthily, be active and productive in a sustainable manner" (Republic of Indonesia, 2012). Thus, the government is obliged to meet food demand by regulating, developing, and allocating agricultural land and water resources, eliminating various policies that affect declined competition providing counseling and assistance, making budget allocations, and developing and disseminating science and technology to increase food production. Central governments and local governments should facilitate the use and development of facilities and infrastructure to increase food production and develop community food institutions.

Food production should be sustained to anticipate food crises. Transmigration areas are alternative areas that can provide food for their people. The transmigration area is estimated to meet around 28 percent of the total national rice demand from 3,650 thousand hectares of land (Pribadi, 2020). Thus, food production in the transmigration areas should be developed to strengthen food security in Indonesia. The transmigration role in supporting food security is in line with the purpose of transmigration as a regional development approach as stipulated in Law No. 29 of 2009 concerning transmigration. Thus, transmigration is meant to move people from densely populated areas to areas that are still lacking in population and a new way for people to improve their welfare and an effort to build food security

(Nugraha, Hasan, & Samantha, 2015). However, transmigration may face several problems in order to strengthen food security. The conversion of agricultural land (Dirman, Saleng, & Sapiddin, 2018), aging farmers (Rigg, Phongsiri, Promphakping, Salamanca, & Sripun, 2020), soil degradation (Gomiero, 2016), and climate change (Syaukat, 2011) are some of the obstacles in developing food security, especially in transmigration areas. If these obstacles are not resolved, it will disrupt the growing season, while crop failure may become a more frequent phenomenon.

Many researchers have studied the challenges of food security in Indonesia (Hadiprayitno, 2020; Neilson & Wright, 2017; Piesse, 2016; Rozaki, 2020; Timmer, 2004; Vel, McCarthy, & Zen, 2016). Meanwhile, few studies have investigated challenges in the implementation of transmigration development to support food security. This research focused on that gap by aiming to answer the following research question: To what extent the role of transmigration supports national food security? Furthermore, this study will give some recommendations for the government on developing transmigration and food security policies.

The following section explores the food security and transmigration concept and policies in Indonesia. Secondly, the methods to conduct this research are described in section three. Then, the concept is critically discussed to identify some challenges. Finally, the findings are concluded in the last section.

2. Concept and Policies of Food Security and Transmigration Development in Indonesia

2.1 Concept and Policies of Food Security in Indonesia

2.1.1 Definition of Food Security

The definition of Food security in Indonesia is stated in Law No.18 of 2012 concerning food, which explains that Food Security is "the fulfillment condition of food from the state to individuals, which is reflected in the availability of sufficient food, both quantity, and quality, safe, diverse, nutritious, equitable, and affordable food and does not conflict with the religion, belief, and culture of the community, in order for them to live a healthy, active and productive life in a sustainable manner" (Republic of Indonesia, 2012). The concept of food security that can be underlined in this Food Law covers three main dimensions, food availability, affordability, and food utilization. In more detail, BULOG (BULOG, 2014) emphasized that the Food Law not only talks about food security but also clarifies the importance of food security that needs to be supported by food sovereignty, food resilience, and food safety.

The concept of food security can be translated very broadly, varies, and evolves from time to time. Kulsum (2020) explains that there are at least three main changes in the crucial issue of world food security. Initially, it tried to solve the issue of how the world can produce sufficient food. Then, it turned into the issue of whether the world can produce enough food at an affordable price for the poor. Now the issue has grown to whether the world can produce not only sufficient food at a secure price and affordable for the poor, but also environmentally friendly.

2.1.2 Food Security Measurement

Various concepts and definitions of food security have implications for measuring food security. Food security can be measured at various levels starting from the global, national, to regional (provincial, district, and city) levels. At the global level, there is a Global Food Security Index (GFSI) developed by The Economist Intelligence Unit (The Economist Intelligence Unit, 2019). This index has three main components in its measurement, affordability, availability, and quality and safety (Economist Intelligence Unit, 2019). In Indonesia, food security measurement uses the Food Security Index (*Indeks Ketahanan Pangan - IKP*) developed by the Food Security Agency (*Badan Ketahanan Pangan - BKP*), an institution under the Ministry of Agriculture. The formulation of the IKP is based on three main dimensions of food security as stated in Law No. 18 of 2012, availability, affordability, and utilization (Badan Ketahanan Pangan, 2019). The main objective of the IKP is to evaluate the achievement of food security and nutrition in districts, cities, and provinces and to provide a ranking overview of food security levels in districts, cities, and provinces compared to other districts, cities, and provinces. IKP is expected to be used as a basis for determining targeted government programs or other interventions (Badan Ketahanan Pangan, 2019).

Based on data released by BKP in 2019, there are five provinces with the best IKP score, Bali (85.15), DI Yogyakarta (83.63), North Sulawesi (81.44), Central Java (78.85), and South Sulawesi (78.69). Meanwhile, the five provinces with the lowest IKP score were Papua (25.13), West Papua (30.12), East Nusa Tenggara (50.69), Maluku (52.35), and West Kalimantan (55.17). It can be seen that the problem of food security is still a crucial issue, especially in the Eastern part of Indonesia.

2.1.3 Food Security in Indonesia

Globally, based on the Global Food Security Index (GFSI), in 2019, Indonesia was ranked 62 out of 113 countries, with an index value of 62.8. The position and value of Indonesia's index have increased from 2012, which was originally ranked 64th with a score of 46.8. At the regional level, Indonesia is ranked 12th, lagging behind other Southeast Asian countries such as Vietnam (11th place, 64.6), Thailand (9th place, 65.1), Malaysia (5th place, 73.8), and Singapore (1st place, 87.4) (Economist Intelligence Unit, 2019).



Figure 5. Performance of Countries based on Their 2019 Food Security Score (Asia Pacific)
Source: The Economist Intelligence Unit (EIU), 2019

In the 2020-2024 RPJMN, during the 2015-2019 period, several improvements have been achieved in production, a rice surplus of around 2.8 million tons in 2018 and an average growth of meat production of 5.5 percent per year (Republic of Indonesia, 2020). More comprehensively, in measuring Indonesia's food security, there is a study conducted by Hermanto (2015) using 4 (four) dimensions used by FAO. He classified food security in Indonesia into three states, sufficient in terms of food availability, medium/moderate in terms of food accessibility, low food utilization, and relatively unstable food prices. Using AFSIS data (2014), Hermanto (2015) measures the dependency ratio of Indonesia's rice imports to determine food availability and affordability. He found that the ratio is relatively lower, at 5.22%, compared to the dependency ratio on average rice imports in the ASEAN region (30.48%), suggesting that national rice availability is relatively good in the ASEAN region.

Based on Central Bureau of Statistics Republic of Indonesia data (Badan Pusat Statistik, 2015), in general, the production of horticultural food crops, especially rice, corn, soybeans, cassava, and sweet potatoes in the last 15 years (2000-2015) has continued to increase. In 2015, the highest record was achieved for rice production, at 75.39 million tons increasing from the previous year, 70.84 million tons. The increase in average rice production per year amounted to 1.67 million tons. The next biggest production is the production of cassava (21.8 million tons) and corn (19.6 million tons) in 2015. The production of soybean is still very minimal compared to other food crops. The total production in 2015 was 963 thousand tons (Badan Pusat Statistik, 2015).

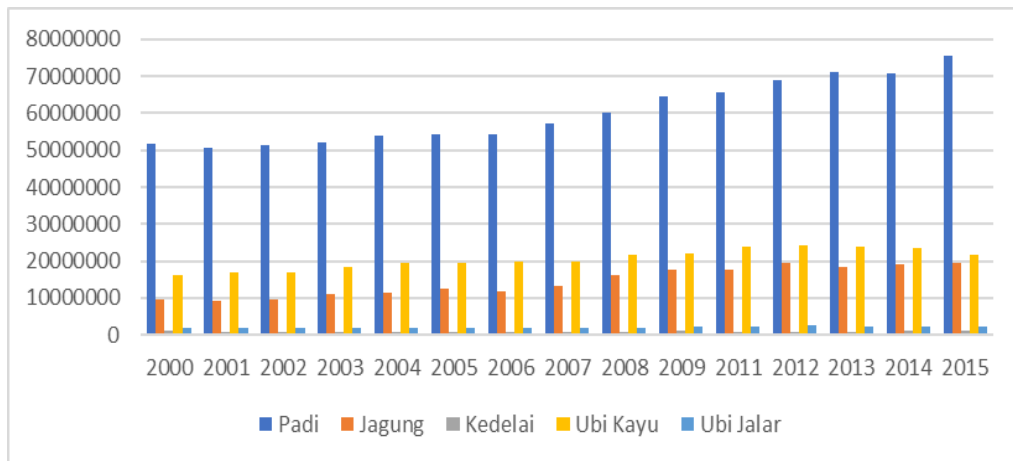


Figure 6. Production of Horticultural Food Crops (Rice, Corn, Soybeans, Cassava, Sweet Potatoes) in Indonesia (2000-2015) (ton)
Source: BPS, 2015

Due to its large population and food consumption, Indonesia is categorized as one of the largest foods producing countries in ASEAN but also the major importer. Based on BPS data (Badan Pusat Statistik, 2019a) which is illustrated in Figure 8, it can be seen that Indonesia's rice imports have fluctuated from year to year. In 2019, the total rice imports were 444.5 thousand tons, decreasing from the previous year at 2.25 million tons. The highest rice import in Indonesia was recorded in 2011, amounting to 2.75 million tons, while its lowest figure was in 2004 at 236.6 thousand tons. The biggest rice importers from Indonesia are Vietnam and Thailand, followed by India and Pakistan. The imports of soybean continue to increase every year. In 2019, Indonesia's total soybean imports reached 2.67 million tons, increasing 84 thousand tons from the previous year at 2.58 million tons (Badan Pusat Statistik, 2019b). The largest importers of soybeans from Indonesia are the United States and Canada, while the import value from other countries is not very significant.

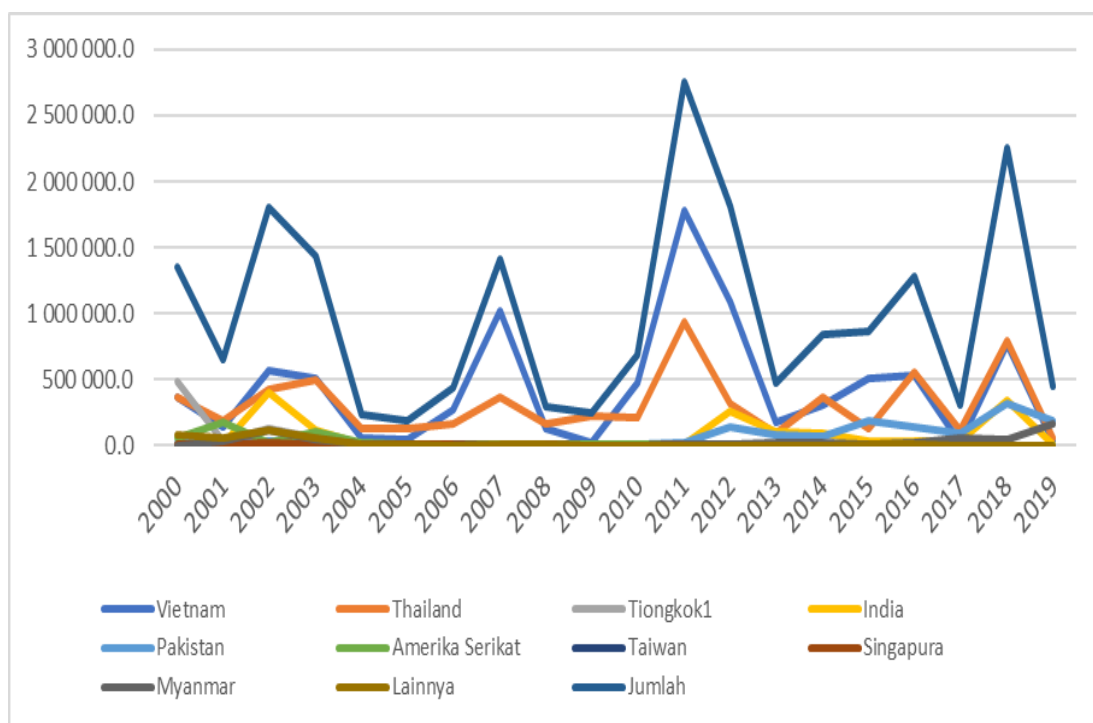


Figure 7. Indonesia's Rice Imports by Main Country of Origin (2000-2019) (ton)
Source: BPS, 2019a

The next dimension of food security is food utility. Dietary diversity is used as the indicator because food quality is considered good if their food consumption is diverse. Based on data compiled by the Economist Intelligence Unit (2019), at 31%, the value of Indonesia's dietary diversity is far behind other Southeast Asian countries such as Malaysia (56%), Thailand (51%), and Vietnam (42%). To put it in perspective, the global average value is 52.3%. This indicates that Indonesia is a country with a low diversity index in consumption.

The last dimension is the dimension of food price stability. This dimension appears along with the frequent occurrence of food crises at various global and domestic levels. In Indonesia, the stability of food prices, especially rice, tends to remain uncertain. Patunru & Ilman (2020) reported that rice price has consistently increased from 1998 to 2017 at the rate of 0.9% per year, despite a production surge of 2.5 % per year. Furthermore, Patunru & Ilman (2020) underlines that the rice prices in Indonesia defy the law of supply-demand, where an increase in the amount of production should lower prices. His analysis concluded that price changes often did not match the actual rice stock claims made by the Ministry of Agriculture.

However, it is essential to highlight that although food availability or food production in Indonesia has consistently increased, the overall value of Indonesian food security is still low (ranked 62 out of 113) and is lagging behind other Southeast Asian countries. As an agricultural and maritime country with abundant potential food sources, Indonesia should achieve food security and food sovereignty. It is very risky for national stability if Indonesia is too dependent on food supplies from other countries or international markets, given its large population (Hermanto, 2015). Therefore, the government needs to seriously focus on the realization of food security supported by government policies.

2.1.4 Comparison of Food Policies in Southeast Asia

To protect farmers, producers, and consumers, some countries in Southeast Asia have implemented various policies and programs by determining basic price policies, providing stock and consumer price stabilization, and maintaining food distribution. The government mandates various institutions to carry out these interventions through a state-owned enterprise such as Public Warehouse Organization (PWO) in Thailand and National Food Authority (NFA) in the Philippines, or an open company, BERNAS in Malaysia. The table below shows a detailed comparison of various food policies, including National Grand Strategies, Institutions, Support Programs, especially among the largest food producers in Southeast Asia such as Indonesia, Vietnam, Thailand, the Philippines, and Malaysia.

Tabel 1. Comparison of Strategies, Institutions, and Programs on Food Management in Southeast Asia

Policies	Indonesia	Vietnam	Thailand	Filipina	Malaysia
National Grand Strategies	Rice Self-Sufficiency (<i>Swasembada Beras</i>) and Agricultural Revitalization	<ul style="list-style-type: none"> Rice Market Development Strategy of 2017-2020 (guidance to reduce the volume of rice export while increasing the rice import value) Restructuring Agriculture in order to increase added-value and promote sustainable development program 	Thailand's agricultural development vision is "farmers get a higher standard of living, the community has food security, and the state gets revenue."	Food Staples Sufficiency Program (FSSP): 1) maintain R&D of crop varieties, 2) encourage higher production, and 3) manage the consumption of staple foods	National Agro Policy program (2011-2020): Malaysia's self-sufficiency in food, increasing product value, re-stimulating supply chain
Institutions	BULOG Regulate import quotas and import timing	Vietnam Food Association (VFA) monitor rice export and import and other food commodities	Public Warehouse Organization (PWO) managed by Thailand's Ministry of Trade	National Food Authority (NFA): regulate import quotas both for government and private	BERNAS: monitoring and transforming local rice, imported rice, warehouse, distribution, marketing, setting the base price, rice manufacturing,

Policies	Indonesia	Vietnam	Thailand	Filipina	Malaysia
					import monopoly, and farmers subsidies management
National Program	<ul style="list-style-type: none"> • Ketapang Food Estate dan Merauke Integrated Food and Energy Estate (MIFEE). A program that integrated agriculture, farm, dairy product, and fisheries by creating new areas • MOA No.4/2016. The government provides high-quality fertilizers and seeds • MOA No. 47/2017. The government provides seeds for farmers in the selected area to increase production • RPJMN 2020-2024: Farmer Corporation and Food Estate in Central Kalimantan 	<ul style="list-style-type: none"> • System Rice intensification (SRI), Encourage farmers to plant at specific intervals according to water management and promote organic fertilizer • Converting production to high-value crops • Decree No.35/2015. The government compensates 50%-70% of crop losses due to disaster, 70% cost of agricultural land opening, and 100% rice seeds cost 	<ul style="list-style-type: none"> • Provide the latest agricultural technology information and promote Good Agricultural Practices (GAP) • <i>Rice Farmer Assistance Measure Program</i>: 1) support farmers affected by drought, 2) provide debt deferral for two years at the same interest, 3) partial compensation for crop losses, 4) subsidize the partial cost of harvest and post-harvest, 5) loan credit to promote green and sustainable agriculture 	<ul style="list-style-type: none"> • Rice competitiveness Enhancement Funds aims to improve farmer welfare by reducing the cost of productions • Rice harvest mechanization • Special Area for Agriculture Development (SAAD) aims to increase agricultural productivity based on local potential by providing technical assistance to farmers in collaboration with the private sector • Seed subsidy program • Republic Act No 11203. New tariff policy for rice and replaces quantitative restrictions for imports 	<ul style="list-style-type: none"> • SUBUR program: Coupon for the poor for certain types of rice • Subsidize production costs for reliable chemicals and fertilizers • Improvement of irrigation, seedlings, agricultural technology, and paddy fields integrations • Zoning system for rice storage • Import tariffs for food

Sources: (Bappenas, 2020; BULOG, 2014; Dabukke & Iqbal, 2014; Patunru & Ilman, 2020)

In general, there are similarities in policies among food-producing countries in Southeast Asia. It can be seen in the table that various policies are prioritized in efforts to protect farmers and price stability through various import policies. Some of the policies are starting to focus on more sustainable agricultural policies, such as those in Thailand (green agricultural loan credit and GAP) and Vietnam (water management and organic fertilizers). However, according to Patunru & Ilman (2020), there is a common pattern of policies in other rice importing countries absent from the food security projects in Indonesia. It seems that other ASEAN countries have already begun to focus on improving product quality through good land management with full support to farmers through various subsidies as an effort to reduce production costs.

2.1.5 National Food Security Policies in Indonesia

Policies and programs to strengthen food security in Indonesia have been going on since the era of President Soekarno. In the Soekarno era (1946-1965), the most prominent food policies were the Kasimo Welfare Program (*Program Kesejahteraan Kasimo*) and the Paddy Central Program (*Program Sentra Padi*), which focused on self-sufficiency in food production by controlling food distribution. During the Soeharto or New Order era (1966-1998), various food security policies focused on rice self-sufficiency (*Swasembada Beras*). Several programs to implement the Green Revolution were promoted starting in the 1960s, through the Mass Guidance (*Bimbingan Masal - BIMAS*) program in 1968-1977, Special

Intensification (*Intensifikasi Khusus* - INSUS) in 1979, and Supra INSUS in 1987. Through these various programs, the increase in rice production reached an average of 4.34% per year, which led Indonesia to achieve rice self-sufficiency in 1984. However, rice self-sufficiency did not last long; wherein 1990, Indonesia again experienced a rice deficit of 48 thousand tons (Permatasari & Wijaya, 2018).

During the Reformation era, the reign of President BJ Habibie, Abdurahman Wahid, and Megawati Sukarnoputri, the policy of self-sufficiency in rice was continued. President Abdurahman Wahid reiterated the role of BULOG in terms of rice logistics management, including supply, distribution, and price control. In the era of President Megawati, Bulog was privatized (2003), and in 2004, rice self-sufficiency was emphasized as a single strategy in the food sector (Kulsum, 2020). President Susilo Bambang Yudhoyono introduced the policy of agricultural revitalization, rehabilitation of agricultural infrastructure, and self-sufficiency in five food commodities such as rice, corn, sugar, soybeans, and beef (Permatasari & Wijaya, 2018). This policy is supported by various programs, including improving farmers' access to business funding through People's Business Credit (*Kredit Usaha Rakyat* - KUR).

During the Joko Widodo administration, various programs were launched to support food self-sufficiency. Some of these programs include Paddy Production Program (*Program Cetak Sawah*), Community Food Granary Program (*Program Lumbung Pangan Masyarakat*), and Agriculture Business Corporation (*Korporasi Usaha Tani*). In the 2020-2024 RPJMN, the food security policy is part of the seven development agendas, strengthening economic resilience for quality and equitable growth. The food security policy is interpreted into Priority Program 3, Increasing the availability, access, and quality of food consumption (Republic of Indonesia, 2020).

In addition, at the Presidential Limited Meeting (*Rapat Terbatas*) of the Acceleration of Strengthening the Agriculture and Fisheries Sector (December 10, 2019), the National Government also developed a farmer corporation and revitalized the food system. It emphasized Farmer Welfare (*Nilai Tukar Petani* - NTP) through various interventions on 1) food assistance to keep farmers access to food, 2) strengthening farmer corporation to ensure that farmers continue to run profitable farming, and 3) stability of access to food. Through these interventions, it is expected that the productivity of commodities will increase by 5%, elevate the added value per agricultural workforce of Rp. 54.2 million / labor, improve fishermen income to Rp. 55.4 million / fisherman and 65 clusters were formed (Directorate of Food and Agriculture, 2020). This policy of strengthening food security is also supported by infrastructure development. One of the important projects is constructing 18 multipurpose reservoirs, one of the Major Projects (MP) in the 2020-2024 RPJMN. This reservoir provides water supply in 51 premium irrigation areas by 20% to support food security. The multipurpose reservoir has not been utilized optimally, worsened by the low performance of the irrigation system operation and maintenance. For example, the supply of irrigation water from dams until 2019 has only reached 12.3 percent of the total irrigation area (Bappenas, 2020).

Based on the literature review starting from definitions, measurements, and implementations, including regional and national policy comparisons, it can be concluded that Indonesia still has a big task in fulfilling food security. According to Hermanto, (2015), to increase national food security and national food self-sufficiency, Indonesia should focus on policies to increase the production and productivity of strategic food commodities through optimal utilization of national resources and achieving national food stock sufficiency. Even though imports are unavoidable, Indonesia needs to regulate imports strictly. Import should be considered when domestic production is insufficient to stabilize food prices and supplies.

2.2 Concept and Policies of Transmigration Development in Indonesia

2.2.1 Evolution of Transmigration Development in Indonesia

Since 1905, transmigration development has been carried out as an effort to reduce poverty and population density in Java, as well as to develop food production areas outside Java. The transmigration location has become the embryo for the development of 1,136 definitive villages, 339 sub-district capitals, 104 district capitals, two provincial capitals, and one location for the candidate for the state capital (Kementerian Desa, Pembangunan Daerah Tertinggal, 2019)

However, the implementation of transmigration faced various problems. Many transmigration locations proposed by the regional government are remote areas and far from their closest growth centers. Housing and settlement facilities, infrastructure, and the economy in the transmigration area are still limited. This condition limits the economic activity in the transmigration and its surrounding areas.

Besides, there are still several land ownership problems at the transmigration location, so that the fulfillment of land certificates for transmigrants has not been optimal (Wiroyudo, 2019).

A paradigm shift in carrying out migration programs is required to overcome the problems of transmigration development. Based on Law No. 29 of 2009 concerning Amendments to Law No. 15 of 1997 concerning transmigration, the development of transmigration is not only focused on population movement, but also on the development of new centers as a catalysator for the regional economic development (Republic of Indonesia, 2009). With a change of the paradigm, it emphasizes the role of transmigration development as a driver for regional development, especially outside Java.

In the 2020-2024 RPJMN, the transmigration development policy is part of the effort to achieve the Second National Priority development target, "Regional Development to Reduce Gaps and Ensure Equity." The focus of transmigration development in 2020-2024 is the revitalization of transmigration areas so that they are able to develop local and regional growth centers. This transmigration area revitalization activity is one of the National Priority Projects in the Development Priority Activities of Disadvantaged Areas, Border Areas, Rural Areas, and Transmigration in Second National Priority RPJMN 2020-2024. The average development index values of the 52 revitalized transmigration areas are 48.74 for 2020 and 57.50 for 2024. These values are seen as an indicator of the revitalization of transmigration. To achieve the target, transmigration development focuses on revitalizing 52 priority transmigration areas, as illustrated in the map below.

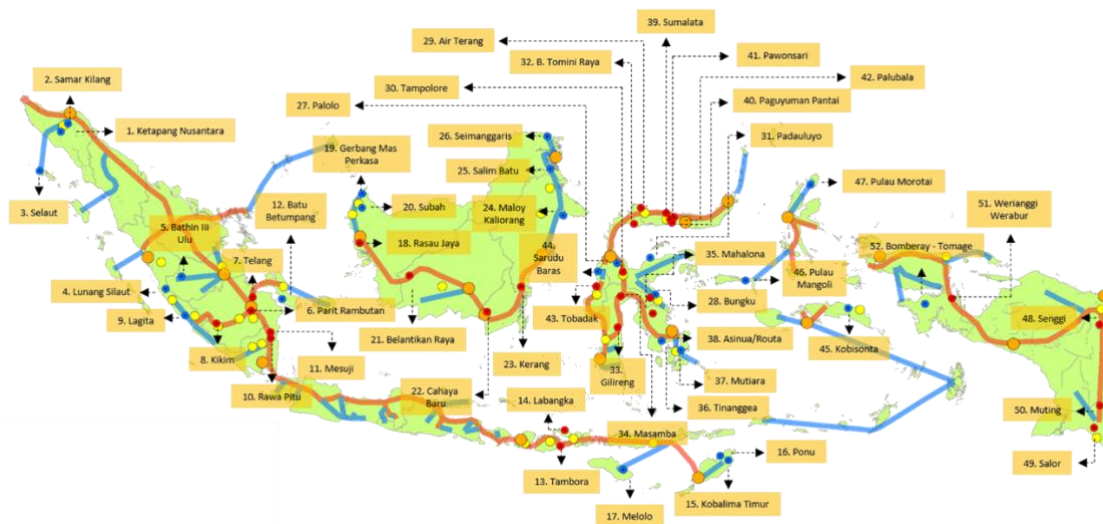


Figure 8. Map of Selected Transmigration Area as Targeted Area of RPJMN 2020-2024
 Source: Directorate of Disadvantaged Regions, Transmigrations, and Rural Development, Bappenas, 2020

Coordination between stakeholders is needed across sectors and actors to accelerate community welfare improvement in the transmigration area. The implementation of transmigration is not only the responsibility of the central government. The provincial and district or municipal governments need to accelerate transmigration development as part of the development of their respective regions. Other stakeholders, such as businesses, academia, and the community, should also participate in this transmigration program.

According to Presidential Regulation No. 50 of 2018 concerning Coordination and Integration of the Implementation of Transmigration, coordination, and integration of transmigration operations are carried out in (1) transmigration area planning, (2) transmigration area development, and (3) transmigration community development and transmigration areas. This coordination was carried out by establishing a coordinating team and integrating transmigration administration, consisting of a national, a provincial, and a district or municipal team. The coordination and integration team implementing transmigration at the national level is determined by the transmigration administration minister, while the governor determines the team at the provincial level, and the team at the district or municipal level is determined by the regent or mayor (Republic of Indonesia, 2018).

2.2.2 The Transmigration Supports for A Food Estate Project

In addition to supporting the achievement of Second National Priority targets in the RPJMN 2020-2024, transmigration development also supports the achievement of First National Priority, "Strengthening Economic Resilience for Quality and Fair Growth" in RKP 2021, especially in Major Project of Food Estate (Republic of Indonesia, 2020). This is in line with the presidential decree on June 24, 2020, which states that transmigrants who have expertise in the modern mechanization of rice farming and rice estate should be employed to meet labor shortages in food estate development locations such as in Central Kalimantan Province. If additional farmers are needed, it will be carried out through the Strategic Logistics Reserve (CLS) scheme by the Ministry of Defense.

The Food Estate Development in Central Kalimantan is implemented on ex-peatlands which are administratively located in two districts, Kapuas Regency and Pulang Pisau Regency. The ex-peatlands in the two districts intersect with the Lamunti-Dadahup transmigration area in Kapuas Regency and the former transmigration settlement in Pulang Pisau Regency.

Lamunti-Dadahup Transmigration Area is a transmigration area of 1,707.59 square kilometers in Kapuas Regency, covering six districts and 59 villages with a population of more than 58 thousand people. Most of the people in that area are rice farmers with per capita income for 2018 about 40 million rupiah (Kementerian Desa, Pembangunan Daerah Tertinggal, 2019). The income is still below Indonesia Kapuas Regency per capita income in 2018 which was about 42.59 million rupiah (Badan Pusat Statistik, 2020). Therefore, an innovative approach through food estate development is needed in order to increase people's welfare in transmigration areas.

In this regard, the Ministry of Village, Disadvantaged Area, and Transmigration Development as the supervisor of transmigration activities has allocated a budget in 2021 to support the development of food estates in Central Kalimantan Province, especially in Kapuas and Pulang Pisau Regency. Several types of support for these activities include (1) extensification development in the Lamunti-Dadahup Transmigration Area, Kapuas Regency, (2) intensification development in the Lamunti-Dadahup Transmigration Area, Kapuas Regency with the area of 150.77 square kilometers, and (3) preparation for the development of the transmigration area in Pulang Pisau Regency (Republic of Indonesia, 2020).

2.3 The Transmigration Concept for Food Security

According to Law No. 18 of 2012 regarding food, the government obliges to (1) control, develop and allocate land for agriculture and water security, (2) provide facilitation and mentoring to the communities, (3) abolish any policies that lead to reduce competitiveness, (4) provide the budget for agriculture development, (5) develop and socialize the agriculture technology and knowledge to improve food production, (6) facilitate and develop tools of production and other supporting infrastructure for improving food production, and (7) develop food institutions to improve food production. In short, the government must involve from the upstream to the downstream of food security (Republic of Indonesia, 2012).

Transmigration is an appropriate intervention since the transmigration program is a cross-sectoral activity that is in line with the Food Law mandatories. The transmigration program was initially designed to reduce the population density in Java and Bali and develop new areas outside Java and Bali (Junaidi, Rustiadi, Sutomo, & Juanda, 2012). It was like the pioneering program in the United States centuries ago. Since most of the transmigration activities are in agriculture, the program is closely related to food production. The transmigration program is one of the alternatives to accelerate the achievement of food security goals. Principally, the concept of the transmigration program is to utilize the uninhabited land outside Java and Bali island, where the population is less dense. By utilizing the uninhabited lands for farming and other agriculture activities, the production of food products can be boosted to fulfill the national food stock.

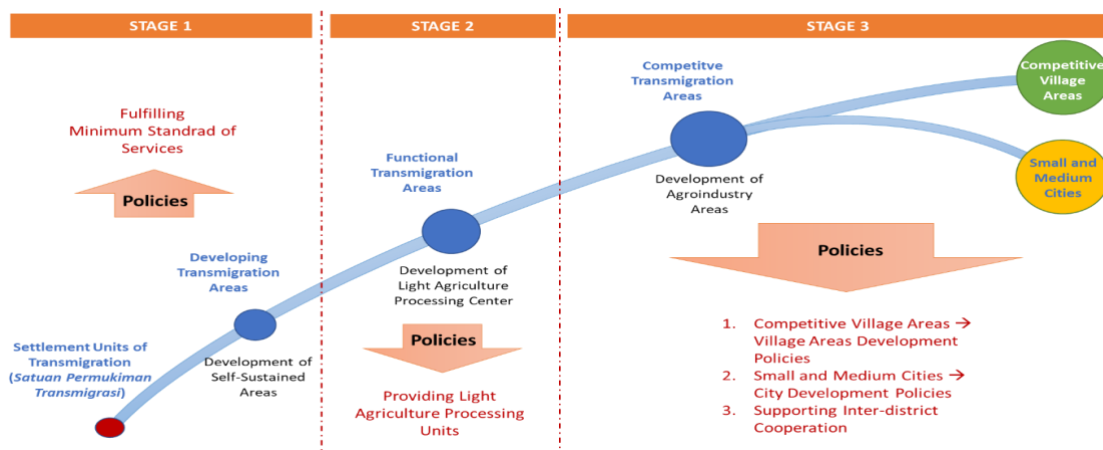


Figure 9. Concept of Transmigration to Support Regional Development and Food Security
Source: Bappenas, 2020

Figure 9 displays how the transmigration program can support regional development in a new area and improve national food stock or food security. The program can take three stages: the development stages of transmigration areas - developing transmigration areas, functional transmigration areas, and competitive transmigration areas (Bappenas, 2020). The first stage is developing transmigration areas as self-sustained areas. In the first stage, the government provides and fulfills the basic services such as civil services, health, education, live supports, basic settlement, and land to produce output that can support transmigrant lives. Once the areas become self-sustained zones, the policies are to support areas transforming into light agriculture processing centers in functional transmigration areas. In the second stage, once the areas achieving light agriculture processing centers, the areas are encouraged to sell their products to other areas. When the demand for their products grows moderately, the areas are stimulated to become the center of agroindustry or as competitive transmigration areas.

Furthermore, the competitive transmigration areas can transform into competitive village areas or small and medium cities that have roles as agribusiness centers. There are two policy options to achieve these objectives. First, if the transmigration areas remain in rural conditions, the policy is to support the village's competitiveness to compete in the global or national market. Second, if the transmigration areas grow and transform into small and medium agroindustry cities, the policies for the small and medium cities will be introduced to this area (Bappenas, 2020).

Either objective requires pre-conditions to guarantee that the program runs well and yield expected results (Bappenas, 2020). These pre-conditions are (1) fulfillment of minimum standard of basic services, (2) clear land legal status, (3) good and accessible connectivity infrastructures and mode of transportation, and (4) interregional cooperation.

2.3.1 Fulfillment of Minimum Standard of Basic Services

Before transmigration areas develop into the agroindustry center, the government must provide basic services according to the national standard. All basic infrastructure such as health services, education, community building, electricity, and other civic services must be available and easily accessible to the transmigrants in the transmigration and surrounding area. This pre-condition aims to secure the transmigrants' rights and encourage them to live and work comfortably as if they are in their hometown.

2.3.2 Clear Land Legal Status

Most of the land for transmigration originated from the forest under the Ministry of Environment and Forestry (*Kementerian Kehutanan dan Lingkungan Hidup - KLHK*) jurisdiction. In order to transform the land utilization from forestry to agriculture, the KLHK has to agree to convert the legal status of the designated forest into agriculture. Once the permission is granted, the Ministry of Village, Disadvantage Regions and Transmigration (*Kementerian Desa, Pembangunan Daerah Tertinggal, dan Transmigrasi*) will work with the land agency (*Badan Pertanahan Nasional - BPN*) for land certification. In the past, there were many land disputes between transmigrant and local people and between transmigrants and nearby plantation or mining companies due to unclear land status and boundary of transmigration area. The

undisputed land status will secure transmigrant's property right in the future. It also can be used as collateral when they apply for credit in the future.

2.3.3 Good and Accessible Connectivity Infrastructures and Mode of Transportation

According to the existing transmigration regulations, transmigration areas proposed by the local government are mostly located in remote areas. It needs extensive efforts to reach the transmigration area using the local transportation. Better access to infrastructures and modes of transportation will enable transmigrants to transport their agriculture products to the nearest market. It also reduces transportation and logistics costs such as warehousing and intermediary agencies.

2.3.4 Interregional Cooperation

The transmigration program covers more than one region. It takes at least two regions, origin region, and designated region. It also covers the surrounding regions of the designated region. In short, it covers many regions with similar interests. The cooperation among regions involved in the transmigration program will ensure the quality of transmigrant, the market, and the distribution of agriculture products.

3. Methodology

The research question focuses on how the transmigration program can contribute significantly to national food security. The study is carried out through a descriptive qualitative analysis method explained by Rahmawati (2020), a method that analyses data from a review of diverse literature and discussions. The paper compares the rice and maize production of the transmigration area with those in associated provinces. Other factors affecting food production in the transmigration area are taken into account as well. We expect that the transmigration program has contributed meaningfully to the food production in respective provinces.

Data adjustment has been made to get a more consistent and plausible analysis. Data used in this analysis is from the Ministry of Village, Disadvantaged Region, and Transmigration Development and Central Statistics Agency (BPS). Some provinces have been excluded from the analysis due to inconsistent figures between the provincial and transmigration areas. However, the findings and recommendations are generally applied to the transmigration program.

4. Analysis

4.1 Contribution of Transmigration Development in Food Production

According to the RPJMN 2020-2024 and RKP 2021, the transmigration program has 53 transmigration targeted areas. About 52 transmigration areas are the RPJMN's targets, and one transmigration area is targeting the presidential decree in developing food estate. Because they are located outside Java and Bali, the analysis will not cover Java and Bali. The 53-transmigration areas are spread out in 23 provinces. It covers around 746 settlement units and around 2.5 million inhabitants in the transmigration area. The following table shows the distribution of 52 transmigration areas and the number of populations in the area.

Table 2. Distribution Transmigration Area

No	Province	Number of Transmigration Area	Number of Transmigration Settlement Unit	Number of People in the Transmigration Area	Number of Household in Transmigration Area
1	Aceh	3	11	42,758	53,529
2	Bangka Belitung	1	14	33,293	8,323
3	Bengkulu	1	20	104,228	42,642
4	Gorontalo	4	62	217,059	69,005
5	Jambi	1	13	19,200	33,897

No	Province	Number of Transmigration Area	Number of Transmigration Settlement Unit	Number of People in the Transmigration Area	Number of Household in Transmigration Area
6	Kalimantan Barat	3	48	233,088	76,606
7	Kalimantan Selatan	1	32	72,316	18,079
8	Kalimantan Tengah	2	58	69,553	17,388
9	Kalimantan Timur	2	33	72,269	23,438
10	Kalimantan Utara	3	16	289,155	72,289
11	Lampung	2	17	72,302	34,138
12	Maluku	1	19	21,785	5,446
13	Maluku Utara	2	44	148,173	41,595
14	NTB	2	10	57,285	14,321
15	NTT	3	53	163,400	74,259
16	Papua	3	56	58,498	14,625
17	Papua Barat	2	4	2,357	9,933
18	Sulawesi Barat	2	35	128,305	70,468
19	Sulawesi Selatan	3	25	81,634	90,674
20	Sulawesi Tengah	6	100	343,499	97,925
21	Sulawesi Tenggara	2	33	74,069	30,823
22	Sumatera Barat	1	12	41,254	10,314
23	Sumatera Selatan	3	31	178,647	134,950
	Total	53	746	2,524,127	1,044,665

Source: Kementerian Desa, Pembangunan Daerah Tertinggal, dan Transmigrasi, 2019b

The following table shows how the transmigration program can contribute to national food security.

Table 3. Contribution of Transmigration Area in term of Ricefield - Rice Production and Maize field -Maize Production to the Ricefield - Rice Production and Maize field -Maize Production in Respective Provinces in 2018 (%)

No	Province	Ricefield	Rice Production	Maize field	Maize Production
1	Aceh	10	7.3	42,758	53,529
2	Bangka Belitung	564	1,168.0	33,293	8,323
3	Bengkulu	45	39.6	104,228	42,642
4	Gorontalo	33	29.3	217,059	69,005
5	Jambi	2	0.4	19,200	33,897
6	Kalimantan Barat	19	16.3	233,088	76,606
7	Kalimantan Selatan	6	4.1	72,316	18,079
8	Kalimantan Tengah	-	-	69,553	17,388

No	Province	Ricefield	Rice Production	Maize field	Maize Production
9	Kalimantan Timur	102	101.5	72,269	23,438
10	Kalimantan Utara	12	1.9	289,155	72,289
11	Lampung	7	6.0	72,302	34,138
12	Maluku	84	79.7	21,785	5,446
13	Maluku Utara	-	-	148,173	41,595
14	NTB	4	3.1	57,285	14,321
15	NTT	8	9.0	163,400	74,259
16	Papua	78	74.6	58,498	14,625
17	Papua Barat	-	-	2,357	9,933
18	Sulawesi Barat	19	17.1	128,305	70,468
19	Sulawesi Selatan	0	0.3	81,634	90,674
20	Sulawesi Tengah	26	22.3	343,499	97,925
21	Sulawesi Tenggara	9	4.5	74,069	30,823
22	Sumatera Barat	7	5.3	41,254	10,314
23	Sumatera Selatan	15	12.3	178,647	134,950
Total Ratio (Exclude Java and Bali)		10.9	8.7	9.1	9.0
National		6.1	4.4	5.6	5.3

Source: Processed from (Kementerian Desa, Pembangunan Daerah Tertinggal, 2019)

Note: * There are some inconsistent data in Bangka – Belitung, Kalimantan Timur, Papua and Papua Barat Provinces.

On average, rice and corn production in the transmigration area contributes around 4% and 5%, respectively, to the national production. The figure at the national level covers Java and Bali, which are the main sources of food production in Indonesia. If Java and Bali are excluded from the national figures, the contribution of the transmigration program in food production (rice and maize) doubled to around 8% and 9%, respectively. A similar figure is also depicted in the size of rice and maize field. Both contribute around 10% and 9% respectively in this year. When looking at the provincial level, many transmigration areas contributed more than 10% to rice and maize production and reached significant figures in Maluku, Maluku Utara, NTT, and Sulawesi Tengah.

On the other hand, the budget allocation for the transmigration program in the Ministry of Village, Disadvantaged Region, and Transmigration Development tells a different story about the program's priority. In the 2018-2020 period, the budget allocation experience a declining trend. The following figure depicts this condition.

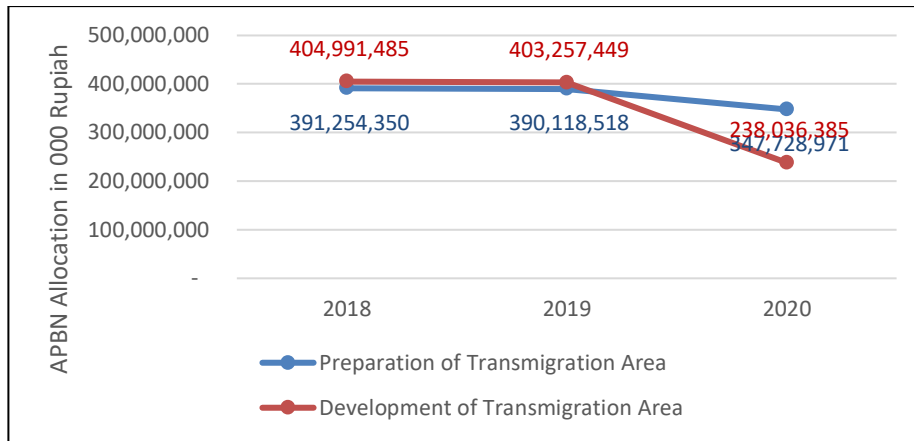


Figure 10. National Budget Allocation for Transmigration Development in 2018-2020 (in 000 Rupiahs)
Source: Bappenas, 2020

The total allocation declines from around Rp 800 billion in 2018 to around Rp 585 billion in 2020, a drop of around 27%. Budget reallocation during the covid 19 pandemics seems to be the reason for the budget cut. Most ministries reallocated their budget to handle the covid 19. However, if we look at 2018 and 2019 allocation, the trend did not change significantly and remain relatively stagnant. This is the challenge for transmigration stakeholders in the future in fulfilling the expected outcomes with limited resources. Based on the figures above, it can be concluded that the transmigration program did have some potential to be the engine of national food production. However, related stakeholders should all participate in tackling the attendant challenges. The following section explains the challenges of the transmigration program that should be taken into account.

4.2 Challenges in Implementing Transmigration Development to Support National Food Security

Based on these pre-conditions, some challenges should be addressed before implementing the transmigration program. In general, there are five challenges, (1) stakeholder cooperation, (2) transmigration area management, (3) utilization of suitable agriculture technology, (4) transmigration area masterplan, and (5) quality of human resources. These are depicted in the following figure.

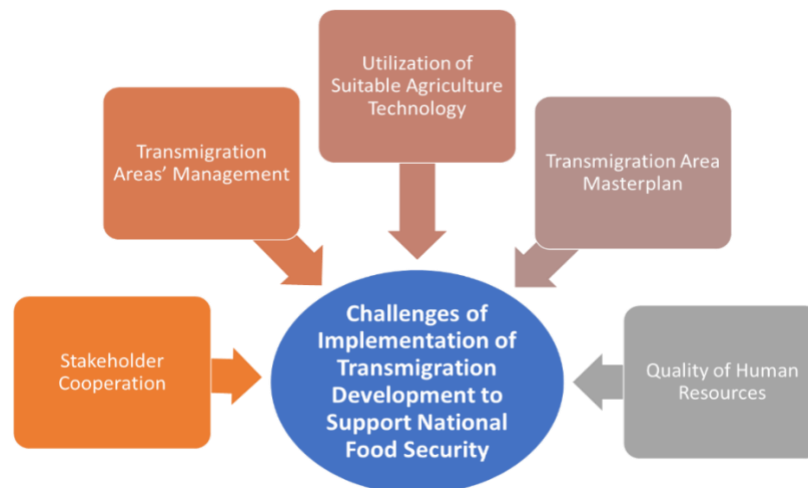


Figure 11. Main Challenges of Implementation of Transmigration Development to Support National Food Security

4.2.1. Stakeholder Cooperation

Transmigration is a program that involves many stakeholders. To achieve optimal results, cooperation among stakeholders is inevitable. Figure 12 shows the activities of the transmigration program and its relation to the food production process. It is clear that the transmigration program covers many aspects and leads to close coordination among stakeholders to produce optimum results. Most of the transmigration area output is food products such as rice, nuts, vegetables, fruit, cattle, and fish. Therefore, it is not only the responsibility of the Ministry of Agriculture and Ministry of Village, Disadvantaged Regions, and Transmigration. To build and improve irrigation networks, road networks, these ministries must coordinate with the Ministry of Public Works; to deal with warehousing and market, they have to deal with the Ministry of Trade; and for food processing, the Ministry of Industry and Food and Drug Agency should take the lead. Moreover, for facilitating business development, the Ministry of SMEs will take part while the Ministry of Telecommunication and Information will play a significant role in utilizing ICT.

So far, the transmigration program has not been executed optimally due to limited awareness of cooperation among stakeholders. Each technical ministry felt that the transmigration program was not under its authority. On the other hand, the regional government relied heavily on the central government. Thus, the Ministry of Village, Disadvantaged Regions, and Transmigration continue to finance the transmigration program. Business operators view transmigrants only as laborers to work in their plantations.

Collaboration between stakeholders includes an agreement regarding task division and its authorities, funding sharing, and the construction of facilities and infrastructure to support the transmigration area. This collaboration should also encompass rules, standards, and procedures for the management of transmigration areas and other regulations needed to support the smooth implementation of the program. Each agency and ministry need to put aside their egos. Implementing the transmigration program is a formidable challenge because not all agencies or ministries are willing to put aside their sectoral or institutional egos. Political support from top-level officials is needed to encourage this collaboration among stakeholders.

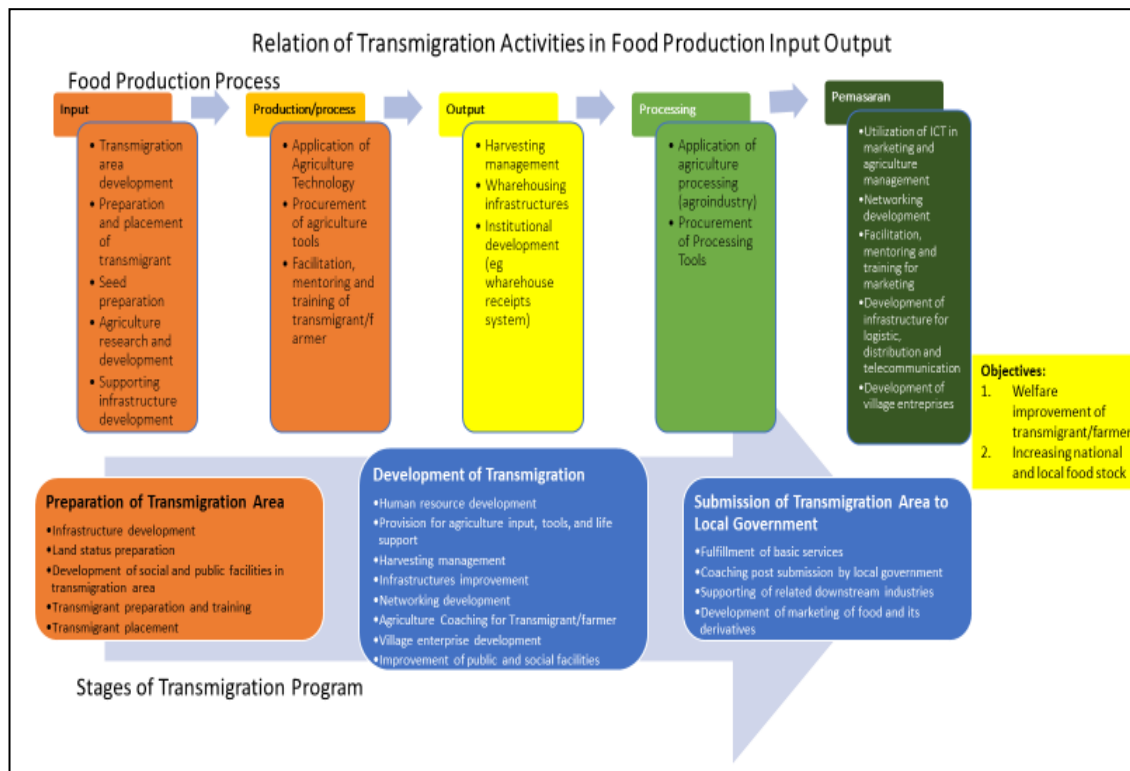


Figure 12. Transmigration Development in relation to Food Production Process

4.2.2. Transmigration Areas' Management

The management of transmigration areas is the second challenge that the government needs to pay attention. So far, the managers of the transmigration settlement units have not received optimal support in terms of funding, training, and facilities needed during the transmigrant guidance period. The settlement managers are the spearhead of the transmigration program. They deal directly with the transmigrant community and the people around the settlement units. They are multi-functional technical personnel who can act from agricultural extension agents to medical personnel and teaching staff. This is due to the limited number of government officials who assist the community daily. Therefore, strengthening transmigration settlement managers will help develop the transmigration areas into developed villages.

The management of transmigration areas also includes the management of data and information for the transmigration community and networking between the transmigrant community and the surrounding area. Accurately and regularly updated data and information will support the policy-making process at the regional and central levels so that decisions are made according to the needs in the field. Currently, transmigration data and information are yet to be optimal. Delay and lack of awareness in updating the data seem to cause such inefficiency. Development of networking by residential unit managers, especially networking in the economic sector, will encourage economic activities and agricultural production in transmigration areas.

4.2.3. Utilization of Suitable Agriculture Technology

To increase productivity, the introduction of suitable technology should be encouraged in the transmigration area. The combination between local wisdom and modern technology should improve productivity in all aspects of transmigrants' life. However, many new agriculture technologies end up in the research center, which does not significantly impact productivity. Many factors may contribute, such as limited field workers to disseminate the knowledge, limited supporting infrastructure, or limited funds to finance the dissemination of the new technology. Another factor contributing to the limitation of new technology implementation is that the technology is not suitable for local culture/habits or conflicts with local wisdom. In short, the challenge is to find technology that fits the situation in the field and can answer the limitations mentioned above since each transmigration area has its unique characteristics.

4.2.4. Transmigration Area Masterplan

A master plan is a reference for the project implementation according to the timeline and targets achieved. A good master plan will cover not only the existing condition but also the future goals of development. It also consists of safeguarding which should be complied with related stakeholders. The master plan also provides information on job division and responsibilities. The master plan should also incorporate the regional spatial plan and sectoral plan. Good collaboration among stakeholders will give a better master plan for the transmigration area. In relation to the local spatial planning, the collaboration among stakeholders will point to the optimal location for the transmigration area. Recently, many transmigration areas are located in remote areas requiring a lot of effort to develop the area into the expected one.

4.2.5. Quality of Human Resources

Another main challenge of the transmigration program is the quality of human resources. This covers transmigrant and government apparatus. Good preparation before departure and post-settlement will enable transmigrants to survive in the new area and improve their productivities. Coaching, mentoring, and training are necessary to boost the local economy. Better quality of transmigrant will produce better output, better innovations, and better development of the transmigration area.

Apart from transmigrant, the government apparatus that deals with transmigration programs should be addressed too. Quality government officers in the field will help transmigrant solve problems more effectively and efficiently. However, the rotation of the government officers in the field in many regions is too frequent and unplanned. This will hinder the progress of the transmigration program.

Both transmigrants and government apparatuses should be trained and coached during and after implementing the transmigration program. Training and coaching for human resources from the transmigration program can be grouped into several stages. The first stage is training and coaching human

resources for transmigration preparation. This stage includes training and coaching for introduction and adaptation to the new environment and homes in the transmigration area. Detailed training and mentoring consist of environmental adjustments, environmental stabilization, and efforts to become independent.

The next stage is training for transmigrants and transmigration area managers to become local champions. At this stage, transmigrants and program managers are trained and coached to focus on export-oriented food products and encourage the transmigration area to become centers of agriculture and agricultural processing. Besides, the program manager and transmigrants start to cooperate with the surrounding area to improve networking and competitiveness.

The last stage of human resources development takes place after transmigration areas become independent ones. At this stage, the training and mentoring should encourage the transmigration area to have regional competitiveness and have a more established network with other regions and business actors. It is expected that at this stage, the human resources in the transmigration area can be relied on for food processing and management to become the center for national and regional food production.

Conclusion

- a. Food security is not only a national issue in terms of food stock; it is a multi-stakeholder forum, and Many alternatives can help tackle this issue. One alternative is the development of a transmigration program. The similar characteristic and their close relation to the food production process are among the main reasons why the transmigration program is expected to contribute to the food security issues apart from regional development contribution.
- b. Based on the analysis, it can be concluded that the transmigration program has the potential to support national food security. Data analysis shows that the total contribution of food production through the transmigration program is above 10 percent on the national average (outside Java-Bali). However, it should be noted that the lack of support, especially in terms of budget allocation, is also one of the obstacles in optimizing the potential of the transmigration program.
- c. To maximize the transmigration program in supporting food security, the government should address five challenges. These are (1) stakeholder cooperation, (2) transmigration area management, (3) utilization of suitable agriculture technology, (4) transmigration area masterplan, and (5) quality of human resources. By anticipating those challenges, the government will fulfill the pre-conditions needed before implementing a transmigration program. These pre-conditions are (1) fulfillment of minimum standard of basic services, (2) clear land legal status, (3) good and accessible connectivity infrastructures and mode of transportation, and (4) interregional cooperation.

Recommendations

The following recommendations should be considered to help the transmigration areas contribute to supporting food security programs:

- a. There should be political support from high-level officials for the transmigration program, and this support should be interpreted into a presidential decree or law. Based on this decree/law, job division and job responsibility are defined among stakeholders and become references in implementing the transmigration program.
- b. Training for transmigrant and government apparatus should be carried out before and during the implementation of the program. The training for transmigrants should equip them with knowledge of how to survive in and develop their new home. The training focus for the government apparatus should help the transmigrant achieve their targets and solve their problems effectively and efficiently.
- c. A stakeholder forum, consisting of related ministries, should be established to solve the problems during the implementation program. This may take an informal forum, yet a regular discussion should be conducted to report the progress and find the best solutions for upcoming issues.
- d. Based on point c, regular monitoring and evaluation should be carried out, and it should be based on the logical framework of the transmigration program.

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