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Chapter - 4
**Water, Energy and Food Security as a Non
Military Threat in Indonesia**

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Chater - 4

Water, Energy and Food Security as a Non Military Threat in Indonesia

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Abstract

The author wants to see water, energy and food security in Indonesia and its impact on the environment as a new threat to the survival of the community. The method used is qualitative research using secondary data sources from the literature and references relating to this research. Water, energy and food are very basic sources of life in Indonesia. Sufficient food needs and maintaining energy availability at an affordable level are very important strategies for maintaining national resilience.

Keywords: Water security, food security, energy security, non military threat, national resilience

1. Introduction

The task of the government is not only responsible for the survival of the nation in the short term but also for the long term, even though the leadership of a state leader as a policy maker is only five years. Because the shortness of leadership is usually the government will be more interested in short-term goals than long-term to maintain power. While the survival of the nation needs to also refer to planning, programs, and long-term actions. Therefore the idea of growth must be more important than just thinking of stabilization. Thus, lagging behind economic development and improving people's welfare which can compete with nations in the world can be overtaken.

As it is known that the policy that must be chosen by the state for people's welfare refers to the school of consumption (short term) from the demand side with the theory of modern economic schools, and the production school (long term) from the supply side with economic theory classic. The long-term program is primarily to maintain the state in its survival in the face of threats and carry out development functions so that people can produce well in improving their living standards on an ongoing

basis. Infrastructure is a bridge between the school of production and consumption. Public infrastructure and goods are things that must be fulfilled by the state for the first time. Without fulfilling this, production and consumption activities cannot be carried out. In infrastructure development in addition to preparing production for the long term, it can also open up new jobs in its implementation to stimulate consumption growth.

The opening of the 1945 Constitution states that the objective of the State of Indonesia is to protect the entire nation and all of Indonesia's bloodshed, promote public welfare, educate the nation's life and participate in carrying out world order based on freedom, eternal peace, and social justice. As such, strong national defense is needed so that the objectives of the Indonesian State can be carried out by all components of the nation. In Law No. 2 of 2002 clearly defined that national defense is all efforts to defend the sovereignty of the State, the territorial integrity of the Unitary State of the Republic of Indonesia, and the safety of all nations from threats and disturbances to the integrity of the nation and state. The resilience of a country facing various threats to its sovereignty can be called national resilience.

When Indonesia was just independent, the old order government emphasized the strength of the military defense in the face of ongoing aggressions and rebellions. This hard power politics turned into soft power politics in the New Order and reform era. The consequence that occurs is the ability of the defense force is not the main thing, but economic development is a priority. In the reform era, the Indonesian National Army was again mandated to maintain Indonesia's defense and sovereignty from external threats. For the future, the role and function of defense will be increasingly important because it is very closely related to the economy. The ambition of Indonesia to become an important country in the world economy must be supported by the strong defense to prevent disturbances and threats that arise against the nation.

Future defense problems are increasingly complex. The challenges that occur are the seizure of natural resources, the struggle for energy resources, security disturbances that occur in the border region, the development of nuclear weapons and mass destruction, as well as the manipulation of the interests of large/superpower countries. Very limited natural resources causing future conflicts will be strongly influenced by the motivation to control these resources through military force. The development of human resources in quantity and quality must also be continuously carried out to deal with them.

Indonesia has assets and access that support the realization of the nation as a calculated force in the arrangement of relations between nations and deserving and capable of becoming a big player in the global economy. Indonesia's abundant natural resources have driven economic development very rapidly. Based on trends, Indonesia is on the path to one of the largest economies in the world by 2030. Although geopolitically and Indonesia's geostrategy lies in a strategic and decisive position in the world and regional social order, it faces potential threats that are not light.

The toughest challenge is maintaining the continuity of the nation with the implementation of sustainable development. The main task of the government in addition to being responsible for defense/security, also must realize prosperity. Defense in the field of welfare is primarily management of resilience in the fields of water, energy, and food. The lack of one will cause the fragility of the nation because it will cause dependence on other countries. Food security will provide security and peace for a country while energy security will provide independence. With the large potential of Indonesia's natural resources and a large population, the author wants to see water, energy and food security in Indonesia and its impact on the environment. The method used is a qualitative study through enriching secondary data sources from the literature and references related to this study.

2. Literature Review ^[1]

Threats to state sovereignty can be categorized into two parts, namely military threats, and non-military threats. The military threat is divided into two, namely the threat of traditional security and non-traditional security threats. Traditional security threats include military attacks or invasions from other countries. While the non-traditional military threat is the form of armed separatist movements, terrorism, smuggling, theft of natural resources, illegal immigration, natural disasters, and so on. Lately, non-traditional threats have become very important and troublesome throughout the world, especially with the development of crime technology. Second, non-military threats, namely threats in various forms outside of military threats such as political, social, economic and so on. At present, the role of various international cooperation institutions in the field of world peace such as the United Nations, as well as regional security cooperation, is increasing. So

¹ Extracted from Hutabarat. 2018. Globalization and Food/Energy Security, Proceedings of the XIII Plenary Session and National Seminar of the Association of Indonesian Economic Scholars, Mataram, 17-18 July 2018.

that there is little chance of a foreign military attack or invasion directly against the territory of another country.

In this modern era, world insecurity that occurs generally comes from non-military threats. Non-military threats are all internal security threats originating from the fields of politics, ideology, information, socio-cultural, economic, financial, which at any time can attack and paralyze the activities of a country, thus weakening the country. Information is one of the powerful weapons that can be used by a country to attack other countries. The dissemination of false or biased information about a country can affect the opinion of the world community so that it is far from or even hostile to the country. For example, a travel warning notification in a country will reduce business visits and foreign tourists. The reduction in international business visits will hamper the flow of foreign investment that is very much needed to encourage economic growth. Likewise, the decline in the number of foreign tourists can reduce a country's economic activity, especially countries that are highly dependent on tourism. Information war like this is very effective to be used to attack other countries, especially with the increasing penetration of print and electronic media to convey information throughout the world in a short time.

Another example is an attack on a country's currency can reduce the exchange rate (depreciation) of the country so that it can kill economic activity. In the current era of globalization, where the world financial system is closely related, speculators can take advantage of changes in a country's exchange rate to their advantage. Banking losses and housing finance companies (subprime mortgages) in the United States since mid-2007 turned out to hurt the entire world, including Indonesia. Tens of trillions of rupiah of foreign investment funds planted on the Indonesian stock exchange suddenly left Indonesia in a very short time. As a result, the price index on the Indonesian stock exchange fell, and the rupiah exchange rate depreciated. The attack on energy commodity speculators in early 2008 succeeded in raising fuel prices to the highest level in history. As a result, there has been a massive conversion in the allocation of agricultural land for food production to bio-energy production. In a short time, the world experienced a very high rise in food and energy prices, especially in developing countries. This situation shook the stability of internal security in many countries through various demonstrations by various groups of people.

Thus the national defense and economic conditions of the country are very closely related, especially regarding the provision of the defense budget. In general, developed countries with high levels of income allocate

large budgets for national defense. While developing countries that have limited economic resources, the main priority of the state budget allocation is to encourage economic growth to improve people's welfare. Indonesia, which has more than 17 thousand islands and borders at least ten countries, requires a substantial defense budget. However, given the country's limited capacity, and priority setting to improve people's welfare, the provision of defense budgets is still minimal. If analogous, the price of a battleship for marine patrols in protecting Indonesian waters is equivalent to the price of half a million tons of rice. Or the price of a squadron of Sukhoi type fighter (8 units) is equivalent to the price of 1 million tons of soybeans.

In terms of national defense from economic threats, it can be seen from various indicators of economic resilience. A country that is strong against economic and financial attacks from the outside is a country that has adequate economic resources such as ownership of foreign exchange reserves, the level of foreign debt, the health of the state budget, ownership of food and energy materials, and so on. In this case, it is necessary to coordinate solid economic defense management between government agencies and between the government and the business world.

The inability to provide both food and energy (food and energy security) will have an impact and can affect the stability of the country. Especially for the Indonesian nation, most people view the availability of food and energy as an "identity symbol" problem which ends in questioning why Indonesia with abundant natural resources also includes food and energy commodity importing countries to meet their needs. The current condition of 'limitations' is the result of inaccuracies and inconsistencies in development policies and behavior. To improve it, the necessary step is to re-explore how to empower the available resources in a visionary, strategic and sustainable framework. (Nazara *et al.*, 2008).

Thus in more recent developments, the spectrum of traditional threat threats between countries (military threats) has been expanded, not only limited to human security, both as individuals and as groups / collectivists. By the formula of the United Nations, the expansion of the concept of "security against" was changed from "emphasis on national security" to a greater emphasis on "people security". His achievement also experienced a shift in pressure, from security achieved through "armament" towards security which was realized through "human development". Namely from the emphasis on "territorial" security towards "food, energy and environmental security".

In theory, to create national resilience, countries in the world try to fulfill their main needs, namely food and energy through domestic production. But in reality, labor productivity in each country is not uniform. Therefore, the father of Adam Smith's economy, perfected by David Ricardo, suggested that each country specializes in production and export according to the level of expertise possessed by its workforce. Thus each country benefits from this specialization. Furthermore, in the development of the theory of international trade, Heckscher-Ohlin suggested that each country produce and export products whose raw materials are found in their countries and import goods whose raw materials are scarce. Each country will benefit by following the pattern of specialization so that world trade will increase. However, not all assumptions from the theory of international trade can be fulfilled in real life. Developed countries provide massive subsidies to their farmers. So that agricultural products produced by developing countries cannot compete with products produced by developed countries. As a result, farmers in developing countries continue to be entangled in poverty with very low yields. (Hutabarat, 2008).

3. Discussion

Indonesia has a specialty with rich and diverse natural resources (SDA). Each type of natural resource is managed for the people's prosperity. In its development, SDA management always collides with the environment. In the long run, these collisions can cause degradation to the environment. Management of natural resources well becomes an important thing, to minimize the potential impacts caused by collisions with environmental sustainability. An important and vital aspect of a country is the availability of sufficient water, energy, and food. This is the challenge of world civilization today. The imbalance between limited supply and increasing needs can be a threat to the sustainability of these resources. (Rahman, 2018).

Indonesia's abundant natural resources are mainly petroleum reserves, coal, geothermal, natural gas, mineral deposits, agricultural land, tropical forests (the third largest in the world), and substantial renewable water resources. In addition to providing direct economic benefits, natural resources must support water, energy and food security for millions of rural and urban residents in Indonesia.

Until now, Indonesia's economic growth rate is still supported by a strategy that relies on the exploitation of abundant natural resources. The commodities from this natural resource have covered more than half of exports. More than 25% of Indonesia's gross domestic product is directly

based on natural resources, through mining (12%) and agriculture (25%), with most manufacturing industries (24%). Indonesia indirectly relies heavily on its natural resources. (Bellfield et.al, downloaded 2019).

With Indonesia's rapidly growing population, estimated at 280 million by 2030, it will put massive pressure on natural resources. Rapid urbanization will cause more than 70% of the population to be expected to live in urban areas by 2030. This presents a new challenge for sustainable production and consumption. Declining labor availability in rural areas will make changes in agricultural production systems. Moreover, there are significant differences in the availability and needs of resources throughout the Indonesian archipelago. For example, Java has more than 50% of the population and plants more than 50% of rice throughout Indonesia, has less than 5% of available water sources. (Bellfield *et al.* downloaded 2019).

Water Security

Economic growth will clash with the environment, while environmental degradation also undermines the economy. It has been realized that the development of natural resources has been directly proportional to environmental degradation. Indonesia lost around 918,678 hectares of forest each year from 1990 to 2012. This includes an average annual loss of 195,050 hectares on peatland. During the same period, the annual average of 507,486 hectares of forest was degraded, including 17,157 hectares on peatland. Drivers of deforestation, among others, are oil palm and industrial timber plantations, mining and illegal logging. But the expansion of agriculture as a livelihood and the development of new settlements, in part, was driven by official government policies with transmigration.

Indonesia has the highest deforestation rate in the world, which causes high river sedimentation rates and extensive watershed degradation. Indonesia is the fifth largest producer of greenhouse gas emissions in the world. Seasonal forest fires have produced national pollution and areas that have adverse health effects. Forest fires in 2015 were the worst due to the extremely dry conditions caused by El Nino. This event resulted in around 0.5 million people suffering from respiratory diseases, 43 million people exposed to toxic fumes and gases, and causing a regional smog crisis.

Deforestation and degradation also erode forest ecosystem services, hampering economic growth and prosperity. In one study reported, economic losses and health costs from peat fires in 1997 were greater than the economic income generated by oil palm plantations and forestry on peatlands. Because of this, Indonesia can accelerate the possibility of

reaching its economic tipping point, because environmental degradation can damage the country's ability to maintain the speed of current economic progress.

Changes are predicted to increase pressure on production and distribution of resources, coupled with Indonesia's already vulnerable vulnerability to natural disasters. Natural disasters, such as droughts and floods, are the biggest threat to food security in Indonesia. In the period 2000-2013, floods affected more than one million hectares of rice throughout the archipelago. (Bellfield et.al, downloaded 2019).

For Indonesia, water is the core of resilience, especially for food security. Quality and water supply can increase the productivity of agriculture and fisheries but are very dependent on forest ecosystem services. The clash between infrastructure and environmental development presents its challenges. Water resources can support food production through increased infrastructure, such as irrigation and water storage. The challenge that arises later is related to quantity and quality.

To maintain sustainable use of water resources, a watershed system is needed that can support the quantity of water flow. Drought problems in the dry season and floods in the rainy season in a river system are indications of an imbalance in the hydrological cycle. This happens not only in the matter of water retention which is very important for vegetation. Weather and climate patterns are also affected by global climate change. (Rahman, 2018).

In the national mid-term development plan (RPJMN) there are related objectives and targets for water security for the community, namely (Bellfield *et al.*, downloaded 2019):

- Improve access to drinking water and sanitation to 100% by 2019 (baseline for 2014 is 65.6% and 60.5% respectively)
- Maintain and restore watersheds and ecosystems
- Rehabilitating 5.5 million ha of critical land in forest management units in 2019 (baseline reference of 0.5 million ha in 2014)
- Develop 12.7 million ha of community forest by 2019 (baseline reference of 0.5 million ha in 2014) 56
- Restoring 30 priority watersheds
- Increase water supply for the urban and productive sectors
- Build 30 reservoirs
- Improve and develop irrigation networks of 1.1 million ha

- Rehabilitating 3 million ha of damaged irrigation networks
- Reducing the impact of water risk
- Reducing the frequency of flooding to fewer than 286 events (from a total of 302 in 2014)
- Management of water and land from 33 urban water catchments in 2019 (baseline by 3 in 2014)
- Improving water resources management Building a network of water resources information

Energy Security

Petroleum and coal are fossil energy sources which will certainly run out. Both of these energy sources can only be formed in a long, tens, or hundreds of millions of years. Because it needs to be sought or created new or renewable energy. New energy is a type of energy which at this time has never been used massively by humans and is still under development. Renewable energy is energy whose source can be recovered quickly after the source has been used or spent naturally. The earth provides a lot of energy that has not been utilized by humans; this power is available in various places, does not pollute the environment, and can be recovered quickly. But because of infrastructure problems and mastery of the science and technology of new and renewable energies, it is still very rarely used.

The main problem, from the experience of the Indonesian government in the future, is the subsidies in the energy sector, especially oil fuels. Subsidies always deplete the State Budget. This energy subsidy is one of the causes of Indonesia's high dependence on fossil energy which is very risky as well as a cause of climate change. The portion of energy subsidies in the State Budget (APBN) is still dominant compared to other sector subsidies (non-subsidies). The energy subsidy target set in the RAPBN is always exceeded. The government needs to pay attention to reducing subsidies and giving them to the right people. Thus the best strategy is needed to make the transition of energy from fossil to non-fossil as a problem that must be addressed immediately. (Abdullah *et al.*, 2019).

Indonesia has abundant reserves of oil, coal and natural gas. Indonesia also has substantial renewable energy potential, including hydropower, solar, biomass, wind and geothermal energy. Although there is little potential for renewable energy that has been developed so far, Indonesia's national energy policy aims to increase the share of the energy mix from below 6% to 23% by 2025. Apart from this significant energy resource, Indonesia's domestic

energy production is unable to meet domestic demand if the Indonesian economy continues to grow at the current pace. The government estimates that domestic energy demand will continue to rise by around 7% per year, with electricity demand alone projected to almost triple between 2010 and 2030. The main target for energy security in the RPJMN is to maintain energy supply and achieve an electrification ratio of 100 %. (Bellfield et.all, downloaded 2019).

Indonesia's dependence on fossil energy in meeting domestic energy needs is still high. Fossil energy contributes 94.3% of the total national energy needs of 1.357 million SBM (oil barrel equivalent), while the remaining 5.7% is met by new renewable energy. The dependence on fossil energy needs to be ended by utilizing the potential of alternative energy that exists in all regions of Indonesia, such as hydropower, wind, geothermal and biomass. More advanced technological needs are needed in optimizing existing energy production and in the search for new sources. (Mary, *et al.*, 2017).

The unevenness of energy resources in Indonesia requires optimal utilization of existing local resources. In 2016, data from the Central Bureau of Statistics showed an electrification ratio of 91.16% and per capita electricity consumption of 950 kWh/capita. For this reason, the use of renewable energy is needed as a future energy source. Energy diversification policies are capable of producing a lot of potential natural resources which are developed as an alternative to the energy sources currently used. Utilization of renewable energy potential that has been developed to date is still relatively small. However, the government has targeted an increase in Indonesia's national energy policy from 6% to 23% by 2025. The government aims to increase the energy mix of new and renewable energy by 10-16% in 2019. (Rahman, 2018).

The government determines the number of strategies to achieve these targets by increasing the use of biofuels for transportation and water resources for hydroelectric power plants. Energy resources are now starting to lead to alternative sources of biofuels. The type of energy source that produces biomass comes from plantation crops, such as oil palm, as well as those originating from forests, such as nyamplung, sengon, acacia, and eucalyptus. At present, the development of biofuels as an alternative has already begun to achieve the target of 23% new renewable energy mix by 2025. The challenges faced with biological resources as alternative fuels include increased carbon emissions and land conversion. Forest resources are still considered as contributors to carbon emissions as a result of new land

clearing and forest fires. Challenges to other forest resources are related to the conversion of land to agriculture and mining. Development of energy reserves and biofuels can potentially cause deforestation. (Rahman, 2018).

The objectives and targets according to the national mid-term development plan (RPJMN) for energy security for the community are (Bellfield et.al, downloaded 2019):

- Improve energy access the electrification ratio rose to 100% in 2019 from 81.5% in 2014
- Increase the production of new and renewable energy
- New and renewable energy reaches 10-16% of the energy mix in 2019, and 23% in 2025 (from baseline less than 6% in 2014)
- The increase in new and renewable energy production in 2019 from 2014 is as follows: Geothermal energy 122%; 80% Biodiesel; 19% Bioethanol; Hydroelectric Power Plant 27%; Solar 238%; 45% Biomass
- Continuous production of coal, oil, and gas
- Exploitation of continuous fossil fuel reserves as follows: 14% crude oil, 6% natural gas, 11% coal

Food Security

Food is a basic commodity so that fulfillment of its needs becomes part of the responsibility of the state, involving all elements of society. Food security is defined as the fulfillment of individual food needs which is indicated by the availability of adequate, equitable and affordable quantities and quality. When food security is mandatory, agriculture is no longer an option for local governments. The agricultural sector, in general, has a strategic and fundamental role in building sustainable food independence, which is carried out through self-sufficiency in production. (Nazara et.al, 2008).

Food security covers many aspects and has a broad definition. In general, food security is the ability to provide enough food and the guarantee of each to obtain food. In its implementation, in Indonesia, it has been regulated in the Food Law No.7 of 1996. The law regulates food security which covers aspects of security, quality, and diversity as conditions that must be met in the fulfillment of evenly distributed population food. Indonesia is in the equator that makes this country tropical with high rainfall. Also, because it is on a volcanic track that is quite active, making Indonesia has many volcanoes. So that Indonesia has land that will be mineral and

fertile which is very good for agriculture. This condition should be able to make Indonesia fulfill its food needs independently. To achieve a condition of food security, there are several components needed and must be fulfilled, namely: the adequacy of food availability, the stability of food availability without fluctuations in seasons or years, affordability of food, and quality and safety of foodstuffs.

Meeting food sufficiency for population growth is the main goal of countries around the world. However, to achieve this goal, the expansion of agriculture using forest land has created various environmental problems, namely more than 50 percent of the world's forests disappear. The dilemma faced is how nutritious, and affordable food can supply 9.6 billion people who will inhabit the earth in 2050 without accelerating deforestation and climate change, destroying biodiversity, injuring village livelihoods and disrupting water supply, how to make agriculture and forestry contribute positively to progress social, economic and environment. The challenge of world food security is that as many as 870 million people do not have enough food to be hungry mainly because they are poor - not because the market lacks food. Producing more corn or wheat will only help starvation a little. The concentration of producing more calories only slightly overcomes "hidden hunger," which occurs in 2 billion people in the world due to micronutrient deficiency. In Indonesia, a G20 member country, more than a third of children are hampered by physical growth, mostly due to lack of important nutrients in their food intake: protein, vitamins, and minerals such as iron. (Holmgren, 2013).

The Global Food Security Index places Indonesia ranked 74th out of 109 countries for food security in 2015. More than a third of under-fives show stunted growth. Rice is the main staple food in Indonesia and contributes 45% of total food intake or 80% of the main carbohydrate sources in the Indonesian diet. Indonesia is a net importer of wheat, livestock, and horticulture. Natural disasters are a big threat to food security in Indonesia, especially droughts and floods. During the period 2000-2013, floods affected more than 1 million ha of rice throughout the archipelago. The key objective to improve the status of food security includes achieving self-sufficiency in staple food through increasing domestic production. Indonesia has self-sufficiency targets for rice, soybeans, corn, and sugar. Key strategies for achieving self-sufficiency include increasing productivity, expanding planting areas, and protecting cultivated land from conversion to other land uses. Food diversification is also considered important in achieving food security. (Bellfield et.al, downloaded 2019).

The related objectives and targets for food security in the national mid-term development plan (RPJMN) are (Bellfield *et al.*, downloaded 2019):

- Increase calorie intake to 2150 kcal in 2019 (from basics amounting to 1970 kcal in v 2014)
- Increase the desired diet pattern indicator to 92.5 in 2019 (from baseline by 81.5 in 2014)
- Increase domestic agricultural production the increase in food production in 2019 against the 2014 baseline is as follows: Rice 26%; Soybeans 109%; Sugar 46%; 67% beef; Fish 51%
- Maintain and expand agricultural planting areas
- Expansion of 1,000,000 ha of agriculture for rice production by 2019
- They are protecting existing sustainable agricultural land
- I am not burning during the preparation of land for agricultural activities

In national development, production of food crops acts as a source of food (carbohydrates and proteins), sources of industrial raw materials (feed, biofuels, and other industries), sources of income and employment, and sources of foreign exchange and national economic instruments. In the case of competition for the utilization of food commodities to meet the needs of food, energy, as well as inputs (industrial raw materials) which cause an increase in prices, it can be seen as an opportunity for the development of the agribusiness industry. So that it becomes a necessity is the development of a food security system that can integrate availability factors (the level of supply of domestic production), effective and efficient distribution for the entire community, and adequate food consumption by fulfilling health quality rules; where the three factors are related to each other. (Nazara *et al.*, 2008).

In the supply of food crops, Indonesia faces various challenges both in terms of macro and micro. Macro side challenges are:

- 1) High population growth (1.3% per year)
- 2) Decreasing land availability due to transfer of functions up to 42.37%-which is actually approved by the local DPRD-and land degradation
- 3) Increased utilization competition for energy and industrial inputs
- 4) Limited infrastructure, especially irrigation which only 30% of the network runs optimally

- 5) Climate change due to global warming
- 6) Technological stagnation
- 7) Changes in consumer tastes and competition with processed products made from imported raw materials, and
- 8) Regional-based food reserve management efforts but still integrated in the national framework

While from the micro side, the challenges are:

- 1) Business people generally smallholders with limited technological capabilities and business skills
- 2) Low bargaining power of farmers due to the lack of development of added value to post-harvest products
- 3) Low accessibility to capital
- 4) The control of production system trading by certain business actors. (Nazara *et al.*, 2008)

Facing the challenges mentioned above, in addition to creating an optimally integrated food security system, it is necessary to have strategic policies, namely:

- 1) Agricultural land protection policies
- 2) Policies for the development of food agribusiness areas, both existing and potential land
- 3) Policies for developing regional food reserves
- 4) Policies for providing incentives for food buffer zones

The main policy should also be supported by steps

- 1) Improving agricultural infrastructure
- 2) Strengthening agricultural institutions
- 3) Developing technology and application of technology
- 4) Increasing access to agricultural capital
- 5) Marketing development agricultural product

With the improvement of the system and implementation of the strategic policy, it is expected that the sustainability of food security can be realized. (Nazara *et al.*, 2008).

The concept of food sovereignty requires the development of a food system that matches the conditions of existing resources, both in terms of the environment (including the natural environment, social environment, and

culture), technology (including culture, habits, and other daily practices), and resources human. In practice, these three concepts are applied in the food security system. However, as a rich country with abundant natural resources and a very large population, Indonesia should adhere to the concept of food sovereignty after achieving food security and food independence. (Hariyadi, 2011).

Food security is a condition of fulfilling food for households which is reflected in the availability of sufficient food, both in quantity and quality, safe, equitable and affordable. Food independence is the ability of domestic food production supported by food security institutions that can guarantee the fulfillment of adequate food needs at the household level, both in quantity, quality, safety, and affordable prices, which are supported by diverse food sources by diversity local. Whereas food sovereignty is the right of the state and nation which can independently determine the meaning of its food, which guarantees the food price for its people and gives the community the right to determine a food farming system that is by the potential of local resources. (Hariyadi, 2011).

Indeed, a lot must be achieved towards food sovereignty, the indicators are adequacy in quantity, quality adequacy, nutritional adequacy, security, physical, economic, and social affordability, conformity with preferences, habits, and culture, conformity with beliefs, adequacy of intake, quality of food processing, quality of sanitation, water quality, quality of child care, level of dependence on food imports, level of dependence on imports of food production facilities (seeds, fertilizer, ingredient, packaging, machinery, etc.), diversity of food resources local, community participation in the food system, and the level of environmental quality degradation. (Hariyadi, 2011).

To achieve national food security, the role of the system of social, cultural, political and economic food structures needs to be developed, built and adapted to local resources. Rice needs to be developed in almost all regions of Indonesia, corn, and cassava. Also some of the potential of the plantation sector that exists and can be developed include sugar cane, oil palm, coffee, and others. For livestock, it is generally spread evenly in all regions in Indonesia. There are several areas that are more focused on certain animals because the conditions are more supportive and can produce good quality livestock. Like East Java and Central Java, which are centers of beef cattle, or Aceh for the largest buffalo cattle population, chickens in Java and Kalimantan, pigs in NTB, or horses in NTT. As a maritime country and has a vast sea, Indonesia's marine fisheries potential is very rich, both sea water and fresh water. Also, the underwater nature of Indonesia has a factor of

beauty, diversity, and tourism. The above matters have not been optimally improved by the government. Freshwater fishing in Indonesia is also one of the superior potentials, with many sources of fresh water flowing, lakes, rivers, and reservoirs. Freshwater fishponds are spread evenly in Indonesia. This is due to the availability of water sources and other supporting matters.

4. Closing

Water, energy, and food are very basic sources of life in Indonesia. Fulfilling food needs and maintaining energy prices at an affordable level is a very important strategy for maintaining national resilience. The attack on energy commodity speculators in early 2008 managed to raise fuel prices at the highest level in history. So that there is a massive conversion in the allocation of agricultural land for food production into bio-energy production. In a short time, the world experienced a very high rise in food and energy prices, especially in developing countries. This situation shook the stability of internal security in many countries. (Hutabarat, 2008).

At present Indonesia is still a country importing food products. Although as an agricultural country, the amount of imports is still increasing. In terms of petroleum, Indonesia has been a net-importer since 2004, where petroleum imports continued to increase in line with the increase in economic growth and the population of Indonesia. Since the market mechanism has not been able to perfectly regulate the availability of food and energy, at an affordable price for the community, the role of the government is very much needed for intervention. However, the ability of the government to maintain the stability of food prices is very limited due to the limited resources available to the government. (Hutabarat, 2008).

The role of the government that is needed includes maintaining economic stability such as maintaining inflation at a controlled level, encouraging economic growth with a growth rate that can at least increase the welfare of the double population of each generation, create jobs, at least absorb the labor force, reduce the level poverty, maintaining the availability of basic commodities, such as food, clothing, housing and energy, providing high priority for food security and energy through intensive coordination between the government and parliament, the government and the business world, and between the central government and regional governments, integrated interventions for improvement food and energy production through price policies, subsidy policies and tax policies, looking for alternative energy such as biofuel, solar energy, hydropower, geothermal, fusion energy, etc., improving infrastructure facilities such as roads, bridges

n, ports and communications, improving legal and regulatory instruments to facilitate increased food and energy production and distribution. (Hutabarat, 2008).

Regional participation along with the spirit of decentralization is also very necessary, especially in mapping and empowering the potential of superior natural resources of each region. Coordination between institutions, policies, and regulations plays an important role by creating synergies and acceleration in increasing the productivity of food production and energy sources. (Tambunan, 2008).

The implementation of policies in the fields of water, energy, and food, along with the accompanying programs, is expected to create sustainable food and energy security. As a country rich in abundant natural resources, and a large population, Indonesia should adhere to the concept of food sovereignty, not just food security.

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