

CHALLENGES AND HANDLING OF INDONESIAN FOOD SECURITY IN 2035

Bosman Donald Hutahaeen

Badan Pengembangan Sumber Daya Manusia Provinsi Kalimantan Barat,

Bosmanh63@gmail.com

Abstract. Indonesia, which is famous for being an agrarian country, still cannot be separated from food problems in its own country. National food security still has various problems, problems and challenges to achieve food security. Indonesia has multidimensional problems, covering economic, social, political, environmental aspect and what is equally important is population growth. The world population will increase which is estimated to reach 9 billion souls in 2050 (NGI, Januari 2011 edition) while for projected population of Indonesia in 2020 has reached 270 million people (Hasil Survey Antar Sensus, 2015). Population growth has resulted in the emergence of problems regarding food needs on how to meet food needs. National food security is changing rapidly due to population growth, damaged agricultural infrastructure, a decrease in the number of farm households, to the process of structural transformation that is not working as it should. Therefore this paper tries to analyze the condition of Indonesia's food security and to realize sustainable food security in Indonesia in the future until 2035 which feels increasingly severe. This can be seen from the aspects of needs and availability, and then its adequacy. So, it can prepare from the beginning the grand strategy plan that will be used in dealing with various possibilities that will occur.

Keywords: sustainable food security, food needs, food availability and grand strategy

Introduction

Development is an activity carried out with an ultimate goal that has the most abstract nature of welfare of the population living in the area. Humans are living creatures that have the most complex needs than any other living creature on this earth. One of basic human needs is food. Humans need food to be able to carry on life and activities on this earth.

Food security is the most strategic thing for a country, because food is the most important thing for human life. Even food rights themselves have been invited to be legislated as human rights in the Declaration of Human Right. Food is something that comes from biological sources of agricultural products, plantations, forestry, fisheries, livestock, water, and water processed or not processed, which are intended as food or drinks for human consumers, including food additives, food raw materials, and other materials used in the process of preparing, processing and making food or drinks. (UU Pangan, No 18 Tahun 2012). For Indonesia, food security is still limited to the concept and there are still many parties who consider that food is merely a commodity that is not at all valuable both socially and culturally. In fact, the problem of food security in Indonesia continues to occur, this problem covers four aspects. The four aspects are (1) aspects of food production and availability, (2) aspects of distribution, (3) aspect of consumption and (4) economic / poverty aspects. Food security requires the availability of sufficient food for all residents and every household.

Food security is a multidimensional issue and is very complex, encompassing social, economic, political and environmental aspects and which is also one of the most important of which is population growth. Realizing sustainable food security becomes a priority issue and agenda at meetings in discussions held by various countries and international institutions. No country can sustain a process of repaid economic growth without first solving the food problems. Economic development and other sectors without paying attention to the food of the people who are in their area, the purpose of the development is difficult to be realized properly and even leads to destruction, and the development in vain is carried out.

Based on the author's observations related to food security policies, the spirit of the mandate of the Food Law on food import policies has been used as a reference. Decision making regarding determining whether imports need to be carried out, when to import, and how much imports are made has been considered in terms of their impact on farmers, efforts to maintain the stability of food prices as staple food, effects on inflation and poverty, and efforts to maintain incentives for farmers.

There are three things as a definition of food security in (UU Pangan No.18 Tahun 2012) concerning food. **First**, in this Food Law food affordability is regulated to the individual level. **Secondly**, in this Food Law the nutritional aspect gets an adequate portion of regulation. **Third**, the Food Law recognizes the need for aspects of spiritual food security, by adding the phrase: " does not conflict with the religion, beliefs and culture of the community". The Food Law recognizes that for Muslims halal food is an inseparable part of food security and security. Areas with high and good economic growth, but the

food situation is vulnerable, even hunger everywhere can not be said to be a growing and developing region. Therefore, the development and fulfillment of food needs and availability is an absolute requirement for realizing national development and resilience. The challenge of development in the future is that the population continues to increase. (National Geography Indonesia, Januari 2011) said that the earth's population is now more than double the population of 1960. The period of rapid growth is expected to end in 2050, with a population of more than 9 billion people, while projections for Indonesia's population in the year 2020 has reached 270 million people (Hasil Survey Sensus, 2015).

Population is the most important component in a space. It is said space because it has three main elements namely the area (land, air, water) of humans and the order of life and life. Humans are dynamic components, always increasing in number, from an increasing period of time, and are the most complex living things compared to other living things. Indonesia is the 4th largest country in the world with a population below China, India and The United States. The average population growth rate of Indonesia is 1,5/year or the population of Indonesia has increased by around 32,5 million people over the past 10 years. With this rate, Indonesia is the 5th largest contributor to world population growth after China, India, Brazil and Nigeria.

Indonesia's population will be close to 400 million by 2045 (by the time 100 years Indonesia in independent). Talking about development in all sectors, can not be separated from humans. Talking about the future of humans also talks about the the future of the sustainability of a space. So it can be said that knowing the distribution of the population, knowledge will be obtained about the distribution of food coverage in the region, related to food issues. In the context of food, the development of the quantity of Indonesia population has an impact on changing needs and national production.

Food needs increase with population growth. The increase in food needs is not linear considering that at the same time the elemental structure is dominated by productive age population who have greater consumption needs compared to non productive age population groups (Badan Intelijen Negara, 2014). The existence of a number of residents in an area will be known how much food needs in the region. Before the reform, most of the population of Indonesia was in Java. Most of the provinces have high population classifications. This makes our point of view that most of the population of Indonesia is gathered on the island of Java. While the population in the low classification is spread in the main islands of Indonesia. Especially in the newly formed provinces such as Kepulauan Riau, Kepulauan Bangka Belitung, Gorontalo, West Sulawesi, North Maluku and West Papua. At the beginning of its formation it still had more population than its parent region. However, there are some areas which, although they have been formed for a long time, than those mentioned above have a number of population in the low category such as Bengkulu, Jambi, several provinces in Kalimantan, Maluku and Papua.

Until in 2035 in line with the stipulation of the capital city of the Republic of Indonesia, it will move to the island of Kalimantan, precisely in East Kalimantan, the opposite is true, while Java still dominates part of the population in Indonesia, newly formed provinces partly changed with a low population be high.

Theoretical Approach

a. Sustainable food security

With reference to various definitions that apply in Indonesia and in the international community, the compilers of the Food Law formulate food security limits in which it summarizes several important points as follows: (1) the fulfillment of food needs for the country to the individual level; (2) the measurement of the fulfillment of food needs includes various aspects, namely: (a) in terms of quantity sufficient, (b) in terms of good quality, safe for consumption, various types of food available, meet nutritional adequacy, (c) in terms of food security spiritually, food must not conflict with religious principles, beliefs and culture of the community, and (d) in terms of economic affordability, food is available evenly to all corners of Indonesia at an affordable price for all components of society; and (3) the provision and affordability of food is intended so that the community to individuals can live healthy, active and productive in a sustainable manner.

This definition does not indicate food sources to meet the food needs of the whole community. With the inclusion of the concept of food sovereignty and food independence, aspects of food sources become one of the important and strategic matters stipulated in the articles in the Food Law, including articles 14 and 15 (Suryana, 2013b). The article stipulates that the source of food supply comes from domestic production and national food reserves. If the two sources are insufficient, food can be met from imports in quantities as needed. Thus, food imports are a legitimate policy variable to be utilized, but must be carefully designed through accurate calculations of the availability of food from domestic production, food reserves, and food consumption needs between regions and nationally. In addition, food import decisions must be truly based in the context of protecting national interests. In other words, food import is the last policy that can be taken.

The challenge to realize sustainable food security over a period of time for the next 15 years is expected to be predicted more accurately. Challenges can be grouped into two, namely challenges from the supply or supply side of food supply and from the demand or food use and utilization side.

In term of supply, there are at least five things that need attention. **First**, natural resource constraints. Land use competition including water and water will be sharper because of the target of high economic growth and population growth in large percentages and numbers. At present the conversion rate of agricultural land that is often raised to the public by officials or academics range from 60,000 ha/year to 100,000 ha/year. In addition, existing agricultural infrastructure is also partially damaged. This condition alone will reduce national food production capacity, because Indonesia's food production is still land based. **Second**, the impact of global climate change. In the past three years, the extreme climate event in Indonesia have become more apparent. The public experiences extreme climate phenomenon events with more frequency.

Rainfall patterns and intensity are different from before, rising air temperatures, floods and drought are increasingly common. Therefore, adjustments are needed in the food farming process such as adjusting planting time, planting patterns, using varieties that are more resistant to climate stress, and managing water efficiently. **Third**, Indonesian agriculture is characterized or dominated by small scale farming. Based on the 2013 Agriculture Census from BPS, the number of farmer households is 26,14 million with an average land tenure of 0,98 ha and around 56 percent or 14,6 million households averaging less than 0,5 ha of land. Meanwhile, the average land use of paddy farmers is less than 0,2 ha (Direktorat Pangan dan Pertanian, Bappenas, 2013). Whereas small farmers are faced with classic problems that have not been successfully overcome, such as limited access to markets, capital, information, and technology (Suswono, 2013). If there is no social engineering to overcome these problems, it will be very difficult for Indonesia to achieve sustainable food security. **Fourth**, there is an imbalance of food production in between regions. For almost all commodities, the proportion of food production in Java is more than 50 percent of national food production. This imbalance will increase the problem of efforts to equalize food and food distribution costs, making it difficult to provide food spatially evenly to all regions in Indonesia. If infrastructure development and food logistics system are not carried out between regions, it will be difficult to overcome imbalances in production between regions, **Fifth**, the proportion of crop loss and food waste is still quite high. Food losses due to inaccurate handling of food from harvest to processing and continuing to marketing, is believed to be around 10 percent to 20 percent, depending on the commodity, season and technology used. Meanwhile, food waste that occurs starting from the end consumer market to being brought and stored at home, then served at the dinner table but not eaten, is estimated to reach more than 30 percent. FAO reports that one third of the portion of food that can be consumed is wasted or wasted (FAO, 2011b). With the development of technology in the current digital era and the increasingly spread of television networks to all corners of the country with the content of food advertising is persuasive to attract the interests and tastes of viewers, who offer food with cool and global image, then the pattern of community food consumption will slowly shift towards that. Global style foods provided in restaurants, fast food consumption, and eating outside the home will be increasingly in demand. Conversely, food that is labelled or identified with traditional or local food will slowly be left behind by consumers. This trend will accelerate more in the next 15 years. Utilization of food technology, information technology, and the campaign of the nusantara local food love movement is expected to offset the challenges of changing food tastes due to the advertisement is expected of food. **Sixth**, competition for demand for food commodities for human consumption (food), animal (feed), bio energy raw materials (biofuels), and non food industry raw materials will continue and get tighter in the next 15 years. This demand competition is derived from an increase in demand for livestock products, the higher price of fossil based energy, and an increase in demand for industrial product that use food in their production processes.

b. Food needs

Humans need food to be able to develop and move. While food needs must have food availability, so that those needs are met. Needs and conditions which consist of rice, tubers, vegetables, fruits, and animal food (meat and eggs) are inseparable if we want to talk about food sufficiency. Food and its contents that are eaten and needed by humans in a certain amount to continue their lives in order to be able to develop and move can be said to be a food requirement.

Broadly speaking, the western part of Indonesia makes rice as its main staple consumption, while in the eastern region it makes rice and other staples as its main consumption material. Rice is commodity most consumed by the Indonesian population as the main source of carbohydrates. Only then can food be rooted. Even so, fruit is not a small amount of animal food consumed by the population of Indonesia. Food needs according to the recommended energy consumption of 2000 Kcal as used by (Bappenas, 2010), to determine the recommended consumption of food commodities. This will then become the minimum food consumption that should be consumed by the Indonesian population spread over the province. So the food needs that are known to be greater or smaller in a commodity.

c. Food availability

Although it is not the only determining factor, food safety remains a major factor in looking at the problem of food security, besides it cannot be separated from the problem of food needs as well. One of the food availability can be seen from the local production procedure in the region on food commodities, especially rice, tubers, fruit vegetables and animal food. This food availability will become one of the main keys in determining the future of food security in Indonesia.

The distribution of food availability which is grouped into three categories namely high, medium and low, is known to see how much availability which is grouped into three categories namely high, medium and low, is known to see how much availability is available on food commodities produced by the region. Thus it can be seen in what commodities are the superior products in the region to provide local and national food. By looking at the adequacy and availability, then we can know which areas have the potential to be able to meet local and national needs, and areas that need food supply from other regions to meet the food needs of the region. While areas that experience food sufficiency, such as Kalimantan island until 2035, can be optimized for food production so as to be able to provide national food availability such as DKI Jakarta, which is completely unable to provide food local needs for the population.

Grand strategy for facing food security in 2035 In Indonesia the application of food policy has been in effect since Soekarno's leadership until now. In his mass, Soekarno imposed a food policy that is self sufficiency in rice through the Kasimo welfare program (Kasimo Plan) and the rice centre.

Soeharto continued his food policy. The concentration of Soeharto's policies also tended towards food self sufficiency which was marked by rice self sufficiency which was successfully achieved in 1984. Food policy continued to be adjusted to current administration, which was largely concentrated on achieving rice self sufficiency. Until the leadership of President Susilo Bambang Yudoyono with the policy of agricultural revitalization and still continued until the time of Joko Widodo leadership with several policies and programs such as agrarian reform. In order to fulfill the mandate of Law No.18 of 2012 concerning food, strategies are needed that can be used to increase availability so that it is able to meet the food needs of the Indonesian population in accordance with the recommended consumption of the possibility of events that will occur in the future.

Food availability is the first of the three subsystems in the food security system and the base of efforts to achieve food independence and sovereignty. The main capital in realizing food availability is the wealth of diverse resources, the availability of technology, and the development of strategic partnerships with various component stakeholders. The four strategies proposed in building food availability are as follows. **First**, developing food supply comes from domestic production and national food reserves. If the two food source can not meet or meet the needs, food can be imported in an amount as needed (UU Pangan, articles 14 and 15).

For this reason efforts need to be made : (a) to increase food production economically, socially and politically by optimally using domestic resources; (b) building strong national and regional government food reserves and strong communities; and (c) if necessary, establish a food import policy that is carefully designed to meet the food needs of the community, but does not have a negative impact on domestic food agribusiness. **Secondly**, to empower small scale food businesses that are a dominant feature of the Indonesian agriculture economy, it is necessary to : (a) align or integrated small scale food business activities into the food supply chain and (b) efforts to gather small scale farming so as to achieve economies of scale by applying socio economic engineering such as corporate farming or contract farming in a certain scale area, as mentioned earlier. **Third**, accelerate the dissemination of technology and increase the capacity of farmer to adopt appropriate technology to increase crop productivity and business efficiency. One operational step that can be taken is to increase the capacity of extension workers and farmers, both from technical aspects and managerial capabilities in managing farming. **Fourth**, promoting the reduction of food loss through the use of food handling, processing and distribution technology. Increasing the physical and economic accessibility of farmer to food processing technology is absolutely necessary.

The grand strategy for dealing with national resilience can be arranged based on two classifications namely based on SWOT Analysis and Locus (localization of potential areas). The Grand Strategy based on the SWOT Analysis shows that the strategy is divided based on the periodization of planning, namely the short term, medium term and long term.

Longterm strategy in the diversification of types and commodities of food and agriculture of local and national residents, Implementing a medium term strategy by increasing commodity competitiveness through improving the quality and standardization of food and agricultural products; protection of watershed systems; develop technological innovation and creativity and food processing, agriculture and animal husbandry; and expanding and increasing interest in employment in agriculture. The shortterm strategy is to provide intensive or sufficient capital assistance in the fields of food and agriculture; improve education and provide briefing to farming communities and the poor population; and increase food buying interest in local products.

While the Grand Strategy Based on Locus provides an overview of areas that are estimated to have potential as food storage, areas that are able to reach the level of food self-sufficiency (food safe) and areas that are at risk of food insecurity. Areas that are predicted to have food potential in a commodity can supply food availability to areas that are experiencing food insecurity around the area or that are located a little further from the area's coverage.

Method

The purpose of this paper is to analyze the challenges faced, and be able to formulate alternative Indonesian food security policies that are sustainable towards 2035. By looking at aspects of needs, availability, and identifying population development. So, it can prepare since the beginning of the grand strategy plan related to the condition of Indonesia's food security in the future until the year 2035 and can also be used in facing various possibilities that will occur in the future.

This paper uses a descriptive method through secondary data obtained from the Indonesian Central Statistics Agency, which is processed through a way of describing and supplemented with literature studies. The method uses exponential methods on population and food consumption needs, food availability. Meanwhile, food sufficiency is obtained from the comparison of availability and needs. The approach used in this paper is qualitative with a literature study, the data used in this study are secondary data, not from direct observation. The data is obtained from data sources in the form of books, primary or original scientific reports contained in articles or journals (printed and / or non printed), and relevant ministerial / institutional websites or websites. By using a library approach, which is looking at phenomena and calculating exponential method projections on population and food consumption needs, on food availability.

Result and Discussion

a. Result

The grand strategy to deal with national resilience can be arranged based on two classifications, namely based on SWOT Analysis and Locus (localization of potential areas), based on SWOT Analysis, it implements planning periods namely short, medium and long term.

Strategies by diversifying the types of food and agricultural commodities of local and national populations through improving the quality and standardization of food and agricultural products; protection of watershed systems; develop technological innovation and creativity and food processing, agriculture and animal husbandry; and expanding and increasing interest in employment in agriculture; provide intensive or sufficient capital assistance in the field of food and agriculture; improve education and provide briefing to farming communities and the poor population; increase interest in buying food for local products. While the Grand Strategy based on Locus can provide an overview of areas that have the potential to become food granaries, areas that are able to reach the level of food self sufficiency (food safe) and areas that are at risk of food insecurity. So that in the future the region which is predicted to have food potential in a commodity can supply food availability for areas that are experiencing food insecurity around the area or which are located a little further from the scope of the region.

The need for serious efforts to be able to overcome the threat of global or domestic food crises in order to realize sustainable food security given the threat of the global food crisis is still and still exists. By building food security based on resources and local wisdom, utilizing superior technology to increase food production and productivity efficiently and with engineering, and building robustness and flexibility of community response to the threat of the food crisis, Indonesia.

b. Discussion

A serious effort to achieve sustainable food security is very much needed considering that the threat of the global food crisis still exists and can become a reality. By building resilience based on resources and local wisdom, utilizing technology to be able to increase food production and productivity efficiently and competitively.

Reference

Badan Ketahanan Pangan. 2013. Capaian dan Tantangan Indonesia dalam Meraih Kondisi Ketahanan Pangan. Disampaikan dalam Focus Group Discussion di Kementerian Luar Negeri. 23 Agustus 2013. Jakarta.

Badan Ketahanan Pangan. 2014. Situasi Ketersediaan dan Harga Pangan (per Awal April) 2014. Bahan Rapat Pimpinan Kementerian Pertanian. 7 April 2014. Jakarta.

Badan Pusat Statistik. 2012. Data Kependudukan. Diakses tanggal 11 Juni 2012, dari <http://bps.go.id/fli/p/fli/p11/index3.php>.

Badan Pusat Statistik. 2013b. Konsumsi Kalori dan Protein Penduduk Indonesia dan Provinsi. Jakarta.

- Direktorat Pangan dan Pertanian, Bappenas. 2013. Studi Pendahuluan Rencana Pembangunan Jangka Menengah Nasional (RPJMN) Bidang Pangan dan Pertanian. Jakarta.
- FAO. 2011b. Global Food Losses and Food Waste: Extent, Causes and Prevention. Rome.
- Hikam, AS Muhammad, Badan Intelijen Negara. 2014. Memperkuat Ketahanan Pangan Demi Masa Depan Indonesia 2015-2025, CV Rumah Buku, 2014 Jakarta.
- Imanto, T. 2012. Pengaruh Iklan Televisi dalam Perilaku Gaya Hidup. Jakarta. <http://www.esaunggul.ac.id/article>. Diakses Tanggal 7 Mei 2014.
- Kemendagri. 2012. Undang-Undang No 18 Tahun 2012 Tentang Pangan. Diambil 10 April 2013, dari kemendagri.go.id.
- Ku Daud, Ku Amir, T.T. Analisis Swot. Unit Pembangunan Korporat (UNIPEK) University Malaysia Perlis. Diambil 11 Juni 2012, dari unimap.edu.my.
- National Geographic Indonesia. 2011. Majalah National Geographic Indonesia. Edisi Januari. Jakarta: Kompas Gramedia.
- Nouval F, Zacky, Geneng Dwi Yoga Isnaini, dan Luthfi J. Kurniawan. 2010. Petaka Politik Pangan di Indonesia (Konfigurasi Kebijakan Pangan yang Tak Memilih Rakyat). Malang: Intrans Publishing.
- Suryana, A. 2013b. Undang-Undang Nomor 18 Tahun 2012 tentang Pangan. Disampaikan dalam Kuliah Umum Mahasiswa Sarjana dan Pasca Sarjana Jurusan Agribisnis IPB. 14 Desember 2013. Bogor.
- Suswono. 2013. Pengembangan Kelembagaan Petani Kecil untuk Mendukung Pembangunan Pertanian dan Pedesaan. Disampaikan dalam Ambassador Forum: Improving Institution of Smallholder Agriculture. Organized by Institut Pertanian Bogor (IPB), 16 Desember 2013. Bogor.