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FOOD SECURITY CONDITIONS IN EAST PRIANGAN WEST JAVA: FOOD SAFETY OR FOOD INSECURITY?

Kondisi Ketahanan Pangan Di Priangan Timur Jawa Barat: Aman atau Rawan Pangan?

Syahrul Ganda Sukmaya[1]*, Reny Hidayati[2], Atika Dyah Perwita[3] , Lutfi Zulkifli[4]

[1,4]Fakultas Pertanian, Universitas Jenderal Soedirman,
Jl. DR. Soeparno No. 63, Banyumas, Indonesia, 53122
[2]Fakultas Pertanian, Universitas Perjuangan Tasikmalaya,
Jl. Peta No. 177, Kota Tasikmalaya, Indonesia, 46115
[3] Fakultas Pendidikan dan Keguruan, UIN Walisongo Semarang
Jl. Prof. Dr. Hamka Km 2, Tambakaji, Ngaliyan, Semarang, Indonesia, 50185
**Email: syahrul.ganda@unsoed.ac.id*

ABSTRAK

Tingkat kemiskinan di Wilayah Priangan Timur ini cukup tinggi dibandingkan dengan rata-rata tingkat kemiskinan di Provinsi Jawa Barat. Tingginya angka kemiskinan disuatu wilayah menjadi salah satu indikator adanya kerawanan pangan. Karena pangan adalah kebutuhan manusia yang mendasar, ketersediaan pangan selalu menjadi isu terbesar, sehingga berpengaruh signifikan terhadap pembangunan ekonomi. Penulis tertarik untuk meneliti sejauh mana ketahanan pangan di Wilayah Priangan Timur atas dasar signifikansi dan validitas isu-isu tersebut, serta upaya untuk mencapai ketahanan pangan. Penelitian ini membahas berbagai aspek ketahanan pangan yang terkait dengan rumah tangga petani di Kawasan Priangan Timur. Penelitian ini dilakukan di Wilayah Priangan Timur melalui studi pustaka tentang berbagai temuan penelitian dan bukti sekunder yang mendukung masalah ketahanan pangan. Aspek-aspek yang dikaji yaitu (1) Konsep ketahanan pangan, (2) Kinerja ketahanan pangan, dan (3) Strategi untuk mewujudkan ketahanan pangan. Temuan penelitian menunjukkan bahwa (1) Definisi ketahanan pangan meliputi tiga landasan ketahanan pangan, yang terdiri dari aspek pasokan, akses pangan dan pemanfaatan pangan, (2) Tingkat ketahanan pangan Kabupaten dan Kota di Priangan Timur termasuk dalam kelompok keamanan pangan yang sangat aman pangan, dan (3) Strategi yang dapat diadopsi untuk menyelesaikan permasalahan akses dan kualitas pangan di wilayah Priangan Timur antara lain; menghasilkan lapangan kerja di industri agribisnis, mendorong partisipasi pihak swasta dalam pengembangan infrastruktur dasar melalui pemberian insentif ketahanan pangan tertentu, pemberdayaan perempuan dengan meningkatkan pengetahuan dan keterampilannya, sosialisasi dan penyuluhan tentang gizi keluarga serta peningkatan perilaku hidup sehat kepada masyarakat.

Kata kunci: ketahanan pangan, kinerja, konsep, strategi, priangan timur

ABSTRACT

Compared with the average poverty rate in the West Java Area, the poverty rate in the East Priangan Zone is very high. One measure of food insecurity is the high hunger rate in the country. The problem of food security has always been the biggest worry, as food is a fundamental human need, so economic growth is quite influential. The author is interested in researching the extent of food protection in the East Priangan Area on the basis of the significance and validity of the issues, as well as attempts to achieve food security. The study discusses different facets of food protection linked to farmers' households in the East Priangan Area. The report was undertaken in the East Priangan Area through a library study of numerous research findings and secondary evidence supporting food protection concerns. The issues explored are (1) the principle of food protection, (2) the efficiency of food security, and (3) the plan for realizing food security. The findings of the study showed that (1) the definition of food protection includes three foundations of food security, consisting of aspects of supply, access to food and utilization of food, (2) the degree of food security of districts and cities in eastern Priangan belongs to the very food safety group of food security, and (3) the techniques that can be applied to address the problems of food security.

Keywords: *food security, performance, concept, strategy, east priangan*

INTRODUCTION

East Priangan is a term that refers to the area in the south of West Java bordering Central Java Province. This area administratively consists of two municipalities and four regencies, including Tasikmalaya City, Banjar City, Garut Regency, Tasikmalaya Regency, Sumedang Regency, and Ciamis Regency. The poverty rate in the Eastern Priangan Region is quite high compared to the average poverty rate in West Java Province. The number of poor people in the East Priangan Region reached 665.76 thousand people or 19.58 percent of the entire poor population of West Java (BPS 2020b). The percentage of the number of poor and non-poor people in this region is 8.48 percent, this figure is above the average figure of West Java which is 6.91 percent (BPS, 2020). The average poverty depth and severity index of districts/cities in the region is 1.01 and 0.18 (BPS, 2020). This shows that the East Priangan region has a high number of poor households. As for the areas that have high poor households namely Tasikmalaya City and Regency, Garut Regency, and Sumedang Regency, only Ciamis and Banjar cities have a low percentage of poor households below the average of West Java province.

Access and quality of food of the community is often a problem in realizing food security. Low-income levels are one of the factors causing difficult access to food and the quality of food consumed by the community. Therefore, the high poverty rate in a region is one indicator of food insecurity. Decreasing the

number of poor households becomes a policy program that is always applied to realize food security. The decline in the number of poor households is one of the benchmarks for food security success. Where there is poverty can be ensured that there are problems in food security.

Food security refers to conditions where food needs are guaranteed for everyone in a condition at all times, have physical, social, and economic access to adequate, safe, and nutritious food that meets the minimum daily food needs and their food preferences to be able to live actively and healthy (FAO 1996; 2002). In line with the understanding of resilience issued by the FAO, the definition of food security in Indonesia refers to Law No. 18 of 2012 on food. The law states that food security is a state of food fulfillment for the country up to individuals that are reflected in the availability of adequate food, both in quantity and quality, safe, diverse, nutritious, equitable, and affordable, and not contrary to the religion, beliefs, and culture of society to be able to live healthy, active, and productive in a sustainable manner. (Law of the Republic of Indonesia on Food No. 18 of 2012).

The importance of food security issues is reflected in the many short-term and long-term programs prepared by governments and international institutions. The latest program on agriculture and food is contained in RPJMN 2020-2024. RPJMN 2020-2024 describes national programs and priorities on agriculture and food which include food security. Aspects of food security in RPJMN 2020-2024 are outlined in priority 3 (PP3) programs that include increasing the availability, access, and quality of food consumption. Priority programs on food security in other programs related to food security are sustainable development goals (SDGs). The SDG's agreement of world leaders on sustainable economic development is outlined in 17 key employment targets. The position of food security in the SDGs is represented by the SDG's second point which is to end hunger.

Although the Eastern Priangan Region has a high poverty rate, some areas are the leading centers of food production and horticulture at the national level. The area of food production centers and the high poverty rate are Tasikmalaya, Garut, and Sumedang. This is very interesting to be studied about food security conditions in the East Priangan Region.

Based on the level of importance and importance of problems, as well as efforts to realize food security, the author is interested in studying the level of food security in the Eastern Priangan Region. The studies conducted cover various aspects related to the food security of villages in the Eastern Priangan Region. The study was conducted through a library study of various research results and secondary data that supports food security problems in the Eastern Priangan Region. The aspects studied are 1) Food security performance, and 2) Strategies to realize food security.

METODOLOGY

This study uses a descriptive research method approach. This research consists of three stages, namely: 1) explaining the concept of food security, 2) measuring the condition of food security at the research site, and 3) developing a strategy to improve food security at the research site. This research data is taken from secondary data from government agencies and relevant research results. this study analyzes the condition of food security in The Eastern Priangan Region which consists of Tasikmalaya City, Tasikmalaya Regency, Garut Regency, Banjar City, Sumedang Regency, and Ciamis Regency.

The study used several indicators to measure food security at the research site. Indicators used include Food Security Quotient (FSQ) method, Getis-Ord Gi* analysis, Food Security Index (SIKP), and Food Security and Vulnerability Atlas (FSVA) composite analysis.

Food Security Quotient (FSQ) method to measure a region's food security. This FSQ method is a modification of the Location Quotient (LQ) method. The use of the LQ method is based on this method can determine the base commodity to choose variables that are a priority and not used as summation so that it can be seen a comparison between regions. Variables selected in measuring food security are three items of food security such as availability, access, and quality of food. Mathematically the FSQ formula as follows:

$$\boldsymbol{FSQ} = \frac{x_r / RV_r}{\overline{x_n} / RV_n} \quad \text{..... (1)}$$

FSQ calculation results are divided into five categories to be more accurate in assessing the food security condition of a region. The five categories are as follows:

1) The category is very food insecurity when the FSQ value is in the range of ≤ 0.25.
2) Food insecurity category, when FSQ value is in the range of >0.25 – ≤ 0.5.
3) Medium category, when the FSQ value is in the range of >0.5 – ≤ 0.75.
4) Food safety/food resistant category, when FSQ value is in the range of >0.75 - ≤ 1.
5) The category is very food-safe when the FSQ value is in the range of >1.

The Getis-Ord Gi* analysis method to measure a region's food security relationship based on the proximity of a region's distance to the same food security status. This method measures spatial relationships by using a matrix based on the distance of the region. The result of this method will divide the region into two categories, namely the status of the high values class (hot spot) and the status of the low values class (cold spot). The greater the value of Gi* in a

class, the stronger the attachment in terms of food security. Mathematically the Gi* formula as follows:

$$\mathbf{Gi}^{*} = \frac{\sum_{j}^{N} \mathbf{W_{ij}(d)x_j}}{\sum_{j}^{N} \mathbf{1x_j}} \qquad \mathbf{E(Gi^{*})} = \frac{\mathbf{W_{ij}}}{\mathbf{N}} \qquad \text{..... (2)}$$

After calculating the value of Gi* and E (Gi*) then the determination of the class of each district, by comparing Gi* and E (Gi*), where:

- If Gi* > E(Gi*), then the area is included in the status of high values (hot spots).
- If Gi* < E(Gi*), then the area is included in the status of low values (cold spot).

SIKP is based on nine indicators that are derived from three aspects of food security, namely availability, affordability, and food utilization. The indicators selected in the IKP are based on variables such as 1) the results of a review of the global food security index; 2) the level of sensitivity in measuring the situation of food security and nutrition; 3) representation of the three pillars of food security, and 4) the availability of data regularly for a certain period (monthly/yearly). SIKP scores are obtained from secondary data from the Food Security Agency (BKP).

FSVA is a thematic map that depicts geographical visualization of areas vulnerable to food insecurity. FSVA is structured in an effort to provide accurate, comprehensive, and well-organized food security information to support efforts to prevent and handle food insecurity and nutrition, so as to provide direction and recommendations to decision makers in the preparation of programs, policies, and implementation of interventions at the central and regional levels. FSVA is structured based on three aspects of food security, namely availability, affordability / access, and food utilization. FSVA data are obtained from secondary data from the Food Security Agency (BKP).

RESULT AND DISCUSSION

Food Security Concept

The world's attention on food security or "food security" arose during the global food crisis in 1973-1974. The world food conference in 1974 defined food security as "Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (FAO 2006). The concept emphasizes the availability of food at all times to meet the world's food needs, and that availability can be met steadily and continuously increase following the growth of world food consumption and can compensate for fluctuations in world food

production and prices. Besides, the above understanding is more pressing on the production or availability of food. Food security measurement based on the 1974 definition focuses more on food availability at the global and national level in terms of the availability of "staple food", with all energy fulfillment equaled as nutrition and access and distribution of food in a country has not been widely observed. Fluctuations in food production and prices are an important concern, as they can affect food production levels and world food price trends.

The concept of food handing continues to develop, the initial idea focusing on the existence of food availability at the global and national level developed into food access to the level of households and individuals. Finally, in 1983 through the FAO, the concept of food security changed to "Ensuring that all people at all times have both physical and economic access to the basic food that they need" (FAO 2006). There is no international agreement on defining the definition of food security. Differences in the definition of food security continue to grow, reflecting differences in concepts and objectives about it (Coates 2013; Clapp 2014; Jarosz 2014; Tendall et al. 2015).

The paradigm on food security, especially in Indonesia, is also inseparable from the debate in realizing it. One of them as described by (Simatupang 2016), states that the policies carried out by the government related to food security are not appropriate. According to him, the concept of food security, which currently emphasizes food availability, is proven not to guarantee food access for all families or individuals. A more appropriate paradigm in realizing food security is the acquisition of food (food entitlement) which includes aspects of availability, access, and use. Similarly, (Suryana 2014) stated that the paradigm of food security in Indonesia needs to be adjusted to the direction of the development of food security development policy. The adjustment is necessary because in terms of macro availability Indonesia can already meet but in terms of quality of consumption is still not met. Also, the paradigm on food security that emphasizes availability alone by implementing food price policies is ineffective in realizing food security. However, the thing that can increase food security is economic growth that can increase income equality (Ilham et al. 2016).

Based on the presentation of several studies related to the concept of food security above, a framework can be taken in reviewing food security. The concept of food security used in this study refers to aspects of availability, access, and use of basic food at the regional level, especially in the east. Besides, it sees the performance in the Eastern Priangan Region in realizing food security through food availability at the regional level, affordability, and consumption patterns of the community in the study area.

Measurement Of Food Security In East Priangan Region

Based empirical research, shows that the application of food security has a level consisting of macro levels (global and national), households, and individuals. The measurement indicators used at each level are also different. In this study, the level of food security measurement will be focused on measuring at the regional level, namely the city or district. Thus, the indicators used will refer to the indicators that have been used by previous research in describing the phenomenon of food security at the regional level. Indicators that are often used in measuring food security levels at the macro level include prevalence of undernourishment (PoU) (Kakwani et al. 2016; Meenakshi and Viswanathan 2017; Abegaz 2018), Global Hunger Index (GHI) (Pakpahan 2018), and Global Food Security Index (GFSI) (Chen et al. 2019; Izraelov and Silber 2019).

Food security measurements at the household and individual levels have different methods than macro-level measurements. Measurement of food security at the household level can use household consumption and expenditure surveys (HCES) (Jones et al. 2013), Coping Strategies Index (CPI) (Maxwell et al. 2014), Experienced-based insecurity scales (EBFIS) (Pérez-Escamilla et al. 2017), Household Food Security Survey Module (HFSSM) (Patton-López et al. 2014), Household Food Insecurity Access Scale (HFIAS) (Gebreyesus et al. 2015), and more. While the indicators of food security measurement at the individual level that can be used are Dietary Intake (Dharod et al. 2013), dietary record (Satija et al. 2015), 24-h recall (Bortolini et al. 2015), and Food Frequency Questionnaires (FFQ) (Aula Médica España Pérez Rodrigo and Aula Médica Madrid 2015). (Headey and Ecker 2013) measures food security by applying four main indicators, namely calorie consumption, poverty, diversity of consumption patterns, and subjective indicators. Based on the four indicators used, the diversity of consumption patterns is the best indicator in measuring food security. This is because the diversity of consumption patterns can reflect economic status and malnutrition such as stunting and wasting, sensitivity to economic shocks, and cheaper measurement methods.

Table 1 shows the results of food security analysis using the FSQ method. The first column shows districts/cities located in the Eastern Priangan Region that analyzed food security. Then in the second to the fourth column are indicators measured in the FSQ method, namely the three pillars of food security such as food availability, food access, and food quality. While the fourth column shows the average value of the three indicators measured. The results of the analysis showed that all districts and cities in the Eastern Priangan Region fall into the category of food resistance to very high food with the average value of FSQ ranging >0.75 - >1. The average FSQ value of the East Priangan Region is above the average FSQ value of West Java Province. This indicates that the Eastern Priangan Region has excellent food security above the average area of West Java Province as a whole.

Based on the average value of FSQ obtained that Tasikmalaya City is the region that has the lowest FSQ value with a value of 0.844. The interpretation of the FSQ value states that Tasikmalaya city falls into the category of food resistant areas because the average value ranges from >0.75 - ≤ 1. Although such the average value of FSQ Tasikmalaya city is still below the average FSQ value of the East Priangan Region and West Java Province. This shows that there are still obstacles that Tasikmalaya city has in maintaining food security. The constraints owned by Tasikmalaya city in maintaining food security are to ensure food availability. While the area that has excellent food security in the Eastern Priangan Region is the Garut district with an average FSQ value of 1,220. The FSQ value of the Garut district indicates that this area belongs to the category of highly food resistant. Indicators of food availability Garut district is the largest compared to other regions, this shows that the food production of this region is very sufficient for the food needs of its people and there is a surplus of production that can be diverted to other regions that deficit food production such as Tasikmalaya city.

Table 1. Results of Food Security Analysis of East Priangan Region with FSQ Indicator

District/City	FSQ Indicator			
	Food Availability Pangan	Food Access	Food Quality	Average
Tasikmalaya City	0.665	0.927	0.940	0.844
Banjar City	0.849	0.902	0.851	0.867
Garut District	1.649	0.988	1.023	1.220
Tasikmalaya District	1.155	1.003	0.933	1.030
Sumedang District	1.118	0.967	0.923	1.003
Ciamis District	0.946	0.963	0.917	0.942
Average of Region	1.064	0.958	0.931	0.984
Average of West Java Province	0.924	0.971	0.956	0.950

Source: Raihan et al. (2020).

Based on the results of the analysis in table 1 shows that the Eastern Priangan Region has an advantage in the aspect of food availability compared to the other two aspects (access and quality). The value of food availability in the Eastern Priangan Region is above the average value of food availability in west Java province. While the aspect of access and quality of food average value is below the average value of the province. Food availability indicators show the ability of a region in meeting food needs physically both in production in its region and obtained from other regions. Judging from the average value of FSQ shows that the Eastern Priangan Region is in the category of very safe food and its value is above the average value of West Java Province. Based on this, it can be interpreted that the Eastern Priangan Region has no problems in food

availability. Districts and cities in the Eastern Priangan Region have an advantage in the production of food crops such as rice, corn, cassava, and soybeans, especially areas such as Garut district, Tasikmalaya district, and Sumedang district. Although in general, the Eastern Priangan Region has a very safe food availability some areas need to be improved food availability such as Tasikmalaya city and Banjar city. Both regions have food availability values below the average of regions and provinces. While the area that has a very high food availability is the Garut district. Based on this, cooperation can be done between regions in leveling food availability.

In addition to the FSQ method used in measuring food security, other methods can be used. (Hidayat et al. 2019) uses the Getis-Ord Gi* analysis method to measure a region's food security relationship based on the proximity of a region's distance to the same food security status. This method measures spatial relationships by using a matrix based on the distance of the region. The result of this method will divide the region into two categories, namely the status of the high values class (hot spot) and the status of the low values class (cold spot). The greater the value of Gi* in a class, the stronger the attachment in terms of food security.

Results using the Gi* method show that the entire region in the eastern region belongs to the High Value or Hot Spot category (table 2). Districts or cities that have the same high-value classification, indicate that the region has the same food security characteristics. Also, districts/cities that have the same high-value classification indicate that spatially the area is directly adjacent to each other. This applies to the Eastern Priangan Region. Geographically, the location of districts/cities are close to each other and connected. Therefore, the results of the Gi* method show that the characteristics of food security in the Eastern Priangan Region are relatively the same. Besides, districts/cities in the Eastern Priangan Region have a strong attachment in terms of food security so that cooperation can be done in realizing food security, especially in terms of food availability.

Table 2. Results of Food Security Analysis Using Getis-Ord GI* Method

District/City	Class Distribution
Tasikmalaya City	High Value (Hot Spot)
Banjar City	N/A
Garut District	N/A
Tasikmalaya District	High Value (Hot Spot)
Sumedang District	High Value (Hot Spot)
Ciamis District	High Value (Hot Spot)

Source: Hidayat et al. (2019).

Food Security Improvement Strategy In East Priangan Region

Before setting a strategy for improving food security in a region, we need to know the achievements of food security first. The method used in measuring the achievement of food security at the regional level is the Food Security Index (IKP) (Performance Report of the Center for Food Availability and Insecurity. 2018). IKP has a strategic role in measuring the achievement of food security development in a region, measuring regional performance in meeting the mandatory affairs of central and local governments, and as a tool to determine the scale of regional priorities and interventions of food security programs. IKP is prepared with the aim to evaluate the achievement of food security and nutrition in a region (district/city) and provide an illustration of the ranking of food security achievement of a region compared to other regions. The existence of IKP can be the basis in conducting program interventions so that it is more focused and on target.

To find out the achievement of food security in the Eastern Priangan Region is done by looking at the score and ranking of food security of each district and city compared to other regions nationally. Also, it is seen the development of the food security index score (SIKP) in 2018 and 2019. SKIP shows that the greater skip, the higher the level of food security in a region. Food security criteria are shown through a certain range of values and each value range is grouped through the Cut off Point food security index which can be seen in table 4. Cut off Point IKP consists of six groups, where the lower the value of SKIP districts/cities will be included in the priority IKP group in the government's food security assistance program.

Table 3. Cut off Point of Food Security Indeks (IKP)

Group of IKP	District	City
1	≤ 41.52	≤ 28.84
2	>41.52 – 51.42	>28.84 – 41.44
3	>51.42 – 59.58	>41.44 – 51.29
4	>59.58 – 67.75	>51.29 – 61.13
5	>67.75 – 75.68	>61.13 – 70.64
6	>75.68	>70.64

Source: BKP (2019).

Food Security Index (SIKP) scores between districts and cities are distinguished because each region has different criteria. After all, the number of indicators used is different. The Food Security Index (SIKP) score of districts and cities in the Eastern Priangan Region in 2019 shows that the achievement varies greatly from a low of 58.14 to a high of 81.73 (table 5). The area that has the highest level of food security in the Eastern Priangan Region is the Sumedang Regency with a SIKP value of 81.73. While the region that has the lowest level of food security achievement is Tasikmalaya city. This indicates that food security

conditions in the Eastern Priangan Region are in the priority range of 4 to 6. The results illustrate that there are still areas that need food security assistance by the government such as Tasikmalaya city and Banjar city. If no program supports food security in the region and with fairly high land conversion, then it does not close the possibility that in the region the level of food security will decrease in the future.

The development of SIKP in the Eastern Priangan Region showed an increase from 2018 to 2019. Based on the score, the level of food security of this region has increased but in terms of ranking the development is quite diverse. The increase in SIKP in districts and cities in east Priangan was followed by an increase in SIKP in other regions throughout Indonesia, so that food security ratings also rose. Sumedang Regency is the area that has the highest SIKP in Eastern Priangan and ranks 71st nationally. Despite the increase in SIKP from 2018 to 2019, its rating dropped one level to 71st from the previous position of 70 nationally. A significant development was experienced by the Ciamis district. In 2018 SIKP this region amounted to 74.86 and ranked 172nd nationally, then increased rapidly in 2019 to 79.91 with a rating of 113 nationally. There was an increase in the rank of 59, reflecting that the performance of Ciamis district in realizing food security is very good and serious.

Table 4. District/City Food Security Index Ranking and Score in East Priangan Region

District/City	The year 2018		The year 2019	
	Skor	National Ranking	Skor	National Ranking
Tasikmalaya City	56.09	90*	58.14	91*
Banjar City	64.33	75*	61.66	87*
Garut District	73.09	210**	76.96	176**
Tasikmalaya District	72.28	227**	74.11	231**
Sumedang District	79.18	70**	81.73	71**
Ciamis District	74.86	172**	79.91	113**

Description: * National Ranking for City
** National Ranking for District

Source: BKP (2018;2019)

In contrast to the district in Eastern Priangan, the city area in Eastern Priangan is in a fairly alarming condition. Tasikmalaya city and Banjar city are at the bottom in terms of food security. Tasikmalaya and Banjar cities are ranked 91st and 87th nationally out of 98 cities measured for food security performance (table 5). The development of food security performance in 2018 and 2019 shows the difference in results obtained by the two cities. The SIKP value of Tasikmalaya city shows an increase from the previous 56.09 to 58.14 in 2019. Although the value increased, from the national ranking Tasikmalaya city decreased to 91 rankings down one rank from the previous 90 nationals. While Banjar city, SIKP value in 2018 and 2019 decreased from 64.33 to 61.66 in 2019.

The decrease in food security performance shows that food security performance in the city is declining and needs to be evaluated. The decrease in SIKP Banjar city caused the city's food security rating to drop to 87th from the previous position of 75 nationally.

Based on the results of the analysis on FSQ and SIKP (table 1 and table 5). in general, the problems experienced in the Eastern Priangan Region are related to aspects of food access and quality. Both aspects are still below the average area of West Java Province and performance achievements in some areas are still not satisfactory. Therefore. the strategy needed to improve food security in Eastern Priangan is in the aspect of food access and quality.

Food Access Aspect

Based on the results in table 6 as well as the FSVA composite analysis. it shows variables that affect the food security of districts and cities in the east. The problems faced in the Eastern Priangan Region in the aspect of food access are shown from the low FSQ value and color on the FSVA percentage. Based on both analysis results. food security problems faced by districts and cities in East Priangan are unemployment. road infrastructure conditions (road length and good paved road conditions). the proportion of food expenditure to expenditure. and access to clean water. Household food accessibility is very important in achieving food security because it is a condition of adequacy for the achievement of food security (Rachman 2016).

Table 5. Results of Food Access Analysis in East Priangan Region

Variable	Garut District	Tasikmalaya District	Ciamis District	Sumedang District	Tasikmalaya City	Banjar City	Average
1	0.965	0.956	1.008	1.024	1.089	1.102	1.024
2	1.038	1.007	1.055	1.039	1.105	1.135	1.063
3	0.914	0.855	0.940	0.994	1.194	1.154	1.009
4	1.015	0.976	1.036	1.016	1.026	1.138	1.035
5	1.039	0.991	1.026	1.030	1.093	1.113	1.049
6	0.964	0.900	0.951	1.001	1.111	1.135	1.010
7	1.424	0.995	0.811	0.685	0.417	0.123	0.743
8	0.953	0.907	1.004	1.027	1.113	1.120	1.021
9	0.747	0.713	0.878	0.976	1.028	1.099	0.907
10	1.275	1.527	1.008	1.021	0.486	0.339	0.943
11	0.539	1.202	0.872	0.821	0.540	0.469	0.741

Source: Raihan et al. (2020).

Table 5 presents the results of an FSQ analysis based on food access consisting of 11 observed variables. Of the 11 variables observed. the unemployment rate and road infrastructure in some eastern districts/cities still need to be evaluated. The unemployment variable shown by number 7 shows

that Sumedang district, Tasikmalaya city, and Banjar city have a high unemployment rate that people have difficulty accessing food. Then another variable is road infrastructure in Garut district, Tasikmalaya city, and Banjar city still need to be built to improve food distribution in this region.

Table 6. The Percentage of Households with A Proportion of Food Expenditures is More Than 65 Percent of the Total Expenditure of Districts and Cities in East Priangan in 2019.

District/City	Percentage proportion of spending on food
Tasikmalaya City	20 - <30
Banjar City	30 - <40
Garut District	30 - <40
Tasikmalaya District	30 - <40
Sumedang District	10 - <20
Ciamis District	<10

Source: BKP. diolah (2019).

Then based on the composite analysis presented in the form of the FSVA table shows that food expenditure and access to clean water become constraints in food access. Table 7 shows that there are three districts/cities (Garut district, Tasikmalaya district, and Banjar city) that have a percentage of people in food expenditure above 65 percent of income is quite high with a range of 30 - <40 percent fall into the category of rather bad. The percentage of food expenditure is one of the indicators used in measuring food security (Arida et al. 2015; Purwaningsih et al. 2015; Lindawati and Saptanto 2016). Also, there is one district/city that has food expenditure criteria above 65 percent with a rather good category (Tasikmalaya city), one district/city good category (Sumedang district), and one district/city very good category (Ciamis district). A higher percentage of households with a proportion of food expenditures of more than 65 percent indicates that the level of community welfare in the region is relatively low. Based on this. it can be concluded that people in three districts/cities (Garut district, Tasikmalaya district, and Banjar city) are still relatively low compared to other regions. Therefore. efforts are needed in increasing people's income by creating jobs or increasing entrepreneurship in agriculture because the base in the three regions is agriculture.

Food Quality Aspect

Table 7 describes the results of an analysis of food quality aspects in the Eastern Priangan Region using the FSQ method. Based on the table variables 1,2,7,8 and 9 show quite low results. The results showed that the observed variables were under the food safety category. The variables that are under the category of food safety are the number of health centers, children who are

facilitated by health, the number of health workers, the number of hospitals, and the number of clinics.

Table 7. Results of Analysis of Food Quality Aspects in East Priangan Region

Variable	Garut District	Tasikmalaya District	Ciamis District	Sumedang District	Tasikmalaya City	Banjar City	Average
1	1.678	1.015	1.050	0.792	0.499	0.255	0.882
2	0.640	1.461	0.384	1.147	1.451	1.264	1.058
3	0.922	1.150	0.758	1.140	1.134	1.118	1.037
4	1.083	1.069	1.188	1.030	1.050	1.089	1.085
5	1.052	0.987	1.143	1.010	1.009	1.016	1.036
6	0.881	0.912	0.818	0.965	0.852	1.364	0.965
7	1.197	0.838	0.711	0.646	0.393	0.163	0.658
8	0.544	0.088	0.393	0.171	1.121	0.264	0.430
9	1.299	0.656	0.563	0.832	0.634	0.176	0.693
10	1.096	0.863	1.389	1.173	1.102	1.216	1.140
11	1.055	1.037	1.167	1.027	1.009	1.004	1.050
12	0.851	0.964	1.150	1.016	0.879	1.047	0.985
13	1.000	1.089	1.211	1.044	1.094	1.087	1.088

Source: Raihan et al., diolah (2020).

Access to sanitation and clean water is essential to address health problems and improve people's nutritional status (Kavosi et al. 2014; Schmidt 2014; Asfaw et al. 2015). In table 9 shows that most districts and cities in east Priangan have access to clean water in a good category but Garut and Tasikmalaya districts are in the category of rather bad areas due to the high percentage of people who have difficulty accessing clean water. The percentage of people who can not access clean water in Garut district ranges from 40 - <50 percent with a rather good category. While in the Tasikmalaya district the percentage of people without access to clean water is even higher which is 50 - <60 percent with a rather bad category. This shows the need for special efforts from local authorities in addressing the access to clean water of the community. One of the efforts that can be done is to create reservoirs for access to clean water in the community.

Table 8. Percentage of Households Without Access to Clean Water Districts and Cities in East Priangan in 2019

District/City	Percentage of households without access to clean water
Tasikmalaya City	<30
Banjar City	30 - <40
Garut District	40 - <50
Tasikmalaya District	50 - <60
Sumedang District	30 - <40
Ciamis District	30 - <40

Source: BKP (2019).

Some research shows that the level of education and knowledge of the mother greatly affects the nutritional status of her child (Burhani et al. 2016; Adelia et al. 2018). Women who have a high level of education tend to get information and education about better nutrition. In addition. have better access to good nutrition because it can work or get a partner who has a higher income. Therefore, it is important to see a higher level of education for women in looking at the quality of food. Measuring the level of education of women can be done by looking at the duration of formal education taken by the female population over 15 years and above.

Table 9. Average Length of Women's Schools Over 15 Years of District and City in East Priangan in 2019

District/City	Average of School
Tasikmalaya City	>= 9
Banjar City	7.5 - <8.5
Garut District	7.5 - <8.5
Tasikmalaya District	6.5 - <7.5
Sumedang District	7.5 - <8.5
Ciamis District	7.5 - <8.5

Source: BKP (2019).

FSVA data on an average length of girls over 15 years old for the Eastern Priangan Region shown in table 10 shows that in general, the Eastern Priangan Region falls into the category rather well. There is one city that belongs to the category of excellent (Tasikmalaya city) with an average length of girls' school > = 9 years. Four districts/cities that are in the category of rather good (Sumedang district, Garut district, Ciamis district, and Banjar city) with an average percentage of women's school duration of 7.5 - < 8.5 years. One district is in the rather bad category of Tasikmalaya district with an average percentage of women's school length of 6.5 - < 7.5 years.

Problems in the access and quality of food in the community will affect the fullness of nutrition in the family. The fullness of nutrition in the community will affect the activities and productivity of the community's work. Through adequate nutrition. the community will improve the quality of life of the community. Malnutrition can lead to high susceptibility to disease due to weak immunity, and in the long run, can lead to the loss of potential smart and qualified young people. Therefore, the status of family food security is one of the causative factors that affect the nutritional status of the family.

The problem of malnutrition can be known by the development of toddler height compared to stunting growth (Masrin et al. 2016; Arlius et al. 2017; Faiqoh et al. 2018). The child's short height (stunting) is a sign of chronic malnutrition caused by a long period of malnutrition. Therefore, if the stunting rate in a region

is high, then there are nutritional problems there and related to food security problems.

Table 10 shows the percentage of toddlers with stunting in the Eastern Priangan Region including in 2019. Based on the map in table 11, it can be seen that the Eastern Priangan Region is mostly in the bad category. There are four districts (Sumedang, Ciamis, Tasikmalaya, and Garut districts) that have a fairly high percentage of stunting toddlers and fall into the bad category with the percentage of stunting toddlers ranging from 30 - < 39 percent. While the two urban areas in East Priangan (Tasikmalaya city and Banjar city) fall into the category of less with the percentage of stunting toddlers ranging from 20 - < 29 percent.

Table 10. Percentage of Toddlers with Substandard Height (Stunting) Districts and Cities in East Priangan in 2019

District/City	Percentage of Toddlers with Substandard Height (Stunting)
Tasikmalaya City	20 - <29
Banjar City	20 - <29
Garut District	30 - <39
Tasikmalaya District	30 - <39
Sumedang District	30 - <39
Ciamis District	30 - <39

Source: BKP (2019)

Strategies that can be done to overcome food security problems in access and quality of food. among others in the Eastern Priangan Region are:

1. Increase people's income in Eastern Priangan through capacity building in the agriculture sector (Aminah 2015). improvement of agricultural product marketing efficiency (Baladina et al. 2017). and job creation by developing the agribusiness sector (Anggrayni et al. 2015; Mayrowani and Ashari 2016; Rachman and Suhartini 2016; Sulaiman et al. 2017).
2. Increased investment in the food agriculture sector such as facilities and infrastructure. and need to be established strategic partnerships between the private sector and the government to improve infrastructure in the field of food security (Suryana 2014).
3. Improvement of women's knowledge and skills (Hayati et al. 2015; Elizabeth 2016) in realizing family food security, can be done by working with the employment office or social services in improving the capacity of women's skills.
4. Each district and city in Eastern Priangan builds food security based on local resources and wisdom (Krisno Budiyanto 2012; Isbandi and Rusdiana 2014; Suryana 2014; Bantacut 2016; Irawan and Sutrisna 2016).
5. Socialization and counseling about nutrition and parenting patterns. this can be done by optimizing the role of Posyandu and PKK in each region

(Ariningsih and Rachman 2016; Azhari et al. 2016; Masrin et al. 2016; Faiqoh et al. 2018).

6. Improved healthy and clean living behavior. Increasing socialization of diverse and safe food consumption and healthy and clean living behaviors by their respective agencies/task forces in the region (Marsigit 2012; Hardono 2016; Irawan and Sutrisna 2016).

CONCLUSION

Based on the above discussion. conclusions are obtained. namely:

1. The concept of food security includes three pillars of food security consisting of aspects of availability, food access, and food utilization. Measurement of food security in the Eastern Priangan Region uses the concept of the regional food security approach, by measuring food security at the district and city level located in the Eastern Priangan.
2. The level of food security of districts and cities in the Eastern Priangan Region belongs to the category of food safety to be very food safe. Besides, each district and city in East Priangan has a strong connection so that cooperation can be established between regions in terms of food security because the characteristics are relatively the same.
3. Strategies that can be done to overcome the problem of food access and quality in the Eastern Priangan Region. among others, by creating jobs in the agribusiness sector, encouraging the inclusion of private parties in building basic infrastructure through the provision of special incentives for food security, empowering women by improving their knowledge and skills, socialization and counseling on family nutrition and improving healthy living behavior to the community.

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