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# The Discrepancy between The Programs and Disaster Management Policy in Klapanunggal District, Bogor, West Java

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**Abstract.** Bogor regency consists of 40 districts, 23 are prone tonatural disasters. Klapanunggal district is listed in 10 districts declared as most vulnerable to natural disasters. Natural disasters could lead to loss of property and infrastructure damage and will affect the food security in the region. Food shortages is one example of the condition which causes food insecurity. The aim of this research is to analyze the government's food security strategy in anticipation of disaster with a case study of food insecurity in Klapanunggal district. The analysis suggested that; 1) FSVA is an appropriate program to identify food shortage areas, 2) Food Shortage Relief Program (*Program Penanganan Daerah Rawan Pangan-PDRP*) is the optimal efforts in reducing food shortages in the region, 3)The mismatch between FSVA indicators and Food Shortage Relief Program makes Klapanunggal district difficult in achievingfree status food-shortage. Based on the analysis, it is suggested that the implementation of Food Shortages Relief Program could be carried out based on the priority issues and implemented with integrated coordination and assistance among stakeholders. Such priority issues, integrated coordination and assistance are fully analyzed in this study.

## 1. Introduction

West Java province is one of the provinces in Indonesia which has a high population density. Population wise, Bogor regency contained as many as 4,966,621 inhabitants in 2011 or 11.03% of the total population of West Java. The population of Bogor regency in the year 2012 has reached 5.077 million inhabitants with a population growth rate of 3.15% per year [1]. Bogor regency consists of 40 districts, among those districts 23 are prone to natural disasters. District Klapanunggal is listed in 10 districts declared most vulnerable to natural disasters [2].“In disaster-prone locations measures to improve disaster resilience should be an integral part of food security policies and strategies”[3]. Food shortage is one example of a condition which causes food insecurity. According to a report from Regional Disaster Relief Agency (*Badan Penanggulangan Bencana Daerah-BPBD*), Klapanunggal is a district that is prone to landslides and tornado. According to the Indonesia Disaster Risk Index (*Index Rawan bencana Indonesia-IRBI*), Bogor regency is on the top five most disaster-prone areas in Indonesia [4]. Agriculture is particularly vulnerable to disaster risk [5]. Frequently attacked by disasters is one of the triggers of food insecurity in Bogor. Disaster with its potential to disturb food supply can threaten food security. Although nationally Indonesia has enough food supply, food



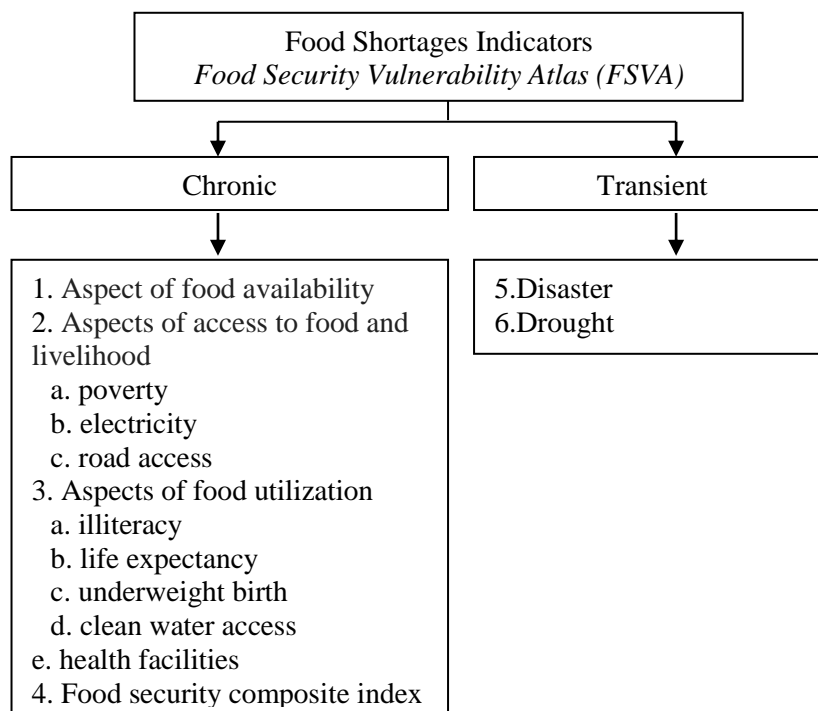
shortages can happen regionally, especially in disaster prone areas. Klapanunggal district is not only prone to disaster, it becomes a major area of focus with food-shortage status in Bogor regency.

The purpose of this study is to analyze the government's food security strategy in anticipating disaster with a case study of food insecurity in Klapanunggal district. The analysis includes the constraints and potential factors that exist and pose a threat to the implementation of the strategy and how to solve problems/obstacles in the implementation.

This study was conducted in Bogor regency, West Java, Indonesia in 2014. Primary data was collected by field observation and in-depth interview with district head, village leaders, head of regional planning agency and MWA training and consulting office leaders. The analysis was done qualitatively with purposive sampling and snowball methods. Secondary data for mapping were collected from regional planning agency that consist of data from 40 districts in Bogor regency.

## 2. Food Security Vulnerability Atlas (FSVA) Indicators

Food shortages should be a major concern for local government, in this case the local government is the district of Bogor. There are some indicators to identify food shortages, one of the indicators used by the government is Food Security Vulnerability Atlas (FSVA) that consists of nine indicators; one indicator of the aspect of food availability (ratio of normative consumption against the availability of staple food), three indicator aspects of access to food and livelihood (poverty, electricity and road access) as well as the five indicators of food utilization (life expectancy at birth, underweight birth, illiteracy, percentage of household without access to clean water and percentage of household with access to health facilities) [6]. The FSVA indicators are shown in figure 1.



**Figure 1.** Chronic and Transient Food Shortages Indicator

Sources: BKP5, Bogor District. 2015 [7] and author.

Based on the combined indicators of Food Security Vulnerability Atlas (FSVA), Klapanunggal district aggregately falls into the district that faces food shortages as shown in table 1.

**Table 1.** FSVA Indicators of Klapanunggal District

No.	Indicator	District	
		Klapanunggal	Note
1	Food availability	High deficit	Priority 1
2	Food and Livelihood		
	a.Poor Household	13.71%(>10%)	Priority 5
	b.Electricity access (supply from state electrical company)	Without electricity access 76.5%	Priority 1
	c.Road access	30.68%	Priority 1
3	Food Utilization		
	a.Illiteracy	0.57%	Priority 6
	b.Life expectancy	71.03 years	Priority 6
	c.Underweight birth	15.11%	Priority 3
	d.Clean water access	44.98%	Priority 4
4	Food security composite index	0.82%	Priority 1
5	Vulnerability to transient food shortages due to disaster and drought	10.19%	Priority 1

Source :Bogor District Regional Planning Agency, 2012 [8].

From table 1 it appears that in terms of food availability Klapanunggal district is still in the category of low availability (high deficit), meaning that there is interference with the availability of food in Klapanunggal district resulting in food shortages. There is not enough market to supply and stock food in Klapanunggal. However, government has secured the land for building new market and barn.

The percentage of poor households in the Klapanunggal district amounts to 7.721 (13.71%), a percentage that could not be underestimated even though only in priority number 5, the existence of large factories and industries in Klapanunggal district has given opportunity to work and increase the income so that poverty issue in Klapanunggal district is not a number 1 priority. Other districts in Bogor regency has more percentage of poor households such as Sukamakmur district with 53.27% poor household. Even though poverty is not a priority issue and people have high purchasing power, still overall indicator of FSVA shows that Klapanunggal district falls into the category of area with food shortage status.

Access to electricity supplied by State Electrical Company (*Perusahaan Listrik Negara-PLN*) in Klapanunggal district is only 23.5%. Interestingly, with high purchasing power, people can provide their household with generator to produce electricity for their household.

Road access is only 30.68%, high industrial activities has brought trucks and heavy containers to use those limited roads in and out from the district, resulting in poor road condition with many holes and puddles after rain. Problems faced by Klapanunggal district is that road access to the distribution centers of agricultural production were minimal. It can be seen in the village of Bojong and Ligarmukti, roads along the road to the area is in very poor condition. This is because of the present of large vehicles which take lime from limestone quarry, thus disrupting the distribution of agricultural production and crops.

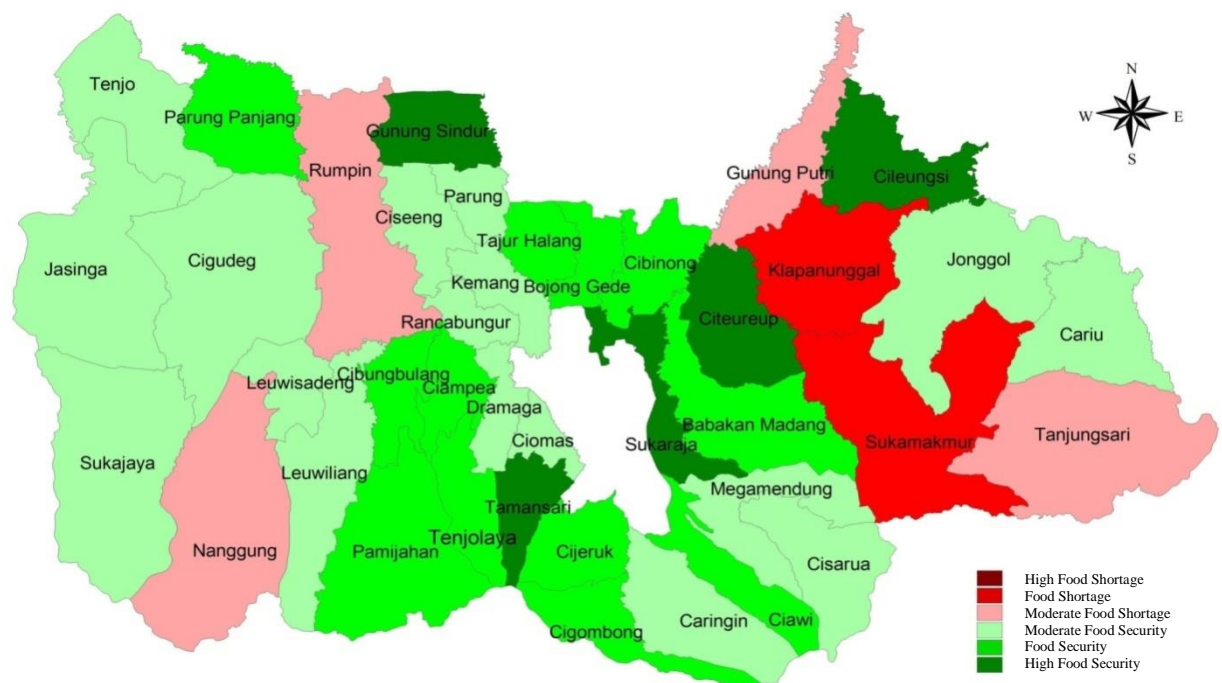
Constraints arising from the road access indicator are: funding from the government to repair roads is minimal; monitoring of the Public Works Department is conducted once every 6 (six) months; and although the road has been fixed, high mobility for the transport of raw materials to the cement factory is hampering Klapanunggal residents to use the roads optimally.

Both the rate of illiteracy and life expectancy are in priority number 6. Illiteracy is amounted to 0.57% and life expectancy is 71.03 years, underweight birth (15.11%, priority number 3) and clean water access (44.98% priority number 4), while all indicators in Food Utilization category are not in the first priority.

However, food security of Klapanunggal district has a composite index of 0.82% (priority number 1), so does vulnerability to transient food shortages due to disaster and drought (10.19%, priority

number one). Dry region, large industrial areas, dense population have triggered fires in the Klapanunggal district. In the period 2009-2011 seven fires have occurred in the region. Klapanunggal district has the highest drought area in Bogor regency, that is 10.19%. This causes difficult access to clean water, both for food consumption and other household needs. The location of Klapanunggal district that is surrounded by industrial areas aggravates the availability of clean water. Drought covers the Lulut, Nambo and Bantar jati villages. The foregoing is a trigger to food insecurity in the Klapanunggal district either directly or indirectly.

Having obtained the data necessary for the determination of the indicators, the analysis of food security and vulnerability was conducted using data for the year 2012, with the final result of the composite score from those indicators. A combination of several composite index is processed using ArcView and Map Info 7.5 food security and vulnerability atlas. Shades of red indicated resulting in variations in the level of food insecurity and shades of green depicted food security conditions, the bolder color showed a higher level in terms of food security (bold green) or food insecurity (bold red). Klapanunggal subdistrict falls into the category of food-insecure as shown on the map (figure 2).



**Figure 2.** Food security and vulnerability atlas of Bogor district

Source: Author using data from Regional Planning Agency of Bogor District

### 3. Food Shortage Relief Program (*Program Penanganan Daerah Rawan Pangan-PDRP Program*)

Government has an important role and obligation to address food insecurity in the region. Hence the importance of the government is to issue a policy relating to Food Shortage Relief Program (*Program Penanganan Daerah Rawan Pangan-PDRP*) as a standard and management to improve the condition of areas facing food-insecurity issues. It resulted in the implementation of PDRP, the action plan and community based early warning systems. In practice, PDRP in Klapanunggal was implemented gradually from preparatory activities, socialization, the selection of villages and the location of the program, electoral assistance, implementation and monitoring and evaluation (monev).

Results of the activities that have been carried out as shown in table 2 shows that the activities are focused on the areas with minimum achievement of FSVI indicators. Low supply from PLN and poor road condition are the major indicators that need to be addressed. The Village of Cioray, Cibuntu and Leuwi karet have constrains in terms of electricity supply from State Electricity Company

(*Perusahaan Listrik Negara-PLN*), but with the help from national and state budget funds, as many as 194 households that have not had access to electricity can obtain access to electricity. The village of Cioray has no road access to the village centre and takes approximately 4 hours to get to the centre of the village.

**Table 2.** The process of implementing Food Shortage Relief Program (*Program Penanganan Daerah Rawan Pangan-PDRP*) in Klapanunggal district

Process	Implementation
Preparation	To collect secondary data related to food-shortage areas in Klapanunggal district, to study the outcome for each indicator, to study the implementation strategy and goals to be achieved.
Socialization	Socialization to district and village heads regarding food shortage indicators through meeting and FGDs. Many of the participants were complaining of the food shortage status, especially those aware that the majority of Klapanunggal residents are not poor. By understanding the measurements and indicators, gradually the participant could accept and agree to set common goal to free Klapanunggal from food shortage area status.
Selection of village and location for program implementation	The villages are chosen based on the indicators. Almost all villages have food shortage issue, but the priority for each village depends on the situation of each village.
Selection of assistance	The head of district is chosen as the coordinator, but implementation technique is done by the district field staff ( <i>Petugas Penyuluh Lapangan-PPL</i> ) in coordination with village heads and village coordinators.
Implementation	For each village, focusing on indicator that have high priority: <ol style="list-style-type: none"> <li>1. Cioray, Cibuntu and Leuwikaret villages have constrains in terms of electricity supply from State Electricity Company (<i>Perusahaan Listrik Negara-PLN</i>), but with the help from national and state budget funds, as many as 194 household that have not had access to electricity can get access to electricity.</li> <li>2. Ciorayvillage has no access to the city centre, 208 households are using roads with poor condition.</li> <li>3. Bojong and Klapanunggalvillages have difficult access to clean water.</li> <li>4. Ligarmukti and Cikahuripan villages and some part of Bojong village are agricultural producing areas, but ownership of the land mostly belong to people from outside Klapanunggal district andthe harvest is brought and consumed outside Klapanunggal district. Each household now pursues planting sustainable food garden (<i>Kebun Pangan Lestari-KPL</i>) as well using vacant land in the area.</li> <li>5. Ligarmukti village has water spring that has not been used optimally, now with the help from CSR, water supply management is start to supply the area without access to clean water.</li> <li>6. Leuwikaret, Ligarmukti, Cikahuripan, Lulut, Bojong, Cioray and Cibuntu villages have limited health facilityand is now developing <i>Pos daya</i> with the help of the local midwife.</li> </ol>
Monitoring and evaluation	Monitoring is done by district head in coordination with regency work force ( <i>Satuan Kerja Perangkat Daerah-SKPD</i> ).

Table 3 shows Food Shortage Relief Program (*Program Penanganan Daerah Rawan Pangan-PDRP Program*) in Klapanunggal district and these programs need to be evaluated, while in practice, some programs cannot be implemented. Of the 21 programs listed in the General Policy on Food Security, seven programs (33.3%) cannot be implemented properly.

**Table 3.** Food Shortage Relief Program (*Program Penanganan Daerah Rawan Pangan-PDRP Program*) in Klapanunggal District.

No	Existing Program	Implementation		Program Priority	
		Yes	No	Yes	No
1	Normal and Non formal Education Program		V	V	
2	Nutrition Improvement Program	V		V	
3	Community Health Program	V		V	
4	Procurement programs, enhancement and improvement of facilities and infrastructure sub-health centres and networks	V		V	
5	Improvement of maternal and child safety program	V		V	
6	Health for the poor program	V		V	
7	Bridge and database system improvement program		V	V	
8	Flood control program		V		V
9	Village infrastructure development program	V		V	
10	Poverty and community empowerment program	V		V	
11	Institution and social welfare program		V		V
12	Disaster preparedness program	V		V	
13	Electricity access development program	V		V	
14	Food security in agriculture, forestry program	V		V	
15	Food security in husbandry program	V		V	
16	Food security in fishery program	V		V	
17	Small and medium enterprise program		V	V	
18	Social and welfare planning program		V		V
19	Mother, child, and infant health program	V		V	
20	Women protection program		V		V
21	Family economy empowerment program	V		V	

According to the results from the interviews with Bogor's Regional Planning Agency, government and stakeholders in the Klapanunggal district, seven programs cannot be implemented because of obstacles in its implementation, namely; a) The limited funds allocated for the implementation of the program, b) Data reporting system that has not been integrated /not appropriate, b) The lack of participation of local communities, c) Limited human resources.

FSVA strategy undertaken by the Government of Bogor regency is appropriate for determining the area of food insecurity as well as for addressing plans to improve the condition in food-shortage areas. For Klapanunggal district, from nine indicators of FSVA, some indicators should be given priority, namely food availability, access to electricity and roads. These indicators should be the main program in the Region's Middle Term Development Plan (*Rencana Pembangunan Jangka Menengah Daerah-RPJMD*) in Bogor regency and implemented based on priority. When adjusted to six FSVA indicators, the Klapanunggal district's PDRP program that should be implemented is based on the priority shown in table 4.

**Table 4.** Klapanunggal PDRP Priority Scale Matrix Program Requirements

No.	FSVA (Based on Priorities)	Relevant PDRP Program
1	Priority 1 of food availability	1. Food security in agriculture, forestry program 2. Food security in husbandry program 3. Food security in fishery program 4. Family economy empowerment program
2	Priority 2 of electricity access	5. Electricity access development program 6. Village infrastructure development program
3	Priority 1 of road access	No program planned yet
4	Priority 3 of underweight children	7. Procurement programs, enhancement and improvement of facilities and infrastructure sub-health centres and networks 8. Nutrition improvement program 9. Mother, child, and infant health program 10. Health for the poor program 11. Community Health Program 12. Mother, child, and infant health program
5	Priority 1 of food security composite	No program planned yet
6	Priority 1 of vulnerability of transient food shortages	13. Disaster preparedness program

Sources : Bogor district Middle Term Development Plan and author's analysis.

From table 4, not all twenty one points of Klapanunggal's PDRP program should become priority. When adjusted to FSVA, thirteen PDRP program listed in table 4 should receive government attention and become core program to improve Klapanunggal's food-shortage status. Relevant PDRP programs are needed for road access and food security composite indicators which both have number one priority (according to FSVA indicator). Unfortunately, no relevant PDRP program is implemented yet to improve "road access" and improve food security composite indicators. The mismatch between FSVA indicators and food shortage relief program makes Klapanunggal district difficult in achieving food-shortage free status. Here we reveal the discrepancy between the program and disaster management policy in Klapanunggal district.

#### 4. Conclusion

Obstacles encountered in the implementation of food security strategy in Klapanunggal area are: a) The implementation of the program to alleviate food shortages have not been based on FSVA priorities, b) The absence of village forum that specifically support the implementation of PDRP program, c) Lack of coordination and awareness of the community and local authorities about food-shortages in the region, d) Unavailability of district market to improve food availability in Klapanunggal district.

Government efforts in anticipating food insecurity in Klapanunggal district are : a) Implementation of the PDRP program, b) Socialization regarding food insecurity in the region ranging from policy makers at the level of Bogor regency, Klapanunggal district, villages in the sub district and community of Klapanunggal district, c) land preparation for the district market, d) development of barns in the Klapanunggal district.



FSVA is an appropriate program to identify food shortage areas. Using nine indicators of FSVA, the government can work to improve the condition in food-shortage areas and concentrate to work on improvement based on indicators with higher priority. Food Shortage Relief Program (*Program Penanganan Daerah Rawan Pangan-PDRP* program) is the optimal efforts in reducing food shortages in the region. However, the design of the program need to be synchronized with the priority area of improvement and tailored specifically based on the needs of the targeted areas. Thus government can avoid the discrepancy between the program and disaster management policy that could hamper the effort in achieving food security in disaster prone areas.

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