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Policy Analysis of Food Security in North Sumatra Province

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ABSTRACT

Food is a basic need for humans to be able to sustain life and therefore adequate food for everyone at all times is a human right that deserves to be fulfilled. Based on this fact, the problem of meeting food needs for the entire population at any time in an area becomes the main target of food policy for the government of a country. Indonesia as a country with a large population faces very complex challenges in meeting the food needs of its population. Therefore, the policy of strengthening food security becomes a central issue in development and becomes the main focus in agricultural development. The purpose of this study is to conduct an analysis of food security policies and to find out how to improve food security in the province of North Sumatra, The method used in this research is to use a quantitative descriptive approach. North Sumatra as one of the rice producing areas has a fluctuating level of rice production from time to time. The condition of harvested areas in North Sumatra is increasingly threatened with the increasing number of residents every year which causes the demand for residential land and infrastructure to increase. In addition to harvested area, consumption per capita of the population of North Sumatra is also a factor that affects food security in North Sumatra. The condition of harvested areas in North Sumatra is increasingly threatened with the increasing number of residents every year which causes the demand for residential land and infrastructure to increase. In addition to harvested area, consumption per capita of the population of North Sumatra is also a factor that affects food security in North Sumatra. The condition of harvested areas in North Sumatra is increasingly threatened with the increasing number of residents every year which causes the demand for residential land and infrastructure to increase. In addition to harvested area, consumption per capita of the population of North Sumatra is also a factor that affects food security in North Sumatra.

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1. INTRODUCTION

Food security is one of the strategic issues in the development of a country. Especially developing countries. Because it has a dual role, namely as one of the main targets of development and one of the main instruments (intermediate goals) of economic development. The first role is a function of food security as a prerequisite for ensuring access to food for all citizens of the country in sufficient quantity and quality for a living, healthy and productive existence. Food is a basic need for humans to be able to sustain life and therefore adequate food for everyone at all times is a human right that deserves to be fulfilled. Based on this fact, the problem of meeting food needs for the entire population at any time in an area becomes the main target of food policy for the government of a country. Indonesia as a country with a large population faces very complex challenges in meeting the food needs of its population. Therefore, the policy of strengthening food security becomes a central issue in development and becomes the main focus in agricultural development. The need for food increases along with the increase in population and the increase in job opportunities for the population in order to obtain a decent income to facilitate access to food are the two main components in the realization of food security.

The policy of strengthening food security is a central issue in development and is the main focus in agricultural development. The need for food increases along with the increase in population and the increase in job opportunities for the population in order to obtain a decent income to facilitate access to food are the two main components in the realization of food security. Policies to strengthen policies to strengthen food security, in this case, include the realization of national food stability. The essence of food security policy is characterized by the active involvement of the government in directing, stimulating and encouraging related elements so as to form a strong and sustainable food security system. The food security system is an integral part of the overall national economic system. Therefore, food security policies are also an integral part of national development policies, so their formulation must be integrated and in harmony with macroeconomic policies. The state is obliged to ensure the availability of food in sufficient quantities (besides guaranteed quality) for every citizen, because basically every citizen has the right to food for his survival. Provision of food by the state must be sought through domestic food production, where this production must continue to increase from year to year in line with population growth. The state is obliged to ensure the availability of food in sufficient quantities (besides guaranteed quality) for every citizen, because basically every citizen has the right to food for his survival. Provision of food by the state must be sought through domestic food production, where this production must continue to increase from year to year in line with population growth. The state is obliged to ensure the availability of food in sufficient quantities (besides guaranteed quality) for every citizen, because basically every citizen has the right to food for his survival. Provision of food by the state must be sought through domestic food production, where this production must continue to increase from year to year in line with population growth.

Table 1

Growth of GDP and Agricultural Production in Indonesia 1967-2001.

Information	**Consolidation 1967-78**	**Grow Height 1978-86**	**Deconstruction 1986-97**	**1997-2001 Economic Crisis**
Agricultural GDP	3.39	5.72	3.38	1.57
• Crops	3.58	4.95	1.90	1.62
• Plantation crops	4.53	5.85	6.23	1.29
• farm	2.02	6.99	5.78	-1.92
Agricultural Production	3.57	6.76	3.99	-0.47
• Land Productivity	2.08	4.13	1.83	-1.45
• Labor Productivity	2.32	5.57	2.03	-0.47

Food production is highly dependent on the level of productivity and the area harvested. The rice food commodity, based on the data in table 2 shows that the harvested area and productivity fluctuated during 1990-2003, but the fluctuations were small (not significant), so it can be stated that the figures are relatively constant. When the demand for food is greater than its availability, the government imports it. The size of rice imports fluctuated, and reached its peak in 1998.

Table 2

Harvested Area, Production, Productivity, and Imported Rice 1990-2003

Year	**Harvested Area (000 ha)**	**Productivity (tonnes/ha)**	**Grain Production (000 tons)**	**Flavored Production (000 tons)**	**Rice Import (000 tons)**
1990	10,502	4.30	45,179	29,366	29,000
1991	10,282	4.35	44,689	29,048	178,000

Year	Harvested Area (000 ha)	Productivity (tonnes/ha)	Grain Production (000 tons)	Flavored Production (000 tons)	Rice Import (000 tons)
1992	11.103	4.34	48,240	31.356	634,000
1993	11.013	4.38	48,181	31,318	0.000
1994	10,734	4.35	46,641	30,317	876,000
1995	11,439	4.35	49,744	32,334	3,014
1996	11,569	4.41	51.101	33,215	1.090
1997	11.141	4.43	49,377	32,095	406,000
1998	11,613	4.17	48,472	30,357	5,765
1999	11,963	4.25	50.866	31,118	4.183
2000	11,793	4.40	51,898	32,345	1.513
2001	11,415	4.39	50,181	31,283	1,400
2002	11,521	4.47	51,379	32,369	3,100
2003	11.453	4.53	51,849	32,697	2,000

Based on the data in table 1.2, it can be stated that Indonesia may not be able to achieve self-sufficiency in rice again, especially when it is associated with the current conditions where land conversion occurs continuously, especially in Java, from technical rice farming to non-agricultural land users, including being used for housing, industry, and infrastructure.

The food crisis is threatening Indonesia. This can be seen from the increase in the price of a number of important food commodities by more than 50% and also the narrower agricultural area due to land conversion. North Sumatra as one of the rice producing areas has a fluctuating level of rice production from time to time. The condition of harvested areas in North Sumatra is increasingly threatened with the increasing number of residents every year which causes the demand for residential land and infrastructure to increase. In addition to harvested area, consumption per capita of the population of North Sumatra is also a factor that affects food security in North Sumatra. The thought of not eating if you haven't eaten rice is inherent in the culture of the people in North Sumatra which makes the consumption per capita per year relatively high,,85 kg/capita/year. Regencies/cities in North Sumatra have different conditions and characteristics of rice food, for example rice stock conditions, rice harvested area, land productivity, total rice consumption and rice prices. These conditions will be used to analyze food security in North Sumatra with the ratio of rice availability in each district/city in North Sumatra Province as a proxy.

Table 3

North Sumatran Rice Consumption in 2010-2015

No	Year	Consumption (Kg/Capita/Week)	(Kg/Capita/Year)
1	2010	1,729	90,155
2	2011	1,716	89,477
3	2012	1,673	87,235
4	2013	1.640	85.514
5	2014	1,623	84,628
6	2015	1,628	84,889
Average		1,628	74.556

The purpose of this study is to analyze food security policies and analyze what steps are being taken to improve food security in North Sumatra.

2. RESEARCH METHOD

2.1 Research Approach

In order for this research to be more focused and in accordance with the desired goals, the authors use a quantitative descriptive approach. The data is expressed statistically and presented through graphs and diagrams.

2.2 Variable Operational Definition

The variables used in this study are:

a. Land area

Land area is the area/place used for farming on a plot of land, which is measured in hectare (ha).

b. Production

Production is the number of crops produced in one growing season (one production process) which is measured in kilograms (kg).

2.3 Location, Research Time and Data Obtained

In the preparation of this study, the authors conducted research in the province of North Sumatra. The time of this research is planned for February 2017. The data used are the BULOG SUMUT, the Central Bureau of Agricultural Statistics and the Department of Agriculture.

2.4 Data Types and Data Sources

The type of data used is secondary data. Secondary data is data that has been collected by other parties.

2.5 Data collection technique

The data collection method used by the author in this study is to use secondary data obtained from the Central Bureau of Statistics of North Sumatra. The author collects material from books and other references related to food security in North Sumatra Province.

2.6 Analysis Method

Data analysis is the process of simplifying data into a form that is easier to read and interpret. The method chosen to analyze the data in this study is descriptive analysis, which describes all the information data obtained in the form of percentages, averages, graphs, and others.

3. RESULTS AND DISCUSSION

The level of rice production in North Sumatra is strongly influenced by factors beyond the ability of farmers to control. In general, the amount of production is always changing and from season to season, this change is mainly influenced by weather conditions, climate and other natural factors such as flooding due to high rainfall or prolonged drought. The following table shows the rice production of North Sumatra Province in 2006-2010.

3.1 Rice Production

Table 4

Rice Production and Rice Consumption in North Sumatra Province in 2006 – 2010.

Year	Rice Production		Rice Consumption	
	Ton	Growth	Ton	Growth
2006	3,007,636	-12.77	1,921,811	2.46
2007	3,265,834	8.32	1,979,465	3.00
2008	3,340,794	2.55	2,038,849	3.00
2009	3,576,543	7.06	2.100.015	3.00
2010	3,423,578	-4.28	2,163,015	3.00
Average growth		0.75		1.83

In the period 2006-2010, rice production in North Sumatra always grew positively, except in 2006 and 2010 it grew negatively due to and the influence of the El Nino climate anomaly. This condition shows that if the climatic conditions are normal then efforts to increase rice production are not difficult to achieve. However, what should be observed is the unstable rate of growth of rice production every year. During the period 2006-2010, the growth rate of rice production fluctuated with an average growth of 0.75 percent per year, as shown in Table IV.2 quite high growth occurred in 2007 of 8.32 percent, while the decline in production the largest occurred in 2006 reaching -12.77 percent caused by the prolonged dry season that year, so that many rice experienced puso (BPS, 2006-2010). The unstable growth rate of rice production, when examined further, turns out to be caused by the dependence on sources of production growth originating and increasing productivity. Meanwhile, rice harvested area tends to decrease. The decline in the growth of harvested area was caused by the conversion of paddy fields to non-agricultural uses, pest and disease attacks, floods and droughts as well as the response of farmers to changes in the ratio of rice prices to prices of other more profitable food commodities. However, despite the decline in harvested area during this period, the increase in productivity has been able to encourage an increase in rice production. upon further examination, it turns out that this is due to the dependence on sources of production growth originating and increased productivity. Meanwhile, rice harvested area tends to decrease. The decline in the growth of harvested area was caused by the conversion of paddy fields to non-agricultural uses, pest and disease attacks, floods and droughts as well as the response of farmers to changes in the ratio of rice prices to prices of other more profitable food commodities. However, despite the decline in harvested area during this period, the increase in productivity has been able to encourage an increase in rice production. upon further examination, it turns out that this is due to the dependence on sources of production growth originating and increased productivity. Meanwhile, rice harvested area tends to decrease. The decline in the growth of harvested area was caused by the conversion of paddy fields to non-agricultural uses, pest and disease attacks, floods and droughts as well as the response of farmers to changes in the ratio of rice prices to prices of other more profitable food commodities. However, despite the decline in harvested area during this period, the increase in productivity has been able to encourage an increase in rice production. The decline in the growth of harvested area was caused by the conversion of paddy fields to non-agricultural uses, pest and disease attacks, floods and droughts as well as the response of farmers to changes in the ratio of rice prices to prices of other more profitable food commodities. However, despite the decline in harvested area during this period, the increase in productivity has been able to encourage an increase in rice production. The decline in the growth of harvested area was caused by the conversion of paddy fields to non-agricultural uses, pest and disease attacks, floods and droughts as well as the response of farmers to changes in the ratio of rice prices to prices of other more profitable food commodities. However, despite the decline in harvested area during this period, the increase in productivity has been able to encourage an increase in rice production.

Table 5

Rice Production, Harvested Area and Yield Per Hectare in North Sumatra
2010 – 2014

Year	Rice Production (tons)	Harvest Area (Ha)	Productivity (kw/ha)
2010	3,582,302	754.674	47.47
2011	3,607,403	757,547	47.62
2012	3,715,514	765,099	48.56
2013	3,727,249	742,968	50,17
2014	3,628,968	716,654	50.64

Based on Table IV.3, it can be seen that the rice production in North Sumatra is the area of agricultural land. In 2013 there was a decrease in the area of agricultural land from the previous year resulting in a decrease in rice supply in 2014. According to Sawastika et al (2000), one of the reasons for the fluctuating national rice production is the ongoing conversion of agricultural land into housing and resulting in a declining rice supply. . The rate of land conversion cannot be reduced, this is due to the government's policy to urbanize the population who will use agricultural land for housing. North Sumatra Province should have been able to meet local rice needs because it has great potential seen from the number of rice farmers and good natural potential,

Table 6

Harvested Area, Production and Average Rice Production + Field by Regency/City 2013

County/City	2009	2010	2011	2012	2013	2014
District						
1. Nias	51 298	5 981	2 857	3 900	1 737	1 731
2. Mandailing Nata	1 799	1 967	1 951	2 362	2 521	2 853
3. South Tapanuli	8 854	9 955	7 377	13 453	12 730	13 215
4. Middle Tapanuli	33 506	34 076	31 057	31 771	36 525	33 648
5. North Tapanuli	37 451	38 398	43 852	62 928	62 448	64 853
6. Toba Samosir	10 560	29 760	35 933	74 029	40 112	24 837
7. Labuhan Batu	2 428	164	114	1 684	-	-
8. Sharpen	18 536	18 464	17 265	15 304	20 082	19 940
9. Simalungun	373 304	351 575	327 185	336 555	387 994	387 994
10. Dairi	6 280	10 778	8 595	10 592	11 073	7 492
11. Karo	52	848	345	3 149	2 746	255
12. Deli Serdang	167 017	78 734	116 834	121 396	253 301	178 790
13. Langkat	9 244	10 793	39 827	44 801	25 001	29 802
14. South Nias	72 585	53 452	10 724	10 075	9 633	13 005

County/City	2009	2010	2011	2012	2013	2014
15.Humbang Hasundutan	12 469	13 845	24 324	23 697	15 920	18 404
16. Pakpak Bara	441	2 502	2 781	1 118	1 791	3 386
17. Samosir	16 163	7 379	8 102	7 880	8 756	8 387
18. Serdang Bedagai	111 066	148 734	292 398	246 835	466 103	474 990
19. Coal	22 994	23 436	63 159	94 982	114 483	56 833
20. North Lawas	8 925	7 457	8 518	8 769	3 971	4 396
21. The Old Field	10 482	7 882	4 068	6 089	4 998	5 805
22. South Batu Labuhan	X	1 426	1 091	1 612	4 162	3 682
23. North Batu Labuhan	X	3 391	3 817	2 877	867	1 778
24. North Nias	X	5 545	6 067	12 022	1 282	981
25. West Nias	X	851	1 668	3 644	1 323	1 037
City						
26. Sibolga	-	-	-	-	-	-
27. Tanjung Balai	390	1 062	484	765	575	525
28. Pematang Siantar	9 091	10 210	10 290	7 218	4 693	7 297
29. High Cliff	7 148	8 695	7 889	7 578	9 170	9 824
30. Medan	7 533	7 260	2 348	2 086	1 870	2 570
31. Binjai	3 147	3 678	1 236	1 983	1 990	2 483
32. Padang Sidimpuan	4 521	4 877	7 052	4 319	4 371	4 047
33. Mount Sitoli	X	2 398	2 503	6 045	5 994	3 075
North Sumatra	1007284	905 571	1 091 711	1171520	1 518 221	383 346

Note: x = still joined to the Parent Regency.

Cassava production in North Sumatra Province during the 2009-2014 period continued to increase, only in 2010 and 2014 the amount of cassava production decreased. Total cassava production in 2010 was recorded at 905,571 tons and in 2014 it was recorded at 1,383,346 tons. The largest amount of cassava production in North Sumatra Province, namely in Serdang Bedagai Regency, reached 474,990 tons, and the lowest was in Karo Regency in 2009 only 52 tons.

Table 7

Harvested Area, Production and Average Corn Production by Regency/City, 2015

County/City	Harvested Area (ha)	Production (tons)	Average Production (kw/ha)
District			
1. Nias	71	241	33.95
2. Mandailing Nata	255	828	32.48
3. South Tapanuli	915	4 054	44.3
4. Middle Tapanuli	280	1 192	42.58
5. North Tapanuli	3 587	18 030	50.26
6. Toba Samosir	1 737	11 189	64.41
7. Labuhan Batu	619	3 305	53.4
8. Sharpen	2 333	10 625	45.54
9. Simalungun	63 079	381 685	60.51
10. Dairi	39 261	259 033	65.98
11. Karo	83 931	553 208	65.91
12. Deli Serdang	16 001	74 324	46.45
13. Langkat	20 862	147 368	70.64
14. South Nias	317	1 210	38.17
15.Humbang Hasundutan	523	2 525	48.28
16. Pakpak Bara	1 678	9 070	54.05
17. Samosir	1 202	7 008	58.31
18. Serdang Bedagai	3 441	15 785	45.87
19. Coal	353	1 432	40.56
20. North Lawas	149	644	43.21
21. The Old Field	329	1 260	38.3
22.South Batu Labuhan	148	572	38.62
23.North Batu Labuhan	71	305	42.95

County/City	Harvested Area (ha)	Production (tons)	Average Production (kw/ha)
24. North Nias	54	185	34.17
25. West Nias	21	73	34.76
City			
26. Sibolga	-	-	-
27. Tanjung Balai	11	62	55.91
28.Pematang Siantar	998	5 653	56.65
29. High Cliff	28	130	46.27
30. Medan	354	1 415	39.96
31. Binjai	963	5 842	60.66
32.Padang Sidimpuan	194	1 129	58,19
33. Mount Sitoli	7	26	37.43
North Sumatra	243 772	1 519 407	62.33

The amount of corn production in North Sumatra Province was recorded at 1,519,407 tons. The largest amount of corn production in North Sumatra Province, namely in Karo Regency, reached 553,208 tons, and the lowest was in Gunung Sitoli City, only 26 tons.

3.2 Food Policy

Ways to improve food security in North Sumatra Province include:

a. Consolidating and increasing domestic food production through intensification and extensification on suitable and potential land.
b. Preservation of food land through paddy field audits, issuance of regional regulations, prevention of food land conversion, and land reserves for food/rice which must be accompanied by adequate compensation for producers.
c. Facilitation and guarantee the smooth supply of production facilities, especially seeds/seeds and fertilizers.
d. Improvement and improvement of production and transportation infrastructure in production center areas through central government budget allocations.
e. Development of production of organic food and food ingredients based on local resources.
f. Development of regional food reserves through the development of cooperation between district/city governments and improvement/revitalization of the function and role of village barns and community food reserves.
g. Consolidation of the provincial and district/city agricultural budget allocation agreements for production centers.
h. Improving the availability and functioning of market infrastructure and product processing.
i. Improvement of drying and processing facilities for food products in tidal areas.

The economic crisis has spurred an increase in the prices of basic food, especially rice, even reaching 178%. This causes an increase in household spending on food and according to him, food security at the household level. During the economic crisis, there has been an increase in the number of energy and protein deficit households. Meanwhile, there has also been a decline in the quality of the population's food consumption, which is marked by a decrease in animal food consumption. Indonesia has never actually experienced a rice shortage that has disrupted food security. During the crisis, there was no evidence of a general shortage of rice or food, but there were many families who could not afford to buy food to meet their nutritional needs. Food shortages occur in several locations, especially in areas experiencing severe drought or in areas where ethnic conflict occurs. They cannot be categorized as food insecure groups using measures of rice sufficiency and purchasing power because the problems they face only have a small effect on the availability and price of rice. Food policies that are built on the foundation of the ability to buy rice (which is tantamount to a policy of cheap rice prices) will actually make the poor people in rural areas of whom 14 million people are rice farmers worse off.

4. CONCLUSION

Based on the results of research and discussion in this study, several conclusions can be drawn, including:

a. Food security is the main basis in realizing sustainable economic and national resilience. Food security is the main synergy and interaction of the availability, distribution and consumption subsystems, where in achieving food security alternative choices can be made whether self-sufficiency or adequacy. In achieving self-sufficiency, it is necessary to focus on the realization of food security.
b. Food is a basic need for humans to be able to sustain life and therefore adequate food for everyone at all times is a human right that deserves to be fulfilled. Based on this fact, the problem of meeting food needs for the entire population at any time in an area becomes the main target of food policy for the government of a country. Indonesia as a country with a large population faces very complex challenges in meeting the food needs of its population.
c. North Sumatra as one of the rice producing areas has a fluctuating level of rice production from time to time. The condition of harvested areas in North Sumatra is increasingly threatened with the increasing number of residents every year which causes the demand for residential land and infrastructure to increase. In addition to harvested area, consumption per capita of the population of North Sumatra is also a factor that affects food security in North Sumatra.
d. Factors affecting production are divided into two groups, namely: Biological factors such as agricultural land and fertility levels, seeds, varieties, fertilizers, medicines, seeds, weeds, and so on. Socio-economic factors such as production costs, prices, labor, education level, income level, risk and uncertainty, institutions, availability of credit, and so on.

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