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DEVELOPMENT OF THE NATIONAL STRATEGIC PROGRAM OF FOOD ESTATE BASED ON INSTITUTIONS IN HUMBANG HASUNDUTAN REGENCY, NORTH SUMATRA PROVINCE

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Abstract

In an effort to increase food availability in the post-Covid-19 era, the Indonesian government has established the Food Estate program as one of its National Strategic Programs (NSP). This program has absorbed a significant amount of funding from the central and regional governments. The aim of this study is to determine the extent of the performance achievements of one of the SNP Food Estate programs in the Riaria village, North Sumatra. The research analysis used the Context, Input, Process, Product (CIPP) evaluation model and determined priority development strategies using the Analytical Hierarchy Process (AHP). The research results indicate that out of the ten success indicators that were set, five were successfully achieved, namely the availability of area infrastructure, the application of specific location technology, the improvement of farmer knowledge and skills, the increase in production and productivity, and the increase in income for all participating farmer implementers. The prioritized strategies are strengthening collaboration with the business world (off-takers), providing farmer capital assistance, and increasing the institutional capacity of farmer groups, with the most important factor being the integration of agribusiness systems.

Keywords: Food Estate, farmer institutions, CIPP evaluation model, agribusiness.

Introduction

The government has designated the Food Estate as one of the National Strategic Programs (NSP) through Presidential Regulation Number 109 of 2020. This program is fully supported by various ministries, and since its launch, it has absorbed a lot of government funding aimed at providing physical and non- physical infrastructure and other needs.

One of the Food Estate locations in the North Sumatra Province is in Riaria Village, Pollung District, Humbang Hasundutan Regency. This area

has been designated by the government as a Food Estate area with a development target of 10,000 hectares.

To continue a national program, it is necessary to conduct performance measurement through a comprehensive and holistic assessment. This activity aims to refine the program by analyzing the input, process, output, and outcome (Hasyim, 2019). The evaluation results can serve as a warning if the program is not running according to plan and as input for further improvement. After the assessment is done, it is also necessary to establish priority development strategies so that the program can continue with achievements above its target and success indicators.

Methodology Conceptual Framework

Food Estate is a closed-loop agribusiness system with sufficient facilities and infrastructure managed professionally with the capacity of independent farmers' institutions, using adaptive technology, adequate funding, collaborating with the business world so that it can produce high productivity and optimal income sustainably (Nurlina et al., 2019). Thus, this program can become a growth center for the surrounding area. According to the growth pole theory by Francois Perreoux (1955), when production activities in a growth pole develop and increase, they will have an impact on the increase of other sectors and surrounding areas. The second theory is put forth by Sutami (1970), which reveals the benefits of intensive infrastructure development to support the utilization of natural resource potentials that can accelerate regional development. Regarding farmer institutions, Scott (2008) states that institutions are social arenas where rational actions take place because choices are limited and guided by rules. Thus, the existence of an organization will accelerate action stability, and this is the fundamental spirit of institutionalization.

Scope of Discussion

This study is limited to the ongoing implementation of the National Strategic

Program (SNP) Food Estate, which is the development of farmer institution-based horticulture farming areas. The research topic focuses on analyzing the performance of the program against its target and success indicators and identifying priority development strategies for the program.

Location and Time of Study

The study was conducted in Riaria Village, Pollung District, Humbang Hasundutan Regency, North Sumatra Province. Field research activities consisted of in-depth interviews, Focus Group Discussions (FGDs) with

farmers and stakeholders at the farmer level, and other stakeholders. The activities were carried out from October 2022 to February 2023.

Types and Methods of Data Collection.

The collected data consisted of primary and secondary data. Primary data were obtained through direct interviews, FGDs, and questionnaire filling. Secondary data were obtained from relevant agencies. The number of farmer group institutions involved in the Food Estate was seven, with a total of 169 members. The research method used was saturation sampling, where all farmer groups and members were used as respondents. (Sugiono, 2012).

Data Analysis

To determine the extent of the implementation of activities, the context, input, process, product (CIPP) evaluation model proposed by Stufflebeam (1983) is used. The CIPP evaluation model is considered suitable for this research because it is in line with the framework for area development and can assess the implementation of programs/activities, from planning to results achieved. The prioritization of strategies was formulated using the Analytical Hierarchy Process (AHP) (Saaty 1990). The steps taken in this method are to compile a hierarchy of elements in the form of criteria and alternatives to be chosen; assess these criteria and alternatives through pairwise comparisons; determine priorities by looking at the relative rankings of all alternatives; and assess logical consistency. The respondents selected for AHP analysis were nine individuals from the Ministry of Public Works and Spatial Planning, Coordinating Ministry for Maritime Affairs and Investment, Ministry of Agriculture, Ministry of Forestry and Environment, Ministry of Agrarian and Spatial Planning, Provincial Government, Regional Government, Department of Agriculture, and farmer institutions. The data was processed using Superdecision version 2.8 software, where respondent assessments are considered consistent if the inconsistency value is less than 0.1.

Drawing conclusions for the first objective is based on the achievement of the targets in the first, second, and third years, as well as the achievement of the success indicators that have been set. Conclusions for the second objective are based on the highest values resulting from data processing at the factor and strategy level. A hierarchy was established by setting the focus/goal, determining the factors or criteria to be evaluated, and selecting the strategies to be implemented. The selection of factors and strategies were entirely based on the Technical Guidelines for the Food Estate SNP. With the AHP method, priority strategies can be selected. since there are limiting factors in the implementation of activities, such as resources, time, and budget.

Results and Discussion Overview of Activities

Conceptually, the SNP Food Estate is implemented in a closed-loop collaboration model. Development is carried out with the principle of inclusivity, which involves the business world and farmer institutions (Sirojuzilam et al. 2017). To achieve its goals, all stakeholders, namely the government, farmer institutions, and the business world (off-taker), must be able to collaborate effectively (Sirojuzilam et al., 2016). Farmer institutions, as implementers, benefit from market guarantees, working capital assistance, and production facilities, as well as input availability guarantees. Farmer groups are responsible for: 1) consolidating farming businesses; 2) acting as a liaison between farmers, the Ministry/Institution (M/I), and relevant partners; 3) being responsible for sales, provision of agricultural machinery (alsintan), and labor. The Ministry of Agriculture aids in the form of production facilities and farming equipments, and human resource development through training, and monitoring and mentoring of counseling. Meanwhile, related M/I provides administrative and management assistance as well as other technical and non- technical assistance.

The village of Riaria was selected as the location for the Food Estate program due to its potential for ecological growth space and land area for development. Stakeholders in this program include farmers through farmer group institutions as landowners, the Directorate General of Food Crops as providers of production facilities and infrastructure, the Ministry of Public Works and Spatial Planning as providers of infrastructure, the Ministry of Environment and Forestry as providers of land, the Directorate General of Agriculture Infrastructure and Facilities as providers of pre-harvest agricultural machinery and irrigation, the Department of Agriculture of Humbang Hasundutan Regency, North Sumatra Province as the implementing agency for horticulture demonstration farms and training for farmers, and the Ministry of Agriculture as providers of seeds, agricultural machinery, and drip irrigation.

General Condition of Activity Location

Geographically, Desa Riaria is located on the latitude of 201'-2028' North and longitude of 98010'-98058' East with an altitude of 1,500 meters above sea level. The average temperature ranges from 17°C to 29°C and the average air humidity (RH) is 85.94 percent. The average rainfall in 2020 was recorded at 252.90 mm with an average of 17 rainy days per month, and the soil type is generally alluvial. With this information, it can be concluded that the area has a very potential ecological growing space for horticultural plants. In terms of land availability and use, the area is also quite potential because it has 845 hectares of agricultural land out of the entire village area of 1,200 hectares.

The majority of the activities and livelihoods of the village residents are farming. The largest agricultural commodity is coffee with a harvest area

of 9,246 hectares and a production of 8,461 tons (Humbahas Dalam Angka 2020). The coffee plantations consist of 48.45% of the total agricultural and plantation land. Besides coffee, the area is also rich in nutmeg, with a harvest area of 5,235 hectares producing 1,278 tons. Another main agricultural commodity is chili with a harvest area of 612 hectares producing 3,086 tons (Humbahas Dalam Angka 2020). Other commodities include Cabbage, tomato, potato, mustard greens, carrot, and shallots.

By the end of 2022, the SNP Food Estate in Humbang Hasundutan Regency has absorbed a lot of government funding. This budget comes from the central and regional government budgets, which are aimed at providing physical and non-physical infrastructure and other activities. Table 1 presents data on the absorption of SNP Food Estate funding in Riaria Village, Pollung District, in Humbang Hasundutan Regency. From this data, it can be concluded that with full support from the central and regional governments as well as the involvement of the business world (off-takers), the performance of the SNP Food Estate in Humbang Hasundutan Regency must ensure the availability of optimal infrastructure, sufficient funding, strong institutional capacity, adaptive technology, improvement of knowledge, skills, and entrepreneurship of farmers, collaboration with the business world (off-takers), closed-loop agribusiness, increased production and productivity, increased participant income and sustainable

Table 1. The development targets for the Food Estate program in Humbang Hasundutan Regency, North Sumatra Province, from 2020 to 2023.

No	Year	Commodity-based land development (ha)			Total	Description
		Potatoes	Shallots	Garlic		
1.	2020	200	600	200	10.000	Located in ten districts, with a target productivity above the national average to meet the demand for shallots in Sumatra, substitute garlic imports, and achieve self-sufficiency in the potato industry.
2.	2021	1.000	2.000	1.000	4.000	
3.	2022	2.500	5.000	2.500	10.000	
4.	2023	5.000	15.000	10.000	30.000	
	Total	8.700	22.600	13.700	54.000	

Source: Secondary data, processed

Table 2. Amount of the national strategic program budget for the food estate in Riaria village, Pollung sub-district, Humbang Hasundutan district, North Sumatra province, from 2020 to 2022.

No	Source of Funding Based on Ministry/ District	Purpose and Amount of Expenditure (Rp.000.000,-)						Total by Source of Funding (Rp.000.000)
		Production Facilities	Farming Equipment	Technical Guidance	Physical Infrastructure	Non-Physical Infrastructure	Others	
1.	Agriculture	18.873	25.626	1.869	9.325	4.040	1.266	60.999.97
2.	Public Works and Housing	-	-	-	198.340	-	9.362	207.702
3.	Land Agency	-	-	1.200	-	-	255	1.455
4.	State-Owned Enterprises	-	-	2.340	-	350	275	2.965
5.	Environment and Forestry	-	-	1.075	-	-	235	1.310
6.	Defense	-	-	-	-	-	1.075	1.075
7.	Humbang Hasundutan District	355	-	575	-	-	1.575	2.505
	Total	19.227	25.626	7.059	207.665	4.389	14.043	278.012

Source: Secondary data, processed

Achievements of Institutional-Based Farmer Food Estate Development

The CIPP evaluation model can describe the results of an activity comprehensively, starting from the planning process to the results obtained. Context evaluation is related to the goals that want to be achieved. Input evaluation is related to the plans that will be implemented. Process evaluation is related to the actions taken. Product evaluation is related to the outcomes achieved. Stufflebeam (2015) describes the core values of the CIPP evaluation model as shown in Figure 1.

The characteristics of farmer respondents implementing the activity are defined to include information about the size of the agricultural land, gender, education level, and age.

The data presented in table 3 shows that the ownership of agricultural land by farmer participants in the food estate program varies with an interval of 0.062 to 3.088 hectares, and all are certified property rights. Table 4 presents the distribution of respondent genders based on farmer groups, indicating that the number of male farmers is more than five times that of female farmers. Gender is a social and cultural construct that distinguishes between men and women. Gender identity is a subjective feeling about a person's existence as a man or woman and is an important part of a person. It can be concluded that there is still a gender bias in the farmers' organization regarding subordination and discrimination, namely, the registration of member names in farmer groups is still dominated by men. In Batak culture, patriarchal ideology is

still strong, which portrays that men's education is more prioritized than women's because male children are the heirs or carriers of the family name, so men are positioned higher than women. Women should be controlled by men, and women are positioned as belonging to men. In farmer group counseling and other organizational activities, men are generally more involved than women. This makes it difficult for women to access information related to technology and other things. Field research results show the opposite, where women are actually more involved in technical agricultural activities, while men spend their time sitting in coffee shops. Men also participate in the fields when their crops are harvested.

Figure 1. The core values of CIPP evaluation model

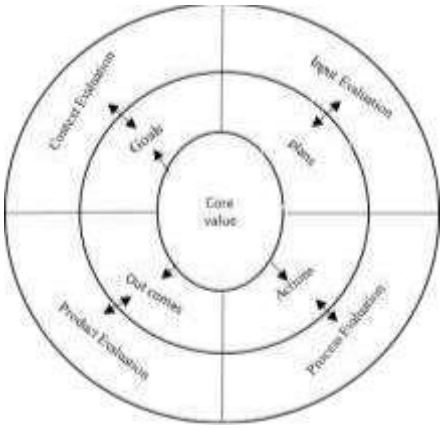

Table 3. Description of the farming land area of the PSN Food Estate participants by farmer group, Riaria Village, Pollung District, Humbang Hasundutan Regency, North Sumatra Province, 2023

No	Farmers Group	Land Area (Ha)			
		Total	Average	Std	Description
1.	Ganda Marsada	32,60	1,21	0,52	Ownership Certificate
2.	Karejo	46,01	1,56	0,62	Ownership Certificate
3.	Maju	32,67	1,78	0,70	Ownership Certificate
4.	Ria Bersinar	19,84	0,94	0,52	Ownership Certificate
5.	Ria Kerja	42,31	1,39	0,47	Ownership Certificate
6.	Sehati	25,35	1,05	0,44	Ownership Certificate
7.	Sinar Jaya	16.22	1,25	0,73	Ownership Certificate
	Total	215			

Source: Primary data, processed

From table 5, it is shown that the level of education of the members of the farmer group is still predominantly up to junior high school level (40.24%). The level of education indirectly affects the decision-making of farmers in carrying out agricultural activities. A higher level of education will make it easier for farmers to accept the materials provided in coaching, training, and technology adoption. The level of education is an important factor in the management of an agribusiness. Education will not only increase knowledge but also improve work skills, thus increasing efficiency and productivity, and allowing for economic efficiency related to input and output price decisions. Jhingan (2010) stated that the significant increase in gross national product is closely related to the development of human resources, as it will increase efficiency and productivity. The formation of capital can be achieved through the process of improving the skills and abilities of all participating farmers. Suharjo (2007) also stated that formal education will shape the values of a person, especially in accepting new things.

Table 4. Description of the gender of the implementers of the SNP food estate activity based on gender in Riaria Village, Pollung Subdistrict, Humbang Hasundutan Regency, 2022.

Gender	Farmers (individuals)							Number of Respondents	Percentage (%)
	Ganda Marsada	Karejo	Maju	Ria Bersinar	Ria Kerja	Sehati	Sinar Jaya		
Male	21	26	17	18	29	19	12	142	84.40
Female	7	6	1	3	3	6	1	27	15.60
Total	28	32	18	21	32	25	13	169	100,00

Source: Interview results, processed

Table 5. The description of the educational level of the respondents who carried out the SNP food estate activities in Riaria Village, Pollung District, Humbang Hasundutan Regency, North Sumatra Province, 2023

Level of Education	Farmers (individuals)							Number of Respondents	Percentage (%)
	Ganda Marsada	Karejo	Maju	Ria Bersinar	Ria Kerja	Sehati	Sinar Jaya		
No Education	0	0	0	1	0	0	0	1	0,59
Elementary School	6	4	4	5	5	10	1	20	20,71
Junior High School	3	10	8	5	2	5	5	45	22,49
Senior High School	12	17	6	9	20	10	7	98	47,92
Vocational/ Undergraduate Studies	7	1	0	1	5	0	0	2	8,29

Source: Primary data, processed

The planning document mentions that community involvement in the SNP food estate is carried out through a formal organization approach. Participants are expected to work together in one organized group. Therefore, 56.21% of respondents who have completed high school and have a bachelor's or diploma degree are expected to be able to lead and help provide understanding to other members, thus minimizing risks.

The respondents' age is dominated by the productive age group (84.03%). This shows that the location and implementers are ready and can be a strong asset for the sustainability of the activities. Age plays a role in shaping the farmers' mindset in running their agricultural business, performance, and productivity. There is a tendency that younger farmers are more likely to adopt an innovation because they have the enthusiasm to learn and discover what they do not know. Awaliah (2012) stated that older farmers tend to disagree with new information because they have more experience and rely more on their experience in farming. Krisnawati (2014) added that at a non- productive age, farmers tend to have difficulty accepting innovation.

Evaluation Context

SNP food estate is a food security policy through the utilization of idle land and at the same time as a job creator and increasing community income. The plan is systematically and gradually formulated, marked by the existence of vision, mission, objectives, targets, action plans, and timelines. The organization and governance show that this program is already holistic, as it involves cross-ministries and local governments. Technically, this program is also inclusive because it involves farmer institutions as implementers and the business world (off- taker), so that its agribusiness activities are closed-loops. From the results of formative evaluation in the field, it shows that in the initial

Table 6. The age distribution of the SNP food estate activity implementers in Riaria Village, Pollung District, Humbang Hasundutan Regency, North Sumatra Province, in 2023

Age (Years)	Farmer Groups (Individuals)							Number of Respondents	Percentage (%)
	Ganda Marsada	Karejo	Maju	Ria Bersinar	Ria Kerja	Sehati	Sinar Jaya		
20-30	2	2	2	0	4	0	0	10	5.92
31-40	9	12	3	1	6	8	0	39	23,08
41-50	8	7	3	10	11	5	4	48	28.40
51-64	7	10	6	6	4	3	9	45	26,63
>64	2	1	4	4	7	9	0	27	15,97
Total	28	32	18	21	32	25	13	169	100,00

Source: Interview results, processed

stage, this program ran very well, but during the transition, the organization played less of a role. From the interview results, it was found that most farmers still need technical assistance from technical institutions because they are not ready to be independent in terms of technical and financial aspects. To ensure the sustainability of this program, the government must continue to involve technical institutions

intensively when its management is handed over to farmer group institutions.

Our findings also show that the goals and priorities set by the program have not fully met the needs of the organization's target groups. Locke and Latham (2013) revealed that there are five basic aspects in goal setting, namely specific, measurable, attainable/achievable, relevance, and time-bound. The first aspect is that the program's goals are already detailed, focused, and reasonable, but they have not been followed by strategies to achieve those goals. Secondly, the desired goals are in line with the limits of capacity and have concrete

criteria for measuring goal achievement. Thirdly, the geophysical environment of the area has met the ecological growing space and development support of cross-ministries, so the planned targets are quite realistic. Fourthly, in terms of relevance, the goals are less realistic because of the limitations of human resources and the quality of existing institutions. Finally, the process of achieving goals is still limited to setting development area targets.

Input Evaluation

In the Technical Guidelines for Food Estate Development, the planning aspect of food estate development is divided into five stages:

1) determination of area criteria; 2) preparation of the master plan; 3) preparation of the action plan; 4) synchronization across ministries; 5) synchronization of regional development plans; and 6) synchronization of development plans at the level of the Ministry of Agriculture's I Unit.

The results of the input evaluation using the assessment checklist based on Regulation of the Minister of Agriculture No. 41 of 2009 indicate that: 1) all registered farmer-managers should be residing in the village, to optimize the entire harvest area; and 2) the area requires an expansion of the farmer's access road network and the construction of artificial water networks or reservoirs. The food estate agribusiness activities are entirely carried out by farmer group institutions, making institutional capacity a crucial variable for the program's sustainability. The development of institutional capacity will become the driving force for achieving the program's long-term goals. The evaluation results indicate that there is a need to improve institutional capacity through strengthening the role of farmer group leaders and extension agents, enhancing the technical and managerial capacity of group members through training, and obtaining strong support from the private sector (off- takers) in terms of financing and marketing the results.

In accordance with the action plan document, the government has provided the necessary infrastructure and facilities, such as land certificate assistance, physical infrastructure preparation, drip irrigation provision, agricultural inputs, pre-planting machinery, post-harvest handling and marketing, and farm roads. Additionally, cooperation

agreements have been made with the private sector (off- takers) and training has been provided for participating farmers. The results of observations and interviews with all respondents are as follows:

1. The central and regional governments as well as indigenous communities need to harmonize their tenure conflict regarding the area to achieve the 10,000-hectare target as planned. Farm management is still individually handled by each farmer, therefore not reflecting the farmer group as an institution that regulates all business activities. Nonetheless, all respondents stated that this program provides

2. Intensive socialization needs to be carried out to the community, first regarding how the food estate program can improve welfare, and secondly, that joining an institution will be more efficient in carrying out large-scale agricultural activities. This is because 45% of respondents who are not participants expressed pessimism towards the food estate program, and 87.25% of respondents expressed a lack of confidence in the performance of farmer group institutions, while 78.9% of respondents were dissatisfied with the services of extension workers.

3. The capacity of farmer group institutions as a learning class, production unit, and cooperation forum is very low, hence the need to improve the role of group leaders, member participation, and group dynamism. This is because 79.23% of respondents were dissatisfied with the performance of the farmer group, and all seven (100%) farmer group institutions have not yet carried out any collaboration in marketing their produce.

4. The irrigation infrastructure capacity has not met the needs of all participants, as shown by 81.22% of respondents who reported not having access to the drip irrigation system that has been built.

Access

cannot yet be obtained by 74.98% of respondents. Business capital is only obtained from the assistance of agricultural inputs and tools from the Ministry of Agriculture and farmers' self- help efforts.

5. The closed loop agribusiness system in the food estate program has not been fully established, as there are still barriers between subsystems, indicated by 98.23% of respondents who stated that the production goals are still aimed towards traditional markets. The transition team needs to involve technical institutions, as 98.2% of participating farmers have a background in extractive farming. The training provided to participating farmers has only reached about 14% of the total number of implementing farmers, and 63.67% of respondents reported that the training they received was inadequate. The determination of garlic commodities through SWOT analysis needs to be reconsidered, as 89.79% of respondents reported that productivity is very low due to an unsuitable ecological growing environment.

Product Evaluation

The evaluation report presents the area of cultivation, production, and productivity of strategic horticultural crops in Humbang Hasundutan District for the period 2019-2022, as shown in Table 7. At the start of the program, the area of harvested crops, such as shallots, garlic, and potatoes, increased significantly in 2020 due to the implementation of the food estate program. At the beginning of 2020, the government established three main commodity types with the assistance of land preparation and other agricultural inputs. However, the harvested area of these three commodities continued to decline in 2022. The data indicates an increase in productivity, except for garlic, which remains below the national productivity level. Observation results show that, in the second year, the food estate's cultivated area was only 160 hectares (65.30%).

Table 7. The Development of Harvested Area, Production, and Productivity of Horticultural Crops in Humbang Hasundutan Regency from 2019-2022.

Commodities	Year							
	2019		2020		2021		2022	
	Harvested area (Ha)	Productivity (tonnes/Ha)	Harvested area (Ha)	Productivity (tonnes/Ha)	Harvested area (tonnes/Ha)	Productivity (tonnes/Ha)	Harvested area (Ha)	Productivity (tonnes/Ha)
Shallots	189	6,23	294	6,56	278	7,08	199	7,28
Garlic	24	2,12	79	2,16	36	2,34	20	2,11
Potatoes	246	14,25	301	15,77	278	16,77	265	17,23
Cabbage	328	20,51	337	21,56	348	23,21	376	23,25
Maize	231	18,23	245	18,33	256	17,88	267	16,68
Chili	983	8,87	1.087	9,12	1.210	8,76	1.256	8,22
Tomatoest	368	17,22	398	17,45	408	16,78	421	16,09

Source: Secondary data, processed

Observations in the district and regency capitals indicate a significant increase in demand for agricultural inputs, such as fertilizers, medicines, and farming equipment. Thus, this program has a qualitative backward-linkage impact on other sectors, meaning it is interconnected with other sectors that contribute to its inputs. However, the program's forward-linkage impact, which uses its outputs as inputs for other sectors, is still not visible. The food estate area is located at an altitude of 1200 meters above sea level and far from the water source. To meet the water needs, the government has built a reservoir as a source of drip irrigation water. The reservoir has a large volume and takes water from a small river in the valley, which slightly affects the availability of water for agriculture. With an average per capita income of IDR 576,000 per month, food estate participants find it difficult to finance their entire farming operations, with an average area of 1.3 hectares. Field observations and interviews indicate that:

1. According to the results, 83.74% of respondents reported no difficulty in selling their produce, with 93.21% stating that they received additional income after the implementation of the food estate program. Only 67.23% of respondents expressed willingness to continue cultivating horticultural crops even without government assistance, while the remaining 32.67% indicated that they were unwilling to continue cultivating the designated crops (potatoes, shallots, and garlic)

2. In addition, 96.26% of respondents reported inadequate capital to cultivate all of their land for the three designated crops.From the interviews, it was found that all farmers hoped to be facilitated with low-interest farming capital. Furthermore, 97.23% of respondents disagreed with the idea of only cultivating the designated crops, and all respondents expressed their willingness to continue their activities as long as they were accompanied by technical and managerial support

Feasibility of Shallot, Garlic, and Potato Farming

The performance of an agribusiness unit is determined by its output and outcome. Output performance indicators are determined by productivity levels, while outcome measures the income earned by farmers. Thus, success indicators are based on the outcome. One important requirement to achieve optimal outcomes is high productivity coupled with economic efficiency in the use of inputs, as well as output prices above normal profits.

According to the action plan document, there are three types of commodities cultivated by farmers, namely potatoes, shallots, and garlic. From observation, it was found that farmers only cultivate a portion of their land during each planting season. Of the current 215 ha of land, only 67% (144.05 ha) are being used for cultivation due to limited capital. Table 8 presents the financial analysis of farming activities based on commodities.

The average planting area for all respondents for the three types of crops is 0.213 ha. Thus, the total area used for all three commodities is only 45.80 ha, while the rest is used for other horticultural crops such as chili, cabbage, tomato, and potatoes. The average R/C for the three commodities is 1.39, meaning that everyone invested in the agribusiness gives a profit of 0.39 (39%), and if the average crop age is four months, then the investment gives a monthly profit of 9.75%. This figure is still above the normal profit. As with the nature of agricultural businesses, financial analysis will fluctuate depending on changes in input and output prices.

The productivity of each commodity has not yet reached the target plan, let alone national average productivity. As we know, the farmland of the food estate comes from long- unused bushy lands with high carbon content. Thus, it requires special and repeated agronomic treatment to approach the ecological growth space required. Cooperation partners

are expected to help market agricultural products with a hedging cost system to reduce farmers' risk of loss. Based on the financial calculation, it can be said that the agribusiness of these three commodities has great prospects for development, especially on a larger scale

Table 8. The financial feasibility of farming in the food estate program in Ria-Ria Village, Pollung District, Humbang Hasundutan Regency, in the year 2023.

Description	Commodity Type					
	Potatoes		Shallots		Garlic	
	Per farmer	Per hectare	Per farmer	Per hectare	Per farmer	Per hectare
Production (Kg)	9.367.270	30.217.000	1.474	6.700	311.52	2.832
Price (Rp)	8.200	8.200	16.800	16.800	14.500	14.500
Revenue (Rp)	76.811.614	247.779.400	24.763.200	109.593,000	4.517.040	41.064.000
Cost (Rp)	45.713.127	147.461.700	18.668.188	84.855,400	3.795.052	34.500.475
Profit (Rp)	31.098.487	100.317.700	6.095.012	24.738.000	721.988	6.563.525
Land (Ha)	0.31		0.22			0.11
R/C		1.68		1.29		1.19

The priority of the development strategy for the National Strategic Program of Food Estate

Figure 2. Strategic hierarchy of food estate development

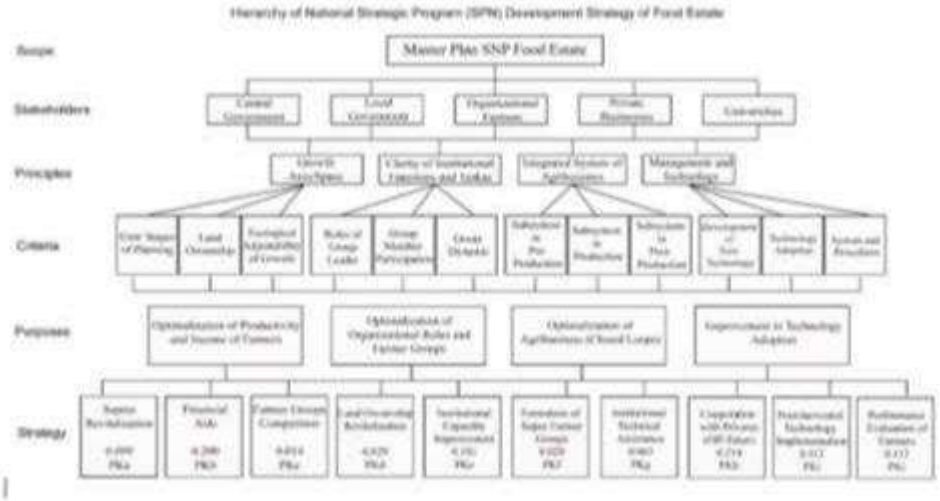

Table 9. Determining the weight of priorities for each Food Estate development program

	Pka	PKb	PKc	PKd	PKe	PKf	PKg	PKh	PKi	PKj	Weight of Priority
PKa	0,09699321	0,1269	0,1452	0,078	0,062	0,10309	0,1275	0,093844	0,06267	0,101592	0,099728734
PKb	0,193986421	0,2537	0,129	0,129	0,3722	0,10309	0,1275	0,375375	0,18802	0,135455	0,200774297
PKc	0,010766246	0,0317	0,0161	0,009	0,0205	0,01031	0,0051	0,026276	0,00877	0,004064	0,014222129
PKd	0,032298739	0,0507	0,0484	0,026	0,0223	0,06186	0,01062	0,026276	0,01003	0,008466	0,029688101
PKe	0,290979631	0,1269	0,1452	0,207	0,1861	0,06186	0,21249	0,187688	0,18802	0,203183	0,180926645
PKf	0,019398642	0,0507	0,0323	0,009	0,0207	0,02062	0,0068	0,026276	0,01003	0,005418	0,020081677
PKg	0,032298739	0,0845	0,129	0,103	0,0372	0,12371	0,0425	0,026276	0,02068	0,033864	0,063353283
PKh	0,193986421	0,1296	0,1129	0,181	0,1861	0,14433	0,29749	0.187688	0,43871	0,270911	0,21400419
PKi	0,09699321	0,0845	0,1129	0,155	0,062	0,12371	0,1275	0,026839	0,06267	0,270911	0,112317517

In Figure 2, the hierarchy of Food Estate development strategy is described, which begins by defining its focus, criteria, and principles. Based on data analysis, it is known that the most important strategies to be implemented are the improvement of cooperation with businesses (off-takers), financing assistance, and the enhancement of farmer institutional capacity, with an inconsistency value of 0.05. Partnership with business institutions is highly prioritized because they can collaborate with farmers in all agribusiness subsystems, such as input procurement, production, and post-production (harvesting and marketing). The second important strategy is financing assistance. With an income of Rp.6,912,000/capita/year, it is very difficult for participants to manage the entire Food Estate with an ownership area of 1.31 (σ=0.74). The third important strategy is the enhancement of farmer institutional capacity. As planned, community involvement in the Food Estate is done through formal institutional approaches, where those who want to participate must join a farmer group. Thus, the farmer group institution plays a strategic role and is key to the success of the program. This is in line with Grindle's opinion (1997) stating that institutional capacity development is the ability to perform appropriate tasks effectively, efficiently, and sustainably. Milen (2004) also stated that institutional capacity is a process in which individuals and groups improve their ability to produce performance, solve problems, formulate and achieve goals, understand and meet development needs in a broader context in a sustainable way.

CONCLUSION AND POLICY IMPLICATIONS

Conclusion

Based on the research objectives and discussions, the following conclusions can be drawn:

The SNP Food Estate agribusiness in Riaria Village, Pollung District, Humbang Hasundutan Regency has financial value above normal profit.

There are five success indicators that have been achieved, namely: a) the optimal provision of infrastructure in the area; b) the application of location-specific technology; c) the improvement of knowledge, skills, and entrepreneurship of farmers; d) the increase in production and productivity; and e) the increase in income of all participating farmers in the Food Estate activity.

There are five success indicators that have not been achieved, namely: a) the availability of financing for all farming activities;

b) the improvement of the capacity of farmer groups;

c) collaboration between farmer group institutions and the business world (off-takers);

d) closed-loop agribusiness system; and e) expansion of the area (scale-up).

Important strategies in the success of the Food Estate are strengthening partnerships with the business world (off-takers), strengthening farmer financing, and improving the capacity of farmer institutions.

Policy Implications

Considering the large investment made by the government, the development of institutional- based horticulture in the location of the pilot project should continue. However, its implementation needs to be accompanied by improvements, including the following:

1. Establishing significant efforts to build cooperation with the business world (off- takers) in the pre-production, production, and post-production subsystems (post- harvest and marketing) that can reduce the burden of farmer capital.

2. Encouraging farmer groups closer to financial institutions that can provide capital assistance with relatively low interest rates.

3. Strengthening the capacity of farmer group institutions by utilizing farmer groups as institutions that extend the reach of farmers, so that the position of farmers becomes stronger, and their welfare is increasingly achieved.

4. Providing continuous assistance to farmer institutions, so that all members of the farmer group have good technical and managerial skills in managing the Food Estate land as a business unit.

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