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Sustainability of agribusiness institutions (case study on horticultural agribusiness farmer groups in Bantaeng Regency)

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Abstract. Institutional has become very valuable in the implementation of sustainable agricultural development. The main objective of this study was to examine the dynamics of the system and the strategy of institutional sustainability of farmer groups in horticultural agribusiness in Bantaeng. Then, the collected data were processed and analyzed using qualitative descriptive with Brinkerhoff institutional sustainability analysis approach. The results showed that the dynamics of the system in changing inputs through the process to produce outputs consistently improved over time conditioning the institutional sustainability of farmer groups in the development of horticultural agribusiness in supporting sustainable agriculture. The contingency power of farmer groups is determined by their ability to respond to the dynamics of the work environment, as well as the political-economic environment through a combination of strategies, both mechanical, adaptive, reactive, and interactive carried out simultaneously or partially to achieve its sustainability level. The effectiveness of institutional sustainability strategies to support system capacity in improving farmer group performance, is indicated by its ability: (1) Creating competitiveness by maintaining product quality; (2) Handling and utilizing waste through innovation and development of product diversification so as to increase income, value added and environmentally friendly; and (3) Creating satisfaction for consumers.

1. Introduction

The community, especially the people of Indonesia, cannot ignore the importance of horticultural commodities in daily life. Both for direct consumption and as the foundational components of processed industrial products, it must exist. According to [1], the primary alternative with the greatest potential for growth in Indonesia is horticulture agribusiness, with the concept of "on-farm agribusiness" at its core. As a producer of horticulture goods like vegetables, fruits, or ornamental flowers, Indonesia plays a strategic role in the world. The development of the horticultural industry is supported by comparative advantages in the form of climatic conditions and land conditions, but in practice, Indonesia's vegetable trade balance is still in flux, and even the trade in vegetables and fruit plays more of a role as a drain on foreign exchange reserves than as a foreign exchange earner [2].

One of the hubs for horticultural development is South Sulawesi. In South Sulawesi, there are various districts where horticulture products are being developed, including Enrekang, Toraja, Gowa, and Bantaeng. Over the past five years, Bantaeng has developed rather quickly. A number of innovative innovations have been introduced to raise Bantaeng's bargaining power on a national and worldwide



scale. These innovations include dividing up development zones based on the potential that already exists locally, developing the economy with an emphasis on agriculture as the main driver of economic growth, and creating horticulture products. The agricultural sector has developed as a consequence of hard labor, smart planning, and integration of all pertinent factors while making the most of already available resources. The realization of a robust and competitive Bantaeng agriculture system, both in local and interlocal markets, is supported by a high level of commitment from all competent stakeholders. One of the issues raised is the need for a very noticeable infrastructure upgrade as essential capital to provide access to all of the community's economic operations.. This will undoubtedly increase the competitiveness of horticulture products in a beneficial way. However, as a cornerstone of sustainable agricultural development, horticulture agribusiness development also needs to include environmental factors.

According to some prior research, developing horticultural business partnership institutions through developed social processes and the activities of cooperative organizations for the production and marketing of products are the only factors that can increase the competitiveness of horticultural commodities, [3]. Even fewer studies have looked at institutional sustainability than this one did. In order to raise the caliber of human resources, horticultural agribusiness growth should take into account regional institutional aspects of farming communities. The government has thus far primarily concentrated on improving infrastructure and output, ignoring institutional issues as one of the enabling factors for the growth of horticultural agribusiness. [4].

On the other hand, it has been said that institutions are not functioning at their best. In truth, their work is occasionally only a means of obtaining aid or subsidies, leaving the institutions all but useless when the funding runs out. Therefore, empowering these institutions requires careful consideration. Building a basis for collective action, a key tactic in strengthening one's negotiating position with outside parties, is a necessary aspect of organizing institutional sustainability. Understanding the internal and external environments is crucial when developing institutional sustainability in order to formulate adequate institutional sustainability.

Institutional sustainability refers to an organization's ability to sustain success within its strategic context by periodically adapting creatively to the dynamics of that environment [5]. The ability to manage horticulture agribusiness enterprises that support sustainable agriculture will be impacted by institutional sustainability. Because the implementation of development in the present period is constantly associated with institutions or organizations that are developed as part of the process of community empowerment, institutions have thus become extremely valuable [6]. The term "institutional farmers" refers to farmers who are involved in the local development of horticulture agribusiness and who do so through membership groups or cooperatives, i.e., farmers who belong to a cooperative group [7]. In order to develop strategies for for horticulture agribusiness businesses, institutional players face a challenge in identifying and assessing the strength of these agribusiness institutions. Based on the aforementioned description, the authors are interested in researching "Sustainability of agribusiness institutions".

2. Method

The major data used in this study was gathered through in-depth interviews and Focus Group Discussions (FGD) with specifically chosen Agricultural Extension and farmer group leaders. In 2023, this study was carried out in Bantaeng Regency. Because it is one of South Sulawesi's hubs for the growth of horticultural agribusiness, this region was selected as the site for the research. The study's data were processed and evaluated utilizing a qualitative descriptive method [8] and Brinkerhoof's institutional sustainability analysis approach. Assessing farmer groups' capacities using the SCOPE framework (System, Contingency, Political Environment, and Economic Environment) is the first step in doing the analysis. Next, select techniques according to the dimensions of capacity displayed in figure 1.

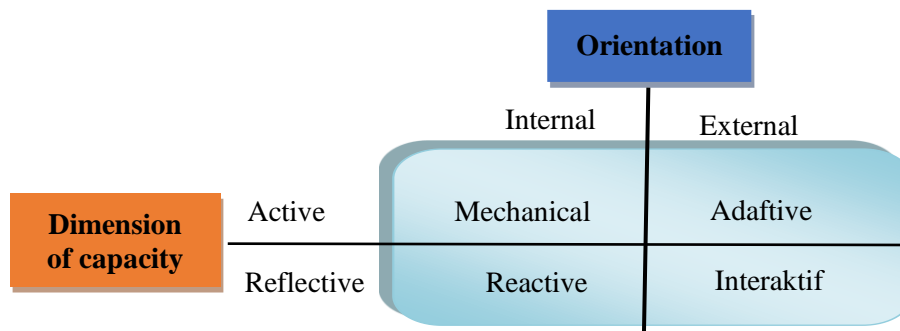


Figure 1. System Strategies for Translating Capacity into Performance

3. Results and Discussion

In this section, a description of system dynamics, contingency power with task environment, politics and economics and sustainability strategies for farmer group institutions in horticultural agribusiness in Bantaeng Regency will be described.

3.1. System Dynamics of Horticultural Agribusiness Farmer Groups in Bantaeng Regency

Institutions are essentially systems. Central to systems theory is the idea that many natural and social phenomena can be treated as "Systems". Systems theory is defined as a series of units/elements that interact with each other, utilize inputs from the environment, process several types of inputs into several types of outputs that will be thrown into the environment. In this section we will discuss the system dynamics of the Agribusiness horticulture farmer group in Bantaeng Regency.

3.1.1. Input Subsystem. Inputs are all materials, tools, and components used in the production process, including: seeds, labor, fertilizer, pesticides, infrastructure, technology, information, land/location. The main raw material used in farmer groups is quality seedlings. The system of purchasing raw materials is carried out when the planting process will take place. Farmer groups in the research location purchase seeds through seed breeding carried out in Bandung canneries, this is done to maintain uniformity and quality of seeds, especially to get basic G0 and G1 seeds. Meanwhile, seedlings with grades G2-G4 are produced by the farmer groups themselves. Direct purchase around the production location is not done because information on the availability of ready-to-plant seedlings is very limited.

Purchasing seedlings through traders will result in an increase in the purchase price. This price increase is to compensate for services, transportation, and grading. Purchasing seedlings from local traders has risks, including: a) higher prices because they are similar to the retail prices received by consumers in general; b) the possibility of traders mixing seedlings from various sources; and c) seedlings that are not of prime quality. The availability of raw materials in terms of quantity in Bantaeng Regency is actually very sufficient for farmer groups, but the problem is the continuity and availability. This can be seen from the existence of seedling breeding in Bantaeng Regency and in other areas in South Sulawesi. However, farmers say that the quality of seedlings produced in South Sulawesi is not good and the results are almost the same as local seedlings produced by the farmers themselves.

The price of raw materials inputs has decreased as a result of the fall in seed quality. The price of seedlings not only increases progressively from year to year, but also fluctuates seasonally throughout the year. During the planting season, the price of seedlings to traders ranges from 18,000 IDR/kg to 25,000 IDR/kg, but during the dry season the price of seedlings can drop to 15,000 IDR/kg to 20,000 IDR/kg for G0 and G1 quality. Purchasing seedlings by lowering one quality grade will reduce the cost/purchase price by 1,000 IDR/kg to 2,000 IDR/kg, and so on until the purchase at the breeding location. This was revealed by Mr. Sudirman (a potato farmer in Bantaeng Regency).

The raw material input that serves as an auxiliary or helping material for the farmer group is the availability of water. The source of water used by farmer groups was initially rainwater, due to limited information and technology. Along with its development, the farmer group held a borehole as a water source. The use of this borehole is functioned when the need for water for plants while rainwater has

not fallen. The farmer group uses a water pump to be able to drain water from the well to the plantation. Other inputs needed are drumming fertilizer and chemical fertilizer obtained from local traders with different price variations, as some drumming fertilizer is imported from other districts that have broiler farms (Jeneponto and Bulukumba) to cover the fertilizer needs.

Other inputs needed as additional inputs are pesticides that will be used to eradicate pre-planting weeds and plant pests and diseases in the cultivation process. The price paid by farmer group members varies based on the type and size of the pesticide. These inputs are obtained through trader stalls available around the production area. Although some farmers get these inputs from the market or from big shops in town with a price margin of 1000-2000 IDR/liter of pesticide. All pesticides used by farmers are chemical. Farmers have not dared to use organic pesticides in total because they do not want to take risks.

According to [9], human resources are a very central factor in the organization. Factors that need to be considered are: clear steps regarding human resource management, work skills and motivation, productivity and reward systems. Human resources is the workforce that helps smooth the production process up to the marketing of products (crops) carried out by the farmer group. farmers as the head of the farmer group, has a central role that is very influential on the development and sustainability of the group and business. In addition, the wife and children and other family members play an active role in supporting the smooth running of horticultural agribusiness managed.

3.1.2. Cultivation Subsystem. The cultivation process in horticultural agribusiness farmer groups has implemented a good way of food production according to the principles of GAP (Good Agriculture Practices) and SOP (Standard Operating Procedure) in an effort to get horticultural products that are fresh, quality, safe for consumption, environmentally friendly and sustainable, although based on the fact that not all farmers apply it as a whole, there are even farmers who apply but do not realize that what is done is in accordance with GAP and SOP in the cultivation of horticultural crops. SOP (Standard Operating Procedure) for each stage of the production process is a reference for farmers in carrying out the cultivation process. SOPs for each stage of the process that must be adhered to are socialized by agricultural extension workers through farmer group meetings and extension services, including: pre-planting (land preparation), fertilization, irrigation, plant protection, harvest and post-harvest, environmental conservation and waste management, and others. This is done in order to support sustainable agricultural development.

Farmers start their activities by wearing work clothes that match the type of work to be done. Farmers' activities every working day vary, starting from sunrise to sunset with different durations of time. Male workers may leave first for the plantation, while women may leave later after preparing lunch to take to the plantation area. Some farmer groups only produce fresh vegetable products, but there are also some farmer groups that produce other products, such as the production of vegetables to be used as seedlings or for mothers sometimes there are those who process products into potato chips and fried onions.

3.1.3. Output Subsystem/Product Marketing. Output activities include the harvest process, post-harvest handling and marketing of horticultural commodity products. In horticultural commodity product storage activities are highly dependent on weather conditions and the availability of storage warehouses. The characteristics of horticultural commodities that are not durable and rot easily require farmers to do the marketing process as soon as possible. Farmer groups store and maintain the quality of products that are ready to be marketed to customers. Marketing is the process of defining, anticipating, creating, and fulfilling customer needs and wants for goods and services. The marketing aspect is studied through the marketing mix approach which includes analysis of product, price, distribution and promotion [10].

a. *Quality and Packaging:* Vegetable products are fresh agricultural products that are ready to be processed into ready-to-eat foods. The advantages of horticultural commodities are nutritional content and the main source of vitamins and fiber needed by humans. The farmer group uses plastic bags and sacks as packaging with various customized sizes. The packaging used depends on customer

orders. If the crops will be sold directly in the market, they usually use plastic bags, but if the crops will be sold to other areas through intermediary traders, they usually use sacks, especially for products that are easily damaged and even loaded in pre-made wooden crates such as for tomato crops. Farmers have not yet used labeled packaging due to the availability of market access and information.

- b. **Product Price and Size:** Pricing of vegetable products carried out by the farmer group is by considering factors, including: (1) the price of vegetables in the market (2) production costs, (3) transportation costs; Steps to anticipate price fluctuations are taken by adjusting the size and quality of the product to the predetermined price. Price increases usually occur during the marriage season and holiday celebrations, where the need for horticultural products also surges from customers. Horticultural products are sold in various types of sizes, some are sold in liters, some are sold in ties, sold in Kilograms and some are even sold in the size of 1 plastic bag.
- c. **Distribution and Marketing:** Marketing of horticultural products is done with two channels, namely: direct channels to the end consumer and through distributors or traders as product distributors (indirect channels). Marketing activities are carried out in farmers' homes and also in nearby markets. The distribution process involves family members, mainly mothers. The involvement of family members in the distribution and marketing of products directly ensures that products arrive at the hands of consumers at a higher price than when sold to traders.

3.2. Contingency Power and Sustainability Strategies of Farmer Groups in Horticultural Agribusiness Development

System theory is considered insufficiently capable of describing clearly and in detail the system's relationship with the external environment, therefore, Contingency Theory is needed. Contingency theory shares with systems analysis a concern for the environment. Any aggregation or pattern of human behavior must be seen in relation to the complexity of external forces that threaten or enhance its continuity and expansion. Contingency theory has the ability to answer how institutions can achieve harmony with surrounding forces.

3.2.1. The Dynamics of Task Environment and Contingency Power

- a. **Contingency with Production Input Suppliers:** The ability to obtain appropriate raw materials continuously is the key to sustainability in horticultural agribusiness. The decline in production is often caused by the quality of inputs used, therefore, the existence of input supply is crucial to the success of horticultural cultivation. Some suppliers have understood the quality requirements of raw materials desired by farmer groups, given the frequency of purchasing raw materials that have been routinely carried out. The commitment with suppliers is to maintain the quality of seedling raw materials in accordance with the agreed conditions desired by the farmer groups.
To date, there is no written contract or agreement between the farmer group and the supplier regarding the requirements for the supply of seedlings. The farmer groups have complete records on the source and quality of the raw material inputs. Some of the suppliers violate the agreed commitments. Violations of commitments usually committed by suppliers include, among others, a decrease in the quality of seedlings and the state of seedlings that rot quickly, the size of seedlings that are not suitable and even the amount of supply that sometimes does not match the amount ordered.
- b. **Contingency with Traders/Consumers:** To seize market opportunities and obtain potential customers, the farmer groups made various efforts, namely: (1) Introducing the product directly to potential consumers in the form of raw products ready for processing and products ready for consumption; (2) entrusting the product to trusted traders; (3) Providing product handling tips to customers; (4) Establishing partnerships with consumers to become subscriptions; (5) Monitoring the product during the transportation process to the market. Continuity of service to consumers is done by paying for the product at the time of the transaction. All product delivery costs are also fully borne by the trader.

Some traders who were previously subscribed are no longer being served. This is because payment for products by these traders is not smooth. Some farmers who are still in the beginner farmer groups still have difficulty finding large traders because the amount of production is small while large traders usually purchase in large quantities. Efforts are made to entrust goods to other farmers who have products in large quantities. Another effort made is to make direct deliveries to end consumers in markets in Bantaeng Regency including the Loka market, the Bantaeng Central market and the lambocca market.

- c. Contingency with Competitors: In anticipating competition, the farmer group uses several strategies including using cost minimization strategies, quality improvement, and production efficiency and effectiveness. To anticipate the fulfillment of consumer demand, group members cooperate in order to fulfill this demand.

3.2.2. The Political and Economic Environment as Contingency Power. In the process of horticultural cultivation, farmers are often in a weak position, and the development of horticultural commodities is underestimated compared to other agricultural products. then the Government seeks to improve this situation juridically. through Law Number: 13 of 2010 concerning Horticulture and Law Number: 25 of 2014 concerning the provision of facilities and incentives for horticultural businesses. Political and economic conditions provide both opportunities and challenges for the sustainability of farmer groups in Bantaeng Regency. The development and sustainability of farmer groups cannot be separated from the role of the government, including the Department of Food Security and Agricultural Extension, the Department of Food Crops, Horticulture and Plantations, which always provides counseling and training on horticultural crop cultivation and institutional development of farmer groups. Another thing the government does is help promote products through exhibitions and find markets for horticultural commodities; development of agricultural infrastructure, Banks provide soft credit facilities to farmer groups through Kredit Usaha Rakyat (KUR).

3.2.3. Farmer Group Institutional Sustainability Strategy on Horticultural Agribusiness. In the SCOPE framework, strategy is an important variable in determining the system to change, learn, and increase the likelihood of sustainability. Institutional sustainability is determined by its environment so that each institution must be able to interact with its environment both internal and external environment. Institutions will learn by emphasizing the active dimension of doing things right, or the reflective dimension of doing the right things [11]. Decision patterns are important for emphasizing efficiency, or putting resources together with less waste, or perhaps emphasizing innovation and discovering new combinations of old and new resources that will change the capacity of the system. Active and reflective dimension strategies are alternated over time, as the institution faces new internal and external challenges [11].

Table 1. Farmer Group Institutional Sustainability Strategy in the Horticulture agribusiness input subsystem

Sub System	Strategy Implementation			
	Mechanical	Reactive	Adaptive	Interactive
Input	<ul style="list-style-type: none"> - Farmer group leaders delegate certain tasks and responsibilities in a structured manner to group members. - Involving family members in business operations - Include group members in various trainings to improve knowledge and skills. - Not accumulating and stocking raw material inputs given their perishable nature. 	<ul style="list-style-type: none"> - The head of the farmer group as a leader evaluates the development of the business after every harvest. - Set workers' salaries based on performance and seniority and gender. - Improving the input of land processing facilities so that they meet the feasibility standards - Replace water supply from rainfed to borehole water 	<ul style="list-style-type: none"> - The farmer group prefers not to purchase raw materials from seedlings in the vicinity of the production area even though the price is cheaper, to avoid the input of non-uniform raw materials - Completing and trying to fulfill various requirements of relevant agencies to obtain the legality of farmer group institutions. 	<ul style="list-style-type: none"> - Seedling suppliers have provided information over the phone about the availability of seedlings, both in terms of source, quantity and size specifications. - The farmer picks up the ordered seedlings directly according to the desired quality. - If the supplier is dishonest, such as supplying seedlings of inappropriate quantity and quality.

Table 2. Farmer Group Institutional Sustainability Strategy in the Horticulture agribusiness process subsystem

Sub System	Strategy Implementation		
	Mechanical	Reactive	Adaptive
Process	<ul style="list-style-type: none"> - Understand the SOP to all members so that all work is done according to the rules - Set different planting schedules among group members - Conduct the cultivation process according to existing standards - Ensure product quality - Encourage the productivity of group members/workers by providing wages in accordance with their performance 	<ul style="list-style-type: none"> - Recalculating the number of seedlings supplied to evaluate the compliance with the payment for raw materials supplied by the supplier. - Cleaning the harvested products - Using a dry warehouse so that the harvest is not quickly damaged and the quality is maintained. - Reduce supervision with each activity carried out based on the SOP - diversify products (fried onions, potato chips etc.) 	<ul style="list-style-type: none"> - Under the guidance and assistance of relevant agencies, farmer groups are dynamically improving work methods to meet the implementation of GAP and SOPs. - Product packaging Using packaging both using plastic and sack packaging tailored to consumer orders. - Progressing the application of GAP and SOP, to fulfill the quality of the products.

Table 3. Farmer Group Institutional Sustainability Strategy in the Horticulture agribusiness output subsystem

Sub System	Strategy Implementation		
	Mechanical	Adaptive	Interactive
Output	<ul style="list-style-type: none"> - Horticultural commodity products are packaged using good packaging. - Maintain production stocks to anticipate surging market demand. - Optimize production and marketing of Diversified products (fried onions, G2 - G4 seeds, potato chips etc.) 	<ul style="list-style-type: none"> - Packaging products Using good packaging tailored to consumer orders - Conduct limited promotion to potential customers - Selectively accepting high demand for products with specifications beyond production capacity. - Product sales services can be done online - Use of product packaging both packaging following the orders of consumers. 	<ul style="list-style-type: none"> - Collaborate with merchants in selling products. - If the products ordered by customers are not picked up directly, they will be delivered or sent via a subscription car at an agreed fee. - Product delivery costs are agreed based on sales value, distance and product volume. - Provide recommendations on how to handle products to consumers to keep them safe in shipping, storage and processing.

3.3. Effectiveness of institutional sustainability strategies of farmer groups

Institutional sustainability strategies carried out by farmer groups on horticultural agribusiness in Bantaeng Regency are (1) Creating competitiveness of horticultural commodities and performance by applying GAP and SOP so as to maintain the degree of product quality. (2) Handling and utilization of waste and innovation and development of product diversification to obtain added value; (3) Implementing effective organizational management and disciplined administrative management; (5) Establishing good relationships and coordination with relevant stakeholders; and (6) Disseminating information, product promotion and providing excellent service to consumers. The strategic implementation simultaneously supports the institutional sustainability of farmer groups in Bantaeng Regency.

3.4. Factors Causing the Unsustainability of Farmer Groups in Horticultural Agribusiness Development

To analyze the institutional sustainability of farmer groups, it is very interesting to examine the factors that cause the collapse of farmer groups that have been formed. Some farmer groups are formed, but no longer operate optimally (Collapse). The contributing factor is the lack of capacity and commitment in building the system. The head of the farmer group as a leader has a key role in building the system and contingency power through the dynamics of the institutional sustainability strategy he takes. Failure to apply the right strategy in dealing with the dynamics of the internal environment and the political-economic environment is also a key factor in the unsustainability of farmer groups that have been formed in Bantaeng Regency.

4. Conclusions

Based on the results and discussion of the research, it can be concluded that: 1). The dynamics of the system in changing inputs through the process to produce outputs are consistently improved from time to time conditioning the sustainability of institutional farmer groups on the development of horticultural agribusiness in supporting sustainable agriculture, 2). The contingency power of farmer groups is determined by their ability to respond to the dynamics of the work environment, such as input suppliers, traders/consumers, and competitors, as well as the political-economic environment through a combination of strategies, both mechanical, adaptive, reactive, and interactive carried out simultaneously or partially to achieve its sustainability level, 3). The effectiveness of the institutional sustainability strategy that has been pursued, supporting system capacity in improving the performance of farmer groups, is indicated by its ability: (a) Creating competitiveness by implementing GMP and

SOP so as to maintain the degree of product quality; (b) Handling and utilizing waste through innovation and development of product diversification so as to increase income, value added and environmentally friendly; and (c) Creating satisfaction for consumers.

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