

IMPLEMENTATION OF IMPROVEMENT AGRIBUSINESS STRATEGY MODEL OF CACAO, TECHNOLOGY CAPABILITY TO CONTROL VASCULAR STREAK DIEBACK (VSD), MOTIVATION TO INCREASE PRODUCTIVITY AND VALUE OF PRODUCT (FARMER FOCUS ON EXPORT MARKET ORIENTATION AT CACAO CENTER IN SULAWESI)

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Abstract

The purpose of this study is the implementation of agribusiness strategy model of cacao to solve the low productivity caused by Vascular Streak Dieback (VSD) in Indonesia, specifically in Sulawesi. Furthermore, in export level it is still in primary product and not have processed, which resulted low competitiveness product. Qualitative and quantitative analysis were used as an analytical method, while the implementation model was used to introduce Trichoderma and Bokashi Plus fertilizer to farmer. The result showed that the implementation of agribusiness mode of Cacao at Central Sulawesi and West Sulawesi as a sample location, five (5) sub-systems of agribusiness were not maximal to contribute, especially in sub-system agricultural production and sub-system financial. Farmer's motivation to learning technology to control VSD by using Trichoderma and Bokhasi Plus fertilizer was high, which can be shown that they very enthusiastic to accept the technology. The effectivity of implementation agribusiness strategy model also showed a good result, though some of farmers were already land transformed to other commodity.

Keywords: productivity and value: agribusiness strategy: vascular streak dieback (VSD)

Introduction

Sulawesi Region, according to Masterplan for Acceleration and Expansion of Indonesia's Economic Development (abbreviated MP3EI) No. 32 Year 2011-2025 is one of major focus of Economic Zone (KE) for cacao commodity development center. About 838,037 ha or 58% of total cacao plantation area in Indonesia takes place in Sulawesi. Almost 96% of area owned by farmers that spread across entire Sulawesi. However, the cacao development in Sulawesi face some of challenges, cacao production has been struggling with bad weather and diseases, mainly caused by Vascular Streak Dieback (VSD) and lack of technology and innovation. Moreover, the price of

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fermented cacao has a same price with non-fermented cacao. Another challenge is the size of country's total cacao plantation area has fallen as farmers have been transforming their cacao plantation in palm oil or other plantations [1].

To facing these challenges, it is lies to the farmers as they must to realize about the limitation of natural resources, strengthening human resources, increasing values and competitiveness of output products to support the development of Economic Corridor in Sulawesi, especially cacao commodity must be implemented with integration and synergist for each center in Sulawesi. With this, it will create the national and local capability to be more optimal as to gain increasing values and competitiveness of the product. Rosida *et al* [2] explained that there were many weaknesses in agribusiness sector, from sub-system facility and infrastructure to sub-system institutional, input to output. They formulated into 6 T internal principle model: Tepat Lahan (Right Land); Tepat Jenis (Right Type); Tepat Waktu (Right Time); Tepat Ukuran (Right Measure); Tepat Produksi (Right Production) quality and quantity; and Tepat SDM (Right Human Resources). Besides that, in external it is not yet fully supported by 3D: Dukungan pasar (market support); Dukungan regulasi (regulation support); and Dukungan kelembagan (institutional support).

The urgency of this research is to gain Indonesia aspiration in 2025, to be fully developed country and prosperous with GDP around USD 4,3 trillion and become ninetieth highest GDP country. To support it, there are several things that must be fixed in Sulawesi's Economic Corridor: (a) the lowest of local GDP per capita in Sulawesi compared to other region in Indonesia; (b) agricultural as a main sector and the biggest local GDP contributor (30%), facing slow growth even though it cost around 50% laborers; and (c) investment, either from domestic and foreign fund is slightly behind compared to other region.

Corridor IV Sulawesi has been appointed to focus on developing center of cacao that across to several provinces: Sulawesi Tengah (Central Sulawesi), Sulawesi Selatan (South Sulawesi), Sulawesi Tenggara (Southeast Sulawesi), and Sulawesi Barat (West Sulawesi). Each of them had cacao production in 2014: Central Sulawesi 168,401 tons; South Sulawesi 198,682 tons; Southeast Sulawesi 154,229; and West Sulawesi 101,319 respectively. Rosida *et al.* [2], Valeriana and Nur Khoiriyah [3] explained that there were several problems in cacao agribusiness: increasing productivity and quality; pests and diseases, especially VSD and how to treat it; poor post-harvest techniques that lead to low quality fermented beans.

The importance of the development cacao based and technology of model agribusiness strategy is (a) farmers can controls and treats VSD; (b) they have motivation back to improve production and increase value of product; (c) they gain improving income due of production increased from 480 kg/ha/year to 1,2 tons/ha/year. The urgency of this research including: (1) to solve the problem of lack farmers capability to treat pests and diseases, especially VSD; (2) farmers have motivation back to be always in cacao farming business; (3) give the insurance about the continuity of cacao farming business as an economic support of farmer, improve local GDP and

investment; (4) the effectivity of model agribusiness strategy of cacao and technology to control VSD and motivation to improve production and value of cacao.

According to Dudung [4], agribusiness is a concept from an integrative system which consist to several sub-systems. They are sub-system facility and infrastructure, agricultural production, industrial and processing, marketing, and institutional support of agricultural activity. This system stated that each sub in agribusiness system is on-farm direction, means it depended to each subs. Thus, to handle agricultural development not only inside of sub-system on farm, but it also must through integrate. Rosida *et al.*, [1] formulated a model of improving agribusiness integrated and improve value of product of cacao at Parigi Moutong Regency, Central Sulawesi. It is explained how to improve productivity of cacao farmer by using internal 6 T principle. Jhon *et al.*, [5] also explained long term cacao improvement 2025 polices to improve cacao agribusiness, among them are as follows: (1) improvement of productivity and quality of cacao policy; (2) improvement of income and increasing value of cacao farmer policy; and (3) investment policy.

Methodology

This paper using Research and Development (R&D) method, continued by action research to the cacao farmer in Sulawesi Region. According to Sugiyono [6] research development was used to test the effectivity of process results of certain product or model. The effectivity and result effectivity were determined using quantitative method and action research experiment, respectively. Research location was conducted cacao development center in Sulawesi Region. They were located in Parigi Moutong Regency, Central Sulawesi, while Mamuju and Majene Regency, both take place in West Sulawesi.

For data analysis, there are several step for qualitative research, including data transcript and data category before data analyzing. Thus, data from interview can be reduced and analyzed according to research purposes. Data was analyzed using varied analysis, either by textual or contextual. Later, the data was analyzed again using phenomenologist approach for qualitative analysis to look of the condition as is in location without adding or reduce other data, or determined from subject perspective, with noumenon to thing as it is in itself, to how to act or behavior. On other hand to measure the implementation effectivity of the model using qualitative and quantitative analysis.

Result and Discussion

Sixty farmers were interviewed to obtain the data such as age, education, experience and meeting frequency of their groups. The data can be seen at Table 1.

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Table 1
Respondent Profile of Cacao Farmer

No.	Regency	District	Age (years old)	Education (category)	Experience (years)	Meeting Frequency/ 2 months
1	Parigi	Bolanu	43	3	20	3
	Moutong	Lambunu				
2	Mamuju	Sampaga	41	2	21	3
3	Majene	Malunda	44	2	19	2
	Rate		43	2	20	3

Source: Data Primer analyzed, 2019

Table 1 showed that rate of ages of three sample district was 43 years old, with Malunda district had has highest ages. Most of respondents were graduated from category 2 education, which is equal to junior high school, while at Bolanu Lambunu had relative better education than other district. From experiences, respondents from Mamuju had more experiences, with 21 years of experiences. For meeting frequency to discuss important matter like to increase the group capacity or handling pest and disease had relative low at all districts, with only once per 2 months.

The cacao production also profiled including plantation area, crops life, production, price, and marketing, as can be seen at Table 2.

Table 2
Cacao Production Profile

No.	Regency	District	Area (ha)	Crops life (years old)	Production (Kg/ha)	Price (IDR)	Income (IDR)	Marketing
1	Parigi	Bolanu	2	17	560	28,00	15,680,000	Local,
	Moutong	Lambunu				0		Export
2	Mamuju	Sampaga	1	12	581	28,50	16,558,500	Local,
						0		Export
3	Majene	Malunda	2	20	823	17,50	14,402,500	Local
						0		
	Rate		2	16	655	24,66	15,547,000	
						7		

Source: Data Primer analyzed, 2019

Table 2 showed that rate of plantation area at all regency are 2 ha, with Mamuju had lowest of plantation area due small regency compared the other. The rate of crops life was 16 years old, with production rate was 665 kg/year. This low production caused their income also low. Their income rate was IDR 15,547,000/year or equal to IDR 1,295,584/month. Price on local trade was IDR 24,677/kg. It is indicated that cacao farmers have not enough to meet their family needs if only dependence to cacao business, including the investment.

For the economic condition of cacao farmers, at several location research showed Farmers' Terms of Trade (FTT) was below than 1, but if they also did diversification like coconut, clove, or other short terms plantation, their economic condition can reach to FTT above than 1 [8].

Analysis result of implementation of system agribusiness model of cacao can be explained as seen at Table 3.

Table 3
Implementation of System Agribusiness Model of Cacao at Sample Location

No.	Variable	Regency		
		Parigi Moutong District	Mamuju	Majene
		Bolano Lambunu	Sampaga	Malunda
Implementation Strategy Model				
Sub-system Facility and Infrastructure		Condition		
1	Road	Good	Good	Good
	Transportation	Good	Good	Good
	Telecommunication	Less	Less	Less
	Water resource	Available	Less available	Available
	Tools	Available	Available	Less available
Sub-system Agricultural Production		Ownership		
2	Plantation Area	Enough	Not enough	Enough
	Input Production	Less	Less	Less
	Production	Less	Less	Less
Sub-system Post Harvest and Marketing		Realization		
3	Price	Stable	Low	Low
	Trading	Local	Local	Local
	Market margin	Enough	Relative high	Relative high
Sub-system Financial		Contribution		
4	Bank	Enough	Enough	Less
	Credit	Less	Less	Less
	Commodity Insurance	-	-	-
	Union	Less	Less	Less
Sub-system Institutional		Contribution		
5	Farmer Group	Enough	Enough	Enough
	Commerce Group	Less	Less	Less

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Counseling Group	Less	Less	Less
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Source: Data Primer analyzed, 2019

Table 3 showed the cacao sub-system agribusiness. Both sub-system agricultural production sub-system and sub-system institutional were considered low for their contribution. In sub-system agricultural production, farmers had to struggle with pest and diseases, sanitation, and less farm pruning. On other hand, sub-system institutional had a problem with counseling capability and less field observation. Moreover, there were also a problem regarding with low price of cacao beans especially fermented beans.

Response of farmer regarding disease control of VSD, motivation, and improving value of product of cacao can be explained as seen Table 4.

Table 4
Farmer's Response of Disease Control, Motivation and Improving Value of Product of Cacao

Variable	Dimension	Indicator	Regency		
			Parigi Moutong District	Mamuju	Majene
			Bolano Lambunu	Sampaga	Malunda
Control of VSD	Internal factor	Pest control	Less	Less	Less
		Disease control	Less	Less	Less
		Farm management	Less	Enough	Less
	External factor	Soil Analysis	Not yet	Yes	Yes
		Sanitation handling	Less	Good enough	Good Enough
		Climate	Enough	Enough	Enough
Farmer Motivation	Focus on cacao	Commitment	Enough	High	High
		Land transformation	Less	Less	Less
		Motivation of technology implementation	High	High	High
		Price	Stable	Stable	Stable
		Income from cacao business	Low	Low	Low
Value of product	Improvement	Fermentation	Not yet	Not yet	Not yet
		Other processed	Not yet	Not yet	Not yet

Source: Data Primer analyzed, 2019

Table 4 showed that the farmer was not or have less attention to the controlling pest and diseases, especially VSD. VSD is a disease caused by basidiomycete *Oncobasidium theobromae* which causes losses among cacao seedlings and kill branches in mature cacao [7]. It can be found throughout Southeast Asia and parts of Melanesia. VSD is hard to control and can reduce cacao productivity that lead to dead. The characteristic symptoms include a green spotted chlorosis and fall of leaves beginning on the second or third flush behind stem apex, raised lenticels, and darkening of vascular traces at the leaf scars and infected xylem. Later it completely defoliation occurs and when the fungus spread to the trunk, the tree will die. Because of that, control of VSD is necessary by give the technology to the farmers by introducing *Trichoderma* and Bokhasi Plus fertilizer production. The implementation has showed a good effectivity and efficiency to control disease, while it also can nourish the soil.

Moreover, the farmer's responses of increasing value of product through fermentation still low. It was due the price both fermented bean and non-fermented beans were same. However, there were some good results that the farmers have a high motivation to controlling VSD using technology: *Thrichoderma* and Bokhasi Plus fertilizer production. In *Thrichoderma* production, there were farmer's wives that enthusiastic into learn the production, as they joint in The Wife Care to Cacao Forum (FORIPKA) to help production. The farmers also still on cacao business and motivated.

Based of result, the agribusiness strategy model of cacao allow to continuity of this business as can be drawn below.

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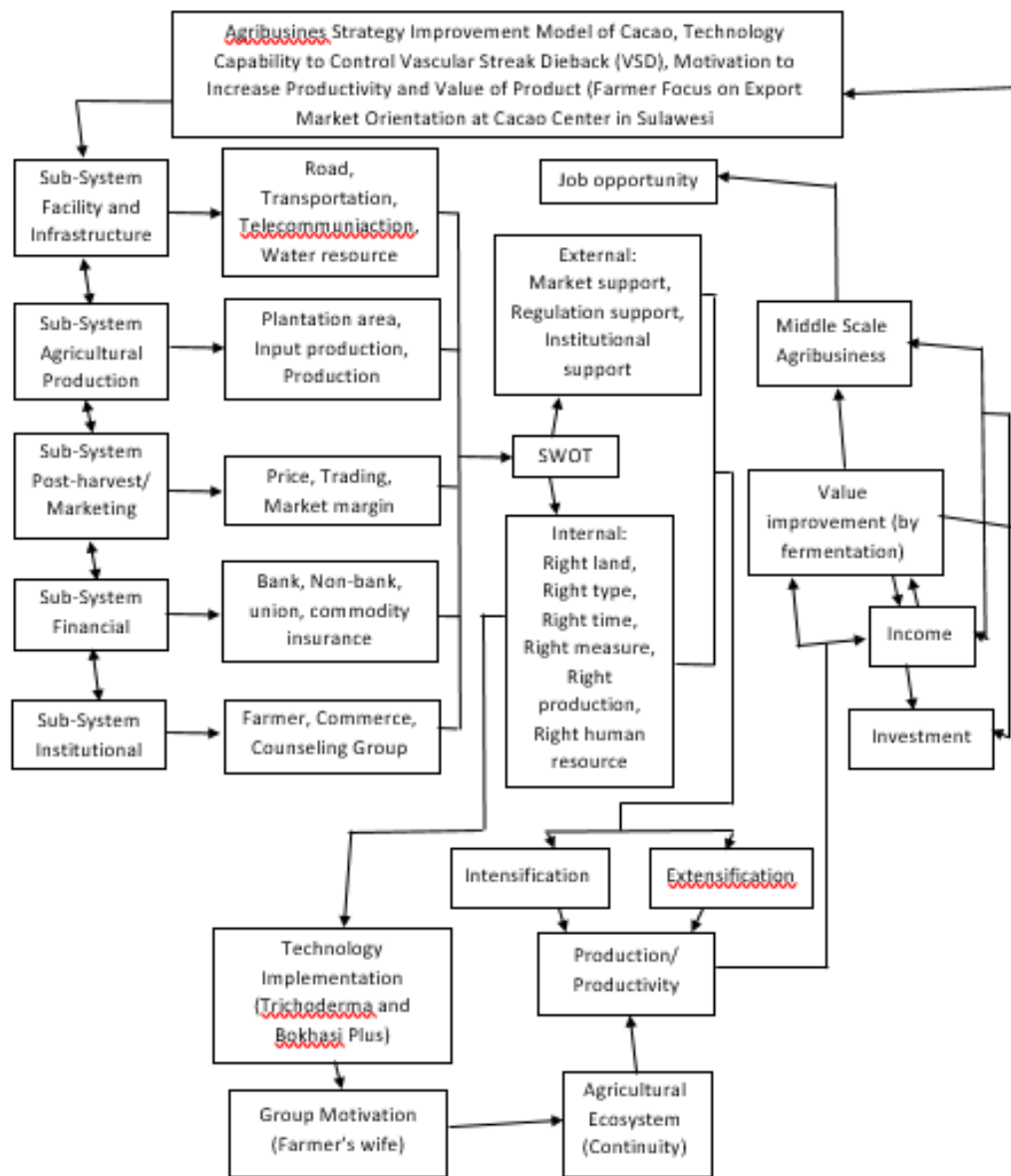


Figure 1
Reconstruction of Agribusiness Strategy Improvement Model of Cacao and Technology Capability to Control Vascular Streak Dieback (VSD), Motivation to Increase Productivity and Value of Product (Farmer Focus on Export Market Orientation at Cacao Center in Sulawesi)

Conclusion

The conclusion of this research are (1) the implementation of agribusiness mode of Cacao at sample location showed that 5 sub-systems of agribusiness were not maximal to contribute, especially in sub-system agricultural production and sub-system financial, (2) Farmer's motivation to learning technology to control VSD by using Trichoderma and Bokhasi Plus fertilizer was high, which can be shown that they very

enthusiastic to accept the technology, and (3) the effectivity of implementation agribusiness strategy model had shown a good result. Therefore, based on this conclusion it is recommend to the cacao farmer to increase their knowledge of technology of cacao cultivation while also keep good pruning and sanitation. The role of farmer, marketing and financial institution also must be optimal for the continuity of cacao farm business.

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