

Grand strategy for accelerating the development of the cocoa processing industry in Indonesia

Zulfiandri Zulfiandri *

Department of Industrial Engineering, Faculty of Engineering, University of Esaunggul, Indonesia.

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Abstract

This paper concerning about strategy development of downstream agroindustry of cocoa. As we have known, cocoa is one of the prime commodity export of Indonesia. Although Indonesia was producer of no 3rd in the world, but in the reality also still import of cocoa bean. Eighty percent of cocoa bean from Indonesia was exporting only 20% to fulfill requirement of domestic industry. Needed a strategy to accelerated of downstream industry of cocoa. This paper will present a strategy using the gap analysis methodology using SWOT Analysis. Improving the aspects of cultivation including post-harvest and increasing land production are driving forces for the cocoa industry. The application of SNI must be carried out immediately after the supporting facilities are fulfilled and applied in a disciplined manner, both for cocoa marketed domestically and for export. Provision of incentive schemes for farmers and domestic processing industries.

Keywords: Cocoa; strategy; Downstream; Agroindustry; SWOT-Analysis

1 Introduction

One of Indonesia's leading agricultural commodities is cocoa. Cocoa is one of the mainstay commodity plantations whose role is important for the national economy, especially as a provider of employment, a source of income and foreign exchange. Besides that, cocoa also plays a role in encouraging regional development and agro-industry development. In 2002, cocoa plantations provided employment and a source of income for around 900 thousand farming families, most of whom were in Eastern Indonesia (KTI) and contributed the largest foreign exchange to the three plantation sub-sectors after rubber and palm oil with a value of US\$ \$ 701 million [1]. Compared with Malaysia, cocoa derivative products (chocolate) rank sixth regarding resilience to crises and the comparative advantage of Malaysian agricultural commodities [2].

According to data from the Directorate General of Plantations [3], cocoa is one of the leading plantation commodities perspective. It has a great opportunity to improve people's welfare because most of it is cultivated through community plantations (\pm 94.01%). Until 2010 the cocoa area had reached 1,650,621 Ha with production of 837,918 tons and spread across 32 provinces. Most of the types of cocoa cultivated are linda cacao, with the main production centres being South Sulawesi, Southeast Sulawesi and Central Sulawesi. Besides that, large state plantations in East Java and Central Java also cultivate noble types of cocoa

In 2002, the Ministry of Industrial and Trade [4] analyzed the export competitiveness of several Indonesian agricultural and forestry commodities. The study uses various approaches such as comparative analysis and trade mapping, growth trends, foreign exchange contribution and geographical distribution; it turns out that three commodities have the

* Corresponding author: Zulfiandri Zulfiandri

highest composite index of competitiveness and have development prospects, namely palm oil, natural rubber and cocoa.

Based on data from the Central Statistics Agency [5], exports of cocoa and its processed products in Indonesia reached 385,981 tons with a value of US\$1.26 billion in 2022. This amount increased by 0.85% compared to 2021, which amounted to 382,712 tons with a value of US\$1.21 billion. This year's national cocoa production is expected to fall by around 11% as old problems still need to be resolved, such as the age of most old plants. Chairman of the Indonesian Cocoa Association (Askindo), said that this year's cocoa bean production will decrease compared to the previous year, which was 230,000 tons. He added, on paper, the installed capacity of the cocoa processing industry is up to 800,000 tons. However, only half of it is used because supplies from within the country are minimal, while business actors must pay more for imports. Imports also increase from year to year because domestic production is limited. Domestic production is reduced due to various factors. The old problem that has yet to be resolved to date is the age of the old plants, which causes productivity also to decrease.

Table 1 Area, production and productivity according to cocoa plantation status

Status	Description	2018	2019	2020*)	Growth	Contribution (%)
People's plantations	Area (Ha)	1,584,133	1,574,322	1,557,120	-0.57%	98.40
	Production (Tons)	751,685	768,769	725,125	-1.19%	98.06
	Productivity	474.51	488.32	465.68	-0.62%	
State Plantation	Area (Ha)	12,384	11,946	11,534	-2.34%	0.73
	Production (Tons)	7,715	7,392	7,026	-3.07%	0.95
	Productivity	622.98	618.78	609.16	-0.75%	
Private Plantation	Area (Ha)	14,497	14,379	13,752	-1.74%	0.87
	Production (Tons)	7,880	7,817	7,332	-2.37%	0.99
	Productivity	543.56	543.64	533.16	-0.64%	
Amount	Area (Ha)	1,611,014	1,600,647	1,582,406	-0.60%	
	Production (Tons)	767,280	783,978	739,483	-1.22%	
	Productivity	476.27	489.79	467.32	-0.63%	

*) provisional numbers; Source : Statistik Perkebunan Indonesia Komoditas Kakao Tahun 2018-2020

The table above also shows that Indonesia's total cocoa production is a collection of smallholder plantations, large state plantations and large private plantations. Production results from smallholder plantations are the largest contributor to production compared to production from large state plantations and large private plantations. The description of the amount of cocoa production in Indonesia is, of course, related to the area of the cocoa plantation itself.

During 2018-2021, Indonesia's cocoa production tends to stagnate, with an average growth rate of 0.76% per year. Production in 2020 is estimated at 773,409 tons. During that period, Indonesia's cocoa productivity was almost stagnant, with an average growth rate of 0.45% per year. Productivity in 2020 will be 611.71 kg/ha. This figure has slightly increased, which in 2019 was still 604.88 kg/ha. The increase in national cocoa productivity is partly because most smallholder cocoa plantations, many of which already have NGO partners assist farmers in using cultivation techniques supported by adequate technological innovations. The guidance assistance is an effort to expedite the cocoa business supply chain in countries supporting NGO funding [6]

In terms of quality, Indonesian cocoa is equal to world cocoa. It can achieve a taste equivalent to cocoa from Ghana if properly fermented. Indonesian cocoa has the advantage of not melting easily, so it is suitable for blending. In line with these advantages, Indonesia's cocoa market opportunities are open for export and domestic demand.

The downstream development of the Indonesian cocoa agro-industry must be reorganized to become a driver of the economic sector and growth driver so that income distribution occurs. This paper aims to provide an alternative master strategy for developing the cocoa agro-industry, especially those related to the downstream strategy of cocoa and its processing industry, to develop the cocoa industry as a whole.

2 Development of Cocoa Agroindustry

Cocoa commodity plays an important role in the national economy and is a mainstay commodity. Cocoa is the main source of income for farmers in 30 provinces, employing on-farm to off-farm. This role must continue to be improved because of the economic benefits provided. This role must be strengthened by developing cocoa downstream.

It is strongly believed that downstream agro-industry provides a multiplier effect on national economic development because of its ability to (1) increase the added value of primary agricultural products, (2) expand the reach of marketing areas, (3) expand employment opportunities and open business opportunities. New products related to downstream agro-industrial products such as transportation and marketing services, (4) increasing the income of farmers as suppliers of primary agricultural products, (5) as equal partners to farmers, (6) diversification of food products and processed agricultural products both vertically and horizontally, (7) save the country's foreign exchange (substitute materials). It is possible to increase the country's foreign exchange because MSME processed products can be exported (have comparative and competitive advantages), (8) develop "entrepreneurship" for "stakeholders" [7], (9) building food security and meeting the basic needs of society, (10) increasing Indonesia's economic competitiveness through the production of food and processed agricultural products that meet international quality standards.

2.1 Problems

Cocoa commodity development and agro-industry downstream also experienced many obstacles. Problems in the development of downstream agro-industry can occur at the farmer, trader, and industrial levels. Problems that arise at the farm level include the low quality of most of the cocoa beans (because they have not been fermented), low productivity (below 800 kg/ha/year), limited mutual partnership between farmers and industry, weak farmer institutions and access to capital and lack of incentives. Prices for farmers according to the quality produced. The problem at the trader level is that foreign traders control 80% of the national cocoa trade; there is no certification of traders, so it cannot be traced where by whom and when cocoa is produced, and the government's guidance on collecting traders is not optimal.

Meanwhile, at the industrial level, the problems include low production utility (150,000 tons/year from 300,000 tons/year), the unfavourable image of processed cocoa products from Indonesia on the international market, low prices for processed cocoa products, high import duties in export destination countries, domestic consumption of processed cocoa products is still low (0.06 kg/capita/year), the industry has difficulty obtaining a domestic supply of quality raw materials and raw material supplies do not meet production targets so that raw materials are still imported from abroad. This is following the report of Sa'id [8] from the results of the national discussion on cocoa bean trade for export at the end of 2007 which was attended by all cocoa business stakeholders and held by the Ministry of Industrial and Trade [4]; the following issues emerged.

- So far, the international market only considers Indonesian cocoa unfermented cacao, so the price is lower than cocoa products originating from Ivory Coast and Ghana. Cocoa processing industries prefer fermented cocoa raw materials because it produces a better product aroma and a higher product selling price. The industry association wants to buy good quality fermented cocoa with a price difference of Rp. 1500 to Rp. 4000/kg above the price of unfermented cocoa.
- The reality on the ground and the existing image of Indonesia's cocoa exports are unfermented, so they do not have a benchmark price. However, fermented ones are preferred because they have international price references, for example, from New York or London. The most prominent problem in formulating a national cocoa agro-industry development strategy is whether to increase cocoa production that is not fermented or whether to have added value (fermented). In reality, unfermented cocoa is only good for cacao butter products in business. At the same time, fermented cocoa can produce aroma and cacao butter, adding value and a higher price.
- The reality on the ground indicates that the determinants of the cocoa business as if they are intermediary traders (collectors), are oriented only to profit. They do not care whether the cocoa is fermented or not. However, the trader group does not want a trade policy change that requires only fermented cocoa trade. Traders enjoy good profit margins and do not want to wait another five to seven days to ferment. However, it is not easy to eliminate the existence of collecting traders because their function can also assist in procuring the costs and needs of farmers in advance (in).
- In making policies, the government must satisfy all parties, especially small farming communities. Based on an international report, Indonesia's cocoa business can be an example because the profit margins of farming

communities are the best compared to African countries. However, there are indications that the community's efforts to ferment have been disrupted by traders, who only want to buy the cacao beans as they are before the fermentation is complete.

- Collector trader certification is required, which considers aspects of applicable regulations/laws. If there is a trade violation, the parties above must be brought to the table of law.
- Many industry associations have visited the regions and met with farmers and Farmers' Associations, and many efforts have been made, including participating in the development of cooperatives in the regions. Unfortunately, many Cocoa Cooperatives have capital problems, as well as weak human resources because most of them are uneducated farmers and because of pressure from collectors who are also pressured by world companies operating in the location, for example, Sulawesi as a manufacturer and traders from various world giant cocoa companies (Ollam, Cargill, ADM, Nobel, EFEM and others).
- One of the areas for improvement in the cocoa trade is that the Indonesian national standard (SNI) is still voluntary (not yet required), so all types of inferior-quality crops are still accepted by the market at different prices. Therefore, the government must enforce the law even harder and require compliance with SNI in the trade of cocoa commodities.
- the cocoa industry association desires to process domestic cocoa so that the added value is domestic. Malaysia is advanced because imports from Ghana, Ivory Coast and Indonesia are not subject to Import Duty. In contrast, Indonesian manufacturers are still subject to a 5% Import Duty when importing cocoa beans from Africa.
- The above problems are not only in the cocoa commodity. However, in several other primary commodities, such as horticulture, products from Indonesian farmers need help competing in their domestic market. For example, local fruit and vegetables in the modern market only control 35% market share. Meanwhile, imported products control nearly 65% of the market in modern markets, a showcase (showcase) of domestic product competition with imported products.[9]

Based on the above, the challenges and obstacles to developing the cocoa industry in Indonesia are most of the cocoa beans are not in the form of "high-quality fermented cocoa beans". Limited ability to market Indonesian chocolate products at home and abroad. Farmer and business institutions have been unable to encourage farmers to take advantage of business opportunities in this downstream industry.

2.2 Indonesian Cocoa Industry Prospects

Abundant natural wealth has positioned Indonesia as a country with a lot of capital and opportunities to develop strong and competitive agriculture-based industries. However, the reality is that our natural wealth has yet to be utilized optimally for the benefit of strong and sustainable national economic development. This illustrates the potential land area for cocoa production in Indonesia. In general, the area of cocoa cultivation in Indonesia is 1,442,045 Ha, most of which are in Sulawesi. There are still large development opportunities in other regions of Indonesia, such as Sumatra, Kalimantan and Papua. The potential for increasing the area of cocoa planting has made it one of Indonesia's advantages in developing this cocoa commodity. The potential of this natural resource is Indonesia's comparative advantage.

Indonesian cocoa products are mostly produced by smallholder plantations and are generally not processed properly (not fermented), so Indonesian cocoa is known to be of low quality. As a result, Indonesian cocoa prices are subject to discounts (automatic detention) of US \$ 90-150/ton, especially for the United States market. This discount is quite burdensome for cocoa farmers and is very detrimental because it reduces the value of the foreign exchange earned. These losses should be reduced, and even added value can be achieved if Indonesia's downstream cocoa industry operates optimally. Currently, there are 14 cacao industrial units with an installed capacity of 293,000 tons/year, but only around 30% is utilized for various reasons. The reason most complained about is the VAT charge of 10%, causing high raw material prices. Meanwhile, the small and medium-scale processing industry has yet to develop, even though the Coffee and Cocoa Research Centre has introduced a chocolate food and beverage manufacturing industry for small and medium-scale industries. As a result, most cocoa exports are in the form of primary products so that added value is not received by farmers but enjoyed by entrepreneurs in cocoa bean importing countries.

Nonetheless, the prospects for developing the downstream cocoa industry remain good. There are several underlying reasons. In general, the manufacturing industry still dominates in terms of its share of GDP. However, the manufacturing industry's contribution to GDP declined from 27.83 per cent in 2006 to 25.49 per cent in 2011. In contrast to the trade sector's contribution which has shown an increasing trend in the last five years. This condition could signal that the structure of the Indonesian economy is slowly shifting from the industrial sector to the trade sector.

Of course, this phenomenon cannot be ignored because if early deindustrialization does occur, society will be at risk of losses due to decreased employment in the industrial sector. Meanwhile, when viewed from added value by sub-sector,

the processing industry generally experienced an increase in the added value of 11.02 per cent or an increase from IDR 719 trillion in 2008 to IDR 798 trillion in 2009 (yoy). The sub-sector with the highest added value was the food and beverage industry, which amounted to IDR 147 trillion in 2009 or grew by 18.94 per cent from the previous year. Next, the second place was occupied by the chemical and chemical goods sub-sector, amounting to IDR 116 trillion in 2009, but the growth experienced minus 4.90 per cent. In the next sequence, there is relative competition between the tobacco, textile and motor vehicle sub-sectors, each with an added value of IDR 54.40 trillion, IDR 54.61 trillion and IDR 48 trillion. Meanwhile, the sub-sector with the lowest added value was the office equipment, accounting and data processing industry of IDR 258 billion, followed by the recycling industry, with an added value of IDR 663 billion.

The magnitude and development of added value in the processing industry is a strong argument for accelerating and expanding industrialization in Indonesia. The acceleration and expansion of industrialization are also important in building national independence and being the most effective strategy in stemming the flood of imported industrial goods from abroad. In addition, with such a large natural resource potential, it makes sense for the processing industry to be developed in the future to be directly linked to the agriculture, fisheries and forestry sectors or what is commonly referred to as agro-industry. [10]

The large population of Indonesia (in particular) and the world (in general) is the target market for processed cocoa products. The large population of Indonesia makes Indonesia an attractive market. The world's income level is increasing. The world economy is improving; During 2000-2007, the Indonesian economy grew by an average of 5.03% per year. Indonesia's cocoa consumption per capita is around 0.2 kg/capita/year [11]. Indonesia's population is around 240 million people with a per capita income of + US\$ 3,000.[10]

In addition to the advantages of resources and a large market, Indonesian cocoa has strong intrinsic value. Processed cocoa beans from Indonesia consist of cocoa paste, cocoa powder and cocoa butter. The research results show that Indonesian cocoa has special characteristics that other countries do not have, namely, high melting point and low free fatty acid (FFA) content.

2.3 Condition of Cocoa Agroindustry in Indonesia

The downstream cocoa industry is grouped into 3 groups in Indonesia: Cocoa Powder Industry (KBLI 15431), Chocolate and Confectionery Food Industry (KBLI 15432). The grouping of Cocoa and Processed Chocolate Industry consists of:

- Upstream Industry: cocoa fruit, cocoa beans, liquor (MASS)
- Intermediate Industry: Cake and Fat, cocoa liquor, cocoa cake, cocoa butter, and cocoa powder (processed cocoa)
- Downstream Industry: Chocolate industry, chocolate-based food industry (bread, cakes, confectionery/chocolate confectionery).

Table 2 Machine Capacity Installed for Cocoa Processing Industry in Indonesia

Company Name	Location	Optimal Production Capacity			
		03/04	04/05	05/06	06/07
PT General Food Industries (Petra Foods/Delfi)	Bandung/Jawa	65.000	65.000	65.000	65.000
PT Davomas Abadi Tbk.	Tangerang/Jawa	30.000	30.000	30.000	30.000
PT Bumitangerang Mesindotama	Tangerang/Jawa	15.000	20.000	30.000	30.000
PT Industri Kakao Utama**	Kendari/Sulawesi	0	22.000	22.000	22.000
PT Maju Bersama*	Makassar/Sulawesi	0	22.000	22.000	22.000
PT Inti Cocoa Abadi Industries***	Tangerang/Jawa	25.000	0	0	0
PT Effem Indonesia (Mars)	Makassar/Sulawesi	17.000	17.000	17.000	17.000
PT Cocoa Wangi Murni	Tangerang/Jawa	15.000	15.000	15.000	15.000
PT Teja Sekawan Cocoa Industries	Surabaya/Jawa	15.000	15.000	15.000	15.000
PT Budidaya Kakao Lestari	Surabaya/Jawa	15.000	15.000	15.000	15.000

PT Unicom Makassar	Makassar/Sulawesi	10.000	10.000	10.000	10.000
PT Cocoa Venturies Indonesia	Medan/Sumatera	7.000	10.000	10.000	10.000
PT Kopi Jaya Kakao	Makassar/Sulawesi	0	0	10.000	10.000
PT Kakao Mas Gemilang	Tangerang/Jawa	6.000	6.000	6.000	6.000
PT Mas Ganda	Tangerang/Jawa	6.000	6.000	6.000	6.000
PT Poleco Cocoa Industry	Makassar/Sulawesi	6.000	6.000	6.000	6.000
Total		232.000	259.000	279.000	279.000
Realization of Industrial Production in Indonesia****		116.000	129.500	139.500	138.500

* New cocoa industry; ** Not yet operational; *** Has not operated since early 2005; **** Currently, the cocoa processing industry in Indonesia is only operating at 50% of its installed capacity, and only 6 factories able to continue operating.; Source: Ditjen PPHP (2010)

The Indonesian cocoa industry has an important role in earning the country's foreign exchange and employment because it has broad links both upstream (cocoa farmers) and downstream (intermediate industry/grinders). Based on existing data, in 2008, the number of cocoa processing industries in Indonesia was 16 (sixteen) companies, and 3 (three) companies were still running with an installed capacity utilization rate of processing products of around 61% of the total installed capacity. Based on data from the Indonesian Cocoa Industry Association (AIKI), the installed capacity of the cocoa processing industry currently reaches 800,000 tons. Capacity continues to increase with the operation of the Integrated Cocoa Processing Industry Competency Development Center (PPKIPKT) in Batang, Central Java, with a capacity of 6,000 tons. AIKI said that the current cocoa bean production, which is around 260,000 tons, has yet to meet the needs of the cocoa processing industry. The shortage of raw materials was met by imported cocoa beans which, based on AIKI data, in November 2018 the value reached US\$479.32 million. The cocoa processing industry is still concentrated in Jabodetabek and Makassar (South Sulawesi). There are 9 cocoa processing industries are in Java, while the remaining 6 are in Sulawesi.

3 Strategy for Accelerating the Development of Cacao Agro-industry

3.1 SWOT Analysis

Using SWOT analysis, a cocoa downstream development strategy was developed based on the explanation above. The SWOT component consists of the strengths of Indonesian cocoa, weaknesses, challenges and opportunities for developing cocoa agro-industry in Indonesia. This paper takes some literature as a source for writing a SWOT analysis [12]; [13]; [14]; [15]).

- Strength
 - Export demand for Indonesian cocoa beans is still high and increasing.
 - The development potential (area, production, market) is still large. Plants can grow well in most parts of Indonesia, so the potential for cocoa to be developed is still high.
 - There are still many workers available, both for the plantation sector and the processing industry sector.
 - The use of cocoa for the food and non-food industries is very significant.
 - Research and Development Institute Competency Improvement in technology and management improvement is still large.
 - Implementation of Mandatory SNI for Cocoa Beans
 - Availability of cultivation technology
 - Availability of researchers and experts in the field of cocoa
 - Community interest in growing cocoa is quite high
 - The land is still available for cocoa plantation development
 - Indonesian cocoa has special characteristics that other countries do not have. Namely, it does not melt easily (high melting point).
- Weakness
 - Cacao plants are affected by CPB (50%) and VSD (5%).
 - The amount of fermented cocoa beans is only 20% of the total production.

- The productivity of cocoa beans is still low (813 Kg/ha) compared to other countries, Ivory Coast 1500 Kg/Ha and Ghana 2000 Kg/ha.
- The quality of cocoa beans still needs to improve due to the lack of quality management systems and food safety implementation.
- Limited supporting infrastructure in cocoa production centres.
- The import duty rate for cocoa beans is still low at 5%, so there are still imports of cocoa beans.
- The price incentive between fermented and unfermented cocoa is not significant.
- Limited Research and Development (R & D) for the diversification of processed cocoa products
- Institutional Cocoa Farmers need to be better organized.
- The US market still requires unfermented cocoa beans.
- Opportunity
 - The United States market is willing to buy Indonesian cocoa beans at a premium price if they are fermented and of high quality (according to SNI Cocoa Beans).
 - The European Union Market also requires Fermented Cocoa Beans.
 - The domestic cocoa industry still imports 30,000 tons of fermented cocoa beans annually.
 - The demand for cocoa-based products in domestic and foreign markets is still quite large and continues to increase.
 - World cocoa demand will continue to increase with the opening of new markets in China, Russia, India, Japan and the Middle East
 - Opportunities are still open for the development of the cocoa industry into finished and semi-finished products as well as the development of the domestic market
 - Limited land for the main producing countries (Ivory Coast and Ghana) to increase the supply of cocoa beans
- Threat
 - Exports of low-quality and unfermented cocoa beans to the USA are subject to automatic detention (discounts) of US\$ 150 – 300 per ton.
 - There are differences in the import duty rates for processed cocoa in export destination countries, including the EU (Africa is only subject to 0% while Indonesia is 7.7 to 9.6%).
 - With cocoa bean production of 30,000 tons per year, Malaysia has a cacao processing industry capacity of 359,000 tons per year.

From the SWOT analysis and literature analysis, as well as information from experts, the medium-term goals for cocoa downstream industrialization to run well are:

- Cocoa production reached 0.9 million tons/year
- Productivity reaches 1.2 tons/hectare/year
- The area of superior plants reaches 30%
- Farmers' income US \$ 1500/year
- Prices at the farm level are 75% of the FOB price
- Implementation of GAP and quality assurance system reached 40%
- Farmers have been consolidated into cooperative institutions effectively 40%
- Institutions at the national level have been formed
- The capacity used by the industry reaches 75% of the installed capacity.
- Increased investment in chocolate processing and industry
- Increased domestic consumption of chocolate by 50%

3.2 Medium Term Goals

Table 3 Competency Gap Analysis

Competency Goals	Current capabilities/competencies	How to Address the Competency Gap
There is the ability to produce cocoa beans (cocoa ose or cocoa beans) with quality A	Farmers already understand that picking is done on red fruit and processed in a fresh state; limited capital causes farmers to do green picking.	Increasing capital at the farm level Standardization of the use of cocoa peeling machines and polishing machines. Dissemination/development of cacao-based production capabilities with high added value.
There is the ability to process cocoa beans into derivative products.	The ability to process cocoa beans has only reached the manufacture of cocoa powder and paste.	Development of product diversification with high-added value.

3.3 Development targets

Table 4 Development targets

Target	Medium-Term (2021- 2025)	Long-Term (2025- 2030)
Institutional Development	<ul style="list-style-type: none"> o The Working Group is a forum for stakeholders in developing a sustainable business. o Working groups can be operational and maintain the direction of core competency development 	Formed joint business groups and professional associations
Development of post-harvest processing	<ul style="list-style-type: none"> o There is a post-harvest processing of cocoa that is capable of producing grade A cocoa beans o Good quality cocoa as branding 	A product diversification is formed that can compete at the national and international levels
Cocoa Production Development	The area of cocoa land has increased	Established a cacao business with an internationally valid certificate
Target	Medium-Term (2021- 2025)	Long-Term (2025- 2030)
Development of marketing capabilities	<ul style="list-style-type: none"> o An increase in fermented cocoa exports o There is linkage cooperation between large, medium and small industries 	Interrelated cocoa characters are formed
Cocoa development as specialized cocoa	<ul style="list-style-type: none"> o Several special variants of cocoa have been cultivated by the joint business group o Expansion of market share and marketing cooperation 	The world's supply of cocoa is met form

3.4 Core Competence Development Roadmap

Table 5 Core competency development roadmap

STRATEGY	SHORT-TERM	MEDIUM-TERM
Institutional development supporting core competencies	Establishment of Cocoa Core Competency Development	The Working Group is a forum for stakeholders in developing a sustainable cocoa business

	There is a communication forum that accommodates stakeholders in the context of developing the core competencies of the cocoa industry.	The Working Group can monitor and maintain the direction of core competency development
Improving the ability to carry out post-harvest processing of cocoa	Compilation of standard cocoa post-harvest processes Implementation of standard post-harvest processing There is a cocoa fermentation box that meets the standards Increased economic resilience of farmers	The occurrence of post-harvest processing of cocoa which is capable of producing grade A cocoa beans The cocoa beans produced always produce grade A
Increase cocoa production	Increased land area for cocoa production Availability of superior cocoa seeds	Increased production of cocoa beans
Develop marketing capabilities for cocoa beans and cocoa derivative products.	There is an integrated marketing plan to improve the image of cocoa There is cooperation with cocoa exporters in Indonesia.	Increasing domestic market obligation and exports There is cooperation with national companies that produce cocoa

The short and medium-term policy directions for the cocoa processing industry in 2021-2025 include:

- Increasing the added value of the domestic cocoa processing industry
 - Productivity growth of cocoa plants in Indonesia
 - Increased consumption of domestic cocoa products
 - Growth of cocoa food services
 - The growth of the cocoa industry in Indonesia is based on people's corporations.

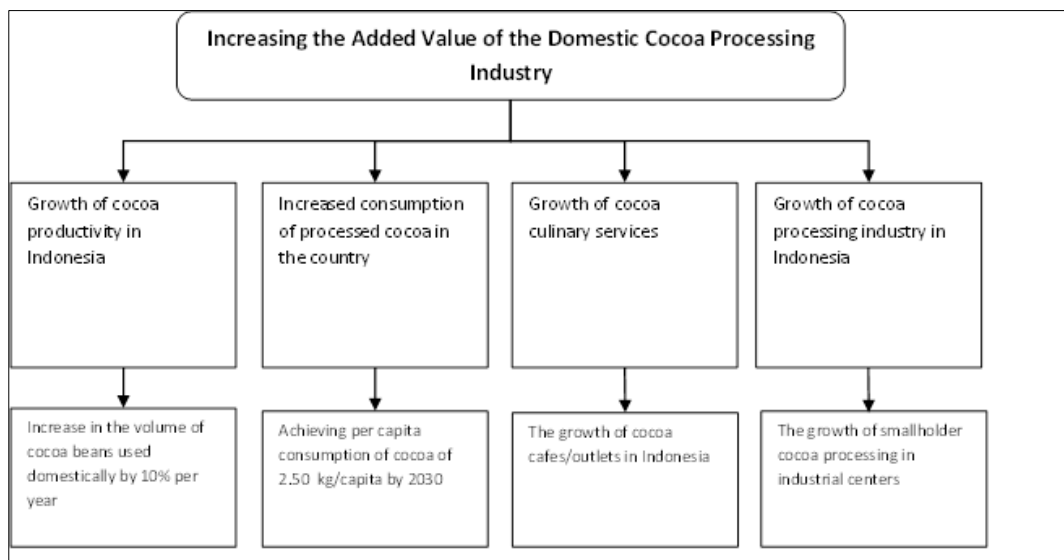


Figure 1 How to Increasing the Added Value

3.5 Strategy for Accelerating the Development of the Cocoa Processing Industry and the Chocolate Industry

Various preparations and strategies are needed to be used as guides and to enrich the capabilities of the development organisers to build downstream agro-industry in the country. For this reason, institutions are needed at the central and regional levels and even in universities. The creation of integration between sectors carried out by departments at the central level to the regional level in the development of downstream agro-industry is very important and urgent to implement. Because of the integration between sectors such as the provision of transportation and transportation

facilities, communications, clean water facilities, and waste handling can improve productivity, efficiency and quality assurance. Meanwhile, integration between regions can reduce the financing of infrastructure development such as roads, power distribution networks, telecommunications networks, and clean water distribution, and further efficiency will be obtained in their use [16].

The development of downstream agro-industry with a broad spectrum, especially oriented towards the domestic market or import substitution, is within the framework of developing an agribusiness system as a paradigm for developing industrial-cultured agriculture. Downstream agro-industry development bridges the industrial sector with high productivity and the agricultural sector, which is the livelihood of most Indonesians.

In cocoa development, Malaysia uses a sustainability approach (sustainability, namely Economic Sustainability, to increase the income of cocoa farmers; Environmental Sustainability, for environmental balance and Social Sustainability, which means that the development of the cocoa and chocolate industry is acceptable to the community [17].

Based on the Strategic Plan of the Ministry of Agriculture, the policy direction for the downstream industry is in the context of revitalising the downstream industry so that commodities are selected that can be used as a driving force for the growth of rural industries that have the potential to increase added value and competitiveness and have a broad multiplier effect on increasing added value.[18].

The following is a strategic plan for developing the cocoa processing industry and the chocolate industry in Indonesia from expert opinion and the SWOT analysis results. The sequence of strategies needs to indicate the importance of their implementation.

3.6 Development of a mutual public-private partnership between cocoa farmers and the cocoa processing industry in a complete agro-industrial system.

Even within the framework of a complete cocoa development system, Sianipar and Widaretna [19] propose a more comprehensive system involving Non-Governmental Organizations (NGOs/NGOs) as cocoa development facilitators. NGOs liaise between farmers or farmer groups, processing companies, the government, and financial institutions. NGOs also become facilitators and improve the quality of cocoa. This concept is called the triple helix axis.

The development concept similar to the triple helix was also proposed by Sutardi [16]. Sutardi proposed the concept of Three Pillars in developing downstream agoro-industry. The linkages of the three components (government, universities and business actors) are intended to establish cooperation to realise all stakeholders' welfare (stakeholders).

3.7 Government

As explained by Soetrisno [20], it is believed that the government's active role can help develop MSMEs into more advanced and independent business units. However, in reality, the government still "looks down" on the potential of MSMEs, which number up to + 4 million business units and are proven to be able to absorb approximately 79 million workers. At present, it seems that the government is still very optimistic about the concept of "capital-intensive industries" that fundamental problems of the nation, such as poverty (+ 17.4% of the population) and unemployment (+ 10.1% of the population), can be handled properly and quickly. Therefore various efforts have been made to attract foreign investors to Indonesia, such as from China, Japan, the United States and Russia. However, many foreign investors are reluctant to invest in Indonesia because Indonesia's conductivity still needs to be higher. If conditions conducive to foreign investors' entry drag on, then programs that are internally very important and urgent to be carried out will be addressed. An important and urgent effort is how to empower and develop the potential of MSME for food and agricultural products to overcome social-economic instability (poverty and unemployment).

3.8 College

Various programs that can be carried out by tertiary institutions related to the development of MSME food and agricultural products are the development of culture and entrepreneurial spirit for students (such as entrepreneurship lectures, business work courses, entrepreneurial internships, alternative student works, new entrepreneur incubators, business consulting and job placements). The general symptom of implementing higher education is increasing graduates' selling value in the job market. However, it is not accompanied by adequate training on the quality of "leadership" and "entrepreneurship" [21]. Therefore, the country's higher education climate produces more graduates as "job seekers" rather than "job creators" for themselves and the community.

3.9 Businessmen

Through applied research collaboration, the problems faced by MSMEs can be solved jointly with the government and universities, considering that many MSMEs in the field also can conduct applied research. Thus there is synergy cooperation in developing business through cooperation or partnership [7].

3.9.1 *Strengthening capacity building for post-harvest handling at the farmer level*

Increasing the institutional capacity of farmers is closely related to farmer motivation. According to Gafur's research [12], the internal factors of farmers to increase farmer motivation in applying cocoa production technology are arable land area and access to information, while external factors are the availability of facilities and infrastructure and the nature of innovation related to technological complexity, and intrinsic motivation is very significant. With the level of application of cocoa production technology, the higher the farmer's motivation, the higher the level of application of cocoa production technology.

3.9.2 *The implementation of SNI must be implemented immediately after the supporting facilities are met and applied in a disciplined manner both cocoa marketed domestically and for export*

For this SNI standard to be achieved, based on Permentan No. 51 of 2012, fermentation standards have been established for cocoa (Ministry of Agriculture). One of the areas for improvement in the cocoa trade is because the Indonesian national standard (SNI) is still voluntary (not yet required) so that the market still accepts all types of crops that are of inferior quality at different prices. Therefore, the government must enforce the law even harder and require compliance with SNI in the trade of cocoa commodities[8].

3.9.3 *Provision of incentive schemes for farmers and domestic processing industries*

Arsyad et al. [22] reported that the provision of fertilizer subsidies and export taxes (export duties) had an impact on world cocoa prices and Indonesian cocoa exports. Fertilizer subsidies are given to farmers, while export taxes are given to domestic processing industries.

3.9.4 *Deepening and developing diversification of cocoa products that are more downstream to withstand the maximum added value in the country.*

The development of information systems that can help farmers develop specific products is important, such as the development of a cocoa information system (CINFO) by Niederhauser [23] for developing internet-based cocoa for developing cocoa product differentiation.

3.9.5 *Improvement and strengthening of marketing institutions from the farmer level to exports.*

Coe [24] proposed the role of farmers in terms of motivation to develop special products that can help increase prices. The world price of cocoa is an example of the institutional strengthening of cocoa farmers in various parts of the world.

3.9.6 *Promoting Indonesian cocoa more intensively by focusing its advantages such as "Light breaking effect", "hard butter", excellent aroma and taste as well as developing business and R&D cooperation with cocoa institutions and industries abroad.*

For example, developing the concept of zero waste in agriculture or closed system agro-industry, which utilizes all aspects of an agricultural commodity into useful products based on their value, will increase the added value of these products. This is as developed by Murthy and Naidu [25] for the coffee commodity. Utilization of cocoa beans, pulp, cocoa shell and intrinsic values in cocoa are explored to be developed into more valuable products.

Indonesian cocoa has a strong intrinsic value. Processed cocoa beans from Indonesia consist of cocoa paste, cocoa powder and cocoa butter. Research results show that Indonesian cocoa has special characteristics that other countries do not have, namely, high melting points and low levels of free fatty acids (FFA).

3.9.7 *Intensifying advocacy on the health benefits of chocolate to boost demand.*

Advocacy can be carried out directly to consumers by forming value (value creation) to obtain products that meet consumer expectations. Walter et al. [26] proposed seven functions for customer relations. The volume function is the value that must be produced by/for suppliers/companies in order to generate profits. Positive cash flow for suppliers is a profit function to establish customer relationships. Stability and control that can be exercised on the market is a safeguard function. These three functions are directly related to suppliers/manufacturers. Through the innovation function presented by the customer, the creative ideas needed by the customer emerge. These ideas will create new

markets called market functions. The scout function is a function for capturing critical information and customer feedback and an access function that can provide feedback and criticism for developing product value. The last four functions do not directly impact the company now but will be useful for future development.

Related stakeholders are also needed to support the above strategy, in this case, the Ministry of Agriculture and plantation offices in the regions, to implement an on-farm strategy for cocoa cultivation. The on-farm strategy based on the 2020-2024 Ministry of Agriculture Strategic Plan is:

- Rehabilitation of gardens using superior seeds using side grafting techniques.
- Rejuvenation of old/damaged gardens with superior seeds.
- Expansion of areas on potential lands by using superior seeds.
- Increased efforts to control CPB pests.
- Production quality improvement according to market demands.

Development of cocoa agribusiness support sub-systems, including business sector procurement of production facilities, farmer institutions and financial institutions.

4 Conclusion and Recommendation

A cocoa commodity is Indonesia's main commodity and leading commodity. Downstream development is still experiencing problems. A strategy is needed to accelerate the development of this cocoa downstream. The suggested strategy is:

- Developing a mutual public-private partnership between cocoa farmers and the cocoa processing industry in a complete agro-industrial system.
- Strengthening capacity building for post-harvest handling at the farmer level.
- The application of SNI must be carried out immediately after the supporting facilities are fulfilled and applied in a disciplined manner, both for cocoa marketed domestically and for export.
- Provision of incentive schemes for farmers and domestic processing industries.
- Deepening and developing diversification of cocoa products that are more downstream to retain the maximum added value in the country.
- Improvement and strengthening of marketing institutions from the farm level to exports.
- Carry out more intensive promotion of Indonesian cocoa by focusing on its advantages such as the "Light breaking effect", "hard butter", excellent aroma and taste, and developing business and R&D cooperation with cocoa institutions and industries abroad.
- Intensifying advocacy about the health benefits of chocolate to boost demand.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding the publication of this paper.

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