**VALUE CHAIN GOVERNANCE COCOA IN WEST SULAWESI**

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***Abstract:*** *Cocoa is a plant that has a prospective opportunity to continue to be developed, especially in West Sulawesi. Value chain governance can describe typological coordination patterns related to each actor and show the type of governance of each chain involved in marketing activities. The method used is the analysis of value chain governance by selecting 114 respondents in a snowball sampling that was conducted from July to September 2018. This study aims to (1) Identify the value chain and (2) to analyze the type of value chain governance of cocoa in West Sulawesi. The results showed that there are 3 value chains with types of governance, namely the value chain 1 (farmers – collectors - exporters) shows the Market type, value chain 2 (farmers - exporters) in Relational type, and hierarchy type in value chain 3 (farmers- processing). Market type occurs if the value of complexity in low, codificaton, and capability gets a high score, relational occurs if complexity and capability are in high value and the codification value is low, and hierarchy occurs when the complexitty is high but the codification and capability are low.*

**Keywords:** Capability, cocoa, complexity, codification

1. **Introduction**

Agricultural activities has become one of the important sectors in West Sulawesi particularly on plantation activities, because it can increasing the value of regional GDP (PDRB) on the basis of current prices of 42.07%, whereas plantation activities contribute 21.03% of the total. This can be achieved because it is supported by the potential of natural resources such as superior plantation crops in the West Sulawesi area e.g cocoa plants that having areas of 135,695.32 hectares, 6,445.28 hectares of coffee plantation, and 61,159.95 hectares of oil palm, so that cocoa plants are the vast area compared to the other plants and the increasing of production has been shown. It is inseparable from the role of farmers who made cocoa commodity as a business activity process with the number of 5,300 farmers that has ownership status of their own (BPS Sulbar 2017). Thus, this will directly affect the economic activities of farmers in West Sulawesi.

Production activities will be continue raised if it is supported by farmers enthusiasm in conducting cultivation activities properly, but if the obtained results are not as expected then it can be suspected that this could affecting the welfare of farmers, so that market activities are becoming an important support for earning income of farmers. In the aspect of business activities production, the development of cocoa commodity still can continue to be developed which increases from 2015 to 2017 that can be shown in Figure 1.

Figure 1. The amount of cocoa production in West Sulawesi

Source: Direktorat Jendral Perkebunan 2016

Figure 2 shows the increasing of 2 prices, which in domestic prices and global prices. According to Kindangen *et al* (2017) that production is affected by cocoa domestic prices in previous year. In this condition, where global prices and domestic prices are having the same increasing pattern but shows a quite gap comparison or the price ratio widely different between global prices and at the domestic level that can be observed in the price difference of last year at the consumer level reached Rp 12,783 compared to the level of domestic producers, thus, it is estimated in this case of marketing and governance activities of cocoa on the global market are not conveyed entirely in the buying and selling activities in the domestic market.

According to Ditjenbun 2016 the global price of cacao beans from 2011 was 2.74 (US$/Kg) and in 2014 it only in range of 2.89 (US$/Kg), but if it was converted following on data of Bank of Indonesia (BI 2015) into Rupiah with a range of 9,068 (Rp/Kg) in 2011 and 12,440 (Rp/Kg) in 2014. The increasing prices that occured are not influential enough, so that the domestic prices of cocoa does not increase significantly and its range prices on the producers level from 2011 to 2014 are 19,259 - 23,335 (Rp/Kg). In the range of 4 years, the farmers only increased as much Rp 4,076, however if the data shown a price gap that is quite far between domestic and global prices of cocoa, so it needs to be studied further through the approachment of Value Chain Governance (VCGs). It is also proven with research by Nabhani *et al* (2015) that there is a gap between international prices and farmer prices due to the asymmetry existence, particularly on the supply side as it shown in Figure 2.

Figure 2 Comparasion of the prices cocoa beans at the price levels of domestic and world producers in 2011- 2014

Source: Pusdatin Outlook Kakao, 2016 (after processing)

Governance is one form of efforts that is made from regulating to managing a system in achieving certain goals in order to obtain the benefits from the existence rules which enforced in an organization or institution work with several individuals and groups so that they benefited together. Particularly, in the management of cocoa plantation involves many role of farmers in producing cocoa beans that in accordance to market demand and chained involving components in providing the products that desired by consumers, thus it describes the forms of cocoa value chain governance in West Sulawesi.

 Value chain governance illustrates typological pattern regarding coordination that established of each the involved players in marketing cocoa beans. Value chain development is a participatory process that leads to comprehensive and coordinated interventions to achieve pro-community economic growth as an initial chain particularly for small farmers and all value chain players, including resource-poor producers, so as to analyzing the value chain system that emphasizes governance can make understanding about the condition of challenges and competition by identifying the relationships and mechanisms in coordination, also understanding on how chain players are well interconnected or interwoven.

According to Gereffi *et al*. (2005) by presenting five types of value chain governance i.e hierarchy, captive, relational, modular, and market concludes that the global value chain structures are depending on three variables: transaction complexity, ability to codify transactions, and capability on the supply basis (for example knowledgeable users, like producers in the automotive industry, plays an important role in forming the rules). The value chain governance theory based on three main factors, i.e as follows:

* Complexity, the information and knowledge transfer that need to maintain certain transactions, especially regarding product specifications and interwoven processes.
* Codification, the extent to which in this information and knowledge can be codified through investment between the parties in transaction.
* Capability, the supplier's actual and potential capabilities in relation to the adjusted needs of the transaction results.

Therefore, the purposes of conducting this research were analyzing and identifying the value chain that occurs on each supply, also determining the intertwined type of governance in cocoa marketing activities in West Sulawesi.

1. **Method**

In this study, there are questions and research objectives need to be achieved, i.e identifying the existing value chain and determining the type of governance that occurs in West Sulawesi by collecting data and then processing the obtained data as a support in answering questions. Analysis were carried out qualitatively and quantitatively to achieve the purposes of the study. In obtaining the qualitative data, descriptive analysis was carried out to analyze the form of governance (value chain governance) of cocoa marketing in West Sulawesi through analysis of value chain governance by evaluated 3 variables (complexity, codification and capability) which are determining in governance typology assessment of indicator derivation of each variables. In quantitative analysis, the indicator results from existing variables were calculated. The data were collected on location purposively and used a snowball sampling, meanwhile there are 114 selected respondents as samples that consisting of 100 cocoa farmers, 12 marketing institutions, and 2 processing activities.

**Value Chain Governance Analysis**

Governance analysis conducted descriptively by using a questionnaire containing a series of questions that can reduce and describe the occurred value chain occurs, in order to find out the working various rules on the value chain, as well as existing coordination, regulation, and control systems when the value chain is formed. The initial purpose in this study will be answered used a cocoa value chain analysis by observing the relationships between players that generates a typology of value chain governance or through descriptive analysis by observing the main variables in classified governance from the value chain as stated by Gereffy *et al.* (2005). Coordination was carried out among players through establishing information between each other, such as cocoa cultivation activities, price information and marketing institutions. The value chain governance types as follow:

Hierarchy

Market

Relational

Captive

Modular

End Use



Lead Firm

Integration Company

Lead Firm

Lead Firm

Consumen

Value

Chain

Relation Supplier

Turn Key Supplier



Captive Supplier

Component Materials Supplier

Component Materials Supplier

Materials

Supplier

Degree of Eksplicit Coordination

Degree of Power Asymmetry

Figure 3 Five global value chain governance types

 Source : Gereffy *et al* 2005

1. Market

Coordination between producer (supplier) and consumer (customer) without involving a company leader (lead firm) is still relatively low, so that coordination among them has not been established such as standardization, grading and price determination that caused by a variety of received information, therefore producers uniforming the information highly to meet the desires of consumers.

2. Modular

Coordination between supplier and lead firm still slightly low, so that the supplier's ability to uniform the information is required by the lead firm.

3. Relational

Coordination between lead firm and supplier is characterized by the reciprocal flow of information. The existing relationship of the value chain creates dependency in a certain scope, in the terms of that the supplier follows the requirements given by the lead firm and it can be negotiated thus becoming more equal, and easy to uniform the information provided by the lead firm to respond the consumer needs.

4. Captive

Coordination between the lead firm and the supplier is classified as high, thus the supplier depending on the lead firm and the supplier must qualify the requirements that are required by the lead firm such as sorting, grading, pricing, utilizing of used technology and its process. It becomes difficult or highly in uniforming information by the supplier from the lead firm in order to meet the needs of what consumer wants.

5. Hierarchy

Coordination between the lead firm and supplier is very high. There is an association in integrated companies that has been said in this type. The supplier must follow or submit to the terms of the provisions made by the company, therefore the supplier can only performs according to the orders of the lead firm in order to produce the highest quality products and to comply with consumer demand.

The measurement can be made of indicators or criteria that represents the three variables above with the consideration of evaluating the calculation on each point of obtained indicators and eventually will show a number that can be concluded according to the criteria derivation on the indicators. The highest number is 5 points and can be categorized as high, but if the value is less than 5, then the average calculation done by using an average value of 3 so that if the obtained points or value number are more higher will be categorized into high dynamics and vice versa. If the obtained points are < 3 will be stated as low, it is because of the typology category in VCGs that has been developed by Gereffi *et al*. (2011), the dynamics model as illustrated following in Table 1.

Tabel 1. Key determinants of global value chain governance

|  |  |  |  |
| --- | --- | --- | --- |
| Tipologi *(GVC)* | Complexitas | Codification | Capability |
| MarketModularRelationalCaptiveHierarchy | LowHighHighHighHigh | HighHighLowHighLow | HighHighHighLowLow |

Source: Gereffi *et al* (2005)

Approachment was conducted in order to be able to discover the 3 variables in typology determining by mapping each variable through considering, evaluating and indicators derivation of these three variables as according to Gereffy (2005), as follow:

* Complexity, the main indicator of a farmer's ability to fulfill products (cocoa beans) that needed by consumer,
* Codification, the main indicator of farmers' ability to classify the types of quality that needed by buyer, and
* Capability, using indicators by looking at the ability of farmers and consumer to make an agreement formally and informally.
1. **Result and Discussion**

**3.1 Cocoa Value Chain Mapping**

Value Chain (VC) is an association of organizations that conducts activities in adding the value products from producers to the final stage or consumers, by value addition in each point Kaplinsky and Morris, (2000). VC provides a role in a company that strongly supporting the product transition process to get to consumers so that they get the information sources in the existing chain. According to research by Ahmad *et al* (2018) that the GVC of pulp and paper industries in Indonesia is generally in the form of intermediate export products added value that are absorbed by direct importers, export added value in the form of final products export, foreign added value returns to foreign countries in the form of intermediate products export and also export added value in the form of intermediate products which are re-exported to third countries.

Value chain analysis (VCA) is used as a tool to differentiate various stages in the production and utilization of certain products. Moreover, the VC development approach is universally able to connect all business points from remote areas to achieve market opportunities that can grow and develop (Riisgaard *et al*. 2010), in VC development can be considered as a market maker with the aim of assisting to meet the consumer needs and established a trust relationship to coordinate the activities of each chain.

**Collectors**

**Exporters**

**Farmers**

**Retailer Product**

**Processing**

Figure 4 Cocoa Value Chain Mapping in West Sulawesi

Information:

Chain 1

Chain 2

Chain 3

Consumen

Mapping the value chain was done to discover and to describe the conditions of the cocoa value chain in West Sulawesi. This step is a way to facilitate the analysis of value chain activities that are interwoven in each player in order to recognize the conditions the value in each chain has increased or vice versa, which starts from the farmers chain who act as suppliers, until the retailers of the cocoa beans final product. The study results of Arjakusuma *et al* (2013) in the carried out value chain mapping, there are seven players involved in the value chain, i.e raw material suppliers, suppliers of supporting materials (sugar, coloring materials, packaging), restaurant sales agents / retailers, and consumers. All players who involved in the value chain have their respective functions and roles. But, in this study there were 3 chain players from farmers as suppliers (producers) of the main traders and large traders acting as consumers who submitted specifications for the products.

Kotler (2003) and Levens (2010) stated that the marketing channel describes a network where all parties are interrelated with each other in distributing goods and services that started from producers so that they are conveyed to consumers. According to ACIAR (2012), the stages in mapping each value chain are conducted to find what is the core of the involved players, products flow, knowledge and information in the chain, origin and to where the products were delivered. The condition of the cocoa value chain in West Sulawesi as mapped in Figure 4.

**3.2 The Role of Players in Each Value Chain**

The players in each chain can be identified from their respective roles in the cocoa value chain in West Sulawesi of each chain that perform cocoa trading through transactions in each chain that can be discovered after the mapping of the value chain (R1, R2, and R3). In order to find out the role of each chain according to the results of research, thus it can be described from each chain starting from the basic chain, i.e farmers, traders, wholesalers and processing activities that proceed to sell the cocoa beans final product. The roles of each cocoa value chain in West Sulawesi as follows:

1. Farmers - Collectors - Wholesalers / Exporters (Chain 1)

Activities in producing agricultural raw materials are generally carried out by farmers or it can be said as a routine activities for a number of people who have farming livelihood as farmers by managing their land or gardens in cultivating cocoa to produce cocoa beans, which in a product that ready to be sold and processed by other entrepreneurs. The marketing of cocoa beans has been throughout in overseas or commonly referred to as export activities and there are also those who doing the various processing to produce final products that ready for consumption and ready to use such as (chocolate bars and chocolate powder).

2. Farmers-Wholesalers / Exporters (Chain 2)

Collector traders that having a relationship or relevance between farmers and collectors is a thread of trust between them. The traceability result in the field shows that some farmers have such strong ties among them who obtained money for capital loans to fulfill the cost of education for their children of farmers, so that cocoa farmers were bounded to sell their cocoa to these traders, thus their debt can be paid and repaid.

The implementation of quality control that performed by the company based on the results of research is to determine the content and threshold of control points using a digital tools that will automatically provide information on the percentage of each content in the potential cocoa beans they would buy, in order to detect the pint control initially cocoa beans are raised above the scales, then quality control or quality checked for samples of weighed products. The following components that become standard in quality control by wholesalers can be seen in Table 2.

Table 2 Component *quality control* cocoa beans in exporters

|  |  |
| --- | --- |
| *Quality control* | Ingredients (%) |
| *Moisture cal* | 7 |
| *Bean count cal* | 0.2 |
| *Waste cal* | 2.5 |
| *Mould cal* | 4 |

*Premi* is a form of reward for farmers who have obtained product certification from the International Certification of Cocoa (UTZ) institution. Premium payments are made so that farmers can maintain their products in compliance with the conditions or requirements in cocoa cultivation activities. Additionally, evaluation and inspection of plantation will be performed every 2 years by certification institution. If violations are found, the sanctions that will be imposed are revocation of premium for farmers who commited violations.

3. Farmers-Processing (Chain 3)

Processing activities of cocoa beans in West Sulawesi are still classified as a small industry according to the results of this study and direct observation at the time of production. The used machine has a capacity that only able to process 15 kg of raw materials for one batch production with a maximum duration of 5 hours to produce 200 to 500 chocolate bars.

**3.3 Cocoa Value Chain Governance**

This study uses governance analysis through approachment qualitatively according to the developed theory by Gereffi *et al* (2005) in the manner of observing and measuring indicators through 3 basic variables which become parameters (complexity, codification, and capability) to be able to determine and to map the existing typology of governance as well as knowing supplier competencies, based on the three variables will result in different chain coordination. Before knowing the type of Value Chain Governance (VCGs), then firstly know how the relevance of relationships that are intertwined with the players or involved players.

The need for mutual relations between each other where cocoa farmers will sell their products to meet their needs, as in the research of Wijk (2006) which utilizes key chain players and stakeholders in the secondary chain as service providers and facilitators, but there are some farmers who sell their products to the lower level up to the top level of marketing institutions based on several considerations such as access to marketing institutions, prices that applied in marketing institutions and the occurred interactions process in these institutions. According to Nabhani *et al* (2015) that the participation of farmers in the VCGs not actively increase the quantity of life for farmers, but this condition provides space and opportunity to be able to enter through VCGs where the role of technology and information is needed to assist farmers in conducting better codified transactions and can discover the market information.

Based on the previous description of the conditions that are interwoven in each player of the cocoa beans value chain and the process of forming relationships so that in this study will show how the types of governance of the value chain or VCGs. Each of these types can be determined from the complexity of information and knowledge, the ability of producers to codify information, and the ability of producers to respond, these are needed to know the ability of suppliers to manage information and knowledge in order to make transactions, especially those directly related to product specifications of customer requirements, thus they will be able to know the ability and potential of suppliers in responding the submitted requests by buyer. This description shown the type of governance of each chain (R1, R2 and R3) of cocoa farming activities in West Sulawesi which starts from farmers as the first chain or can also be referred to as the main player in cocoa farming activities until it reached the next chain who acts as buyers. Furthermore, the level or dynamics of the cocoa value chain that occurred in West Sulawesi is presented in Table 3.

Table 3 Dynamics or type of value chain governance cocoa farming in West Sulawesi

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Chain | Complexity | Codification | Capability | Type |
| Value Chain 1 | Low | High | High | *Market* |
| Value Chain 2 | High  | Low | High | *Relational* |
| Value Chain 3 | High | Low | Low | *Hierarchy* |

There are 70 farmers in Chain 1 who produced 2 types of governance, i.e Modular governance type that consists of 33 people and Market governance type consisting of 37 farmers with an overall average value of 3 main variables, which are 2.73 of complexity, 3.19 of codification, and 3.99 of capability, so that Chain 1 was stated in the Market typology category in accordance with the dynamics model in Table 3. There are 28 farmers in Chain 2 that generated 2 different types, that is Relational type comprised 15 farmers and the rest are classified in the Market category with the acquisition of an average value of 4.82 of complexity, 2.7 of codification, and 4.0 of capability. In Chain 3, which consists of 2 farmers, indicated the same Hierarchy type with the acquisition values 4.5 of complexity, 1.2 of codification, and 2.0 of capability.

According to the results of the study, it is known that the governance model based on VCG analysis can be seen from occuring dynamics results that the existing typology between farmers and traders (R1) is a Market type based on the results of analysis and calculation on each variable and indicator. If the ability of farmers to access information from consumers is still low because there are no product specifications as defined by producers (farmers) or the absence of provisions applied differently to wholesalers (R2) that imposes quality control on products in terms of the offered products are based on the needs of consumers. It is a quite simple if the dried cocoa beans product directly sold to traders/collectors so that the intertwined price offer will be based on the number of available products and determined by consumers.

The farmers in West Sulawesi considered the using of quality control on products as a quite heavy consideration to sell their products directly to large traders because they perceive a lot of loss or cuts of the scale volume and their income will be affected. As well as other reasons, if it sold to the company will increase the costs due to reason of transportation costs and time spent are needed for delivering to large traders, also the quality control process is not fast. The presence of quality control was also stated by Sturgeon (2001) that using the level of product standardization as a basic process and step in determining the product price and high competence needs.

Based on the results of research in Chain 3, there is an agreement must be obeyed as well as product specifications imposed by consumers so that the established type in the cocoa value chain of farmers and processing chains was the Hierarchy. The price that received by farmers in this chain is higher than sell it to wholesalers and small traders at a ratio price up to 100% where the price at the wholesaler level reached Rp. 24,000 – Rp. 40,000, meanwhile in the processing chain willing to pay Rp. 40,000 to Rp. 55,000 because the consumers get more benefits from the received product based on the results of the agreement.

**Conclusion**

The results of this study were identified three value chains i.e R1 (value chain of farmers, collectors and wholesalers/exporters), R2 (value chain of farmers and wholesalers/exporters), R3 (value chain of farmers and processing). The analysis results based on the governance showed the Market type of R1, Relational type of R2, and R3 which the processing activity chain represented the Hierarchy type. The Hierarchy type of governance illustrated that farmers’s complexity capability were very high but still have low ability in terms of codification, yet can increasing the received price by farmers who sell on R3, due to compliance and willingness to accepted and implemented the requests from consumer.

**References**

Australian Centre for International Agriculture Research [ACIAR]. (2012). *Making Value Chains Work Better for the Poor.* A Toolbook for practitioners of Value Chain Analysis. Australian Goverment

Ahmad T, Daryanto A, Oktaviani R, Priyarsono D.S. (2018). Global Value Chain Of Indonesiaan Pulp and Industry *Jurnal Manajemen & Agribisnis.* Vol 15 (2): 118-128

Arjakusuma R S, Hartoyo S, Fahmi I. (2013). Rantai Nilai Pada Industri Susu Studi Kasus Pt Cisarua Mountain Dairy (Cimory) *Jurnal Manajemen & Agribisnis* 10 (1): 22 – 31.

Badan Pusat Statistik [BPS] Provinsi Sulawesi Barat. (2016). *Statistik Kakao Indonesia.*

Badan Pusat Statistik Provinsi [BPS] Sulawesi Barat. (2016). *Sulawesi Barat dalam Angka.*

Bank Indonesia. 2017. Kurs Tengah Rupiah Mata Uang Asing terhadap Rupiah*.* http://www.bi.go.id [23 april 2017].

Gereffi G, Humprey J, Sturgeon T. (2005). The Governance of Global Value Chains*. Review of International Political Economy* 12 (1): 78-104.

Kapslinky R, R Morris,M. (2000). *A handbook for value chain.* Brighton (UK): Research. Institute for Development Studies.

Kindangen H, Hartoyo S, Baga LM. (2017). Perkembangan Produktivitas, Luas Lahan, Harga Domestik, Permintaan dan Ekspor Biji Kakao Indonesia peride 1990-2013. *Jurnal Manajemen Agribisnis* 14 (2): 118-126.

Kotler P. (2000). Manajemen Pemsaran (terjemahan). Penerbit PT. Index

Levens M. (2010). Marketing: Defined, Explained, Applied,. International Edition. Person: Prentice Hall.

Nabhani I, Daryanto A, Yassir M, Rifin A. (2015). Can Indonesia Cocoa Farmers Get Benfit on Global Value Chain Inclusion? A Literature Riview. *Asian Sosial Science:* 11-18. Canada Center of Science and Education.

Riisgaard, L., Bolwig, S.Ponte, S., Du Toit, A., Hal berg, N., and Matose, F. (2010). Integrating poverty and environmental concerns into value chain analysis: A strategic framework and practical guide. *Development Policy Review* 28(2): 195–216.

Sturgeon,Tj. (2001). How Do We Define Value Chain and Production Network?. *IDS Bulletin* 32 (1): 9-18.

Wijk S V.(2006). Analysis of the Dak Lak Avocado Chain. Dalat, Vietnam, Fresh Studio for GTS SME Project.