

Exploring sustainable netchains of smallholder cocoa farmers in Indonesia

Explorando cadenas de redes sostenibles de pequeños agricultores de cacao en Indonesia

Wahyudi Wibowo¹, Lydia Ari Widyarini², Dominicus Wahyu Pradana³

1- Widya Mandala Surabaya Catholic University, Indonesia. Email: wahyudi@ukwms.ac.id

2- Widya Mandala Surabaya Catholic University, Indonesia. Email: lydiaari@ukwms.ac.id

3- Widya Mandala Surabaya Catholic University, Indonesia. Email: wahyupradana@ukwms.ac.id

Corresponding author: Wahyudi Wibowo (Email: wahyudi@ukwms.ac.id)

ABSTRACT

The purpose of the present study is to examine the interplay between regional netchain and value chain performance of smallholder cocoa farmers in Indonesia. The analysis was based on in-depth interviews with 45 key informants from two major regional cocoa netchains. Participatory rural assessment technique was employed during the interviews in order to identify how regional netchain dimensions are interacted with value chain performance. The results proved the contributions of governance mechanism and social embedding into the value chain performance. Governance mechanism was regarded as the most important variable to secure price stability, hence leads to a viable and sustainable regional netchain of cocoa production. Furthermore, social embedding also played an important role through the influence of patron–client systems.

Keywords: regional netchain, value chain, smallholder farmer, governance mechanism, social embedding

RESUMEN

El objetivo de este estudio es examinar la interacción entre la cadena de red regional y el rendimiento de la cadena de valor de pequeños agricultores de cacao en Indonesia. El análisis se basó en entrevistas exhaustivas con 45 informantes claves pertenecientes a dos grandes cadenas de redes regionales de cacao. Se utilizó en las entrevistas la técnica de evaluación rural participativa a fin de identificar cómo interactúan las dimensiones de la cadena de red regional con el rendimiento de la cadena de valor. Los resultados demostraron las contribuciones del mecanismo de gobernanza y la integración social en el rendimiento de la cadena de valor. El mecanismo de gobernanza fue considerado como la variable más importante para garantizar la estabilidad de precios, lo que conduce a una cadena de red regional viable y sostenible de producción de cacao. Además, la integración social desempeñó un papel importante mediante la influencia del sistema de patrón y cliente.

Palabras clave: cadena de red regional, cadena de valor, pequeño agricultor, mecanismo de gobernanza, integración social.

BACKGROUND

Cocoa beans, main ingredient for chocolate making, are produced in tropical zones around the equator, where climate conditions are suitable for cocoa growing. Around three-fourths of the world's cocoa bean production comes from West African countries: Ivory Coast, Ghana, Nigeria and Cameroon. The Ivory Coast and Ghana are by far the two largest producers of cocoa, accounting for around 65 percent of the world's cocoa. Table 1 shows world's cocoa bean production in the past three years.

Table 1. World's cocoa bean production (2016-2019), in thousand tonnes.

	2016/17		Estimates 2017/18		Forecasts 2018/19	
Africa	3617	76.4%	3496	75.2%	3701	76.3%
Cameroon	246		250		270	
Côte d'Ivoire	2020		1964		2220	
Ghana	969		905		830	
Nigeria	245		250		250	
Others	137		127		131	
America	758	16.0%	836	18.0%	842	17.4%
Brazil	174		204		200	
Ecuador	290		287		310	
Others	294		345		332	
Asia & Oceania	357	7.5%	319	6.9%	306	6.3%
Indonesia	270		240		220	
Papua New Guinea	38		36		40	
Others	49		43		46	
World total	4731	100.0%	4651	100.0%	4849	100.0%

Source: ICCO Quarterly Bulletin of Cocoa Statistics, Vol. XLV, No.3, Cocoa year 2018/19

(Published: 30 August 2019)

There has been concern on the sustainability of cocoa production over the past decade. World chocolate producers have been under pressure to get sustainable supplies, seek for more information about their supply chain credibility and even a full traceability of each cocoa bean used in their products (Kuit and Waarts, 2014). Table 2 provides data of world's cocoa bean production, grindings and stocks in past ten years. Gross crops have been quite dynamic for the period of 2009-2016, and then followed with weakening movements for two years.

Table 2. World's cocoa bean production, grindings and stocks (2009-2019).

World cocoa bean production, grindings and stocks							
Crop Year (Oct-Sep)	Gross crop		Grindings		Surplus/ deficit	Total end-of-season stocks	Stocks to grindings ratio
	<i>in thousand tonnes</i>						
		(Year on year change)		(Year on year change)			(Percent)
2009/10	3 634	1.2%	3 737	5.7%	- 139	1 418	37.9
2010/11	4 309	18.6%	3 938	5.4%	+ 328	1 746	44.3
2011/12	4 095	-5.0%	3 972	0.9%	+ 82	1 828	46.0
2012/13	3 943	-3.7%	4 180	5.2%	- 276	1 552	37.1
2013/14	4 370	10.8%	4 335	3.7%	- 9	1 543	35.6
2014/15	4 252	-2.7%	4 152	-4.2%	+ 57	1 600	38.5
2015/16	3 994	-6.1%	4 127	-0.6%	- 173	1 427	34.6
2016/17	4 731	18.5%	4 397	6.5%	+ 287	1 714	39.0
2017/18	4 651	-1.7%	4 596	4.5%	+ 8	1 722	37.5
Forecasts							
2018/19	4 849	4.3%	4 783	4.1%	+ 18	1 740	36.4

Source: ICCO Quarterly Bulletin of Cocoa Statistics, Vol. XLV, No. 3, Cocoa year 2018/19

(Published: 30 August 2019)

A major background to the said concern is the facts that cocoa farmers in the main producing countries only receive an average of 6.6 percent, compared to the intermediate product processing industry and final producers who respectively enjoy 7.6 percent and 35.2 percent of the total added value in the world cocoa-chocolate industry (Anga, 2015). The low gain encourages young farmers to leave cocoa plantations and look for more rewarding jobs. The situation gets severe due to the falls of cocoa bean prices, which has taken place since year 2016 (see Figure 1).



Figure 1. Trend of cocoa beans prices (Nov 2014-May 2019)

Source: ICCO daily price, average of New York and London markets.

In line with the development of this problem, main players in the world cocoa-chocolate industry have formulated some initiatives on long-term sustainable production (VECO, 2011). As applied to coffee bean production, the initiatives are related to fair trade practices. The adoption of international Fairtrade certification is a new trend among cocoa producers. At the international level there have been around 22% producers with Fairtrade certification (Potts et al., 2014).

Indonesia is among the largest cocoa producers in the world, which alone represents 8 percent share of the total world cocoa production in 2016 (ICCO, 2018). Cocoa growing in Indonesia was first introduced by the Spaniards in the year 1560. Since then, cocoa had been a commodity for export. However, the export values were continued to decrease in the early of 1900s due to pest attacks on cocoa plants. About the same period, in 1888 Dutch planters brought in new seedling from Venezuela to Central Java, and it was the commencement of cocoa processing in East Java and Sumatra.

Nowadays cocoa cultivation in the archipelagic country is carried out in more than 1.5 million hectares and produces annual exports worth 1.2 billion dollars. Behind these figures, smallholder farmers produce the vast majority of cocoa beans (93 percent). It is estimated that more than one million smallholder farmers are engaged in cocoa cultivation, with each possesses less than 0.5 hectare of land (VECO, 2011).

Amid some established improvements in Indonesia's cocoa production there has been an appealing concern about its low productivity. Overall cocoa production in this country has continued to decline since year 2014. The total of Indonesia's cocoa bean production reached 410,000 MT in the period of 2012/2013, but has been declined to only 260,000 MT in 2017/18 (ICCO, 2018).

The above concern may be related to the facts that the majority of smallholder cocoa farmers are

unorganized, untrained, and with low income (Cocoa Sustainability Partnership, 2013). This is happened when farmers receive only a small portion from the total added value generated in the value chain. This unfavorable condition later discourages future cocoa cultivations and potentially threatening the sustainability of cocoa production in the country. In this regards, smallholder farmers' limited access to quality price signals may contribute to the situation. It reflects a deep fragmentation in Indonesia's cocoa value chain, where smallholder products are sold via a long, poorly regulated, yet highly competitive value chains (see Figure 2).

In relation to the above, several empirical studies highlighted the poor performance of the cocoa value chain in Indonesia. The poor performance of the cocoa value chain was indicated by the low yields and the low quality of cocoa beans. In addition, the marketing chain was also less effective (Syahrudin, 2012; VECO, 2011). In East Java Province, cocoa farmers tend not to implement the Good Handling Practices due to the small income margin offered in the value chain (Raharto, 2016). Furthermore, with regards to fair trade practices, there was only 10 percent of certified Indonesian cocoa producers in year 2013 (Potts et al., 2014). These backgrounds are certainly major impediments to the sustainability of the cocoa beans production in Indonesia. Therefore, more in-depth knowledge is needed on the value chain performance among the smallholder cocoa farmers.

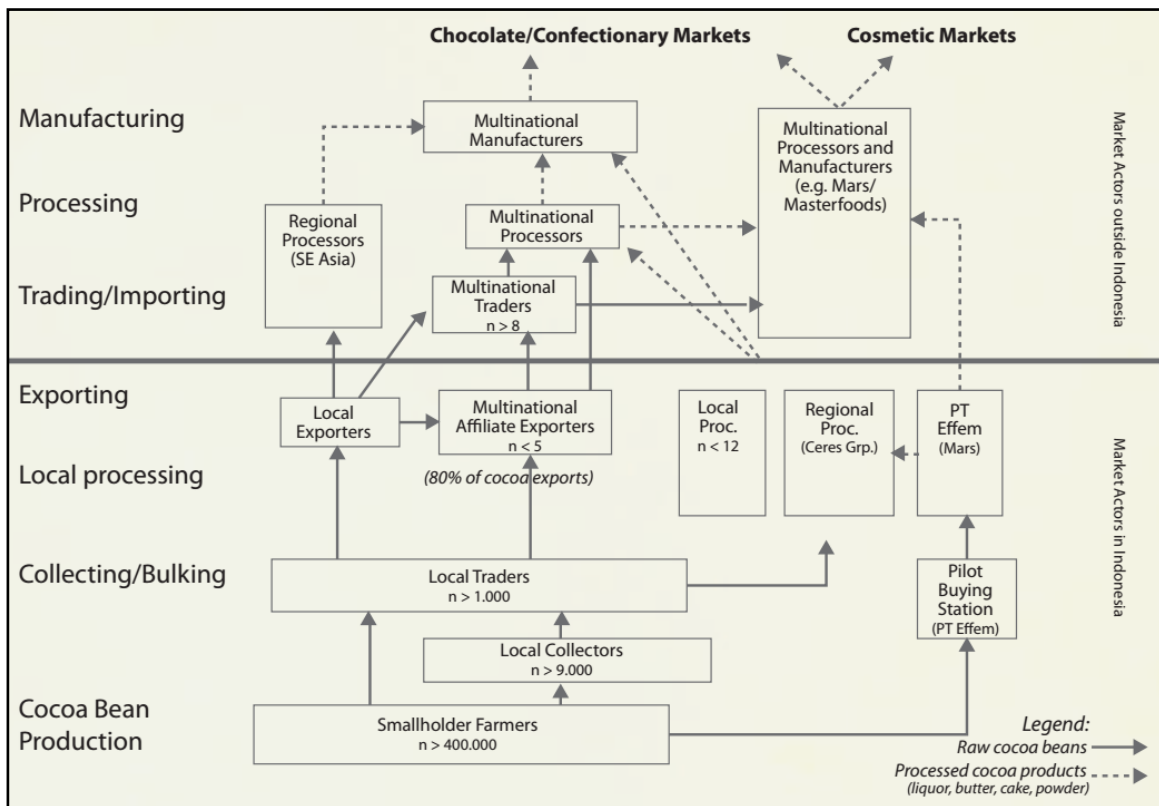


Figure 2. Cocoa value chain in Indonesia (source: VECO, 2011)

One of the main sources of Indonesian cocoa bean production is the East Java Province. The cocoa

(theobroma cacao) commodity is one of the leading commodities in the plantation sub-sector in East Java. The East Java cocoa commodity contributes to meet the needs of both domestic and export markets. Though production volume of cocoa beans in East Java is relatively small compared to major cocoa producing areas such as Sulawesi, the cocoa production and distribution systems in East Java is advanced.

In East Java the cocoa commodity is planted both by the People's Plantation (Perkebunan Rakyat), the State Large Plantation (PT. Perkebunan Nusantara), and the Large Private Plantation (Perkebunan Besar Swasta). People's Plantation is the biggest contributor to cocoa supply, which is 57%, from the total East Java cocoa production (26,000 tons in year 2012).

The East Java Provincial Plantation Office recorded that in 2012 the cocoa plantation area in East Java consisted of 32,010 hectares of People's Plantation, 26,487 hectares of PTPN, and 4,543 hectares of PBS. The centers for People's Plantation in East Java Province include Blitar, Malang, Trenggalek, and, as well as 18 other regencies.

The government of East Java Province by far has paid attention to the cocoa production in the province, especially those which come from the smallholder farmers. Efforts to develop cocoa new plantation centers in East Java currently lead to the southern region of East Java. This southern region area is considered to have an agro-ecosystem typology that is suitable for cocoa cultivation. Since year 2015, the government has initiated the Cocoa Belt (Sabuk Kakao) program, which stretched across eight districts (634.11 kilometers). Under the program government provides supports to smallholder cocoa farmers in kind of cocoa seeds and technical assistances.

According to the study of the Research Board of East Java Province (2015) there are various key constraints to value chain performance of smallholder cocoa farmers in East Java Province. The constraints include (1) weak institutional capacity of farmers and the agribusiness actors in the region, (2) limited capital control, business management, and technology, (3) low access to existing business opportunities, and (4) the sustainability threat of production. Therefore, strengthening the institutional aspects and the market power of smallholder farmers are both essential.

In general, this study aims to obtain the general perception of smallholder cocoa farmers on the issue of value chain performance. In particular, this research is intended to give response to the question: "How governance mechanism and social embedding among smallholder cocoa farmers affect the value chain performance of cocoa beans production in East Java?" To answer this question, the present study aimed at constructing a framework that relates value chain analysis (Antonio and Griffith, 2017) and the netchain model (Nijhoff-Savvaki, Trienekens, and Omta, 2012). The basic assumption being to secure the farm's continuity, the generated value chains among the value chain actors should be supported by a viable and sustainable regional netchain model.

This paper will proceed as follows. The next section will explain the theoretical foundation of the study. This covers literature reviews on the possible interplay between the regional netchain model and value chain performance. Section 3 explains the research methodology and approaches, which are applied to two important regional cocoa netchains in East Java Province, Indonesia. Section 4 provides discussion on the mapping of cocoa

netchains in the province and their respective value chain performances. Finally, conclusion and policy implications are provided in Section 5.

LITERATURE REVIEW

A conceptual framework for the present study is adopted from past studies in the field with a focus of discussion to propose possible associations between netchain model and value chain performance. The framework is primarily based on the netchain model (Lazzarini, Chaddad, Cook, and Cook, 2001; Nijhoff-Savvaki, Trienekens, and Omta, 2012) and the social network model (Uzzi, 1997). Another underlying concept applied in this study is value chain analysis (Antonio and Griffith, 2017; Rota and Sperandini, 2010).

Netchain is a set of networks comprised of horizontal ties between firms within a particular industry or group, such that these networks (or layers) are sequentially arranged based on the vertical ties between firms in different layers (Lazzarini et al., 2001; Nijhoff-Savvaki et al., 2012). The netchain model provides value chain and network perspectives on inter-organizational collaboration.

The netchain model is built around two important dimensions, governance mechanism and social embedding. Following the previous studies, this present study views governance mechanism of a netchain as means of creating the conditions for effective collaboration in the netchain (Jones, Hesterly, and Borgatti, 1997; Nijhoff-Savvaki et al., 2012). Such conditions that concern with partner selection, type of agreements, as well as strategic coordination within the netchain. Thereby three elements of governance mechanism: chain coordination, chain quality management systems and chain information systems, are recognized.

This study also regards the dimension of societal embedding (Nijhoff-Savvaki et al., 2012). Societal embedding is the extent to which social values that represent the cocoa bean production and its chain are shared by its wider network of stakeholders, consumers and society in general.

A value chain is a concept which represents a set of activities for a firm to perform in order to deliver a valuable product or service (Porter, 1985). Value chain is based on the process view of a firm where each subsystem within the firm creates specific value to the made up of the final marketable product or service. In the value chain, each activities involved must be separated to each other, since it has different economic value and represent a significant proportion of cost. Hence how value chain activities are carried out determines costs and latter affects profits.

In this study, the value chain analysis refers to the analysis of a value system or an industry value chain. A value system comprises of suppliers of inputs, a production firm of a marketable product, the distributors who pass the product all the way to the end customers. To achieve a sustainable production of a marketable product, a firm must understand the work of the value system which gives respect to the contribution of every stakeholder in the system.

In agribusiness, value chain system can be defined as a set of necessary activities to bring agricultural product from the farm to the end consumers, where at each stage value is added to the product. This involves the

identification of power relationship among the stakeholders and some aspects of organization and the coordination within the system (Antonio and Griffith, 2017). In global chocolate industry, for example, the value chain system links local farmers to collectors and brokers of cocoa bean, also to the multinational buyers and processors at the end of the chain.

METHODOLOGY

To achieve its purposes the present study was designed as field studies which use qualitative-descriptive approach. Referring to a previous study which conducted by Raharto (2016), the field study was conducted in Blitar Regency. In addition, another field study also took place in Mojokerto Regency.

The choice on these two regencies was based on their active participation in the Sustainable Cocoa Development Program (SCDP) in East Java Province. The program was a collaborative project of the Association of Export Companies in Indonesia (Gabungan Perusahaan Ekspor Indonesia, GPEI), Pusat Penelitian Kopi dan Kakao (PUSLITKOKA), East Java Provincial Government, and the European Union. The program aimed to encourage the sustainability of the cocoa supply chain in East Java.

Blitar Regency is one of the main centers for cocoa production and distribution in East Java Province. The regency is home for thousands of smallholder cocoa farmers who belong to the Guyub Santoso Farmer Cooperative (hereinafter Guyub Santoso). Guyub Santoso was established on January 1, 2005. The establishment of the farmer cooperative was intended as an effort to joint production and distribution. Through the cooperative mechanisms, cocoa bean products are collected, to be further processed and distributed. However, in year 2017, there was a shift on the governance of the netchain, that is from a cooperative to a corporation. This shift will later played several implications to the value chain network.

The membership of Guyub Santoso includes 26 farmer groups in Blitar Regency and 78 other farmer groups in East Java. There are around 4,240 smallholder farmers in Blitar Regency and 17,774 smallholder farmers from other regencies. Its productivity is supported by about 17,415 hectares of productive lands.

In Mojokerto Regency, the field study was conducted in Mulyo Jati Farmer Cooperative (hereinafter Mulyo Jati). The farmer cooperative has just established in year 2016 and was started with only 20 groups of cocoa farmers. Before its establishment, Mulyo smallholder cocoa farmers in Mulyo Jati had been part of the value chain network of Guyub Santoso. Few years after its establishment, the cooperative has been able to gather a number of 1,337 smallholder cocoa farmers. The land areas involved in the cocoa production for this center cover 447 hectares. This center of cocoa plantation, with regards to production scale and land occupation, is relatively small compared to the one in Blitar Regency. But the growth and members' participation of the value chain network are subjects of interesting study.

The field studies in two regencies were consisted of observation, in-depth interview, and participatory activities. The studies were conducted in six months (January to June 2019). The focus of the research was to identify the roles of institutional aspects, governance, and social networks among the cocoa value chain actors. The data

collection method used was Participatory Rural Appraisal (PRA) through semi-structured socio-economic interviews to smallholder cocoa farmers in the two regencies.

The PRA method allows value chain actors to jointly evaluate their existing problems in order to formulate joint efforts and policies related to the sustainability of cocoa value chain. In its implementation, PRA emphasizes direct involvement of the smallholder farmers.

The analysis was conducted in descriptive techniques by employing combine tools of value chain analysis and Delphi analysis. A number of key informants from Blitar Regency (n=15) and from Mojokerto Regency (n=30) were involved during the study. The informants were all chairmen of local cocoa farmer groups, which were selected through purposive sampling technique.

During the study, we asked the informants factors contributed to their choice to grow cocoa plant out of other commodities. Then we asked them to identify the factors according to the priority. Often, we confronted their answers to other possible factors. We also asked them how they joined and engaged in the existing value chain network. Again, we confronted them with other possible choices.

Next, we facilitated the informants to explain in detail how the value chain network works in growing cocoa plant, collecting cocoa beans, setting the quality standard and grading, determining the cocoa bean prices, and processing and selling of the cocoa beans. We facilitated them as well to describe their problems in dealing with the production and distribution of the cocoa beans. Informants were then asked about their ideas to solve the actual problems. In the last part, we asked them to express their expectations regarding the future of the value chain network.

RESULTS AND DISCUSSION

First important aspect to discuss in this part is the socio-economic backgrounds of the smallholder farmers in Blitar and Mojokerto regencies. The smallholder farmers in both regional netchains are from various occupational backgrounds. When informants were asked to identify their occupation, there were various answers including small business owner or merchant, government officer, craftsman, school teacher, or cleric.

Cocoa growing is not the only source of income for the smallholder farmers. They came into the cocoa growing generally by the intention to make use of their unproductive lands. However, with regard to their total income, the cocoa farmers are also at various economic conditions. There are only few farmers with the above standard income – that is in reference to the minimum wage in the region, but the majority of the farmers still live with below standard of income.

When informants were asked about their choice to grow cocoa plant, the answers were similar. Cocoa growing is favorable due to low costs and eases of treatment and maintenance. Unlike other kinds of plantation such coffee, coconut, and tea, treatment on cocoa plantation is relatively effortless. Moreover, it requires no specific skills. This is a job with no entry barriers. Every household with some piece of land can access the value chain system as growers. Cocoa farming in East Java is gender inclusive, men and women are involved equally.

Next important aspect is how in fact the regional netchains of smallholder cocoa farmers, Guyub Santoso and Mulyo Jati, work. It is important to identify that smallholder farmers regards price stability over high price. Furthermore, compare to other factors, price stability is actually the most important factor toward the continuation of cocoa growing. The reason behind this opinion lies on the farmers' past experiences.

Like most food producing chains, cocoa farmers in the two netchains faced market risks related to the dynamic of world prices. However, for smallholder holders with relatively small volume of production, it is unfavorable to accept the ups and downs of world cocoa bean prices. Even at the time of high prices, income from cocoa beans selling does not cover their daily needs.

Therefore, in the view of these smallholder farmers viable and sustainable netchain simply means value chain network that could secure stable cocoa beans prices. Keep in mind that the idea of viable here is dissimilar to the idea that underlies the concept of fair price. In the fair price principle, there is a concern to ensure a minimum price that covers the production costs of farmers. Also, fair price is supposed to achieve a fair distribution of benefits within the value chains. However, the idea of having a viable netchain here refers to the condition where the stability over the highest possible price of cocoa beans is achieved in the market.

Following this principle, there is less care among the smallholder farmers towards the quality of cocoa bean. This is happened since collectors usually do not require high quality of cocoa beans. This of course represents the farmers' lack of knowledge and concern towards the dynamics of cocoa prices in the world market, which is the main concern of cocoa traders. Obviously, there is a gap between the perspectives of smallholder farmers and collectors. Moreover, there is no strict regulation – as it is for the coffee beans product – that prohibit farmers from directly selling raw cocoa beans product to collectors.

Turning into the dimensions of governance mechanism in the netchain and how it works, there are several important findings. Chain coordination among smallholder farmers in East Java is unique with regards to its structure. Smallholder farmers in both netchains of Guyub Santoso and Mulyo Jati are actually less organized. Even when all of them are belong to farmer cooperatives, but these farmer cooperatives do not work as it should. In fact, both of the cooperatives are more likely perform as farmer associations. Farmer cooperatives in the two netchains act only as forum to exchange information on the production volume and the price, also to facilitate transactions.

Reflecting on how the chain coordination works in two netchains, it is based on principle of information transparency. Transparency of information is highly important since it is the basis for trust among actors in the netchain. In Blitar Regency, Guyub Santoso functions as netchain manager and is responsible for the overall value chain performance. The cooperative price system, which referring to the world market prices, offers farmers with more certainty, thereby opposing opportunistic behavior and creates security in production volumes.

Similar price system is employed in Mojokerto, but with an additional assurance of minimum price level. Hence Mulyo Jati offers the smallholder farmers a more competitive price system which allows farmers to get higher bottom price. Obviously in this price system there is transfer of price fluctuation risk from farmers to Mulyo Jati. This system is near to the work of fair price system.

Chain-wide information exchange is crucial in the work of the cocoa farmer netchains. Chain-wide information exchange and its usage play a crucial role in all phases of the production and distribution processes. It could determine the quality of the end product, and importantly contribute to the effectiveness of the value chain performance.

Out of the common ways of managing the chain coordination in the two netchains of cocoa farmers in East Java, there is a different mechanism of managing the exchange of information. The exchange of information in Guyub Santoso is more likely following a business mechanism, especially it is transformed into a corporation. While in the case of Mulyo Jati, the way it is conducted is rather through social networks. Exchange of information often takes place through a weekly-routine praying assembly.

Concerning the chain-wide information exchange in the two cases of cocoa netchain, their successfulness depends on the quality of relationships among the individual actors. Good relationship will enable a constant exchange of information within the various stages of the netchain. By this person to person communication, information gathered, processed, and disseminated during the production and distribution processes.

Important production information includes identification of harvesting schedules as well as the quality of the cocoa bean product. A large part of this information exchange is conducted through social media network. However, this way of information exchange is seldom documented.

Overall, on governance mechanism the existence of a chain manager (i.e. farmer cooperative) seems crucial to the success of netchain model. For regional cocoa netchains to enjoy market growth, a structured form of collaboration among chain actors is a precondition.

Next, on being socially embedded (e.g. in terms of regional culture and tradition or societal concerns) being region-bound is critical for an effective netchain model. Collaborative action and effective communication among actors in the value chain are all important. In this sense, this study finds interesting evidence. Almost all of the smallholder farmers are members of or at least associate themselves with the same religious community, named Nahdlatul Ulama. In Indonesia, Nahdlatul Ulama is the biggest Moslem community.

Hence, social networks play important role as the basis for relationship and trust among actors in the netchain model. These various actors involved in patron–client relationships, which ultimately represents a system of informal governance in the netchains. That is to say, much of the actual social and economic activities that take place in the netchain was guided by the patron–client structure. This is applied for both Guyub Santoso and Mulyo Jati, however the latter has been more effective in taking advantage from the social networks.

CONCLUSION

The present paper started with assumption on the existence of business case from a regional netchain of agricultural production that involves smallholder farmers. The research approaches then allow a comparative study of two cases of cocoa production in East Java. This study finds that the most important factor for cocoa growing is

price stability. Second most important is governance mechanisms, especially on the aspect of chain-wide information exchange.

There are four important issues to take into account for regional cocoa netchains in East Java when aiming to manage their development. The first is related to chain coordination, especially in choosing the most suitable organizational structure for the regional netchain (e.g. control board, cooperative, or corporation). The second important issue is to ensure the effectiveness of chain-wide information exchange. The third important issue is that of social embedding. It is important for the netchain model to work well via societal embedding in terms of mobilizing and involving societal organizations in the development of the production system.

Knowing those important factors for the sustainability of cocoa growing any firms engage to form business case with the smallholder farmers need to establish a governance mechanism that ensure the present of price stability. Next, the involvement of firms, which are presumably external to the community of farmers, should take care of the traditional social ties in the community.

The regional cocoa netchains in East Java, as performed by Guyub Santoso and Mulyo Jati are still at pioneering stage. Yet, if regional production and sales channels continue to be developed at the same rate as they did over the past years then these regional cocoa netchains seem to have potential for future growth.

Furthermore, recognizing that in most developing countries governments normally do not have sufficient financial resources to invest in value chain development programs, it may be crucial to encourage smallholder farmers' cooperation through netchain and social embedding. The netchain can work together in risk sharing, improving insurance through input supply, production, processing, and distribution. As a result, constraints faced by the smallholder farmers will be reduced and the cocoa value chain performance can be improved. In contrary, fragmented smallholders and failure to make coordination will contribute to an inefficient value chain.

It is suggested for future researches to define the roles that government and civil society can play, in close collaboration with the netchain actors. That is in supporting the product certification, strengthening organizational structures, and developing branding strategies. In this regards, government and non-governmental (civil society) organizations have important roles to play. Governments by ensuring the balance between various barriers, incentives and stakeholder interests. Civil society organizations by measuring and comparing the degree to which various production systems meet requirements and expectations of society and communicate this to the groups which they represent.

In the future, to reap the benefits of the worldwide increase in the demand for cocoa beans, investment and efforts in developing viable and sustainable netchain are required. Aligned with this, involvement of the private sector and matching chain activities with input services may be needed.

REFERENCES

- Anga, J.-M. (2015). Latest developments in the global cocoa market. UNCTAD.
- Antonio, L., and Griffith, G. (2017). The cashew value chain in Mozambique: analysis of performance and suggestions

- for improvement. *Int. J. Food System Dynamics*, 8(83), 208–221.
- Cocoa Sustainability Partnership. (2013). *The 2020 Roadmap to Sustainable Indonesian Cocoa*. NewForesight Consultancy.
- ICCO. (2018). Production of cocoa beans. *Quarterly Bulletin of Cocoa Statistics*, Vol. XLIV.
- Jones, C., Hesterly, W. S., and Borgatti, S. P. (1997). A general theory of network governance: exchange conditions and social mechanisms. *Academy of Management Review*, 22(4), 911–945.
- Kuit, M., and Waarts, Y. (2014). Certification Schemes and Private Standards: Is there a business case? CTA.
- Lazzarini, S. G., Chaddad, F. R., Cook, M. L., and Cook, M. L. (2001). Integrating supply chain and network analyses: The study of netchains. *International Journal on Food System Dynamics*, 7(22).
- Nijhoff-Savvaki, R., Trienekens, J. H., and Omta, S. W. F. (2012). Building viable and sustainable regional netchains: case studies of regional pork netchains in Spain, Germany, and The Netherlands. *International Journal on Food System Dynamics*, 3(1), 50–60.
- Porter, M. E. (1985). *Competitive advantage: Creating and Sustaining Superior Performance*. New York: The Free Press.
- Potts, J., Lynch, M., Wilkings, A., Huppé, G., Cunningham, M., and Voora, V. (2014). *The State of Sustainability Initiatives Review 2014*. IISD.
- Provincial Research Board of East Java. (2015). *Survey Pengembangan Potensi UMKM Sektor Agrobisnis di Jawa Timur: Studi Kasus Kampung Coklat, Kabupaten Blitar*. Dewan Riset Daerah Provinsi Jawa Timur, in Indonesian language, unpublished.
- Raharto, S. (2016). Institutional Development Model Cocoa Farmers in East Java Province District Blitar. *Agriculture and Agricultural Science Procedia*, 9, 95–102.
- Rota, A., and Sperandini, S. (2010). Value chains, linking producers to the markets. *International Journal on Food System Dynamics*, 1(12).
- Syahrudin, N. (2012). *Sustainable Supply Chain Management: A Case Study From Indian Automotive Industry*. University of Bergamo.
- Uzzi, B. (1997). Social structure and competition in interfirm networks: the paradox of embeddedness social structure and competition in interfirm networks. *Administrative Science Quarterly*, (March).
- VECO. (2011). Increased incomes for Indonesian cocoa farmers in sustainable markets: NGO-private sector cooperation on Sulawesi island. Retrieved from <https://www.veco-ngo.org/sites/default/files/paragraph/attachments/indonesia-cocoa-case.pdf>

SHORT VITAE

Wahyudi Wibowo, Assistant Professor, Faculty of Business, Widya Mandala Surabaya Catholic University (Email: wahyudi@ukwms.ac.id)

Lydia Ari Widyarini, Associate Professor, Faculty of Business, Widya Mandala Catholic Surabaya University (Email: lydiaari@ukwms.ac.id)

Dominicus Wahyu Pradana, Lecturer, Faculty of Business, Widya Mandala Catholic Surabaya University (Email: wahyupradana@ukwms.ac.id)

Received: 23th August 2021; Accepted: 17th January 2023; First distribution: 25th April 2023.