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Panca Datu Partnership in Support
of Inclusive Business for Coffee Development:
The Case of Ngada District,
Province of Nusa Tenggara Timur, Indonesia

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ABSTRACT

Coffee development has big potential as coffee is one of the globally traded commodities in the world. Arabica and Robusta are the most popular coffee varieties produced by smallholder farmers in Indonesia, including those in Flores Island, Nusa Tenggara Timur Province. The produce of this island is well known in the global market as Flores coffee. Coffee farmers have poor knowledge and skills in farm management, which, along with poor postharvest practices, had contributed to low productivity and low quality of coffee beans. A project (AIP-PRISMA) has been implemented in Ngada District in Flores Island with the goal of increasing productivity and developing good-quality coffee. This study aims to describe the model business implemented in coffee development and the roles of actors involved in the business model. Ngada District was purposively selected as study site because a coffee development center exists in the island. Data were collected using focus group discussion (FGD) and documentation techniques. In this study, data collected is fully analyzed using descriptive method. The results of study pointed out that there are five main value chain actors involved in the market system. The first three are the coffee farmers' cooperative, PT. Indokom Citra Persada (coffee exporter), and the Bank of Nusa Tenggara Timur (a local government bank). Also, there are two supporting value chain actors, namely the Indonesian Coffee and Cocoa Research Institute (ICCRI, a research institution), and VECO-Indonesia (an international non-government organization or NGO). Inclusive business among the actors was based on a business model. There is a strong partnership among the five actors locally called panca datu (panca is five, and datu is element). Sustainability of inclusive business is happening because each actor plays the roles and generates an economic incentive for each.

Keywords: inclusive, business model, value chain, economic incentive
JEL Classification: Q1

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ABSTRACT

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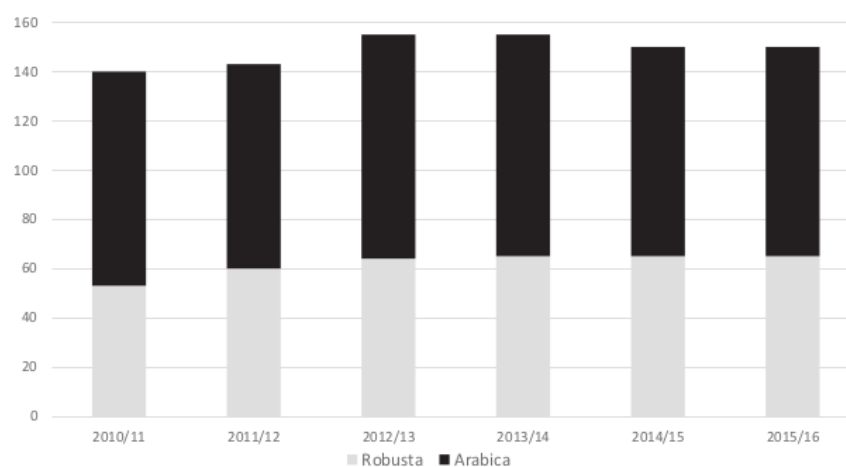
INTRODUCTION

Presently, coffee is one of the globally traded commodities on major futures and commodity exchanges in the world because it has significant value-addition and export potential. Most of the coffee produced by smallholder farmers in Indonesia is Arabica (aside from Robusta) from an average area less than 18 hectare (ha). Cultivation of coffee has a great role in the cultural and socio economic life of the rural people and the nation (Poods 2003; Kilian et al. 2006). It constitutes one of the sources of income for smallholder farmers in most developing countries (Mutandwa et al. 2009). Indonesia is the fourth largest producer of coffee in the world in 2014. Globally, coffee production in 2014/2015 has reached more than 149 million of 60-kg bags of green beans (Figure 1), of which total exports in 2014/15 amounted

to 119 million bags (Figure 2) (USDA 2015).

Indonesia produces approximately 11 million bags of green beans annually, the equivalent of 660,000 tons (t) of coffee, from about 1.2 million ha of farmland¹. (Anon. 2015). There are different kinds of unique, single-origin Arabica specialty coffee produced in Indonesia; these are Gayo coffee, Java coffee, Toraja coffee, Lintong coffee, Flores Bajawa coffee, and Robusta fine coffee. Meanwhile, in Flores Island, coffee productivity is about 310 kg green bean equivalent (GBE)/ha², which is still below the national productivity figure of 420 kg GBE/ha³. In comparison, East Java coffee farmers have a productivity of around 460 kg GBE/ha⁴. At the global level, average productivity of coffee in Brazil is 1.4 million t GBE/ha; it is 2.4 million t GBE/ha⁵ in Vietnam. In Flores, however, there exists a big potential to increase productivity of coffee through

**Figure 1. World coffee production
(Millions 60 kg bags)**



Source: USDA 2015

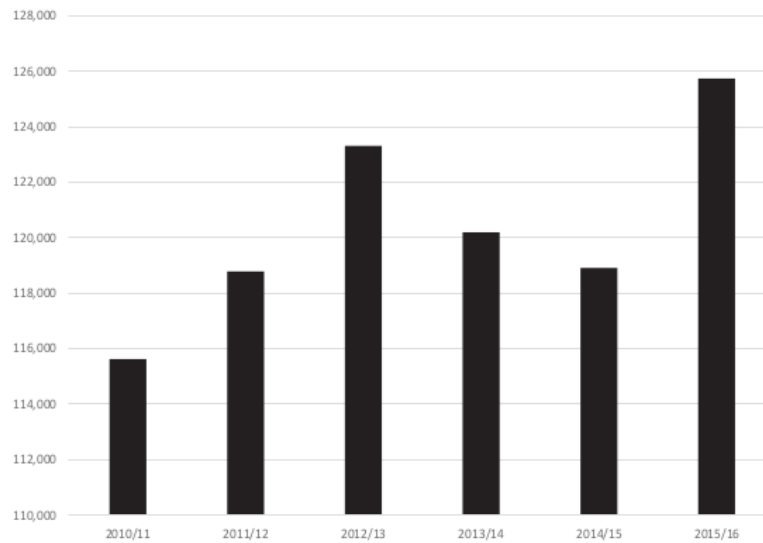
1 http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Coffee%20Annual_Jakarta_Indonesia_5-13-2015.pdf

2 <http://ntt.bps.go.id/linkTabelStatis/view/id/526>

3 The Coffee Barometer 2014 (https://hivos.org/sites/default/files/coffee_barometer_2014_report_1.pdf)

4 <http://jatim.bps.go.id/linkTabelStatis/view/id/98>

5 The Coffee Barometer 2014 (https://hivos.org/sites/default/files/coffee_barometer_2014_report_1.pdf)

Figure 2. World coffee exports (Millions 60 kg bags)

Source: USDA 2015

application of good agricultural practices (GAP).

In terms of productivity, coffee farmers in Flores generally lack access to information relating to technology or agricultural practices because training opportunities and information on good farming practices are limited. They have poor knowledge and inadequate skills in farm management, thus contributing to low productivity and low quality of the coffee beans. Flores is one of the producers of high-quality Arabica coffee, which is well known in the market as Flores coffee. The main production areas in Flores Island, which is part of Nusa Tenggara Timur Province, are Ngada, Manggarai, East Manggarai, and Ende districts; these produce more than 50 percent of total volume produced in the province⁶. Actually, Robusta and Arabica coffee might be processed

using two systems (dry and wet) and this is dependent on what consumers demand. For the farmers, coffee processed under the wet system has better quality and gets better prices from exporters⁷. In Indonesia, almost 80 percent of coffee farmers employing the traditional dry system. Farmers dry beans under the sun, which results in unpredictable quality standards. Some quality problems encountered by smallholder farmers in Flores emanate from weak postharvest practices and weak manufacturing practices, including use of very poor processing machinery and drying facilities.

In other countries, Gisaro et al. (2013) found some problems relating to coffee plantation in Mushubati sector (Rutsiro District, western province of Rwanda): (1) poor quality of products, (2) poor methods in pruning, (3) poor use of technology, and (4) poor processing

6 <http://ntt.bps.go.id/linkTabelStatis/view/id/526>

7 http://www.irjabs.com/files_site/paperlist/r_199_121013220230.pdf

and storage practices. In Palpa (Nepal), coffee farmers face major problems such as high insect infestation, low market prices, and lack of plant protection materials (Acharya and Shiva 2014). Pest problems were caused by lack of quality seedlings (Pandit 2008; Kattel 2009; Kantharaju 1989). Meanwhile, Poudel et al. (2009) reported that one major constraint to organic coffee production in Gulmi District (India) was unavailability of skilled labor.

Coffee development in several countries is significantly affected by the presence of exporters. In order to meet the demand of these business actors, higher productivity and better bean quality must be ensured. A project was launched in Ngada District (Flores Island) under the Australia-Indonesia Partnership-Promoting Rural Income through Support for Markets in Agriculture (AIP-PRISMA). The

implementation of this project has involved the international non-government organization (NGO), VECO-Indonesia, as a co-facilitator. From April 2014 to December 2016, the project provided interventions to increase productivity and produce good-quality coffee. In the implementation of this project, five actors (locally called *panca datu*, panca is five and datu is element) committed to do their part: (1) coffee farmers' cooperative, (2) the PT. Indokom Citra Persada (coffee exporter), (3) the Bank of Nusa Tenggara Timur (local government bank), (4) Indonesian Coffee and Cocoa Research Institute (ICCRI) (the research institution), and (5) VECO-Indonesia (international NGO).

This study aimed to describe the business model implemented in coffee development and the roles of actors involved in it. Ngada District was purposively selected as the location of the

Figure 3. Location of the study



Ngada District in Flores Island, Nusa Tenggara Timur Province

study as it constitutes a coffee development center in the island (Figure 3). Data were collected by using focus group discussions (FGD) and documentation techniques. Descriptive method is fully employed in the analysis.

General Description of Ngada District

Ngada District is one of the major coffee-producing areas in Nusa Tenggara Timur Province. The total coffee area is 6,147 ha, of which 5,351 ha is planted to Arabica coffee. In the remaining 796 ha, Robusta is grown. The development of agribusiness related to Arabica coffee in Ngada is still quite open, either through program expansion or intensification to increase productivity, as well as through quality improvement and development of downstream industries. Ngada (1,200–1,550 meters [m] above sea level) has a tropical climate with cool mountainous landscape that covers the slopes and undulating plains. The vegetation includes forest trees, horticultural and food crops, as well as plantation crops (Arabica coffee). The coffee plantation is located at an altitude of about 1,200 m, creating ideal conditions for Arabica cultivation. Average rainfall is 2,597 mm per year (a rainy day average of 115 days per year), which is good enough for growing Arabica coffee. The site of study is shown in Figure 3.

Coffee farmers' cooperatives face several problems: (1) quality of coffee does not meet the standard demanded by exporters, (2) exporters do not want to invest directly in farmers' groups or cooperatives, (3) machinery for coffee processing is limited, (4) cooperatives lack working capital, (5) farmers lack knowledge and skills in business management, and (6) number of service providers is limited.

Presently, the market for higher quality specialty coffee products is strong so cooperatives should be able to process good-quality of coffee to fulfill a growing demand.

Doing so would give farmers access to a higher value market. The price of coffee beans in 2012, for example, ranged from IDR 24,000 to IDR 26,050/kg unstandardized coffee, but the exporter, PT. Indokom Citra Persada, offered a higher price, IDR 35,000/kg dried parchment of specialty coffee. This necessitates following standard operating procedures (SOP) set by the exporter. This SOP is a key factor in the production of specialty coffee at the cooperative and coffee processing unit (CPU) levels.

Cooperatives with their own CPU used simple processing machines for pulping red cherry of coffee. A big quantity of this raw material could not be properly processed by the cooperatives and CPUs because pulping machines (pulpers) are limited and there are transport problems in bringing the produce. Coffee farmers do not have enough working capital to process the specialty coffee demanded by exporters.

Inclusive Business on Coffee Development in Ngada District

AIP-PRISMA interventions improved productivity and quality by 2018, enabling coffee farmers in Flores Island (including East Java) to get a higher market value for their harvest as shown in Figure 4 (AIP-PRISMA 2015). The project aims to motivate more farmers to improve their coffee production to ensure enough supply of good-quality coffee for export.

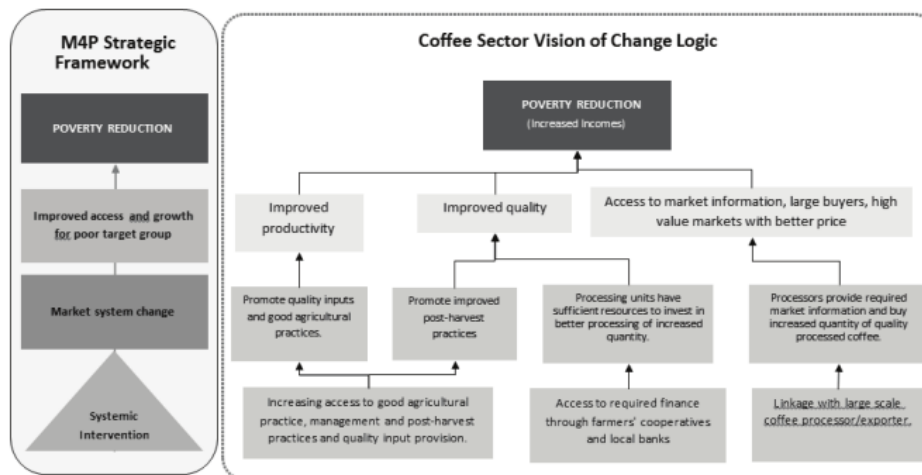
The interventions will facilitate the participation of smallholder farmers and farmers' organizations and other business actors in this market system as espoused by Webber and Labaste (2010). Inclusiveness of coffee business in Flores is achieved by establishing a business model that involves the main actors as value chain actors and supporting actors. This business model addresses quality issues related to specialty coffee produced by cooperatives,

in particular good postharvest practices (GPP) and good manufacturing practices (GMP) and certification of Arabica variety. The three value chain actors are the coffee farmers, the cooperative, and PT. Indokom Citra Persada. Meanwhile, the Bank of Nusa Tenggara Timur becomes a value chain supporter by providing loans. In the business model, the supporting actor group is composed of universities/ research institutions and NGOs. From the implementation of this coffee subsector project under AIP-PRISMA, the appropriate business model was established to sustain the economic income gained by the actors (see Figure 5).

A business model constitutes the way a

company generates value (value creation) and figures these values as profit gained by the actors, and this represents “business logic” (Teece 2010; Casadesus-Masanell and Ricart 2010). Zott and Amit (2010) define a business model as the content, structure, and governance of transactions designed to create value. To sustain the business, coffee producers should have good capacity and ability to produce and process their products with added value and high price in the market (Johnson 2012). Aside from this, farmers’ business should be supported by a supply chain and production patterns that could result in a strong interaction between farmers and the coffee industry (Alejandra et al. 2012).

Figure 4. AIP-PRISMA's vision of change



Source: AIP-PRISMA 2015

Figure 5. Business model and the actors involved in coffee development

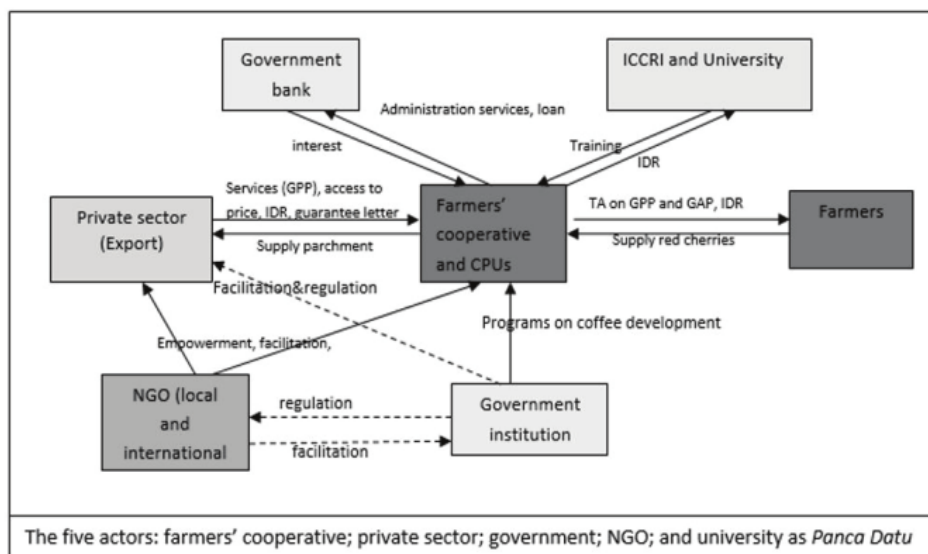


Figure 5 illustrates the strong interrelationship among the five actors or panca datu. Each actor has a role to play to make the business model sustainable. The major factor is economic incentive gained by the actors when they conduct activities dictated by their own roles. The farmers' cooperative as coffee producers and the private sector (exporter) might have added value to coffee selling and buying. The exporter has another role aside from buying the beans (parchment). They train farmers and cooperatives on good postharvest practices to ensure that good-quality coffee is processed.

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Another important feature of the business model is the linkage of the farmers' cooperative with ICCRI and the university. In the business model, high productivity and increased production must be supported at the farmer and

cooperative levels. Cooperatives must be able to supply a big amount of coffee parchment to the exporter and to ensure this, they must have cadres who are capable and skillful in delivering knowledge about good agricultural practices and improving the skills of farmers in production. These knowledge and skills come from ICCRI as a national research institution on coffee and cocoa. Aside from this, ICCRI facilitates a strong partnership between PT. Indokom Citra Persada and the cooperatives. VECO-Indonesia supports and facilitates the training of trainers (ToT) being conducted in ICCRI, Jember. Among the actors of panca datu has interrelated roles that ensure the sustainability of the business model established. The brief roles of each actor are described in Table 1.

Table 1. Roles of actors within Panca Datu

Actor	Roles
Coffee farmer's cooperative	<ul style="list-style-type: none"> To supply quality coffee (based on SOP of PT Indokom) To train and give technical assistance on good agricultural practices (GAP) and good postharvest practices (GPP) to farmers To implement collective marketing
PT. Indokom	<ul style="list-style-type: none"> To train and give technical assistance on GPP to farmer's cooperative To invest in farmer's cooperative To buy the coffee produced and processed by farmer's cooperative at the proper price
Government (Bank NTT, plantation agency)	<ul style="list-style-type: none"> To provide loan/credit to farmer's cooperative To give technical assistance on management of credit
ICCRI/university	<ul style="list-style-type: none"> To disseminate results of research on coffee technologies To train and give technical assistance on GAP and GPP to farmer's cooperative
NGO (VECO)	<ul style="list-style-type: none"> To empower and encourage farmer's cooperative to engage in GAP and GPP To facilitate training and technical assistance on GAP and GPP, including business management to farmer's cooperative

The Coffee Exporter (PT. Indokom Citra Persada)

The company's (exporter's) role is not only as a coffee buyer from the farmers' group or cooperative. PT. Indokom Citra Persada also provides technical assistance (TA) to cooperatives/CPUs with regard to the operation of the coffee processing facility. This is to ensure that coffee quality standards required by the market are met. PT Indokom has implemented an internal control system (ICS) to provide TA on certification and monitoring of standard operating procedures. Paudel (2013) has found that the coffee private sector encourages and promotes extension and training activities related to the marketing of agricultural inputs and outputs. The private sector has a significant role in delivering goods and services to build better partnership (Paul et al. 2009). As to

coffee business development, another useful strategy is to improve the competencies of human resources in applying agricultural and postharvest practices, promoting the products, and establishing management systems (Aknesia et al. 2015).

In cooperatives in Ngada District, member-farmers could get some information related to good postharvest practices to meet the quality requirement of PT. Indokom Citra Persada. VECO-Indonesia helps facilitate the provision of technical assistance. In 2015, there were 666,740 liters of parchment (1 liter = 0.625 kg) sold to PT. Indokom Citra Persada. The amount of coffee sold increased to 275,509 liters in 2014. The cooperatives in Ngada engaged in a collective marketing scheme to get higher prices for their own products. The exporter provided postharvest services to farmers through the cooperative and

CPU. Markelova et al. (2009) confirmed that collective action enables smallholder farmers avail of necessary services by pooling their financial and labor resources. PT Indokom Citra Persada standardizes the parchments supplied by the cooperatives regardless of the quality of parchment received. Cooperatives enjoy a good price from PT Indokom Citra Persada with good-quality parchments produced. This has ensured the sustainability of the market system established among the actors. Collective enterprise, as shown by cooperatives in the site, has an important role in making sustainable market linkages between smallholder farmers and the private sector (Sergaki 2010; Gitter et al. 2012). Another lesson demonstrated by the private sector is the efficiency in providing inputs, sharing information with the sale of specific inputs, marketing channels, and the promotion of products/markets (Sharma and Bhandari 2005).

Farmers' Cooperative and Coffee Processing Unit

The farmers' cooperative is an important vehicle for community development in most developing countries (Fairbairn et al. 1991; Wilkin and Quarter 1996). Cooperatives could receive grants and loans (debt capital) from banks or other lending institutions (Zeuli and Jamie 2005). In the inclusive business of coffee development, farmers' cooperatives have provided regular assistance to its members, teaching good agricultural practices to achieve higher productivity and production, and good postharvest techniques to produce better-quality coffee beans. Five cooperatives in Ngada District were involved in the coffee inclusive business: (1) Cooperative of Famasa, (2) Cooperative of Papawiu, (3) Cooperative of Primavera, (4) Cooperative of Papa Taki, and (5) Cooperative of Kaghomasa. The cooperatives must supply good coffee parchment to meet

exporter's quality requirements. They also have internal control systems for quality assurance.

Each cooperative strives to improve productivity, production, and quality standard of coffee. To achieve this, they assign ICCRI-trained cadres who function as extension workers in promoting good practices and ensuring quality inputs. Building the capacity of cooperative members contributes to human capital development (knowledge, skills, and experience) (Richardson 2000; Torgerson 1990). Under the AIP-PRISMA Project, farmers' cooperatives also provide agro-inputs aside from the technical services given to members (Ortmann and Robert 2006).

Farmers' organizations are critical elements in the inclusive business as their functions are similar to some aspects indicated by Bosc et al. (2001): economic functions (supply, production, and marketing of goods and services), social functions (education, social interaction), information sharing, and coordination. As to financial needs, farmers' cooperatives could assist members to increase their oftentimes limited working capital.

Farmers greatly appreciate the existence of their cooperatives because they are able to have stronger bargaining power, in the process gaining a higher price and leading to a higher share in the value chain. The cooperatives need to secure a stable supply of red cherry from the members and other farmers. To reach other farmers in far-flung areas, the cooperatives set up various CPUs in several villages. The CPUs were authorized to buy the red cherries and process them using the exporter's protocol. Each CPU has at least one machine pulper. In Ngada District, there were 78 CPUs developed in 2015 under the auspices of the cooperatives, an increase from 30 CPUs in 2014. This increase in the number of CPUs indicates the cooperatives strong motivation to supply more quality coffee to the exporter. The more CPUs they have, the more coffee farmers are reached

to supply the needed raw material.

Cooperatives and CPUs send their cadres (experienced farmers) to provide training and technical assistance to other farmers. The farmers were encouraged to follow proper cultivation procedures to increase yield and, consequently, income.

15 The Indonesian Coffee and Cocoa Research Institute (ICCRI) and the University

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ICCRI has the national mandate to conduct research and development activities on coffee and cocoa, as well as provide relevant data and information for smallholder farmers, private and estate companies, national and regional government, associations and other stakeholders. The main roles of ICCRI in the inclusive business development under the AIP-PRISMA project are conducting research or identification of new local clones of coffee, conducting ToT, providing technical assistance on GAP, including nursery and coffee clinic, and business development of farmers' cooperatives.

Previously, VECO-Indonesia has facilitated the training of cadres of farmers' cooperatives. Twenty-five cadres were selected to be trained for seven days. The main subjects included selection of good seedlings or clones, grafting, pruning, fertilizing, pest and disease control, nursery, and business development. This initial group would then train other farmers, continuously sharing the technologies that they learned.

To enhance the capability of cadres, VECO-Indonesia supported ICCRI in making field visits to areas of cooperatives in Ngada District. The ICCRI provided direct technical assistance to cadres and other farmers. These technical support activities were periodically conducted by ICCRI while helping establish nurseries and coffee clinics at the sites.

In the coffee subsector development under AIP-PRISMA, there was also the involvement

of a university, particularly the Department of Agribusiness under the Faculty of Agriculture of the Udayana University in Bali. University staff taught cooperative members how to make coffee business plans. VECO-Indonesia facilitated and supported the university in managing work on the said business plan. Aside from this, university staff was also invited to give lectures on organization and business management to strengthen the coffee farmers' cooperative. Gender issues were likewise incorporated under the project using insights gained through focus group discussions with female farmers.

NGO (VECO-Indonesia)

In an effort to develop the local people and smallholder farmers, NGO involvement is essential to facilitate program implementation in the villages. Most of these NGOs have worked with local people based on a people-centered development concept that supports a modernization development paradigm to enhance economic self-reliance (Korten 1990). The local people (the beneficiaries of the project) should have access to relevant and reliable information to enable them to make the best decisions for themselves and their communities. The importance of NGOs and the private sector in agricultural and rural development has been documented in various forms (Sharma and Bhandari 2005). Moreover, the NGO sector has shown greater flexibility and efficiency in introducing and supporting farmers to adopt new technologies (Sharma 2011; Oja 2000).

In 2015, VECO-Indonesia as an international NGO had successfully facilitated, supported, and developed fruitful partnerships among the various actors (coffee farmers' cooperatives, ICCRI, PT. Indokom Citra Persada, and Bank of Nusa Tenggara Timur) involved in the business model. It facilitated socialization; training, provision of technical assistance, and

coffee certification at the cooperative level. In this role, NGO assisted ICCRI in giving training and technical assistance on agricultural practices and business management. Aside from this, the NGO also helped PT. Indokom Citra Persada deal with the farmers' cooperatives. The university and the bank were likewise assisted by the NGO in implementing their own coffee business development programs.

Another important NGO role is facilitating multistakeholder partnership through the signing of a Memorandum of Understanding (MoU) with various actors. The stakeholders involved in this MoU are PT. Indokom Citra Persada, ICCRI, the head of district as the local government representative, the bank, the farmers' cooperatives, and VECO-Indonesia. The MoUs spelled out the steps in achieving the goal of inclusive business and described the specific commitments that each element must pursue. To sustain the business, coffee producers should have the ability to produce and process their products with added value and high price in the market (Johnson 12). Aside from this, farmers' business should be supported by supply chains and production patterns that could strongly bind farmers and coffee industry players (Alejandra et al. 2012).

The Government and the Local Government Bank

As in other developing countries, governments at the national, provincial, and district levels in Indonesia focus on issues affecting the coffee subsector development—e.g., coffee production and productivity, coffee quality, and farmer revenues (OCIR 1998). Sharma and Bhandari (2005) mention that agricultural services is one of the major activities of Nepal's government to support their farmers' livelihood and contribute to the country's economic development. The government provides agricultural inputs, services, and

technical assistance to farmers to improve productivity, increase income, and raise the standard of living. In terms of developing Flores coffee, the government promotes inclusive business by making regulations on coffee rehabilitation and intensification, increasing productivity and production, improving bean quality to ensure better prices, and inviting big buyers or exporters to collaborate with farmers' cooperatives.

Government regulations have encouraged farmers and farmers' cooperatives to engage in coffee development. Coffee rehabilitation and intensification programs of the local government in Ngada District are interrelated with those implemented by AIP-PRISMA. The joint efforts resulted in the establishment of nurseries that can supply good seedlings because the government may opt not to use seedlings coming from other places.

In terms of quality issues, the exporter has welcomed the government program in the face of increasing demand for quality or standardized coffee. PT. Indokom Citra Persada enjoyed the support of government, getting more good-quality of coffee beans (parchment). In this context, the government extension workers also did their part in disseminating information to increase production and improve quality.

Another critical government role is the provision of credit through the Bank of Nusa Tenggara Timur. For cooperatives, availability of credit ensures the supply of raw materials from individual farmer-members and non-members as well. The more red cherries bought, the more parchment coffee produced. As the bank sets loan requirements, cooperatives were assisted by VECO-Indonesia and other experts from university in securing the documents needed. The NGO focused on organization management and technical assistance and university concentrated on the business plan and financial management aspects.

At the site, the financial institution

provided loans to cooperatives, which were distributed to the CPUs. The loans were based on a buying contract (guarantee letter) made by PT. Indokom Citra Persada. It specifies the volume of parchment that would be bought by the exporter. The buying contract between the cooperatives and the exporter served as collateral. The money was used by the cooperative as working capital (cash money) to buy much more red cherries from farmers. This arrangement made the cooperative business grow faster. The NGO and the exporter made dealing with the bank easier.

Intensive training and technical assistance in document preparation were provided by the NGO and the university. In Nicaragua, the availability of short-term credit ensures access to parchment coffee, and this credit scheme gave powerful incentives for smallholder farmers (Poole and Jason 2014). Research in El Salvador has also shown the crucial role of NGO in helping smallholder cooperatives avail of services such as credit, training, extension, input supply, processing, and marketing (Stosch and Eric 2002).

CONCLUSION

Flores is one of the producers of high-quality Arabica coffee in Indonesia, well known in the global market as Flores coffee. Farmers have poor knowledge and skills in farm management and postharvest practices, which has contributed to low productivity and inferior quality of coffee beans. The AIP-PRISMA Project implemented in Ngada District in Flores Island constituted a good intervention for increasing productivity and enhancing coffee quality.

The inclusiveness of coffee business is based on a model that involves the main actors as value chain actors and supporting actors. The value chain actors are the coffee farmers, the cooperative, and PT. Indokom Citra Persada as

coffee exporter and the Bank of Nusa Tenggara Timur. The other value chain supporters are ICCRI, the university, and an NGO. There is a strong interrelationship among the five actors. Each actor has a role to play to ensure that the business model remains sustainable. The main affiliating factor is the economic incentive gained by the actors (farmers' cooperative, exporter, and local bank) when they conduct activities in delineating their own roles. The NGO and the university play supporting roles in empowering and strengthening the farmers' cooperative as part of the business model.

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