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# Diversification strategy in Dealing the Development of the world coffee products (Study On Coffee And Cacao Research Centers Indonesia/ICCRI )

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**Abstract.** Indonesian Coffee and Cocoa Research Institute (ICCRI) is a institution that Conducting research to obtain technological innovation in the field of cultivation and processing of coffee and cocoa products. ICCRI has an Experimental Garden and Office Area of 380 ha, consisting of arabica coffee experimental garden (KP Andungsari height of 100-1,200 m asl), robusta coffee and cocoa (KP Kaliwining and KP Sumberasin 45-550 m above sea level). The laboratory has an area of 2,365 m<sup>2</sup> with equipment of 850 units. Consisting of Plant Breeding Laboratory, Soil Physics Laboratory, Soil Chemistry and Soil Biology, Tissue Culture Laboratory, Agricultural Mechanization Laboratory, Product Processing Laboratory, Quality Control Laboratory, Information Center and Training. The purpose of this research is to provide an overview of diversification by Indonesian Coffee and Cocoa Research Institute (ICCRI) to further develop coffee production business in Indonesia. Analysis data used in this study is descriptive analysis to describe holistically and also SWOT analysis to describe deeply strength weakness opportunity and threat to make strategy to improve the performance. The result of the research show that needed a diversification business conducted in the form of internal diversification by doing research to get a better quality coffee plant, quality and have high competitiveness at national and international level. The resulting coffee plant is also resistant to plant diseases, more fruiting, better fruit quality. Diversification is also carried out by performing autonomous fund with the establishment of Coffee and Cocoa science techno park which is also intended to disseminate the results and activities of ICCRI to the community.

## 1. Introduction

Indonesian Coffee and Cocoa Research Institute (ICCRI) was established on January 1, 1911 by the time name was Besoekisch Proefstation. After experiencing several changes both name and manager, currently functionally Puslitkoka under the Agency of Agricultural Research and Development of the Ministry of Agriculture of the Republic of Indonesia, while structurally managed by the Indonesian Plantation Research Institute - Indonesian Plantation Research Association (LRPI - APPI).

Puslitkoka is a non-profit institution that has mandate to conduct research and development of coffee and cocoa commodities nationally, in accordance with the Decree of the Minister of Agriculture of the Republic of Indonesia No. 786 / Kpts / Org / 9/1981 dated October 20, 1981. Also as a provider of data and information related to coffee and cocoa. The main tasks of ICCRI in accordance with its vision and mission include activities; Conducting research to obtain technological innovation in the field of cultivation and processing of coffee and cocoa products Conducting service activities to farmers / coffee and cocoa farmers throughout Indonesia to solve problems and accelerate technology transfer and Fostering human resources, facilities and infrastructure to support research and service activities.

The human resources of the Indonesian Coffee and Cocoa Research Center currently amounts to 301 people, divided into 3 tasks, namely research and services, business and field administration / support. The researcher is 34 people, consist of 11 people with doctoral degree, 8 people with S2 degree, and 15

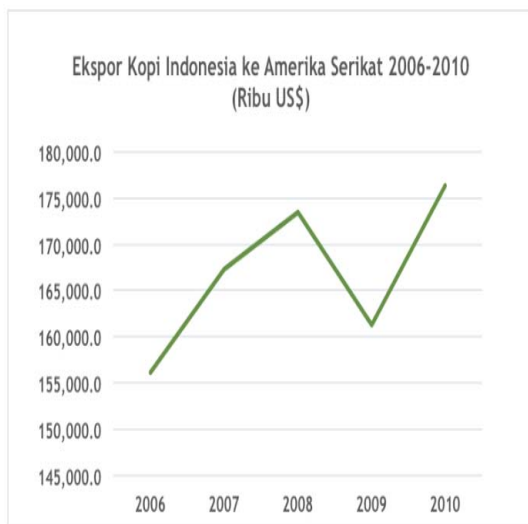


people with S1 degree. Based on functional positions can be grouped 11 people Main Researcher, 12 people Researcher Madya, 1 Young Researcher, 1 person First Researcher, and 4 researchers non-class.

Experimental Garden and Office Area of 380 ha, consisting of arabica coffee experimental garden (KP Andungsari height of 100-1,200 m asl), robusta coffee and cocoa (KP Kaliwining and KP Sumberasin 45-550 m above sea level). The laboratory has an area of 2,365 m<sup>2</sup> with equipment of 850 units. Consisting of Plant Breeding Laboratory, Soil Physics Laboratory, Soil Chemistry and Soil Biology, Tissue Culture Laboratory, Agricultural Mechanization Laboratory, Product Processing Laboratory, Quality Control Laboratory, Information Center and Training.

As a coffee exporting country, coffee developments in 2012 export national coffee beans reach 530 thousand tons with export value of Rp16 trillion. This figure has continued to increase since 2010. In 2015 world coffee consumption is estimated to reach 155 million sacks. According to data from International Coffee Organization (ICO), since 2010 the trend of increasing world coffee consumption by 2.5 percent per year, so that in the year 2020 is estimated to reach 165 million to 173 million sacks, or deficit of 30-37 million sacks. Coffee commodities are able to contribute Indonesian exports of more than 1 billion US dollars. The export volume of coffee in 2011 amounted to 346,493 tons. Indonesia as the third largest coffee producing country after Brazil and Vietnam. Export destinations of the United States, Japan, Germany, Italy, Korea and the United Kingdom. The productivity of coffee crops in Indonesia only reached 700 kg of coffee / ha / year for Robusta and 800 kg of coffee beans / ha / year for Arabica. Indonesia's coffee production in 2012 increased from 2011. In 2011, it reached 633 thousand tons and in 2012 reached 748 thousand tons or increased by about 20% (BPS, 2017) [1].

From the inside and outside the country, coffee is seen as a promising commodity for Indonesia. However, in reality the share of coffee exports is still much lower than other exports. Data from UN-Comtrade using SITC revisions 3 and 3 digits in 2015 indicates that the share of Indonesian coffee exports is only ranked 22th compared to other export shares. Processed coffee gets serious attention from the government. In the Master Plan of Industrial Development National 2015-2035, coffee is also included in the priority industry that the government pays attention to. In the plan the coffee industry is expected to be able to produce a variety of processed coffee products that include coffee powder, instant coffee, decaffeinated coffee, coffee mix, in-packaged coffee drinks and coffee-based supplements.



Sumber: Badan Pusat Statistik, 2017

The existence of market diversification leads to the export of a stronger state fundamentally. The results of Regolo (2013) [2] show that the policy to be taken to improve market diversification is to reduce trade costs among countries that have similar trading patterns. This can be done through market integration within the regional scope. For example, Indonesia already has regional trade agreements

through the ASEAN Economic Community (MEA). MEA can play an important role in increasing market diversification in Indonesian coffee exports. For example, Malaysia still has a growing rate of coffee imports from around the world that is larger than the growth of coffee imports from Indonesia. Through the MEA agreement, Indonesia can increase the proportion of coffee exports to Malaysia so that Malaysia can have a dependence on imported coffee from Indonesia.

The above data shows the coffee production with its uniqueness has a very promising prospect to be developed and make a big challenge for Indonesian Coffee and Cocoa Research Center in Jember. Thus the diversification of coffee products becomes a necessity for the market share of coffee products not taken by other countries should be even improved .. This diversification can be a variety of types of coffee plants, pre-eminent varieties, coffee bean processing equipment, coffee waste processing, variations of processed coffee until variations of the types of coffee drinks available in the community.

Writing this article aims to find out the various efforts undertaken by coffee and cocoa research centers in Indonesia in Jember in diversifying coffee products to coffee in Indonesia more competitive in export markets abroad and in the country and Puslittoka in Jember is also able to independent in conducting research coffee and cocoa, product socialization and coffee farmers development and coffee and cocoa development in Indonesia.

Diversification of business is expanding the market by developing new products in accordance with the market in order to have competitive advantage (Isti Fadiah & Randika, 2018) [3]. According to Hariadi (2005: 37) business diversification is intended to gain maximum profit by combining several investment portfolios whether by producing a variety of goods, establishing a number of business units, or establishing new subsidiaries or even buying companies that already standing. Based on these definitions, it is concluded that companies that diversify the business are companies that have several business units or subsidiaries and business diversification is done to increase the added value of the company owners.

Diversification strategy is done as one way to expand business and expand the market. Diversification itself is a form of business development by expanding the number of segments in business or geographic as well as expanding existing market share or developing various products. This can be done by opening new lines of business, expanding existing product lines, expanding product marketing areas, opening branch offices, conducting mergers and acquisitions to increase economies of scale and other ways.

According to Montgomery (1994), there are three perspectives of the company's diversification motives, namely market power view, resource based view, and agency perspective. The market power view sees diversification as a tool to cultivate anti-competitive influences sourced from conglomeration forces. As the company grows bigger its market share gets bigger. This leads to higher levels of industry concentration and ultimately leads to reduced market competition due to business dominance. Gribbin (1976) states that in fact the power of a conglomerate is a function of market power in the individual market. To gain power across markets, the firm must have a significant influence at least in the market individually. So it is not surprising that the strength of the conglomerate will have many large companies that have power in different market segments. In this approach diversification will have a positive influence on firm performance (Montgomery, 1994).

Kroll and Parnell (2000) said that the "related horizontal diversification" is part of one of the eight possible strategies of growth and occurs when a company acquires another outside the scope of their operations, but related to its core competencies. The concept can be extended to companies that, rather than resorting to acquisitions, create new products with similar characteristics to the previous ones. Costa (2006), apud Correa et al (2009) defines four types of diversification, the latest being "Diversification anchored in basic skills."

According to Ansoff (1977), diversification is a strategy that the company must follow when it is targeting a new market or a new product. Diversification is even regarded as a "last" strategic alternative. Ries and Trout (2009) in their book "Positioning" say that when there are no other brands or the brands that exist are weak, it is possible to extend the product line.

Carneiro, Cavalcanti and Silva (1997) mention that the Resources Based View suggests that the strategy is initiated by identifying existing resources and expertise in the company followed by the assessment of sustainability of competitive advantage that they can provide. Considering the concept

Porter's and the Resources Based View, it can be said that a diversification strategy centered on customer needs should take into account the synergy that the offer of solutions demanded have with the competencies of the company.

Diversification strategy becomes one of the important attention from strategic management science and industrial organization. Those strategies are assumed as a means to spread business risk and transfer skill that is built by company to other businesses which is close to the core business (M. Degl'Innocenti et al, 2014). There are two types of diversifications that can be done by company, relates to the core business and it does not relate at all with the core business (R. Gutiérrez and A Vernis, 2015). If it is related to the core business, it becomes view of many businessman as business risk. Remember that those strategies must be inside of company. There is also opinion that diversification is a group of subsidiaries. Despite being done diversification where business corporation starts to produce new product in new market (J. Zekiri and A. Nedelea, 2011). In the implementation of diversification strategy, it will only be useless when it does not get supporting from innovation. Diversification needs truly its level, both it relates to the main business and new business. Some previous studies use the different dimension of diversification from company, for service industries can be conducted through capability, resources, risk factor, and competence.

For companies contemplating diversification, Michael Porter expands on this. He proposed three "important tests" to be applied in determining whether diversification would actually create shareholder value:

1. The test of attraction. Industries selected for diversification should be Structurally Interesting or able to be attractive.
2. Check entry fee. Entrance fees should not take advantage of all future benefits.
3. Better test. Either the new unit must gain a competitive edge from its relationship with the corporation, or vice versa. (Robert Grant, 2010)

**Classification of Business Diversification** Business diversification is classified into several types. There are two types of business diversification performed by several companies, namely (Griffin, 2002: 240): a. Business Diversification Relevant business diversification is the diversification of the company's business into another business that is still closely linked to the previous business, so as to develop a strategic fit between each business. Implementing the diversification of related ventures has three advantages. First, the strategy reduces the organization's dependence on one business activity and therefore reduces the economic risk. Even if one or two of the company's businesses lose money, the organization as a whole may still be able to survive because a healthy business will generate enough money to support other businesses. Second, managing multiple businesses at the same time, the organization can reduce overhead costs associated with managing one business. In other words, if the normal administrative costs required to operate any business (such as legal and accounting services) can be deployed in a number of businesses, then the overhead cost of the business will be lower than if every business has to absorb all its own costs. Therefore the business overhead costs in the associated diversified company are usually lower than similar businesses that are not part of a large corporation.

Third, the diversification of related businesses enables a company to exploit its strengths and capabilities in more than one business. When companies succeed in doing this, companies take advantage of the synergies that are the complementary impacts that exist between their businesses. Synergy arises in a series of businesses when the economic value of a business combination is greater than the value of the business economy separately. b. Diversify the company's business into another business that has no close relationship with the previous business. The main reason underlying this business diversification is the considerable profit opportunity that can be achieved in certain industries. This strategy can be run by corporate corporations with the special intention of making big profits in the short term. To that end, the company does not establish a new company but take over other companies (acquisitions, and mergers). In theory, unrelated business diversification has two advantages. First, the company must have a stable performance over time. During certain periods if some business owned by the organization is in a downward cycle, others may be in a growth cycle.

Second, unrelated business diversification is considered to have advantages in resource allocation. Each year, when a company allocates capital, people, and other resources among its various businesses, the company should evaluate information about the future of those businesses so the company can put its resources on the business that has the highest return potential. Thus companies that diversify unrelated businesses should be able to allocate capital to maximize the company's performance. (Kusmawati, 2005)

Competitive advantage of company is very needed to be achieved, it is caused company performance is sourced from gaining of company competitive advantage [18]. Internal resources and company innovation strategy becomes a chance in creating competitive advantage [19]. The control of those strategies, it is fully responsible from company leader. Competitive advantage is a management concept that is most popular in contemporary management literature recently. Because of quick change that faced by company, complexity of business environment, globalization impact and unstructured market, consumer's needs who keeps changing, competition, revolution of information technology and communication, and also world free trade [20]. Facing those changing, competitive advantage becomes company capability in recording performance that is hard to be imitated by the competitors either recently or future. The core of those opinions explains in company ability to respond every changing. In service industry, the dimension of competitive advantage is more simple which consists of cost, flexibility, delivery, and quality [21]. Competitive advantage must be continually updated in order to the bargaining value of company can be sustainable [8], it is commonly called sustainable competition advantage.

## 2. Methods

The data used in this study can be classified into two types, namely primary and secondary data. Primary data obtained through 2 methods, namely:

(1) An Interview, which is a tool for collecting data or information, whether known and experienced by a person or subject being researched or hidden deep within the subject. Interview is a tool to get information by asking directly to respondents ie Puslitkoka jemmer and coffee farmers.

(2) Direct observation, conducted in order to develop thorough and in-depth understanding of the actual events in the study site.

Secondary data is obtained through data recording method derived from institutions / agencies relating to research, Central Bureau of Statistics, and other institutions and reports and scientific journals related to coffee research.

Analysis data used in this study is discriptive analysis to describe holistically and also SWOT analysis to discribe deeply strength weakness opportunity and threat to make strategy to improve the performance.

## 3. Results and Discussion

Facing the challenge of competition of coffee products in Indonesia at national and international level Puslitkoka jemmer undertakes efforts to always provide information to the community and government, conducting research - research on coffee from upstream to downstream from nurseries to sales of coffee products. This is in accordance with the mission and vision of this institution, which has been established with the government in this department of agriculture. Diversification or diversity undertaken in outline can be divided into two namely;

### 1. Diversification of Coffee Products

Diversification of Coffee Products, the development of diversification is related to the research effort of various types of coffee seedlings, processing of production equipment, post-harvest processing to sales of coffee products and coaching to coffee farmers and plantations, companies engaged in the field of coffee culture. This is done jointly with the government, which can be in the form of counseling, dissemination of information through print media, internet and direct plunge by doing counseling to coffee farmers.

In the effort to diversify coffee seedlings, Puslitkoka as an oriented institution to always develop superior coffee seedlings, among others succeeded in producing super coffee seedlings. Super coffee seeds are the result of a blend of robusta coffee clones and superior varieties of arabica coffee by using super clones performed at very early stages resulting in perfect compatibility. The characteristics of this

type of super coffee have more roots that correlate with resistance to drought, resistant to parasite / fungus Nematodes, maximize soil and nutrient absorption in soil, better quality, higher yield productivity ie more than 2 ton / ha / year.

In the uniformity of arabica coffee development, which has a higher price than Robusta coffee by developing the arabica type of clones andungsari 2K. Klungs Andungsari 2K is an arabica coffee clip of katai type which is expected to be utilized as one of superior planting material for the purpose of development on the land that dominates the development of arabica coffee in Indonesia, with the height of about 1000 dpl.klon is in addition to leaf rust disease and has high production potential and also has a good taste, as where other types of coffee arabica katay, clones are also potential to experience the excessive and long productive age of over 10 years. The 2K clay andungsari is the result of individual selection in the introduction population of brasilia with the introduction number C-1662-10-3 planted in PTPN XII kalisat orchard. Test results above 1250m above sea level, at the third year fertilization has a production potential of 2.35 tons of coffee seed / ha / year. While the average production for 6 years amounted to 1.59 tons of coffee beans / ha / year. The following will describe the potential of superior Arabica coffee production in table 1 below.

**Tabel 1.** Potensi hasil Andungsari 2K pada saat TM 3 dan rerata dayahasil selama 6 tahun pembuahan pertama dibanding Kartika 1, di lahan tinggi (1250 m dpl.)

Klon/ varietas	Daya hasil, ton kopi biji/ha TM 3	Rerata daya hasil 6 th, ton kopi biji/ ha	Koefisien keragaman dalam populasi	Hasil uji gerombol
Andungsari 2K	2.35	1.59	17.9	a
BP 430 A	1.39	0.87	26.3	b
BP 431 A	1.35	0.89	25.7	b
BP 432 A	1.33	0.87	26.4	b
BP 509 A	1.56	0.84	27.2	b
Kartika 1	0.97	0.69	41.6	c
Andungsari 2K asal benih	0.98	0,63	73.2	

Source : ICCRI

Production deversification is also done in the manufacture of coffee harvesting tools by making the tools more effective yag and efficient in post-harvest processing. For example by making a tool for sorting coffee beans, drying and frying / sangray energy-saving for example with the utilization of waste coffee beans into bio-gas materials used as fuel when sangray coffee beans.

In bringing the processed coffee beans to produce coffee with a variety of flavors, such as coffee mix Mix coffee rabusta and arabica coffee ginger coffee, blanding coffee, ginseng coffee, chocolate coffee and so on. This is also done with a taste test to the minimum coffee enthusiasts and training to get a new entrepreneur in the field of processing of coffee crops.

In the field of cocoa coffee research done together with researchers from outside Indonesia for example Dutch researchers who more experience in coffee plants, especially in getting new varieties of coffee plant species. In addition to researchers from Brazil, Vietnam, which has more coffee production from Indonesia with relatively not much different land. Research continues to be developed also in the field of post-harvest and cocoa bean coffee production by doing coffee taste taste along with the company, plantation engaged in this field.

## 2. Diversification In An Effort To Become An Independent Institution.

Efforts to obtain external funding and reduce the dependence of the government in conducting research coffee and cocoa Puslitkoka Indonesia in jember deversifikasi in the field of other businesses. The diversity of this business is still related to coffee and cocoa for example with the establishment of Coffe



(Coffe Chongak na) and make tourism object which is Science and Technology Garden of Coffee and Cocoa, Coffe and Cocoa Science Techno Park (CCSTP).

CCSTP coffee and cocoa research center is a professionally managed area to initiate and channel upstream technological innovation (onform) up to offstream to all beginners in coffee and cocoa industry sector, so as to create new entrepreneurs of economic growth national, in synergy with academics, business actors and central / local government. This eduwisata area is open to the public.



Eduwisata garden area is one form of business deversifikasi Puslitkoka jember unini is millitone puslitkoka and dissemination of research and development of coffee and cocoa technology. This park contains a garden tour visiting the coffee and cocoa germplasm collection gardens, hatchery technology, coffee plant and cocoa plant demplot, coffee plantation and cocoa plantation, cocoa plant rehabilitation with side grafting technology, cocoa coffee garden integration with livestock, irrigation technology use drops and fertigation for coffee and cocoa farms and conservation areas for deer breeding.

The tour is complemented by a visit to the workshop of engineering equipment and coffee and cocoa processing machines, upstream and downstream coffee-and-downstream processing plants of SNI and environmentally friendly (Zero waste), biogas reactors and utilization of technology related to renewable energy and play area children and pool.

This business deversification is still related to coffee and cocoa which is the main part of puslitkoka. Development of this tourist park seems to deviate from mainstream puslitkoka research. However, if viewed from the effort to socialize the development of coffee to the community this is a positive business, because with this eduwisata park people will know more about coffee and cocoa are certainly expected to grow new enterprenuer-enterprenuer dibaidang coffee industry and able to improve the community economy.

Diversification carried out by ICCRI is quite good but not optimal. To optimize and improve coffee quality through improving the quality of coffee plants, it needs to be done continuously. Considering the condition of land in Indonesia in general and land and land in Jember regency and coffee producing districts in Indonesia in particular is superior land and land that should produce superior coffee if managed as well as possible.

CCSTP now has become known by the community and has been shown to significantly improve the marketing of coffee and cocoa and its derivative products. However, new breakthroughs need to be made to create new innovations, especially to attract millennial visitors and other visitors who generally expect the availability of new facilities and infrastructure as well as new products processed from Puslitkoka.

#### 4. Conclusion

Deversification of Indonesian coffee and cocoa research center (ICCRI) is one of the efforts to develop national coffee products. Indonesia which has extensive coffee planting area, but still not able to compete with optimally exporting countries. With the deverification made to obtain quality coffee plants, new varieties with various advantages, is an attempt to develop coffee production in Indonesia and develop the national economy. Efforts to become an independent institution by deversifikasi efforts in other fields is a



positive thing with no dependence on other parties in digging the source of research funds that certainly need a small cost.

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