

ENHANCE INDUSTRIAL COMPETITIVENESS THROUGH IMPROVED YLANG ESSENTIAL OIL QUALITY AND SYNERGY AMONG MEMBERS OF THE CLUSTER

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Abstract

Indonesia is one of the ten States exporters of essential oils. Some of the problems faced by the production centers since the post-harvest crop up because of yet to implement Good Agricultural Practices (GAP). In the refining process, still not familiar with Good Manufacturing Practice (GMP). Marketing chain is too long and limited market access. Therefore it is necessary increase the competitiveness of industry, ylang essential oils. Research objectives are (1) Increasing the synergy between the cluster members to improve ylang essential oil industry towards national and international scale. (2) Increasing productivity and supply continuity of raw materials as well as ylang flower essential oils product quality improvement, (3) Expanding market product access accurately. Activity location is in Blitar East Java Province, as one of the essential oils industrial centers in Eastern Indonesia. Putri Kencana (Program Produk Unggulan Industri Kecamatan) is an area of potential improvement programs implemented through industrial clusters such as clusters of palm-based Manggar Sari; industrial-based Essential Java patchouli, clove, ylang, ginger, and clusters of food-based industries Sari Raos. The approach used in this research is the empowerment of communities through participatory integrative model that is empowerment by involving the community in a comprehensive manner, from the upstream to downstream. The results showed that (1) As a system of agribusiness development ylang essential oils, found a variety of issues from upstream to downstream, such as production efficiency. (2) There is positive potential that can be developed as a tough businessman, (3) Necessarily needs an agribusiness institutional ylang essential oils to enhance competitiveness, especially in the Essential Java cluster. Some issues still need to be solved simultaneously, among others they were (a) relating to the production process aspects that is the technology to improve fractionation process that will also improve the quality of ylang essential oils. (b) on the marketing aspects, the needs to strengthen the competitiveness and development of downstream industries. (c) and on the institutional aspect, the public policies is necessary to support the regulations strengthening in the business chain ylang essential oils. (d) on aspects of the formation of national character, it is also needs to be strengthen and human resource assistance to establish the character of entrepreneurial and competitiveness.

Keywords: *Essential, ylang, Participatory, Integrative Cluster*

Introduction

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Indonesia is one of the ten essential oil exporting countries, in addition to United States, France, Brazil, Britain, China, Argentina, Germany, Italy, and India. There are 40 types of essential oils in Indonesia, from 80 species that traded in the world, while 15 species have been exported. Those are essential oil products from ylang, patchouli, lime, lemon grass, vetiver, clove. Directorate of Chemical and Building Materials Industry - Directorate General of Small and Medium Industry Department (2009), Essential Oil is one of 32 national priority commodities to be developed by the cluster approach.

There are some problems faced by the centers of production from the upstream to downstream. The post-harvest crops side has not implemented Good Agricultural Practices (GAP) yet. The processing industry side is the refining process, are also not familiar with Good Manufacturing Practice (GMP). The chain of raw material supply, especially ylang flower, relatively too long and not always end up in ylang essential oils distillers. Too many marketing channels of ylang flower as raw material for industry ylang essential oils and the price also fluctuative. The marketing chain of ylang essential oil is too long and there are limitations in market access from refiners.

One of the production centers of essential oil in Indonesia is Blitar Regency, especially ylang essential oils. Blitar's and Boyolali's ylang essential products are contributes to 60% of all Indonesian products. But this position does not necessarily put the industry players to have strong bargaining power. Why Blitar Regency cannot determine the price? Quite lot problems faced. Long-term impact is the reduction of essential ylang distillery industry for two decades, from 33 to 6 distillers only. Output frequency is also varied and not all produce continuous because of constrained supply of raw materials ylang flowers. Price fluctuations are also a problem because the price of ylang essential oil in 1999 reached Rp 1,200,000, - and now in 2012 only around Rp 235.000, - per kg. This price fluctuation conditions are caused of limited managerial capacity and refiners' ylang essential oils processing technology to meet the quality standards according to the consumers' needs and wants.

In the other way, Blitar Regency as one of central production of essential oils in East Indonesia, keep facing complex problems as explain before. To overcome these problems, Blitar Regency launched a program called Putri Kencana (Excellent Products of Sub-industry Program). Putri Kencana is a program implemented by the three cluster of industry, which are Manggar Sari cluster base on coconut, Java Atsiri cluster base on patchouli, clove, ylang, ginger, lime, and Sari Raos base on food industry.

The cluster approach is refers to the continuity of the industry with emphasis on the good application of integrated system of forward linkages and backward linkages to build small businesses in the area with create a dynamic cluster through financial support and non financial instruments. The cluster approach which has a characteristic as the good centres of growth industry of integrated system of forward and backward linkage can be a capital to build small businesses in the area targeted. In that paradigm, strengthen the UKM (Small-Medium Industry) as resources as the base can be done through the centres. Principles that will be developed to creates a cluster's dynamic is manipulate the instruments of financial support and non financial. Financial support is important but not necessary. Therefore those centres become very important, and can take advantages of the area or centres has been developed.

The essential thing of developing a dynamic cluster approach is to maintain dynamics of cluster to grow into a center of growth that produce related industries of upstream and downstream as well as a support industry. To guarantee the dynamics, they need two kinds of support, which are financial support and nonfinancial support. Therefore perceived needs to increase competitiveness of the ylang essential oils through quality improvement and synergy between cluster members.

The objectives of the research are (1) to increase synergy between cluster members about sustainability and develop the ylang essential oils into national and international scale. (2) To increase the productivity and continuity of raw materials supply of ylang flowers, also improvement of the essential oil's quality. (3) Expanding access to the right access to marketing the products.

Research Method

The activity location is in Blitar Regency, East Java, as one of center industry of essential oils in East Indonesia. Putri Kencana (Excellent Products of Sub-industry Program) is an enhancement program of potential area implemented through clusters industry, such as Manggar Sari cluster base on coconut, Java Atsiri cluster base on patchouli, clove, ylang, ginger, and Sari Raos cluster industry base on food. The approach which used in research is community empowerment by participative integrated model, that is an empowerment who evolved the community participation comprehensively from upstream to downstream.

All the activities in this research fully involving society or the actors in aetheric industry as the main focus of this research including society, *Cananga* farmer, and industrial actors in the cluster of aetheric oil agro-industry by integrative way. Integrative in this case consist of several aspects such technology, financial, managerial, marketing and social engineering. The need of social engineering based on the lack of managerial and technological aspect, besides the continuity of this business depends on the quality of human resources especially the actors in the frontline of this industry.

The research activities run effectively by several procedures as follow:

1. *Searching Information and Scientific Literature.* This step related the literature research on the technology of *Cananga* oil production, social aspect of the industry, economic and cultural aspect, and also geographic identification of the region related with the potency of human resources in aetheric oil agro-industry.
2. *Field Survey, Observation and Study of Technological Process.* In these activities, researcher studying several aspects related to the condition of production process, facility and equipment belongs to the society as the part of technological audit (Djajaningrat, *et al.*, 2007) in producing aetheric oil. Survey was done in Blitar. Other than observation, data collecting technique also done by interview with some subject research, such 1 industrial actor, 3 collectors, and farmers also picker and seller for about 44 people.
3. *The study of alternative technological improvement method.* In this step, researcher done some research related with possible alternative to improving aetheric oil production and several things that was necessary to be implemented to improving production.

Research Results and Discussion

Ylang plant (*Canangium odoratum*) is a plant with large stemmed of 0.1-0.7 meter in diameter by decades of age. The height of the plant can reach 5-20 meter. The flowers will appear on the top of stemmed with specific composition. The ylang flowers have a distinctive scent. In rural areas, ylang plant usually planted in the garden to pick the flowers in. This plants will grow easily in the lowland start with height 25-1000 meter above the sea surface. Common ylang is a original plan from Indonesia while ylang-ylang is originally from Filipina. Ylang also planted in Polynesia, Melanesia, and Micronesia. In Indonesia, ylang flowers usually used in particular ritual or ceremonial, such as in wedding

ceremony. Since the first, especially ylang flowers, already been an un-separate part of Indonesian life. It traces can be found in cultural tradition activities, even it painted as batik motif from certain areas and also to make a drugs. Ylang will have a high economic value if it's form in essential oils and used to perfumes and drugs industry.

The environmental and cultural preservation society of Blitar Regency, East Java support the ylang plant population and further promote the growth of ylang essential oils refining industry. High price of essential oils placed Blitar as the center of ylang essential oil production. But, in line with the development of environmental and behavioral changes in society effect to the perspective shifting of ylang essential oil. This condition worsened by the price ylang essential oils fluctuations. Even some of government program, such as electricity in rural areas program and conversion of agricultural land to nonagricultural land, turns out sacrificed thousands of ylang productive plant populations. As a result, the supply of ylang flower as raw materials to distillation is disturbed. The refining industry decrease and now only six distillations left. To develop this industry, we conducted Putri Kencana program, especially in Java Atsiri cluster.

This program still faced several obstacles and relatively not optimal yet. The obstacles that caused this program difficult to develop, such as (a) many essential oil production process still using simple processing system, (b) the management and marketing of the product is not maximum yet, (c) the absence of a synergistic cooperation between the businesses of essential oils with local government also other business partners, and (d) the quality of human resources relatively limited in terms of motivation and innovation capability, (e) sensitivity and the ability to capture business opportunities based on local potentials with the abundant availability of raw materials are sourced from the natural environment to become a commodity industry optimized, is also relatively limited.

Through Putri Kencana program in Java Atsiri cluster in Blitar Regency, have been formed Regional Innovation Research Council (DRID) as BAPPEDA independent partner. But not fully contribute yet, especially in developing essential oil industry in that area. All this time, local government of Blitar Regency have collaborated with various partners, such as Dewan Atsiri Indonesia (Essential oil Indonesia Council - DAI), Perhutani office II, and colleges. The collaboration among others aspects related to the technical aspects of cultivation, such as varieties, land and environment condition, and many more aspects. Meanwhile, which has not been much studied and introduced the issue of social engineering and technology.

Social engineering conceptually discussed by Jallaludin Rahmad (2000:49) related to development concept. The Development is a social process which planned or engineered. The Development itself also means social changes which planned or the type of social engineered. Furthermore, Jallaludin Rahmad explains that Development concept revolves on how to change a society by changing their economic system. The economic engineering, as part of social engineering, is priority to businesses essential oil society (non-corporate) as a program which increase productivity and expand the product market. In social engineering, we need a development of society mentality in order to form self characteristic as a competitive nation. While through the engineering of technology is expected to increase production, in quantity, quality, also continuity, resulting in increasing of income or profits.

The intervention not only oriented to results, but the most important is the process and strengthening noncorporate social institution with participative integrated approach. It means that there is synergy between the businesses and local goverment, colleges, perhutani, Dewan Atsiri Indonesia, exporter or manufacturer of cosmetics and drugs. Cluster industry are dynamic that can change as industries in it changes too caused by the changing of external condition. The synergies are implemented is how to develop ylang essential oil center into a dynamic cluster. The upstream industry which is the manufacturer or ylang flower grower, distributor or wholesaler, and refining business can be integrated well with the certain strategies thus become a dynamic cluster.

At this time, the biggest problem is availability, continuity, quantity, and quality of ylang flowers as raw materials of distillation of essential oils. Required in the same way to solve this problem. The ylang plant population that exist still possible to optimized, it needs a long time to rejuvenate and increase the ylang plant population.

The flower growers or ylang plant owners, flower pickers, marketing agencies those involved in the marketing channel of ylang hold an important role to distribute ylang flowers into the highest distillation of ylang essential oils. Thus refining obtains certainty of raw materials needs as much as minimum capacity to produce essential oils. In addition, the price fluctuation also caused difficulties and incapability for the refining to fulfill the raw materials need caused by the expensive price of ylang flowers. The high fluctuation of ylang flowers price happen because of the ylang plant owners or flower pickers also marketing agencies which involve not making the continuity of supply to processing industry as priority but to fulfill the society needs.

In regular day, the flower grower or flower pickers sell the ylang flower to collector with price around Rp 3.250 – Rp 5.000 per kg. Then, the collector will sell it to the traders with price around Rp 9.000 – Rp 10.000 per kg. But, in certain days, such as *Rabu Wage*, *Kamis Kliwon*, and *Jumat Legi*, the ylang flowers price will soaring until RP 20.000 – Rp 25.000 in flower growers or flower pickers level, because in that days the ylang flowers will be use to pilgrimage by the society. The price of ylang flowers also will soaring near *Ramadhan* and *Syawal* that can reach Rp 40.000 – Rp 100.000 per kg. Consequently at that time, refineries are not even getting the supply of raw materials for a long time and force them to stop the production. Beside the price, the influences of season also become a problem that reduces the volume of supply of ylang flowers. In dry season, refineries can get six to eight quintal of ylang flowers per day. But during rainy season, the supply of ylang flowers only around two to three quintal, it is not because the flowers fall or the stemmed of ylang plant is easily to broke and put the flower pickers in danger.

There are three ylang flower marketing channels in Blitar Regency, that is:

1. Marketing channels 1 : flower pickers → collector → local traders → local retailer
2. Marketing channels 2 : flower pickers → collector → town merchants → town retailer
3. Marketing channels 3 : flower pickers → collector → refiners

While the marketing agencies that are involved in the marketing of ylang flowers are collectors, dealers, retailers, and refiners. The largest marketing margins in the second marketing channels is Rp 45.000 than Rp 35.000 for the first marketing channels and Rp 2.375 for the third marketing channels. The small margin in marketing channels straight to the refiners caused the collector prefer to marketing their product in local market or town market, although refiners are willing to accept the ylang flowers with divers quality, sometimes the refiners accepting the lowest quality of ylang flowers.

The heterogeneity and poor quality of ylang flowers as raw materials, in addition the simple distillation system that used, caused the quality of essential oils produced also poor and not meet industry standards. Consequently, the price and productivity of essential oils also low. The solution is making a synergy between upstream cluster, such as conduct assistance simultaneously and encourage for an agreement price also assuredness of supply for refiners. Moreover, rejuvenation and intensive care to the ylang plant aree needed. Although it has not been fully successful, however, often still takes time to change and archive, because of the social changes needed time and real evidence to encourage change in attitude.

Distiller is very involved in those clusters of ylang essential oils, because of their role as a *champion*. If refiners have the assurance of a market or a buyer of essential oil and can produce continuously at full capacity, then the farmer or ylang flower pickers and marketing agencies are involved in it will develop. Subsequent multiplier effect will drive all aspects of upstream to downstream. Each distillers has an average of 3-5 boilers with a maximum capacity of eight hundred pounds of ylang flowers and an average yield of 1.2 kg of essential oil per hundred pounds of raw material, if good quality raw materials. The limited quantity of raw materials, creating competition among refiners. Refiners who have large capital can produce the ylang essential oils, because they can buy although expensive ylang flowers. Distillation system is already in use, takes between 40-52 hours each of the production process per boiler. Labor required as many as 4-5 people per production process. Distillation system is already in use, takes between 40-52 hours every single production per boiler. Labor required as many as 4-5 people per production process. Agricultural waste like corn cobs, peanut skins, husks and other, used as fuel.

Based on these conditions, then the introductions inverted steam distillation technology to shorten the refining time, improve economic efficiency and increase product quality. Introduction of this technology can reduce refining time from 50-52 hours to about 40 hours per production process and increase yield, improve economic efficiency and the quality of ylang essential oil. But still there is an obstacle, the steam tube of distillation is less maximum if the distillation carried out with a minimum production capacity. Suppose, the distillation can only be run on a one to two kettle with two to three quintal of average raw material. This happens because the supply of ylang flowers as the raw materials not meet refiners needs. Therefore introduction of this technology continue to be improved and needs to be developed, also the fractionation of crude ylang essential oils needs to be improved in quality as well as the price.

All this time, the crude ylang essential oils purchased by trader from Medan, Surabaya, and Semarang, than subsequently reprocessed and produce pure essential oils with double price to sell. Some refiners sell their crude essential oils to each other. The refiners bargaining position relatively weak to the trader, even though the supply of crude ylang essential oils very low, whereas 60% production of essential oils in Indonesia come from Blitar and Boyolali. The price of essential oils by June 2012 is around Rp 400.000 – Rp 415.000 per kg, with the raw material price reach to Rp 10.000 per kg. Refiners think this condition as disserve because of the price of raw material, the price of crude essential

oils should reach around Rp 600.000 or if the price lower than the price of the raw material should reach around Rp 4000 to Rp 5000. Thus, the refiners bargaining position relatively weak to the suppliers of raw materials, even really weak to the traders too. Experience, leadership factors and the managerial ability of refining entrepreneurs of ylang essential oils also play an important role. Thus, it is need a social engineering, especially to form personal skills, social skills, and thinking skills, beside the engineering of technology.

The potency of ylang essential oils refining industry really promising also both national and international market demand is still wide open, especially in line with the development of drugs and cosmetics manufactures base on ylang essential oils. Shortly, the potencies of this industry are (a) export market opportunities are very promising, (b) high added value, (c) accessibility to the center location relatively good, (d) the distillation facility way better because of Engineering Company BPPT, BALITRO, Balai Industry, colleges, and the overhaul services that have an ability to engineered a technology for distillation unit of essential oils, (e) be able to make new industry to grow and move other economic sector also, (f) an important attention from both local and national government do develop essential oils industry in Blitar Regency, (g) SNI for essential oils already be socialized, (g) the product is well known in East Java, National, even Internationally.

Conclusion

The research result shown that (1) as a system, development of agribusiness ylang essential oils faced several problems from upstream to downstream, such as production efficiency, (2) there are several positive potencies to develop as strong businesses, (3) it is necessary to form an agribusiness of ylang essential oils institution to improved competitiveness, especially for Java Atsiri cluster. Several problems also need to be addressed simultaneously, such as (a) related to technology aspect of production process, it need to improved the fractionation process to increase the ylang essential oils quality, (b) related to the availability of raw materials, including rejuvenation, (c) in marketing aspect, it need to strengthen the competitiveness and improvement in downstream industry, (d) related to institution aspect, it need public policy that support the strengthening of regulation in ylang essential oils business chain, (e) in character of human resources aspect, it need to strengthen and assistance to form a human resources with entrepreneurial and competitive characteristics.

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