

Analysis of palm oil industry cluster in Jambi Province

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Abstract

This study aims to analyze palm oil industry clusters in Jambi Province. This study is a collective case study (survey and case study). The result shows that Jambi Province has a considerable potential for the development of palm oil industry. It can be seen from the development of plantation area, production of Palm Fresh Fruit Bunches, Crude Palm Oil, Palm Kernel Oil, and Palm Oil Mill. However, there are still very limited downstream products of palm oil that can be produced. Based on SWOT analysis, it shows that beside having large opportunities, Jambi Province also faces with various obstacles and threats on the way to develop palm oil industry.

Keywords: Industry cluster, palm oil industry, SWOT analysis.

INTRODUCTION

The development of the agricultural sector is still an important sector in encouraging the acceleration of regional development for Jambi Province. It can be seen from the large contribution of this sector to GRDP and labor absorption to regional economy. Agricultural sector has contributed approximately 27.5 percent of Jambi Province's GRDP and also absorbed a relatively large number of labor force, 46.88 percent of the existing labor force (Jambi Dalam Angka, 2009). Plantation/Estate sub-sector is the main contributor to the agricultural sector of Jambi Province compared to other sub-sectors, one of which is oil palm. Referring to Act No. 18 Year 2004 on Plantation, Plantation Business shall consist of cultivation business of plantation plants and plantation product manufacture. Thus palm oil industry is an integral part of the overall plantation development.

Given potency and role of the plantation business in general and oil palm processing industry in particular, various efforts for its development are needed; one of them is through cluster approach. In general, industry clusters are defined as the geographic concentrations of interconnected companies involving suppliers of goods, service providers, associated industries, and also a number of supporting institutions (Djamhari, 2006). Meanwhile Nugroho et al. (2008) defined an industry cluster as a network of interconnected industries (core industries, supplier industries, supporting industries, and related industries), parties that generate the knowledge or create the technologies, bridging institution, and buyers linked to each other in the process of adding value. Soetrisno (2009) explained that the cluster approach is considered as an effective approach to develop industrial competitiveness including palm oil industry for the development of a region as whole. Based on the explanation above, this study would like to see the profile of palm oil industry clusters in Jambi Province.

RESEARCH METHODS

This study is a multi case study, which combines survey and case study. The study was conducted by selecting several cases of palm oil industry clusters in Jambi Province intentionally (in purpose).

The data used for this study consist of primary and secondary data. Primary data are obtained directly from various existing business groups in palm oil industry cluster, plantation farmers, palm oil industry, farmer communities, government and other parties. Secondary data are obtained from research reports, documents, and policies related to the palm oil industrial cluster from government institutions. Data were collected by having structured interviews and in-depth interviews with several key informants to obtain more accurate, comprehensive, and in-depth information. The study used qualitative descriptive analysis and quantitative descriptive analysis by using frequency distribution table.

RESULTS AND DISCUSSION

Development of Palm Oil Plantation

The development of palm oil industry in Jambi Province is inseparable from the development of oil palm plantation area and of palm oil production as the source of its raw material. Jambi Province has a quite large area of oil palm plantation, 513,959 ha, and produces 4,582, 284 tons of oil palm fresh fruit bunches (FFB) (Dinas Perkebunan, 2010). Jambi Province ranks 4th in Sumatra after North Sumatra, Riau, and South Sumatra.

Table 1. Oil palm plantation area, FFB production, and productivity of oil palm plantation in Jambi Province in 2001 - 2010

Year	Area (Ha)	FFB Production (Tons)	Productivity (Kg/Ha)
2001	301.879	3.242.445	2.152
2002	302.152	3.301.600	2.185
2003	328.829	3.321.820	2.035
2004	365.304	3.979.240	2.179
2005	403.467	4.682.975	2.321
2006	409.445	4.732.185	2.049
2007	430.610	4.885.622	2.421
2008	454.771	5.229.886	2.881
2009	470.184	5.951.776	3.021
2010	513.959	4.582.284	3.462

Source: Department of Plantation of Jambi Province

From Table 1, it can be seen that from category of Area and FFB Production, the number has increased from year by year. In 2001, the total area of oil palm plantation was 301,879 Ha and it has grown into 513,959 Ha in 2010. Similarly to its FFB production, in 2001 it was only 3,242,445 tons and it has increased to 4,582,284 tons in 2010.

Oil palm plantations in Jambi Province are managed by three different actors, so there are 65 percent of smallholder estates, 30 percent of large private plantations/estates, and 5 percent of state-owned estates by PT Perkebunan Nusantara (PTPN). Beside developing their own plantation areas, large state-owned and private

estates are also obliged to assist and guide surrounding smallholder estates through a partnership program in the form of Nucleus Estate Smallholder (NES) program or *Perkebunan Inti Rakyat* (PIR).

Development of CPO and PKO production

In the next process, the yield of oil palm plantations in the form of fresh fruit bunches (FFB) can be processed into crude palm oil (CPO) and palm kernel oil (PKO) which is a downstream industry in palm oil sector. Thus, the growth rate of CPO and PKO is directly proportional to the growth rate of FFB.

The development of CPO and PKO production in Jambi Province in recent years shows a fluctuating trend. In 2006, the volume of CPO production was 874,174.08 tons and it has increased into 1,087,524.09 tons in 2007 (increased by 24.41%). However, in 2008, CPO production experienced a sharp decline. It only reached 559, 251.41 tons (decreased by 48.58%).

The decrease was due to the declining in number of palm oil mills. In 2007, there were 19 palm oil mills in Jambi Province and then it decreased to only 15 mills in 2008 (Department of Plantation, 2009). But in 2009, the volume of Jambi Province’s CPO production increased dramatically, more than double compared to in 2008 which reached 1,241,911.99 tons or increased by (122.07 percent). In 2010, CPO production experienced a slight decrease in volume of only 1,145,571.00 tons.

In contrast to CPO production, Jambi Province’s PKO production tends to decrease in its volume. In 2006, PKO production was 243,359.57 tons, and it decreased to 204,256.19 tons in 2007 (decreased by 16.07 percent). In 2008, it decreased again to 103, 291.13 tons (decreased by 49.46 percent). Then, in 2009, it experienced a very sharp increase that reached 218,995.98 tons. It increased again to 229,114. 20 tons in 2010. Same with the CPO, the value of PKO tends to follow its production level.

A complete information related to the volume of CPO and PKO and its value/price in Jambi Province in 2006 – 2010 can be seen in the following table.

Table 2. Volume of CPO production, of PKO production, and its value in Jambi Province in 2006 – 2010

Year	CPO (Tons)	Value (in thousand rupiah)	PKO (Tons)	Value (in thousand rupiah)
2006	874.174,08	2.374.964.387	243.359,57	432.061.012
2007	1.087.524,09	4.853.498.752	204.256,19	424.476.276
2008	559.251,41	4.206.972.093	103.291,13	494.046.391
2009	1.241.911,99	8.087.301.325	218.995,98	877.224.644
2010	1.145.571,00	7.952.553,88	229.114,20	940.742.905

Source: Central Bureau of Statistics of Jambi Province

Development of palm oil mills

In general, palm oil mill is a palm oil industry that produces crude palm oil (CPO) derived from palm fruit processing. Palm oil mill also produced palm kernel oil (PKO) derived from palm kernel processing. From those palm oil and palm kernel, it will be able to produce various downstream products of oil palm, both food and non-food products. Technically, the result from palm oil processing can be in the form of liquid (palm olein) and solid (palm stearin). From the liquid component of palm oil, it will be used as staples, such as cooking oil, margarine, shortening, adatif, and snacks

industries. While the solid component can be used as non-food materials such as raw materials for light and heavy industries such as soap, detergent, shoe polish, wax, printing ink, textiles, and leather tanning industries. Palm oil can also be used in other industries including cosmetics and pharmaceutical industries. In its development, palm oil can also be used as a source of energy in the form of biodiesel. It is considered to be more superior and more environment-friendly compared to the fuel that has been used till now.

A growing number of palm oil mills in Jambi Province also affect the development of downstream products from palm oil industries which in turn will be able to increase the added value of the palm oil industry itself. For example, the development of CPO and PKO production in Jambi Province is directly proportional to the development of the number of Palm Oil Mills. The development of the number of palm oil mills in Jambi Province during 2006-2010 can be seen in the following table.

Table 3. Number of palm oil mills in Jambi Province in 2006 - 2010

No	Year	Number of Palm Oil Mills (in units)
1.	2006	18
2.	2007	19
3.	2008	15
4.	2009	28
5.	2010	33

Source: Department of Plantation of Jambi Province

From the table above, it can be seen that the number of palm oil mills in Jambi Province has been increased in the past five years except in 2008. From the data, it shows that the average growth rate of the number of palm oil mills during 2006 – 2010 is quite high, reached 13.33 per cent per year. In 2007, the number increased when in 2006, there were 18 palm oil mills in Jambi Province and there were 19 units in 2007. However, in 2008, it decreased to 15 units. In 2009, the number of palm oil mills significantly increased to 28 units and in 2010 to 33 units.

The distribution of palm oil mills based on the regencies which are the center of palm oil production in Jambi Province is given as follows.

Table 4. The number of palm oil mills based on regencies in Jambi Province in 2010

No	Regency	Number of Palm Oil Mills (in units)
1.	Batanghari	3
2.	Muaro Jambi	7
3.	Bungo	3
4.	Tebo	3
5.	Merangin	4
6	Sarolangun	6
7	Tanjung Jabung Barat	7

Source: Department of Plantation of Jambi Province

From the table above, it can be seen that palm oil mills are located in 7 out of 9 regencies and 2 cities in Jambi Province. The highest number is found in Muaro Jambi and Tanjung Jabung Barat Regencies of 7 palm oil mills each. While there are only 3

palm oil mills each in Batanghari, Bungo, and Tebo Regency. Merangin and Sarolangun Regency each have 4 and 6 palm oil mills.

Downstream products of palm oil industry

Downstream products of palm oil are very variable to more than 100 kinds of products that can be produced on an industrial scale. But there are only 23 kinds of downstream products of palm oil that can be produced commercially in Indonesia while Malaysia has 73 kinds of downstream products (Department of Industry, 2009). Based on the diversification of its products, the downstream products of palm oil can be grouped into food and non-food products. Approximately, 90 percent of the downstream products of palm oil are food products while only 10 percent are non-food products (Afifuddin, 2007). The largest use of palm oil is for cooking oil (71 percent) and if it's combined with margarine / shortening, it makes up to 75 percent, and the rest is used for the production of soap, oleochemicals and others. Thus, downstream products of palm oil are still dominated by food products.

The more diverse the products from oil palm, the higher the added value that can be generated from the palm oil industry. Related to this matter, Department of Industry (2009) suggests that the first level product of CPO will give add 30 percent of the value of FFB. The subsequent treatment will provide each of the following added-value FFB-based as follows: cooking oil (50 percent), fatty acid (100 percent), ester (10 – 200 percent), surfactant or emulsifier (300 – 400 percent) and cosmetics (600 – 1000 percent). From a survey conducted on four palm oil companies in Jambi Province, it can be seen that downstream products of palm oil that can be produced are still very limited, such as cooking oil, soap, and fodder.

In addition to the upstream industry, primary industry, and downstream industry, the development of palm oil industry in the clusters approach is inseparable from the existence of supporting industries. Supporting industries are needed by palm oil industry. It is an incentive for the palm oil industry in Jambi Province. The supporting industries include agricultural equipment producers, banks, associations, research institutes, universities, and government. In general, supporting industries for palm oil industries in Jambi Province are still limited. So its existence has not been much encourages the development of palm oil industry in Jambi Province.

SWOT analysis on palm oil industry in Jambi Province

SWOT (Strength, Weakness, Opportunities, and Threats) analysis is an analytics tool for selecting and defining strategies to maximize strengths and opportunities and simultaneously striving to minimize its weaknesses and threats. In this study, SWOT analysis will be used as a basis for the development of palm oil industry in the future. SWOT analysis on palm oil industry in Jambi Province will be explained in the following.

Strength:

- Jambi Province is generally one of the major palm oil production centers in Indonesia and particularly in Sumatra.
- Agro-climatic conditions of Jambi Province are suitable for plantation crops, especially oil palm.
- There is a large enough land for oil palm plantation in Jambi Province. Jambi Province has a large area of oil palm plantations, which reached 513,959 Ha with the number of FBB production reached 4,582, 284 tons located in various regencies

(Department of Plantation, 2010). Jambi Province ranks 4th in Sumatra after North Sumatra, Riau, and South Sumatra.

- The socio-cultural condition of Jambi Province residence is very suitable for plantation business, including oil palm. For them, plantations have become the leading commodities since the early 20th century, even the growth and development of economy of Jambi till now is rooted in plantations (Budihardjo, 2001, cit. Sahrial, 2005).
- There are supports from government to oil palm industry development especially for those in Sumatra. Master Plan of Acceleration and Expansion of Indonesia Economic Development or *Master Plan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia* (MP3EI) 2011 – 2025 confirmed that one of products to be developed in Sumatra is oil palm.
- The demand for oil palm is potentially large.
- The development of palm oil industries is potentially extensive.

Weakness:

- Limited infrastructures to encourage the development of palm oil industry, especially ports, roads, and other basic infrastructures.
- Some products are still in the form of CPO. Approximately 70 percent of downstream products of palm oil that are exported are CPO.
- There are still very limited downstream products of palm oil industries. Out of more than 100 kinds of downstream products that can be produced on an industrial scale, only 23 kinds of them can be produced commercially in Indonesia, while Malaysia has produced 73 kinds of the downstream products (Department of Industry, 2009).
- The development of palm oil industry has created social conflicts in the community, mainly from land issues.
- The development of palm oil industry has created environmental problems. US government has issued a decree stating that CPO from Indonesia is considered not environmental-friendly so it should not be traded in US.
- Limited incentives for investors to invest in downstream industry of palm oil industry.

Opportunities:

- Markets are still open widely for both crude palm oil and its downstream products.
- There is a good potential to develop downstream industry of palm oil industry, both for food and non-food products.
- There is a high demand for the use of renewable energy, one of which is from palm oil.

Threats:

- High price fluctuations of CPO and its derivatives products / downstream products.
- There are negative campaigns against palm oil.
- There are negative impacts of oil palm development, including social conflicts and environmental degradation.

CONCLUSION

Jambi Province has a considerable opportunity in the development of palm oil industry, based on the availability of land and its production of FFB, CPO, and PKO.

The limited number of downstream products of palm oil in Jambi Province shows that palm oil industry has not been developed. The palm oil industry cluster is still in the early stage, it can be seen by the various related parties that haven't been interconnected and integrated to each other. Based on SWOT analysis, it shows that in addition to its large opportunity, Jambi Province also face with various obstacles and threats in the development of palm oil industry.

REFERENCES

- Afifuddin, S. 2007. Analisis determinan produksi industri minyak goreng kelapa sawit provinsi Sumatera Utara. *Jurnal Wawasan*, Juni Volume 13 nomor 1. Medan.
- Basdabella, S. 2001. Pengembangan sistem agroindustri kelapa sawit dengan pola perusahaan agroindustri rakyat. Dissertation. Program Pascasarjana IPB. Bogor. 271 hal.
- Bank Indonesia. 2005. Percepatan pertumbuhan sektor riil melalui pengembangan kluster UKM. Jakarta.
- Bappenas. 2004. Kajian strategi pengembangan kawasan dalam rangka mendukung akselerasi peningkatan daya saing daerah. Jakarta.
- Departemen Perrindustrian. 2009. Peta panduan pengembangan kluster industri prioritas industri berbasis agro tahun 2010 – 2014. Jakarta.
- Dinas Perkebunan. 2010. Statistik perkebunan tahun 2010. Jambi.
- Dinas Perkebunan. 2010. Laporan tahunan Dinas Perkebunan Provinsi Jambi. Jambi.
- Djamhari C. 2006. Faktor-faktor yang mempengaruhi perkembangan sentra UKM menjadi kluster dinamis. *Infokop nomor 29 tahun XII*. Jakarta.
- Erfit. 1992. Studi tentang keberhasilan petani kelapa sawit peserta PIR Ophir di kabupaten Pasaman Sumatera Barat. Thesis for Graduate Program of KPK IPB- Universitas Andalas. Padang.
- Erfit. 2004. Analisis keberhasilan ekonomi dan distribusi pendapatan petani peserta PIR setelah masa konversi (Studi Kasus PIR-SUS II kelapa sawit Sungai Bahar kabupaten Muaro Jambi. *Jurnal Manajemen dan Pembangunan Vol 3 No 1 Universitas Jambi*. Jambi.
- Erfit, Asdi A, Elfindri dan Rudi F. 2009. Modal sosial dan pengaruhnya terhadap efektifitas kemitraan usaha pada agribisnis hortikultura. *Jurnal Ilmu-ilmu sosial Sigmasos*. Lembaga Penelitian Univ. Bung Hatta. Padang.
- Erfit. 2010. Pengembangan pola kemitraan pada agribisnis hortikultura. Disertasi Program Pascasarjana Universitas Andalas. Padang.
- Erfit, Asdi A, Elfindri dan Rudi F. 2010. Analisis terhadap efektifitas kemitraan usaha pada agribisnis hortikultura. *Jurnal Embrio. Fak. Pertanian Unitas*. Padang.
- Endraswana, S. 2003. Metodologi penelitian kebudayaan. Gajah Mada University Press. Yogyakarta.
- Limbong, L. 1990. Analisa masalah konversi dan pengaruhnya terhadap tingkat pendapatan petani kelapa sawit peserta PIR-NES V Banten Selatan. Tesis Program Pascasarjana IPB. Bogor.
- Singarimbun, M dan Sofian Effendi. 1989. Metode penelitian survey. LP3ES. Jakarta.
- Soetrisno N. 2009. Pengembangan kluster IKM/UKM di Indonesia pengalaman dan prospek. Makalah seminar –workshop pengembangan kluster UMKM di Surakarta 26 – 28 Oktober 2009.
- Nasution, M. 2002. Pengembangan kelembagaan koperasi pedesaan untuk agroindustri. IPB Press. Bogor. 284 hal.

- Nugroho et al. 2005. Panduan pengembangan klaster industri. BPPT. Jakarta.
- Sahrial. 2006. Perspektif pembangunan agroindustri pangan di propinsi Jambi. Disertasi. Sekolah Pascasarjana IPB. Bogor.
- Saptana et al. 2003. Pemantapan model pengembangan kawasan agribisnis sayuran Sumatera (KASS). Pusat Penelitian dan Pengembangan Sosial Ekonomi Departemen Pertanian. Jakarta.
- Saptana et al. 2004. Integrasi kelembagaan forum KASS dan program agropolitan dalam rangka pengembangan agribisnis sayuran Sumatera. Pusat Penelitian dan Pengembangan Sosial Ekonomi Departemen Pertanian. Jakarta.
- Saragih, B. 2000. Agribisnis sebagai landasan pembangunan ekonomi Indonesia dalam era millenium baru. Majalah Agrimedia VI. 1 : 4-7. IPB. Bogor.
- Syarfi. 2007. Pembangunan perkebunan rakyat di Sumatera Barat: Suatu kajian dalam perspektif pembangunan ekonomi kerakyatan. Disertasi. Program Pascasarjana Universitas Andalas. Padang.
- Silitonga, C. 1995. Kebijakan pemerintah dalam pengembangan agribisnis. Majalah Pangan VI. 24 : hal. 19-28. Jakarta.
- Sumardjo, J. Sulaksana, dan W. A. Darmono. 2004. Kemitraan Agribisnis. Penebar Swadaya. Jakarta. 88 hal.
- Strauss, A dan Corbin, J. 2005. Dasar-dasar penelitian kualitatif. Pustaka Pelajar. Jakarta
- Syam, H dan Marimin. 2002. Sistem pakar evaluasi kinerja pola kemitraan agroindustri hulu dan hilir. Jurnal Teknologi Industri Pertanian Vol 12 (1). IPB. Bogor.