The role of oil palm companies in Indonesia as a nation's competitive advantage

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The role of oil palm companies in Indonesia as a nation's competitive advantage

N Tampubolon[1] and M Pasaribu[2]
[1]Bina Nusantara University (Binus), Jakarta, Indonesia.
[2]Indonesia University, Jakarta, Indonesia.

nurdin.tamp@gmail.com, manerep_kupang@yahoo.co.id

Abstract. Indonesia is the largest world Crude Palm Oil (CPO) producer with Malaysia in second place. This agricultural commodity has become a chief Indonesian foreign exchange earner behind fossil fuel exports. In 2016, the export value of this commodity reached USD 17.8 billion. Historically, Malaysia has been more advanced in the CPO delivery, which can be explained by the general companies'environment of management, technological advancement and engineering, human resource skills and superior external support, such as road infrastructure, regulations and research& development by the industry and government. It is clear from data that the Indonesian production is disadvantaged by a wide range of inefficiencies. They range from limited technology and production management skills to limitedcultivation advancement. Applications of technical improvements are desired to enhance the national competitive advantage to the next level. This paper is an exploration of the current management culture and to consider a strategic management model that would be the most appropriate for Indonesia and would enourage high end technology and plantation management. A gradual level improvement would enable Indonesia to compete on a global scale as an industry leader in the palm oil market.

1. Introduction

Palm oil is produced from the fruits of the African oil palm (*Elaeis guineensis*) which were introduced in plantationsearly last century. As many Indonesians from individual farmers to companies are depending on the well-being of the industry, it is important to the engineering industry to keep abreast of the latest development to keep the industry efficient in the competitive vegetable oil world market. The sustainability of the palm oil industry can be viewed from several perspectives. The technical engineered perspective is touching all of the elements that are often integrated in the business strategic plan of the oil palm industry. The economic, environmental and social elements are the long term strategic management plan emphasizes sustainability of the firm and revenue flow. Advanced engineering can increase the economic output, assist in the environmental responsibility of the company and be part of the social undertaking of the industry. An implementation of a strategic competitiveness plan is currently jointly undertaken by the oil palm industry and the government of Malaysia. The Indonesian government has not been as advanced in this perspective, leaving the development largely to the private sector. The future challenge of individual palm oil producers remains that their production cost is controlled in order to compete effectively with the competitors in the industry. The focus on reducing costs is based on the idea that the business of CPO is very dependent on the market situation and can fluctuate greatly from year to year. Low production cost will ensure the company remains economically viable in a low global market price environment without being threatened by possible economic failure. This strategy would

strongly support the company in competing on a global scale which market is predicted to grow and be more competitive in the future [1].

2. Palm oil development

The expansion of palm oil cultivation has been very rapid in the last few decades in Indonesia. This is partially due to the geographical location and weather pattern near the equator, which is very suitable for palm oil cultivation. The Government of Indonesia has also viewed the development of palm oil plantations as a solution to overcome rural poverty by creating job opportunities and develop rural infrastructure in remote areas. Since the 1980s, palm oil cultivation has grown exponentially, either in plantation estates under corporate management or independent planters' small holding management.

According to Bastion [2] palm oil productivity could normally reach a yield of approximately 3.3 tons/ha/year. However, in Indonesia the reality is that palm oil companies only produce 2.89 tons/ha/year. Despite Indonesia has become the world's leading palm oil producer and exporter, Indonesia struggles in applied technology to compete. The Palm Oil Board of Malaysia which is the main government research body, owns 87 US patents. The Indonesian counterpart, the Indonesia Oil Palm Research Institute has not one patent registered in its name [3].

In addition, the current global market has demanded that the CPO has to be produced in a sustainable manner by the industry, it means that cultivation and processing has to improve in Indonesia. The processing requires many engineering skill inputs with a focus on reliableequipment, low maintenance, energy efficiency, easy to use and to make the industry sustainable in the future. This directs the palm oil industry to meet the global cultivation and processing benchmarks to be competitive in the global export market. The palm oil industry in Indonesia ought to include the application of sustainable development and environmentally friendly palm oil agricultural management that complies with Indonesian Sustainable Palm Oil (ISPO) and Round Table Sustainable Palm Oil (RSPO) standards [4].

3. Competition and engineering

The government ought to create an environment in which firms can reach out to the competitive advantages of their established industries by introducing advanced technologies, improve methods and by penetrating more advanced qualities in their production segments [1].

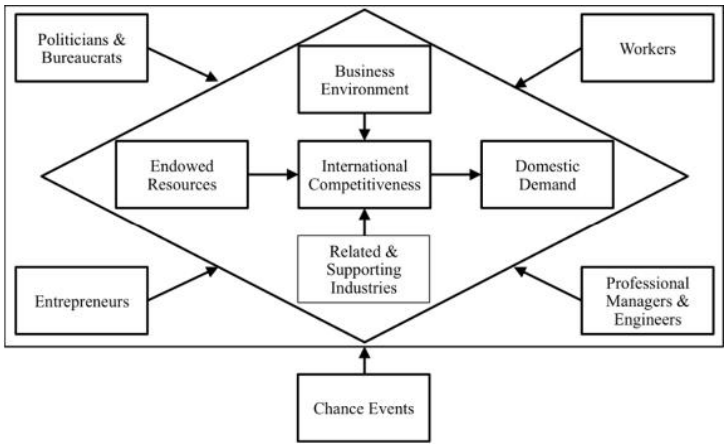

Figure 1. A New Paradigm of International Competitiveness (The Nine Factor Model)

What is competitiveness? A nation or standard of living (wealth) is determined by the productivity in which it uses its human resources, financial capital and natural resources [1]. The appropriate definition of competitiveness is productivity. Productivity depends both on the value of products and services (e.g. Uniqueness, quality) as well as the mode of efficiency in which they are produced [5]. It requires the development of a strong supporting engineering industry to create a high level of efficiency. From a managementperspective, productivity should be measured in terms of the value (revenue) produced, per unit of labour or capital, not just the volume. It is not, what industries or nation or region it competes in, to measure prosperity, but how firms compete in those industries. Productivity in a nation or region is a reflection of what both domestic and foreign firms choose to do in that particular location. The productivity of local industries is of fundamental importance to competitiveness, not just the trading sectors of the businesses. Nations and regions compete in offering the most productive environment for businesses and industries [6].

What are the Forms of Competitive Advantage? Absolute advantage is the ability to produce something more efficiently than any other country [1]. Furthermore, comparative advantage is the ability to produce some products more efficiently or better than other products. The national's competitive advantage is an international competitive advantage stemming from a combination of factor conditions; demand conditions, related and supporting industries, firm strategies, structures and rivalries [6].

In order to assess Indonesia's international competitiveness, two major considerations should be addressed; e.g. the business and the government services utility function. A new model of international competitiveness for less developed countries, named "The Nine Factor Model" is specified. This is used to provide a new model to analyse the palm oil industry in Indonesia. Government and businesses have to utilise introduced capital and employ cutting edge technology which are developed in other countries if not available in Indonesia or create resources and other factors which influence economic growth from their initial stages. Till now the principal key engine of Indonesia's economic growth has been the exploitation of natural resources and the deployment of a low skilled work force. It has been lacking to tackle high skill advanced production.

Indonesia's population can be grouped into four sectors of deployment. Firstly, many unskilled, semiskilled and a limited number of members in the highly skilled workforce. Secondly, local and national politicians and thirdly, bureaucrats, who formulate and implement economic plans. The fourth group is a diverse number of entrepreneurs who make investment decisions despite high risks, highly skilled professional managers who are in charge of operations and skilled engineers who implement new technologies [6]. There are four physical determinants of international competitiveness. Namely; endowed resources, the business environment, related and supporting industries and a domestic demand. In another skill classification there are four human factors, namely the general work force, politicians and bureaucrats, entrepreneurs and professional managers and engineers. External chance events should be noted as the ninth factor (See Figure 1).

The different between the new model and Porter's diamond model is to be found as much in the division of factors as well as in the addition of new variables. The diamond model included both natural resources and labour in factor conditions, but the nine factors model places natural resources under endowed resources, while labour is included within the category of workers. A detailed investigation of the nine factors of international competitiveness is needed. The physical factor consists of endowed resources, business environment, related and supporting industries, and domestic demand. While the human

factors be mobilised in the above-mentioned physical factors. People combined and arranged with the physical factors can aim to gain an international competitiveness. Workers, politicians and bureaucrats, entrepreneurs, and professional managers and engineers have to be considered in this remodelled structure [6].

The business and engineering environment should be viewed at the level of the nation's provision of favourable conditions to industry and company formation. At the national's level, there are visible and invisible components. They firstly include physical provisions such as roads, ports, telecommunication and other forms of provided infrastructure. The second component is concerned with the people's psychological acceptance of competitive values and market mechanisms. A commitment of producers, merchants, consumers, managers, engineers and other participants in the economy to the legitimacy and obligations in commercial based arrangements and notion of credit provision is essential. At an industrial level, the business environment is determined by the number and size of competitors, the type and height of entry barriers, the degree of product differentiation, and other factors shaping the nature of rivalry and the level of economic activities. At a company level, the strategy and organisation of businesses and the attitudes and behaviour of individuals and groups ethics within enterprises are a major consideration.

4. Stages of processing with high engineering input

Research and development in engineering are needed in many areas from chemical to mechanical engineering. Large scale fully mechanised processing is demanded in a competitive environment resulting from a sequence of processing steps designed to extract from a harvested oil palm bunch to a high yield of a product of acceptable quality for the international edible oil trade. The palm oil processing takes place in the oil palm mill which are located a short distance from the plantations. The processing needs to take place shortly after the fruit bunches are harvested as the fruits deteriorateraprapidly. Figure 2 is a visual simplified sequence of the stages of required processing.

The palm oil extraction process involves the harvesting of fresh fruit bunches from the plantation. First of all the oil palm bunches requires to be sterilised and to be softened. Next step is to thresh the fruit bunches to free the palm fruit, which is being mashed before the crude palm oil is pressed. The crude oil requires further treated to purify and dry it for storage and transportation to the nearest harbour. Most of the CPO is exported. Below is a table of digital data on production, export quantity and value in US dollars.

Table 1. Indonesian Palm Oil Production and Export Statistics

	2011	2012	2013	2014	2015	2016
Production (million tons)	23.5	26.5	30.0	31.5	32.5	
Export (million tons)	17.6	18.2	22.4	21.7	26.2	25.7
Export (in USD billion)	20.2	21.6	20.6	21.1	16.5	17.8

Source Indonesian Palm Oil Producers Association (GAPKI) and Ministry of Agriculture

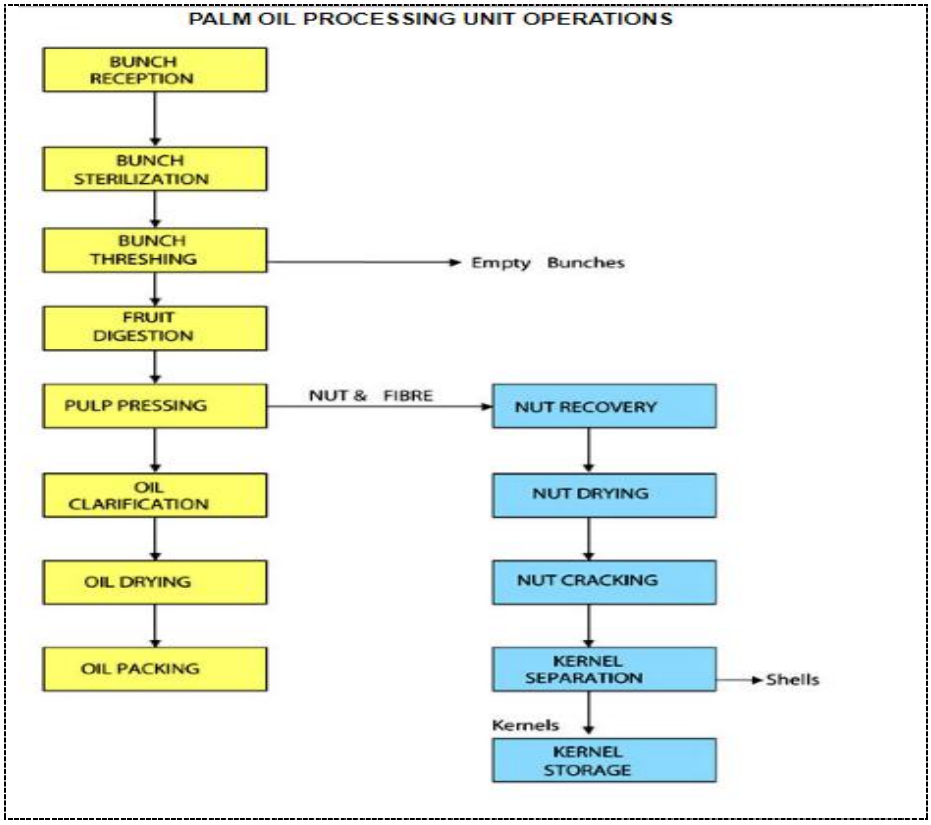

Figure 2. Processing stages requiring highly engineered equipment.
Source: http://www.fao.org

5. Conclusion

Indonesia is the largest producer, while Malaysia is the second largest producer of CPO. The oil palm industry is a highly competitive industry where the commodity prices are set by the vegetable oil world market price. Individual CPO producers are aware that they have to protect their ventures by controlling the cost of production as they unable to influence the market price.The industry's challenge is to become a market leader by following the worlds best practices and to make use of Indonesia's comparative advantage in CPO production. The New Paradigm of International Competitiveness (The Nine Factor Model) indicates the engineering input is vital in the overall management plan for CPO production. Currently it shows the Palm Oil Board of Malaysia owns 87 US patents, versus the Indonesia Oil Palm Research Institute which has no patents registered in its name. It indicates that research, including engineering research at government level is disappointing in Indonesia, depending mainly on the private sector. It is up to the individual enterprise to perform best with the given environment. Engineering will play an important role to keep abreast of the latest developments in technical and chemical advances in the their field.

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