A REVIEW OF PALM OIL IMPACT ON SUSTAINABILITY DIMENSION: SPOC INITIATIVE FOR INDEPENDENT SMALLHOLDERS.

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ABSTRACT

Rapid development in palm oil sector has raised some debate and criticism on the issue of sustainability of this commodity production from the international Non-Government Organization (NGO). Malaysia is also being accused for conducting unsustainable practices in developing this industry. Smallholders who are identified as a vital player for the palm oil sector in this country are also facing huge challenges to produce sustainable palm oil, especially independent smallholders who encounter a number of constraints in maximizing their potential of oil palm production. However, justifications that this sector will only bring negative impacts in sustainability dimensions encompasses economic, environmental and social, are inaccurate. This sector also brings numerous positive impacts towards sustainable dimension. In fact, the Malaysian Palm Oil Berhad (MPOB) has introduced a model known as the Sustainable Palm Oil cluster (SPOC) to assist smallholders to address this issue. This paper will analyze the negative and positive impacts of this sector towards sustainability. Furthermore, the paper will identify the SPOC model that helps smallholders to achieve sustainable palm oil production. Content analysis method had been used in this study. The analysis showed a huge benefit received from palm oil sector rather than negative impact. Also, the analysis shows that independent smallholders are able to increase the sustainability of the palm oil production as outlined by MPOB. The significant of this study are to shed negative image and correcting misperceptions about palm oil.

Key words: Palm Oil, Sustainability dimension, SPOC

Introduction

The rapid development of the palm oil sector has raised debate and criticism regarding the issue of sustainability for production of this commodity from the Non-Government Organization (NGO) at the international level (Hezri & Wong, 2015; Mahat, 2012; Teoh, 2010). Malaysia classified carried out this sector with unsustainable way. Smallholders faced challenges to produce sustainable oil palm, especially among independent smallholders. Independent smallholders are the most difficult players to achieve sustainable production due to huge challenges and constraints.

However, justification of this sector will only bring negative impact in the sustainable dimension encompassing economic, environmental and social, are inaccurate. This statement and most of the study conclude in that way are biased (Basiron, 2010). According Hezri & Wong (2015) oil palm expansion in developing countries is labeled with an unfair allegation which is the main cause of the destruction of habitats and rare species. This claim was used as an excuse to form the organization of anti-palm oil campaigns which is improper action on this sector. The European Union has also tightened laws to make palm oil products are difficult to get into the European market.

This allegation has given a negative image of the palm oil sector. In fact, this sector also brings numerous positive impacts towards sustainability (Arif Simeh & T. Ariff, 2001; Oil World, 2013; Mahat, 2012; Zin, 2014). The government through the Rubber Industry Smallholders Development Authority (RISDA), Federal Land Development Authority (FELDA) and the Malaysian Palm Oil Board (MPOB) has implemented various strategies and programs to enhance the production of sustainable palm oil in this country including for independent smallholders.

Furthermore, in line with efforts to achieve the target by 2020 to boost annual output to 26.2 tons per hectare national average across all ownership of smallholdings and plantations, thus, the move towards sustainable agriculture among smallholders is an attempt to achieve vision 2020 (PEMANDU, 2010). The approach taken by Eight Entry Point Projects (EPP) includes encouraging small farmers to implement best practices by adopting Good Agricultural Practices (GAP). In November 2009, the minister of the Ministry of Plantation Industries and Commodities Malaysia (MPIC) has launched the Sustainable Palm Oil Cluster (SPOC). SPOC is a strategy used to assist smallholders to produce sustainable oil palm.

Objective of this paper is to analyze the negative and positive impacts of this sector towards sustainability. Furthermore, identify the SPOC model that helps smallholders to achieve sustainable palm oil production. The significant of this study are to shed negative image and correcting misperceptions about palm oil.

The concept of Sustainability

Sustainability is both a broad and diverse concept that takes on slightly different meanings and connotations depending on the field and context in which it is referred. Within the broad usage of the term, sustainable development aims to achieve a better quality of life for the present and the future while protecting the quality of the environment and promoting responsible use of natural resources (Mitcham, 1995). It focuses on improving the quality of life for all without using natural resources at a rate exceeding the ability of the environment to replenish its resources (Du Pisani, 2006; Mitcham, 1995). The majority of literature present sustainability within the three broad dimensions of economic growth, environmental protection, and its social impact (Hansmann, 2012; Nilsson, 2013). Sustainable development is a concept that has taken on renewed importance in the 21st century after more than a century of industrialization. It has become a common consideration used to identify negative and positive impacts for many old and new industries, including palm oil production. This paper examines the issue of sustainable development of palm oil production from the three predominant dimensions of economic growth, environmental protection, and its social impact.

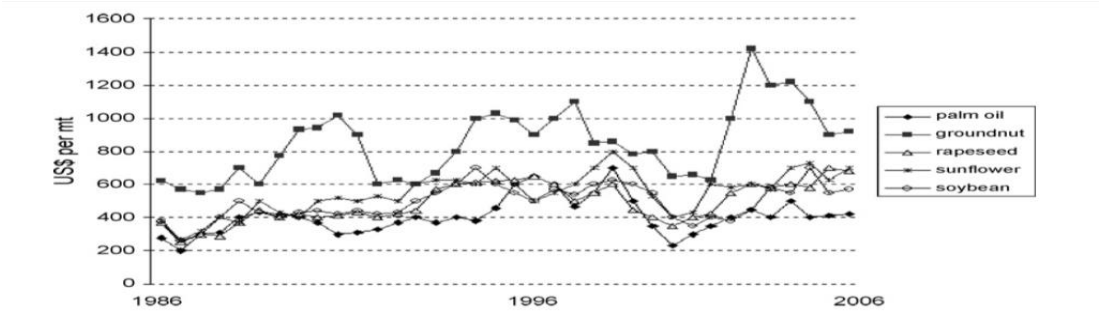
The impact of palm oil production on sustainable dimension

i. Economic Impact

In respect to the economic dimension, there are numerous negative impacts associated with palm oil production including the costs for replanting. Replantation takes place upon the maturation of the palm oil plants and incurs significantly high costs. It exerts major financial strain on farmers (Rist et al., 2010; Van Der Enden, 2013). This financial burden is particularly difficult for smallholders who are faced with financial constraints and often find it difficult to secure loans from banks and other financial institutions (IIED & Proforest, 2004). In Malaysia, although replanting costs are high, Malaysian Palm Oil Board (MPOB) provides smallholders some assistance for replanting. Replanting after maturity commonly takes between 5 years and above, and farmers could receive monthly earnings from palm trees after 24-36 months of replanting. Which is profit received greater than cost have been borne.

Furthermore, market price fluctuations also exert an impact economic (Rist et al., 2010; Van Der Enden, 2013). According to Mahat (2012), although there is large consumer demand for palm oil, this demand is highly sensitive to changes in the prevailing price. A reduction of palm oil production will lead to an increase in palm oil prices and prices of other foods that use palm oil as a main ingredient. Despite the price fluctuations, figure 1 show that the price of palm oil is often cheaper than other vegetable oils (Tan et al., 2009; Swain, 2014). Furthermore, productivity per hectare for the production of crude palm oil is higher than other substitute (FAO, 2006; Nagiah & Azmi, 2012; Swain, 2014; Tan et al., 2009) which is an advantage to help mitigate any negative effects arising from price changes. The World Bank (2011) in Swain (2014) estimated a total area of 6.3 million hectares of palm oil plantations is required to meet demand by 2020, whereas in contrast, if soybean oil is used to meet the forecasted demand by 2020, it would require an additional 42 million hectares of land used. Despite price increase, palm oil production can still accommodate consumer demand compared to other crops which are more expensive, less productive and are more difficult to cultivate on such a large scale.

Figure 1: World prices for selected vegetable oils



(Source: Tan et. al, 2014)

Kessler et al. (2007) highlighted an additional two significant positive features of palm oil production compares to other crops by highlighting its major contribution to Gross Domestic Product per capita (GDP) and employment. Palm oil production provides significant income opportunities for farmers and exerts a positive impact on the economy. In 2011, the sector contributed some 53 billion MYR to Malaysia's GDP (Oil World, 2013). In terms of employment rates, the sector provided an enormous amount of jobs for the community (Mahat, 2012; MPOB, 2010; World Bank, 2011) with over one million workers engaged in this sector throughout the supply chain in Malaysia.

ii. Social Impact

For the social dimension, Kessler et al. (2007) was more pessimistic of the merits of palm oil and outlined food security and health as area of significant negative influence on the society. In terms of food security, land expansion and the clearing of vast swathes of land for palm oil cultivation is said to have affected the food supply by having a disproportionate focus on the cultivation of oil palm while ignoring the cultivation of other food supplies such as rice (Susanti & Burgers, 2012; Van Der Ende, 2013), vegetables, and so on.

To overcome this problem, the Malaysian government has sought to develop agricultural land for the cultivation of crops rotation such as bananas, pineapples, and melons during the replanting phase of palm oil. It also pursues a policy of integrating palm oil with livestock and other crops (Raja Omar et al., 2010; Tohiran et al., 2010; Ab Wahab et al., 2010). Moreover, there is an ongoing process of innovation to diversify the use of palm oil to be used as a source of raw materials used to produce a variety of foods (Foster et al., 2009; Mat Sahri, 2010; Nilsson, 2013). This development helps repudiate claims that palm oil cultivation adversely affects the food supply.

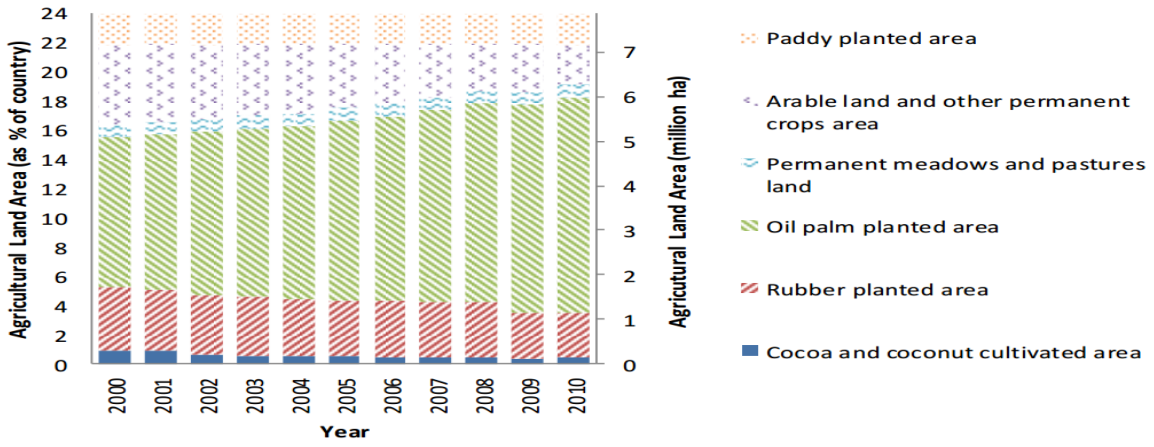
From a health aspect, there are studies stating that palm oil can be harmful to health with claims that palm oil may lead to cardiovascular disease (Chen, 2011), is not suitable for diet and increases cholesterol (Chen, 2011; Ebrahim & Smith 2001). Such studies discriminate against palm oil by excluding the study of other vegetable oils and comparing results. Moreover, Koh (2007) reviewed the document *'Diet, Nutrition and the Prevention of Chronic Diseases'* from which he found that studies outside of Europe and the US concluded that palm oil consumption was found to not increase cholesterol. Rather, palm oil is rich in various nutrients (Koh, 2007) such as vitamin E, K, and many others (Nilsson, 2013)

As for the issue of poverty, Kessler et al. (2007) state that the palm oil sector has made a significant contribution towards reducing poverty. This is evidenced by the reduction of poverty and improvement of living standards of people in rural areas where were made possible through the Federal Land Development Authority (FELDA), the Federal Land Consolidation and Rehabilitation Authority (FELCRA), and Rubber Industry Smallholders Development Authority (RISDA) (Arif Simeh & T. Ariff, 2001; Zin, 2014). FELDA was established to work towards improving the well-being of rural communities through the provision of infrastructure, increased employment, and educational opportunities.

iii. Environmental Impact

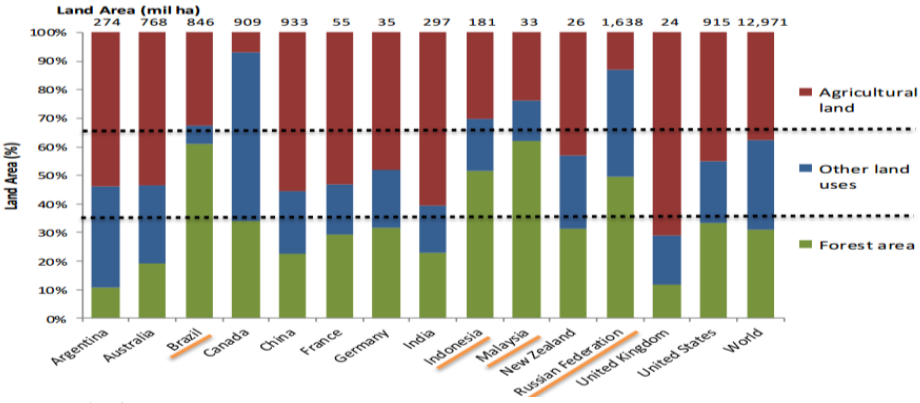
Tan et al. (2009) identified deforestation, the extinction of the orangutan, and the destruction of peatlands as among the negative impacts of palm oil production. Laurence et al. (2010) believes that palm oil plantations are expanded by clearing new land and cutting down forests. He argues that to save costs, forest fires are used to clear land, which effects climate change and produces haze (Glastra et al., 2002; Tan et al. 2009). Both of these measures will lead to the extinction of the orangutan, limit the range of biodiversity, damage the quality of land, habitat, and can even cause the extinction of flora and fauna (Nilsson, 2013; Tan et al., 2009). Furthermore, the biodiversity and carbon sinks within forests are destroyed and their functions impaired due to the expansion of oil palm, with the serious threat of being damaged beyond repair (Tincliffe & Webber, 2012).

Figure 2: Breakdown of agricultural area by arable, permanent crops, meadows and pasture land in Malaysia (2000-2010)



(Source: Hezri & Wong, 2015)

Figure 3: Allocation of land for different land use types in selected countries



(Source: Hezri & Wong, 2015)

Figures 2 show an increase in the expansion of agriculture, especially palm oil cultivation. However, the cleared areas in Malaysian remain under control. Malaysia should ensure that they expand areas of deforestation in line with the needs of society, the economy, and the nation's development, while taking care not to abuse nature and damage biodiversity. This scenario is consistent with the Environmental Kuznets Curve (EKC) hypothesis that national pollution levels increase and decrease depending on economic level (Bhattarai & Hamming, 2001; Mahat, 2012). Figures 3 proved that Malaysia has maintained a fairly large forest area while trying to maintain a rapid pace of economic growth to achieve developed country status compared to other countries (Hezri & Wong, 2015). Palm oil is a plant that has a long shelf life compared to other substitute crops, giving the palm a canopy that stabilises the ecosystem (Gee, 2007; Nilsson, 2013). Furthermore, it serves as a canopy of green trees that absorb carbon dioxide from the environment (Lin, 2011; Nilsson 2013).

Background of Independent Smallholders

Independent smallholders are defined as financially independent farmers who with autonomy to decide how best to cultivate their land, decide which crops to grow, and how best to manage it. They are not bonded to any particular mill or bodies, although they can receive support or extension services from government agencies (RSPO, 2010).

Based on Hashim et al. (2014), from 2003 to 2013, the area cultivated for oil palm increased from 387,998 to 748 292 ha. The average area of land owned by independent smallholders in 2013 was 3.2 ha in Peninsular Malaysia, 5.1 ha Sarawak and 6.7 in Sabah (Aman et al., 2014). Table 1 depicts the increasing number of small farmers and the expansion of areas cultivated for palm oil production. The table shows that this group is a significant contributor to Malaysia's GDP thereby highlighting the importance to ensure sustainable palm oil production for independent smallholders.

Table 1: Independent smallholders' land ownership by state on 2003 and 2013

State	2003		2013		Land area expansion (%)
	Number (People)	Land area (Ha)	Number (People)	Land area (Ha)	
Johor	46 702	144582	65 797	196865	26.6
Kedah	2 149	12767	4 646	22562	43.4
Kelantan	189	1606	1 025	4134	61.2
Melaka	1 021	5678	2 166	10289	44.8
N. Sembilan	2 410	12518	4 325	21361	41.4
Pahang	4 444	21506	8 967	40585	47.0
Perak	20 120	61563	34 194	99789	38.3
Perlis	2	27	8	58	53.3
Pulau Pinang	1 145	6853	1 681	8677	21.0
Selangor	16 955	36065	19 062	42097	14.3
Terengganu	727	4629	2 407	9909	53.3
Total of Peninsula	**95 864**	**307793**	**144 279**	**456328**	**32.6**
Sabah	9 643	66776	29 685	198632	66.4
Sarawak	2 581	13428	18 234	93332	85.6
Total of Sabah & Sarawak	**12 224**	**80205**	**47 919**	**291964**	**72.5**
Total	**108 088**	**387998**	**192 198**	**748293**	**48.2**

(Source: MPOB 2013 in Ali Nordin & Abdullah, 2014)

Sustainable Palm Oil Cluster (SPOC): Towards improving sustainable productivity

Independent smallholders face various problems when seeking to achieve the sustainable production of palm oil. The Malaysian government, through MPOB, has introduced initiative to promote sustainable development are resolve outstanding issues in this regard. Accordingly, in November 2009, the minister of the Ministry of Plantation Industries and Commodities Malaysia (MPIC) launched a Sustainable Palm Oil Cluster (SPOC). Referring to MSPO (2013), SPOC is a group of independent smallholders with specific agreements for farmers who are committed to producing sustainable palm oil through co-operation structures. Based on Wild Asia (2013), SPOC's goal is to enhance the best practices of agronomy by awarding the Certification of Good Agricultural Practices (GAP) and increase the income of farmers through partnerships. The goal is to increase revenue and expenditures, increase revenues, and improve the technical skills of smallholders.

SPOC's programs

SPOC's two main program is the Smallholder Farm Certification (PKPK) and setting up a Sustainable Palm Growers Cooperative (KPSM) (Hashim et al., 2014; Wild Asia, 2013). The SPOC program groups smallholders by region headed by small farmers and help them communicate and liaise with the Tunjuk Ajar Sawit officers (TUNAS MPOB).

i. Smallholder Farm Certification (PKPK)

According to Nur Hanani (2014), this is a voluntary certification that is designed to help ensure that PKPK certified farms produce palm oil sustainably, is safe to use, environmentally friendly, and meets customer needs. The Certification of Good Agricultural Practices or Good Agricultural Practice (GAP) is a recognition granted to independent smallholders who have successfully managed their oil palm farm in accordance with the standards recommended by MPOB. The objective is to ensure that palm oil smallholders operate in accordance with the standards recommended by MPOB for optimum yield and quality. PKPK is a certification indicating that smallholders' meet the standards set by MPOB Code of Practice (COP MPOB), the Roundtable on Sustainable Palm Oil (RSPO), and the Malaysian Sustainable Palm Oil (MSPO).

Referring to Hashim et al. (2014), the Branch Officer will assist small farmers achieve sustainable palm oil production. This assistance includes theoretical lectures and technical management of farms, practical management, and the advisory and audit process to obtain the GAP certificate. The Branch Officer will provide technical talks and educate on methods of how to systematically manage palm oil farm. The theoretical sessions are accompanied by practical methods towards realising systematic farm management activities. MPOB officials will inspect smallholder farms to assess GAP practices. During the inspection, small farmers have the opportunity to receive technical advice to improve the management of its farm and how to overcome any difficulties encountered in all aspects of the preparation stage until harvesting Fresh Fruit Bunch (FFB).

In addition, certain farm will be selected as model farms as a practical means to provide small farmers with expert and knowledge and technical experience. Furthermore, the certificate holder will receive benefits such as special discounts or fee waivers when participating in activities organised by MPOB such as seminars, conferences, courses and workshops. They will also receive an honorarium or consolation when selected by MPOB to help MPOB activities such as the delivery of technical talks to other smallholders.

ii. Sustainable Palm Oil Growers Cooperative (KPSM)

The second component is the establishment of SPOC Sustainable Palm Oil Growers Cooperative (KPSM). KPSM membership is only open to small farmers who own private palm oil farms less than 40 to 46 acres. The main objective is to consolidate KPSM small farmers to be able to carry out activities such as improving production and quality of FFB.

A major problem faced by smallholders is high production costs. Of these, among the more significant costs to be borne by small farmers are the cost of input materials and transportation (Ismail et al., 2003). Some smallholders try to reduce production costs by using poor quality input materials leading these farmers to lose productive and produce low quality palm oil. Based on Hashim et al. (2014) KPSM allows smallholders to buy inputs in bulk and helps its members by providing truck transport to deliver the FFB to the mill. KPSM is more effective the larger its membership allowing for broader implementation. It also provides benefits to its members by offering inputs at below-market prices.

According to Rahman et al. (2008), because smallholders are not bound to any farming scheme, they receive limited assistance in the form of credit services, fertilizer, training and so on. This situation also make difficult for them to secure loans through banks and other financial institutions. Through KPSM, smallholders enjoy good relations with the MPOB, suppliers of fertilizers and pesticides, and manufacturers.

Smallholders also often rely on middlemen to buy and deliver FFB to the mill. This means that they do not benefit from direct contact with local factories and have no assurance as to the price to be paid for their crops (Nagiah & Azmi, 2012). KPSM helps to resolve such problems by representing its members and agreeing to sell the FFB as a group to the mill for a better price. With a large number, the cooperative has advantages in terms of power to negotiate with the mill to secure a better price (Ismail et al., 2014). In addition to offering better prices, KPSM works closely with TUNAS officers and members to monitor every FFB shipment to the mill thereby ensuring quality and larger quantities (Ismail et al., 2014).

To help improve the palm oil industry to achieve greater sustainability, SPOC helps facilitate MPOB development activities by improving the agronomic knowledge of smallholders (Ismail 2010). In addition to educational activities, this is achieved through specialised aid and teaching small farmers as to how to apply the latest technologies (Nur Hanani, 2014). These steps are

designed to increase knowledge on good agricultural practices and increase the technical skills of smallholders. Small farmers also have the alternative of presenting their problems and help them improve their living standards by voicing their opinions through the representation of KPSM which is a more effective mechanism through which to become heard as opposed to operating independently.

Attainment of SPOC

The SPOC attainment can be seen through indicators such as increased revenue, improved quality of FFB that meets the quality and price assured by the awarded certification. Referring to Ismail et al. (2014) group marketing of FFB helped improve the income of small farmers by 17% by managing to secure a better price for FFB. The resulting quality of FFB can also be improved through certification programs conducted as part of the membership requirement of the cooperative. The advantages gained through such systems will be enjoyed by all members of the cooperative through annual dividend payments. The two FFB marketing models are applied by KPSM Buol District, Sabah and KPSM Saratok, Sarawak have shown positive results. The net FFB price for smallholders through KPSM was higher than FFB sales to dealers.

As of March 2014, a total of 3,882 smallholder farms with an area of 11,683.27 hectares were assessed, of which 381 farms with an area of 1,338 hectares have been awarded the GAP by the MPOB. Four SPOCs have has been awarded MPOB CoP certification. These include SPOC Telupid and Tongod in Sabah, and SPOC Saratok in Sarawak, and SPOC Kulai Jaya in Johor. In addition, SPOC BCS in Sabah secured RSPO certification to become the first group to receive RSPO certification in Malaysia and the third in the world.

Conclusion

Based on a content analysis conducted in this paper, can be seen the advantages and benefits obtained through the palm oil sector toward sustainability such as the productivity per hectare is higher, lower production costs compared to other vegetable oils and much more. These arguments deny the negative allegations on this sector. Undoubtedly, there are negative impacts resulting from palm oil production but the interest earned exceeds the negative consequences that might arise. In fact, various policies and strategies as a platform solution were designed to reduce the negative impact of this sector along the value chain. Group of smallholders who are seen have multiple constraints to achieving sustainability also could achieve this objective. This scenario proves the potential of this sector towards sustainability. As such, the action of some NGO lobbying for a boycott of palm oil products is irrational actions against this sector. Therefore, all parties involved in the oil palm value chain need to work together to ensure that sustainable production can be fully realized.

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