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CONTRIBUTING FACTORS TO MALAYSIAN SUSTAINABILITY ON PALM OIL

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Abstract

Oil palm production serves as a leading sector which contributed a lot to the development of Malaysian economy as a great driving force for the country's agro-industry. About a century ago, when the oil palm plantation was formed, its contribution was 71% to the national agricultural land bank. Malaysia has also received global recognition for resources allocation among its citizens and poverty alleviation within the country. Palm oil has risen as a global strategic commodity, it rose as the main source of income, which generates revenue, promotes economic development and alleviates poverty. Palm oil contributed considerably to the economic growth of Malaysia through employment chances in rural areas, improvement of infrastructure which includes education, health facilities, generation of revenues for workers and the government. It raises governmental credits and training schemes and flourishes development of the agricultural sector. The primary objective of this paper is to show the contributing factors to Malaysian sustainability on palm oil, the research is qualitative in nature, it has adopted document analysis, the finds of the paper are the contributing factors towards Malaysian sustainability on palm oil. The manuscript should contain an abstract.

Keywords*: Contributing Factors, Malaysian palm oil policies, Oil Palm, Palm Oil*

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INTRODUCTION

The Malaysian Federation was made in 1963, formerly comprised of Malaya, Singapore, Sarawak and Sabah. As a result of internal political tensions, Singapore was forced to separate from the federation in 1965. Presently,

Malaya is recognized as Peninsular Malaysia, and the remaining two areas are on the Borneo island as East Malaysia. Previously, in 1963 these areas were under British colonization for many years from the late eighteenth century. Malaya obtained its independence in 1957, Sarawak and Sabah were before identified as British North Borneo, obtained their independence in 1963, and Singapore attained a complete independence in 1965. These areas located between 2 and 6 degrees north of the equator. The territories comprise of broad coastal plains supported by mountainous interiors. The top soil is naturally infertile but the humid tropical weather focus to monsoonal climate forms makes good surroundings for plant growing. Archeologically much of the area was shielded with thick tropical jungle, however, much of this has been cleared for commercial determinations over the last century heading to wide soil erosion and silting of the rivers which run from the interiors to the coast (Drabble, n.d.)

Problem Statement

In 1960s, Nigeria was the largest producer and exporter of palm oil in the world, but Malaysia has overtaken Nigeria as one of the largest producers and leading exporters of palm oil in the world. Both Malaysia and Indonesia produce 83 percent of the total world production of palm oil (Brown & Jacobson, 2005 cited in Ayodele & Eshalomi, 2010). In 1966, Malaysia was a top leading exporter of palm oil, and in 1971 it became the second-largest producer of palm oil in the world after Nigeria. In 2006, Indonesia exceeded Malaysia as the major producer of palm oil in the world, and in 2008 it became the largest exporter of palm oil in the world. The palm oil sector rose as the main source of income, which generates revenue, promotes economic development and alleviates poverty (Azman Ismail, 2013). The problem that this paper attempts to solve, is to explore the factors that contributed to Malaysian sustainability on palm oil. This will help to add to the body of knowledge for future researchers.

METHODOLOGY

The main objective of this part is to explain the methodology and the processes used in obtaining the necessary data which form the basis of the study, and how the data were analysed. According to Creswell, research generally conducted to develop appropriate and accurate assertions that can aid to explain the situation (Creswell, 2012). This study employs a qualitative research method to understand the research problem. The qualitative research method of data analysis is a systematic inquiry into the nature or qualities of complex social group behaviours by employing interpretive and naturalistic approaches (Zhang & Wildemuth, 2009). It used qualitative document analysis which largely relies on the ability to present a clear explanation, offer a convincing analysis and make a strong argument for interpretation to establish the value of conclusions (Manheim et al., 2002). This study heavily relied on secondary data whereby data was collected from books, journals, dissertations, newspapers, magazines, seminar papers, and articles.

The oil palm and palm oil

Oil palm is a crop called monoecious plant which is a native of West Africa brought to Malaysia by Britain in 1870. Each one oil palm tree yields annually eight to fifteen fresh fruit bunches (FFB), it is weighing around ten (10) to twenty-five (25) kilograms each with one thousand (1000) to one thousand three hundred (1300) fruitlets for each bunch. Each fruitlet is almost in terms of its shape elongated or spherical. The fruitlet is almost black but at times is dark purple, and when it ripens the colour of the fruitlet turns to orange-red. Inside the fruitlet, it involves a seed called hard kernel encircled in a shell called endocarp which fibrous mesocarp surrounded it (Teoh, C.H, 2002, cited in Malaysian Productivity Corporation Report, 2014). Palm oil is exactly vitamin E which is tocotrienols and

is rich in carotenoids. The crude palm oil is caused to appear deep red-orange by the carotenoids presence. Tocotrienols provides natural stability against oxidative deterioration. Palm oil has a natural semi-solid characteristic at room temperature with a melting point between 33oC to 39oC. Therefore, it does not require hydrogenation for use as food ingredient. Palm oil has a balanced ratio of saturated acid which is 45% palmitic acid and 5% stearic acid, and unsaturated fatty acid which is 40% monounsaturated fatty acid, and 10% polyunsaturated fatty acid. This composition results in an edible oil that is suitable for use in a variety of food applications (Teoh, 2002).

RESULT AND DISCUSSION

Malaysian Policies on Palm Oil

Malaysia has adopted the neoliberal model of market dominance as adopted in Indonesia before, however, the government is more adjacent to the private estate sector than its Indonesian colleague and workouts more influence over much of the smallholder sector. The MPOB is an influential government body from the Ministry of Plantation Industries and Commodities which controls research and growth and rule of the industry. Government plans have motivated to give much emphasis on growing oil palm production and quality as well as increasing policies of export markets which are strengthened by the leading companies. The government policies are intensely concentrated towards the Economic Transformation Programme (ETP), directing to change Malaysia into a high-income country by 2020. Oil palm constitutes a crucial part in this transformation, with a planned influence of MYR 178 billion around USD 57.4 billion to the gross national income by 2020 (ETP Annual Report, 2012).
Eight 'entry point projects' (EPPs) were approved in the ETP's 2012 Report. They were:

1. Speeding up the replantation and new implanting of oil palm: ultimately 450,000 ha of small yield and old trees will be supplanted by new, fruitful seedlings. Replantation is not simple when CPO prices arose, but as they slacken off throughout 2012 and 2013, this method was more positive. In 2013, the government distributed more funds for independent smallholders' replantation and new implanting inventiveness, permitting MYR 9000 per ha for smallholders in Sabah and Sarawak and MYR 7500 for those on the peninsula.

2. Enhancing fresh fruit bunch (FFB) yield: Here the strategy is to raise the productivity of FFB from the present 18.89 t/ha to 26 t/ha by 2020. For a second time, smallholders are the target as their yields are largely lower than those of the estates. Companies have been established across the country to raise the consciousness of new technologies and best practices with 23 smallholder palm oil bunches being founded by the MPOB, 12 on the peninsula and 11 in Sabah/ Sarawak.

3. Increasing worker output: The narrowing of imported labor rules and migration of Indonesian employees resulting in wage rises in Indonesia has been making labor unavailability on estates, reducing the harvest of FFB and decreasing crude oil production. New labor-saving methods have been presented, such as the CANTAS motorized sickle for harvesting and the diamond sharpening instrument and were increasingly being occupied by both estates and smallholders.

4. Improving the oil extraction rate (OER): In recent years the OER has stayed lower than 20.5%. The strategy is to increase it to 23% by 2020 through enhancements to grading and milling of crops. MPOB 'enforcement officers' will be posted at particular mills.

5. Intensifying biogas amenities at mills: The idea is to take over methane as a result of the milling practice by fixing biogas facilities in all palm oil mills by 2020; 57 plants are now fixed and two are electricity suppliers, while about 160 mills are increasing the capacity. There are total of 439 palm oil mills in the oil palm zones (Datuk Uggah Embas addressing Annual Dinner of Palm Oil Refiners Association of Malaysia, 26/10/2013).

6. Growing high-value oleo products and bio-based chemicals: There is a global change from petrochemicals to green oleo-chemicals, which could steer to certain fluctuations in the demand for palm oil. This EPP will direct manufacturing from basic palm oleo-chemicals to higher-value products such as agrochemicals, bio lubricants etc. Seven main corporations are increasing investments in the oleo-chemical trade, but they are facing competition from Indonesia, which is stirring in the same course.

7. Commercializing second-generation biofuels: The statement remarks that "the rapid growth of biofuels has become controversial. The support that biofuels had enjoyed just 4 years ago has diminished during the criticism that their production is linked to rising food prices and uncertain ability to replace fossil fuels". Bio-oil, derived from oil palm biomass (empty fruit bunches, trunks and tree fronds) can be used to generate electricity.

8. Accelerating development in food and health-based sector: This EPP targets to blow into the use of palm-based derivatives in food and health products, such as tocotrienols, a good source of vitamin E (ETP Annual Report 2012). If one observes these EPPs, they could be shortened as first, enhancing the productivity and value of the palm oil crop (EPPs 1-4), then dividing into different categories of production connected with palm oil (EPPS 5-8), on the statement that, the present practices of the manufactured goods will be varying. The influence of the newest rules in the EU concerning biofuels imposes certain limitations on palm oil. Palm-based biodiesel can only be accepted for the renewable fuels standard and approving 10% as minimum target for renewable energy used up in the transportation sector if it is certified under the RSPO. Methane capture through biogas facilities must be fixed at all mills (De Lavigne 2013, 17).

Contributing Factors to Malaysian Sustainability on Palm Oil

The factors for sustainability in Malaysian Palm Oil Manufacturing (POM) are the key fundamental reasons of shifting the industry to competitive situations as the major effect on how the industry setting improved sustainability. Documentation and valuation of the factors in Malaysian POM sustainability are important for accepting the connection between POM and sustainability. This sector presents the factors of sustainability by emphasizing on the role played by them in describing POM direction to sustainability, signifying a means for clarifying a company's performance by regarding sustainability as an action embraced by companies. The factors for Malaysian POM sustainability are of three key perspectives: environmental consciousness and compliance, economic escalation, and social commitment. All these factors are projected to play a vital role in contributing to the Malaysian sustainability on palm oil.

Environmental Consciousness and Compliance

Environmental conservation is understood as a significant plan being strained by the Malaysian palm oil industry. This is verified by several actions and policies developed by the government to alleviate the environmental effect of palm oil industry. The country's record on environmental conservation commenced as early as 1976 and was identified in the Third Malaysian Development Plan. It can be understood that this industry is regulated well whereby all growers, millers, refiners, processors and traders are to register and apply licenses before functioning. Environmental awareness amongst the topmost management of POM supported sustainability endeavour in the society. It is motivated by the waste management and pollution control practice that fetches high-effect on the

surroundings. The practice of contrary logistics in the establishment proposed that POME can be sustainably recycled as a fermentation substrate in the manufacturing of different fertilizers, metabolites, and animal feeds through biotechnological developments. Minimisation of waste at home or waste recycling produced from palm oil mills for lack of proper waste management practice may also result in airborne diseases and aesthetic problems and also may cause numerous vector-borne diseases (Farzipoor, 2012).

The use of renewable energy resources, specifically oil palm wastes, and evaluation of greenhouse gas emissions (GHG) via life cycle assessment (LCA). LCA is one of numerous managing utensils for appraising environmental issues and imperative as a support for supervisory utensil. It is tactically sustainable due to its contribution in solving the environmental problem of waste dumping in a good manner and improving energy and higher value chemicals for commercial uses. The use of renewable energy resources, specifically oil palm wastes, is useful due to its contribution to the POM sustainability of energy supply while reducing the negative effects of energy generation on the environment. It serves in solving the agricultural waste dumping problem in a good manner while improving energy and higher value chemicals for commercial uses like bio-fuel in assisting the management to discharge its duty to extend fossil fuel reserves (Hassan et al., 2012).

Environmental awareness similarly fetches political tension through heavy-duty rules for emissions and pollution. Regulatory actions force important reforms in industrial activities and tactical methods of the palm oil trade. Plan and ruling elements originate from governments either via legislation or through a by-law calling for that corporations obey to assured environmental ethics. The environmental limitations in the industry offer an instrument for allowing adjustable emission ethics, and law enacts restrictions on the environment and sums of releases to the atmosphere and shipping canal by mills and refineries (MPOB, 2014).

Regulatory Framework

Malaysia as being the major producer and exporter of palm oil in the world for the last four decades, it has continuously emphasized on the improvement on different parts of activities of upstream and downstream with much concern to sustainable development. In the meantime, the initial expansion in 1950-1960s, the palm oil industry was directed by many laws and regulations intended to set this industry sustainable. Palm oil is very regulated industry if related to other produces, presently is stick to more than 15 laws and regulations under the four important subsections of environmental regulatory framework:

Environmental Matters:
Environmental Land Conservation Act 1960 revised in 1989
Quality Act 1974 (Environmental Quality) (Prescribed Premises) (Crude Palm Oil) Regulation 1977
Environmental Quality (Clean Air) Regulation 1978
Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987
Pesticide Use:
Pesticides Act 1974 (Pesticides Registration) Rules 1988
Pesticides (Licensing for sale & storage) Rules 1988
Pesticides (Labeling) Regulations 1984
Protection of Wildlife Act 1972

Figure 1: Palm Oil Industry Regulatory Framework

Environment Matters

The Malaysia government understood the negative effect of palm oil industry since the beginning of 1960's and 1970's because of its broad country surface water and air pollution instigated by the oil palm processing mills. Full environmental regulation of the crude palm oil industry began quickly after the enactment of the Environmental Quality Act, 1974 (EQA) and the creation of the Department of Environment (DOE) in 1975. To regulate the release of effluent from the crude palm oil industry and apply other environmental controls, the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order, 1977 and the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977 were created under the EQA. Palm oil industry was first that used the environmental quality control so as to certify the sustainability (DOE, 1991).

Land Matters

In Malaysia, the land distribution for the urban development, agricultural usage and forest reservation is published under the National Land Code 1965. This distribution is centred on Malaysian membership, last two decades at the Rio Earth Summit to reserve aside fifty percent of land as forests for the requirement of biodiversity and habitat, Twenty-five percent for urbanization whereas another Twenty-five percent for agricultural activities. Malaysia has a land area of 33 million hectares with fifty-six percent equals to 18.5 million hectares has been forested land area as presented in the Table below:

Table 1: Land Area in Malaysia

Population	**27 Million**
Avg. pop. growth rate (2007 est.)	1.8%
Total land area	33 Million ha
Forested land area (2007)	56% -18.5 mil ha
Total cultivated land	20% -6.6 mil ha
Oil palms	13.6% -4.5 mil ha (2008)

Source: MPOB 2010

Wildlife Matters

The Malaysian Palm Oil Wildlife Conservation Fund (MPOWCF) was established by government in 2006, it is a special fund for sustaining the fauna and flora as well as the wildlife conservation activities of orang-utan. The plantation companies mainly the listed public companies have made a good response to the MPOWCF project through their corporate social responsibility program. The first fund with a total amount of RM20 million financed from government grants and industry players, intended for conducting study and special projects, managed by the MPOC. The formation of MPOWCF serves the following purposes: i. Aids to show the good image of Malaysian palm oil by giving actual assertions that its plantation does not cause deforestation or loss of wildlife and their habitat through an intensive conservation research program to be conducted by professionals from the academia, government agencies and NGOs, ii. Makes available funds for progressive research on biodiversity, environmental conservation and wildlife as well as putting the total impact of the palm oil industry on these limitations (MPOC, 2007a).

Palm Oil Code of Practices

In response to the long-run sustainability, the Malaysian government used MPOB and established its own certification standard for the practices of sustainable palm oil production which consist of six parts along with the supply chains. The code of practice (CoP) presented in 2008, it is agreed to improve the repute of Malaysian palm oil in attaining the demands of a progressive health and environmentally conscious market. The six parts of CoP

that is certified under the ISO 17021 comprise: a) Code of Good Practice for Nurseries b) Code of Good Practice for Palm Oil Estates c) Code of Good Practice for Palm Oil Mills d) Code of Good Practice for Palm Kernel Crushers e) Code of Good Practice for Palm Oil Refineries f) Code of Good Practice for the Handling, Transport and Storage of Products from the Oil Palm. These CoPs can be used along with the supply chains together with plantation, mills and through the industry with intentions to decrease the emission and certify sustainability in the industry (Wahid, 2010).

Best Development Practices

Many years ago, the palm oil industry has applied various practices to reduce the negative environmental impact predominantly in the course of the clearance of land and after crops planting. Integrated pest management (IPM) and zero burning technique are part of the best development practices utilized by commercial scale plantation. The implementations of the zero burning technique for replantation on a commercial-scale began since 1989 (Mohd Hashim et al, 1993). In Peninsular Malaysia, it became a major factor in terms of air pollution minimization by plantation. This is the technique applied to reduce the process of clearance through burning the old crops which was earlier a simple way of oil palm cultivation. The new technique of compliance to the Environmental Quality Act 1974 and the Environment Quality (Clean Air Regulations) 1978, comprises of the old palms disposal by cut up in the fields, air pollution avoidance and aiding the plant nutrients restoration to the soil. Malaysia effectively employed this technique among the large estates and smallholders by improving awareness. This technique has confirmed to be the most environment-friendly technique; it was successively implemented as the standard of palm oil industry in terms of replantation. It was presented the Roll of Honour in the Global 500 at Rio de Janeiro in 1992 for the technique commercialization.

Life Cycle Assessment (LCA)

The improvement in the palm oil activities with regards to the palm oil environmental impact, it needs a full assessment on each activity beside the supply chain. It is vital to contemplate the effects of ecology on the production and processing plants to indicate the environmental performance of the palm oil sector. In this regards, MPOB initiated to present the usage of LCA for palm oil products, comprising of palm biodiesel, from the crop full-grown on mineral soils (MPOB, June 2011). LCA is a process of using instrument to assess the environmental impact related to a product, process, and activity by classifying and measuring the energy and materials utilized and the waste products released into the environment (Halimah Muhamad et al, 2010). In this process, compilations of inflows and outflows within the supply chain will be assessed to identify any environmental impact connected to these flows. The interpreted outcomes in this assessment will aid in making decision for improving the environmental performance.

Palm Oil as Carbon Sink

Based on the study conducted, it showed that oil palm plantations are effective equal to rain forest in performing as carbon sink-areas of dry matter that work to engross the harmful greenhouse gases from the atmosphere. Oil palm plantations are able to assimilate up to 36.5 tonnes of dry matter/ha/year, which is considerably more than the 25.7 tonnes of dry matter/ha/year that rain forest assimilated. With the industry in its growth phase, most oil palms are still growing to maturity; and oil palm agriculture helps to enrich soil organic matter. A study on seedlings indicates that CO2 doubling can increase the photosynthetic level by almost 10-fold. Throughout plantation, numerous actions are applied to stop soil degradation and conserve soil fertility. On land with hills, contour terracing is carried along steep slopes. Silt pits aid decrease the slope length while trapping soil and plant nutrients. Pruned fronds positioned along the slope to reduce the erosion of the soil and loss of fertilizer. Frequently, forest areas with hills and slopes greater than 250 meter are left untouched. Oil palm trees are exceptional in a manner

that they have higher leaf area index that permits them to have better photosynthetic efficiency. Due to this, palm trees will produce more oxygen to the air and absorb more carbon dioxide from the atmosphere. A study has presented that an oil palm tree has a leaf area index of 5.6 which is comparable to that of the rain forest (Mahat, 2012).

Roundtable on Sustainable Palm Oil (RSPO)

The increasing worries about the impact of palm oil environment, originated the creation of Roundtable on Sustainable Palm Oil (RSPO), a non-profit and industry-led trade organization with the aim of supporting the growth and sustainable use oil palm produces through global standards and shareholders' engagement. The WWF initiated the organization, it was formed in 2004 to unite the stakeholders to implement and develop the global standards for sustainable palm oil from the seven sectors of the palm oil industry globally (WWF, 2014).

Economic Escalation

Palm oil industry is an imperative income source to the country and it succeeded in poverty eradication among poor people. This industry has created multiplier effect through the creation of different supportive industries which includes the structure of small and medium industry mainly in the oil palm plantations. Due to successful research and development activities conducted by R&D palm oil agency in Malaysia found new applications. Oil palm has various applications either in food or non-food. For that reason, government implements initiatives to institute supporting policy and strategies to improve the palm oil contribution to the national economy. The palm oil industry could accomplish economic growth alongside with the enlargement of greener manufacturing processes through the implementation of cleaner production and greater efficacy of use of electricity, fuel, and labour, which advocates enhancing the action for cleaner know-how and less production cost (Patthanaissaranukool et al., 2013).

The National Biofuel Policy

The main objective was to stabilize the crude palm oil (CPO) price and the exploitation of new export market opportunities (Chin, M. 2011). The policy formulation came in right circumstances as currently Malaysia encounters a lot of negative comments concerning the sustainability of palm oil industry. The fast depletion of fossil fuels, combined with the awareness increase on environmental issues for greenhouse gas emissions increase and rising petroleum prices, led to intensive efforts in the exploration for renewable and environmentally friendly alternative energy sources. In this concern, biofuels play a vital role as alternative sources of energy. For example, biofuels can decrease the dependence on fossil fuels and contribute to energy security of national strategies.

New Key Economic Area

The realization of the significance of the palm oil industry to the Malaysian economy, the government has selected palm oil industry as one of 12 New Key Economic Areas (NKEAs) towards accomplish of high-income status by year 2020. This motivation had been declared in the 10th Malaysia Plan (2011-2015) in 2010. This palm oil industry as one of the NKEAs, will be placed as the central Economic Transformation Program (ETP) and will get extraordinary government support in terms of financing and special dimensions. Palm oil industry is established to increase its GNI contribution from the existing RM52.7 billion to RM178 billion by 2020 and this will be accomplished through the implementation of eight core entry point projects (EPP) (Ng et al., 2011).

Social Commitment

This palm oil industry has been considered as one of income source and effective means to eradicate poverty among poor people especially in developing countries. The socioeconomic benefits of a sustainable oil palm plantation eradicate poverty and provide long-term opportunities of employments. Sharing of profit offers a more incentive,

attracts additional labours to the palm oil sector, and provides good working conditions and better living (Alban and Cardenas, 2007). It depends on the vital role of governments and smallholders. Smallholders may possibly benefit significantly from oil palm production in line to its higher yields to land and benefits labour, if it is compared to other normally full-grown agricultural products (Rist et al., 2010). Farmers have a choice to invest in oil palm production and benefit from the higher yields it provides, instead of forest destroying for cattle pasture (Butler, 2011a).

In Malaysia there is new attention on real inaccuracy and liability of corporate activities that impact on the society and the environment. The government is implementing policies in response to key sustainability concerns, incorporating greenhouse gas emissions, labour and human rights, water use and toxic chemicals especially in the palm oil industry. POM is pleased to follow global and national policies to solve the concerns that affect workers, whether socioeconomic matters such as wages, healthcare, safety, climate change and environmental problems. Safety and Health Policy (OSHA) 1994, Employment Act 1955, Factories and Machineries (Noise Exposure) Regulations 1989, and worker Minimum Standard of Housing and Amenities Act 1990 are the policies and law that the organizations have to follow. However, implementing food safety and HACCP policy as per ISO 22000 as the best-advanced practice for the palm oil industry is useful for public and customer welfare (Mohd-Lair et al., 2012).

The palm oil industry is a key source of employment and extensively eradicates poverty among the poor people in developing countries, creates jobs, offers a better standard of living, provides infrastructural facilities and contributes to social stability. As the implanted area matured from 1.2 million hectares in 1980 to 4.7 million hectares in 2009 a 3.9-fold growth, the industry generated a 4.9-fold increase in employment as demonstrated in the Table. Centered on projected 5-person per household, the comprehensive number Malaysian people heavily depend on the oil palm industry that provides about 2.26 million jobs (MPOPC, 2010).

Table 2: Oil Palm Plantation as Source of Employment

Year	Area (ha)	People Employed (person)
1980	1, 203, 306	92, 352
1990	2, 029, 464	115,285
2000	3, 376, 664	251,039
2007	4, 304, 913	426,000
2008	4, 487, 957	438,000
2009	4, 691, 160	451,000
2010e	4, 853, 766	603,786

Source: MPOPC, 2010.

CONCLUSION

In conclusion, this paper discussed on the Malaysian historical background, and showed the Malaysian sustainability on palm oil which are: environmental consciousness and compliance, economic escalation and social commitment and compliance, these contributed to its sustainability and it achieved global recognition despite the facts of other challenges it encountered on the global economy of palm. This paper highlighted on the palm oil policies that were adopted by Malaysia, but the policies succeeded in Malaysia and led to its sustainability. In reality, Malaysia a country that acquired the oil palm seedlings from west Africa particularly Nigeria, but it utilized

it and used the golden opportunity and developed as the one of the largest producer and exporter of palm oil in the world, while the west African countries in particular Nigeria still serves as the net importer of palm oil and produce a meager for local consumption. This is a great lesson for West African countries to learn from Malaysian sustainability on palm oil.

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