INDONESIAN JOURNAL OF MULTIDISCIPLINARY SCIENCE

P-ISSN: 2808-5957
E-ISSN: 2808-6724

Malaysian response on challenges facing the global economy of palm oil

Sani Shehu[*], Northwest University, Nigeria

[*]Email for Correspondence: sanishehu46@gmail.com

ABSTRACT

The Covid-19 pandemic has impacted on the global economy of palm oil. This paper explores the Malaysian response on the challenges raised by the western countries on palm oil, and how Malaysia responds to these challenges as well as the recent trend of Covid-2019. The study employs a qualitative exploratory design to collect and analyze data, with primary data gathered through semi-structured, open-ended interviews conducted face-to-face, involving three carefully selected participants from Malaysia to ensure diverse perspectives. The research uses qualitative document analysis to interpret the data and draw meaningful conclusions. The results show that the Covid-18 pandelic impacted Malaysia's palm oil global economy by decreasing the global demand, disrupting the trade, restricting labour mobility and declining production. As a result of these challenges, Malaysia government responded with certain formulated policies in form of phases which were implemented as first Movement Control Order (MCO) from 18th March 2020 to 3rd May 2020. The Malaysian Sustainable Palm Oil (MSPO) certification scheme was effective in enhancing market access and consumer perception would provide valuable insights into its role in promoting sustainability. Moreover, examining innovative uses of the palm oil by-products and their potential to mitigate environmental impacts could contribute significantly to sustainable production practices. Finally, evaluating the effectiveness of ongoing policies related to deforestation and land use, alongside stakeholder perspectives, would deepen the understanding of how to balance economic growth with environmental stewardship in Malaysian palm oil sector.

Keywords:

challenges

global economy

Malaysian response

palm oil

This is an open access article under the CC BY-SA license.

INTRODUCTION

Palm oil has risen as a global strategic commodity, but it faced many challenges in some years ago. Malaysia and other Southeast Asian countries developed their industries accordingly, and Malaysia was a top palm oil leading exporter in 1966. In 1971 Malaysia was a second producer after Nigeria. While in 2008, it was ranked the largest global exporter. The palm oil sector rose as the main source of income in Malaysia, which generates revenue, promotes economic development and alleviates poverty (Ismail, 2013).

Malaysia achieved a significant economic development based on Mahathir foreign policy from 1981 to 2003. It gained global recognition due to certain changes on its economic contributing factors. This made Malaysia more economic sound and prominent than before Mahathir period (Anthony et al., 2019). Oil palm tree is originally from West Africa brought to Malaysia in the late 19th centuries. In Africa, palm oil from the fruit of oil palm is used for food cooking traditionally. Therefore, palm oil substituted animal fats in many products (Hairi et al., 2023; Phuah et al., 2022; Sulaiman et al., 2022). Palm oil is healthy for human body; it has more advantages than soybean oil. It occupies only one-tenth size of land, one-seventh size of fertilizer, one fourteenth content of pesticides and one-sixth of the energy for producing the same oil quantity. Consequently, palm oil is cheaper than other vegetable oils. Additionally, palm oil resists oxidation, this made it appropriate to be fried (Russell, 2018).

Palm oil flooded into the global markets of edible oils and faced a great opposition due to its importance. The production of oil palm per hectare yields more oil than soybeans if compared. As a result of this yield from oil palm production over soybeans, there was an anxiety in 1970s among the many parties of the American government such as Congressmen, USDA and FDA concerning the export growth of palm oil into the United

States, and its flooding into global edible oil market with possible competition. The congressmen asked the states that produce soybeans to impose import duties, quotas and tag on palm oil as protectionism for soybean manufacturers (Bissonnette & De Koninck, 2015).

Deforestation comprised of 1.4 million ha in Malaysia and 3.1 million ha in Indonesia. The European Parliament resolved that, palm oil must be sustainable before importing into Europe. RSPO is a non-profit organization for palm oil certification globally. Governments from the eight EU member countries insisted to buy certified and sustainable palm oil (European Union, 2018). Furthermore, the half of the EU imports of palm oil in 2014 was almost utilized for bio-diesel. The tendency was criticized for being constant. There should be a new policy by 2018 to save 50% of greenhouse gas. The bio-fuel funding procedures would end in 2020, and only fully certified import of palm oil should be permitted. In 2017, the EU parliament resolution clearly identified the assurance of formation of the EU certified sustainable palm oil by 2020 (European Commission, 2016).

Environmental groups have severally blamed the SPOM that, they failed to prevent deforestations and to define the meaning of HCS areas with numerous excuses in their principles (Butler, 2014). The pressure from public on NGOs through media was positive, then to force the palm oil industries to create active and transparent policies (Butler, 2014). To increase palm oil consumption in global market, there is a need to enhance the cooperation between both Western countries and palm oil producing countries, and create a council for palm oil producing countries. They were two diplomats appointed by Malaysia to cooperate between palm oil producer countries and western world (Mathiesen, 2015).

Covid-19 is a pandemic which out-broke in December 2019 in China and spread globally. It detrimentally impacted on every angle of human health as well as daily life (Nicola et al., 2020). Malaysia has been placed under second MCO for a good one month in the April 2020. Only ten services which are essential were given operation permission and their employees and working hours were limited (Department of Statistics: Federal Government Administrative Centre, 2020). Covid-19 forced Malaysia government to impose MCOs, this impacted on the whole angles of businesses and negatively affected social and economic activities. The government took proactive policies to contain the virus spread, and to maintain the people livelihood as well as recovering the economy (Department of Statistics: Federal Government Administrative Centre, 2020). This research bridges the gap by exploring the challenges raised by the western countries on the global economy of palm oil, and how Malaysia responds to these challenges as well as the recent trend of Covid-19 pandemic.

The purpose of this paper is to explore the Malaysian response on the challenges raised by western countries on the global economy of palm oil, and the trend of Covid-19 pandemic. This paper contributes to the understanding of Malaysia's position and response to the challenges posed by Western countries regarding the global palm oil economy, particularly in the context of the Covid-19 pandemic. By examining Malaysia's strategies and adaptations in response to external pressures, the research provides valuable insights into the complexities of international trade and environmental concerns surrounding palm oil production. Additionally, the study highlights how the pandemic has influenced market dynamics and policy responses, offering a comprehensive view of the interplay between global economic challenges and national agricultural practices. This exploration not only enriches the discourse on palm oil sustainability and trade but also informs policymakers and stakeholders about the emerging trends and necessary adjustments in a rapidly changing global context.

METHOD

This study employs a qualitative exploratory design to collect and analyze data, focusing on the nature of the research topic. Qualitative document analysis is utilized to interpret the data and draw meaningful conclusions. The research incorporates both primary and secondary data, with primary data gathered through semi-structured, open-ended interviews conducted face-to-face, involving three carefully selected participants from Malaysia to ensure diverse perspectives. A purposive sampling approach was used to identify these participants.

Inductive thematic analysis is applied to the interview data, which is coded, edited, and entered promptly after collection. The analysis is based on the participants' insights, with critical interpretation by the researcher. Atlas.ti software is employed to efficiently manage, organize, and code the qualitative data throughout the research process.

RESULTS AND DISCUSSION

The Global Economy of Palm Oil

Oil palm offers top vegetable oils produced globally, palm oil provides for one-quarter of universal consumption, and almost 60% of global trade in vegetable oils. The oil removed from these palms is used in making numerous common products globally such as detergents, cosmetics, margarine, sweets and baked

goods (World Bank, 2010). Oil palm provides two types of oils namely, crude palm oil (CPO) which is extracted from the fibrous mesocarp, the second one is crude palm kernel oil (CPKO) which is produced from the palm kernel. These oils differed based on their nutritional content and chemical composition. Palm oil has a balanced ratio of saturated and unsaturated fatty acids while palm kernel oil has mainly saturated fatty acids (Malaysian Productivity Corporation, 2014).

In the world, palm oil is the most significant vegetable oil, and far better more profit than other vegetable oils. Oil palm trees were planted from 145 to 160 per hectare in Malaysia. If compared with other vegetable oils, each hectare of oil palm tree could provide 3.9 tonnes of crude palm oil and 0.5 tonnes of palm kernel oil every year. One hectare of soyabean provides 0.52 tonnes each year, one hectare of sunflower provides 0.86 tonnes each year, and one hectare of rapeseed provides 1.33 tonnes each year (Palm Oil Research, 2014). Palm oil has numerous nutritious standards better than other vegetable oils. Oils and fats are important for achieving and keeping good health for human body. Fat became obligatory for food digestion and absorption. Fruit pulp comprises 40% unsaturated, 50% saturated fats and 10% polyunsaturated fatty acids. Palm oil is cooked in food and hardly contained any polyunsaturated fatty acid residues to be converted into the unfavorable trans-fatty acid radicals upon heating. This made palm oil healthy and favourite oil exactly for deep frying (Malaysia-German Chamber of Commerce and Industry (MGCC), 2017).

Certification of Palm Oil

The World-Wide Fund for Nature (WWF) tries to make sure that, palm oil is certified in accordance to Roundtable on Sustainable Palm Oil (RSPO) guidelines. These RSPO guidelines were presented to numerous shareholders such as farmers, processors, consumer goods manufacturers, suppliers, retailers, NGOs, banks and investors. RSPO applied its guidelines for sustainable palm oil business to curtail environmental challenges on oil palm production. RSPO is an organization which is based on non-profit, RSPO members and their industries are to be operating according to the guidelines. The criticisms have in recent times headed to the formation of other certification which included Indonesian Sustainable Palm Oil (ISPO) in 2011 and Malaysian Sustainable Palm Oil (MSPO) in 2015 by the Indonesian and Malaysian governments. These new and recent announced ISPO and MSPO were centered under the national legislation and regulatory structures. This included the principles of RSPO and intended to include 40% of smallholders into the certification scheme by supporting the standard of agricultural production (Malaysia-German Chamber of Commerce and Industry (MGCC), 2017).

The Challenges on the Global Economy of Palm Oil

The vegetable oil industry representatives and farmers in the US, indicated the effect of palm oil importing into the United States. These representatives and farmers begged the government to politically put pressure on palm oil and limit its import into the US (Department of State to Kuala Lumpur, 1977). The shareholders together with activist groups and personalities initiated their movement and campaign against palm oil in the 1980s. This movement fought against tropical oils and got support from scholars, government scientists, agriculturalists and soybeans suppliers. Most of them were in support of commercial expansion of soybean oil (Schleifer, 2012). This group launched another campaign nationally against saturated fats in 1984. The campaign included tropical oils and animal fats, in its book published in 1986 called Fast Food Guide, it attacked the American fast food restaurants for using palm oil (Jacobson & Fritschner, 1986).

This campaign from American Soybeans Association started in 1970 and criticized palm oil. This association began its campaign in the main newspapers, and publicized against food producing companies which use palm oil. The advertisement influenced the companies to substitute with soybean oil. However, the palm oil imports to the US in 1986 declined significantly from 288,000 tonnes to 185,000 tonnes in 1987. It diminished again in 1988 to 142,000 tonnes correspondingly (Malaysian Official Report, 1989).

Palm oil faced a serious challenge from NGOs campaign in Europe and the US against it on social media and in newspapers, and giving it a negative repute. The NGOs launched a campaign against food producers in March 2010 for using uncertified palm oil which contributes to loss of habitat for orangutans and deforestation (Mathiesen, 2015). Another criticism started for necessary palm oil certification before importing it to Europe (European Commission, 2016). The EU politicians supported the campaigns against palm oil which increased public debates and deteriorated the repute of palm oil (Mathiesen, 2015).

European Union law asked food producers to clearly identify palm oil with a sticker not a vegetable oil since 2014. In 2016, French government tried to impose a tax on importing palm oil called Nutella. The main challenge is palm oil usage for bio-fuel production (European Union, 2018). Previously, many campaigns have criticized the palm oil repute in public. In the US and Europe, palm oil was linked it with burning of forest, brutality to animals, deforestation and human rights violation. This negative link, led numerous companies replaced it which caused diminishing in palm oil (IBS Center for Management Research, 2011).

There have been numerous reports on rural inhabitants and native tribes were illegally resettled or displaced for plantations of oil palm expanding. Moreover, there is challenge on labour exhausting in the

working condition of oil palm plantations. In the plantations, dangerous and toxic snakes and insects could easily be found on the oil palm tree. The harvest of FFB used to be manually without machines use. The workers' health could easily be harmed by extensive use of fertilizer and pesticides. It was challenged that, many workers don't have a fixed contract for the employment, no social security, the working condition is very harsh, and the social standard is violated (Knoke & Inkermann, 2015). Deforestation endangered orangutan, Sumatran tiger, small animals and other bio-diversity were threatened. This negative impact is worsened and one third of plantation in Malaysia is located in peaty soils and waterlogged. Fires from forest lead to global warming like the persistent calamity on environment in Indonesia (European Union, 2018).

The Covid-19 pandemic enormously impacted on every country's aspect of economic and social activities. It forced almost each country to restrict movement in form of lockdown, and to impose quarantine for containing the virus spread. This affected global businesses, it restricted human mobility, it disrupted production, supply chain, consumption and investment. This led to economic decline (Department of Statistics: Federal Government Administrative Centre, 2020). The Covid-19 pandemic impacted on the global economy of palm oil by decreasing the global demand, disrupting the trade, restricting labour mobility and declined production. Palm oil production in Malaysia is affected (Reuters, 2020). FGV in Malaysia stated that, there would be a decline in its production in this year due to movement control order (MCO) imposed on 18 March 2020 to fight Covid-19 (Chu, 2020).

Malaysia Response

Malaysian Campaign against the Propaganda on Palm Oil

Malaysia initiated a campaign in support of palm oil, and against the misinformation given to people in the US on palm oil. This campaign was to gain the minds of entire public in the US about the importance of palm oil to human health, rather than the previous misinformation by interest groups, personalities and associations of soybean manufacturers. Writings and debate on palm oil miracle started between the US and Malaysia during the oil wars. In Malaysia, numerous institutions of palm oil publicized in American mainstream newspapers on the palm oil miracle, and they struggled to influence the general public in the US, and they replied against the propaganda imposed on palm oil. Certainly, the trade continued to be an essential alarm between the two countries (Schleifer, 2012).

The officials from the US Embassy in Malaysia responded on the effort done by Malaysia and they disclosed palm oil significance in Malaysia economy. The Department of State responded and guaranteed the government of Malaysia that, congress would not implement the bills advised by Mathis (Malaysia Concern in US Position on Palm Oil, 1977). Three ambassadors from Malaysia, Indonesia and the Philippines depended tropical oils and publicized in Washington Post (Soedarman et al., 1987). The Malaysian representatives departed to the US for two weeks to depend palm oil. Government of Malaysia appointed different scientists and private sectors to conduct research on palm oil, and to confirm that fatty acid in palm oil is insignificant to cause cholesterol. Unlike soy oil which causes bad cholesterol and health dangers (Malaysian Palm Oil Board, 2017).

Malaysian Palm Oil Institutions and council of palm oil producer companies

The Director General of PORIM Dr. Augustine Ong led team of experts in Malaysia in 1987 to the US, and they discussed about the fear on health disease related to palm oil (Ong, 1987). The team opposed the bills imposed on tropical oils by the congress. The team asked the US researchers to conduct more researches on palm oil (Crossettes, 1987). In 1978, the government of Malaysia established the Malaysian Palm Oil Growers' Council (MPOGC) and PORIM. There were founded to limit and respond to the challenges, and negative campaign on palm oil from NGOs and interest groups in the US. In 1990, the Malaysia government established Malaysian Palm Oil Promotion Council (MPOPC) for supporting industries and advertising palm oil in markets globally. This MPOPC was funded with ten million USD to respond to damages made on palm oil, and to advertise in the US main newspapers which included Los Angeles Times, Wall Street Journal and New York Times. The amount of USD205,000.69 was spent on the first advertisements. PORLA hired Knowlton and Hill for campaigning in support of palm oil. These agencies were the best public relation companies in the US. The contract was signed for one year which reached the amount USD300,000.70. Parliament in Malaysia discussed the issue for three sessions (Schleifer, 2012).

In 2015, Indonesia and Malaysia established the council of palm oil for responding against the western challenges. It is an international body whereby the palm oil consumer companies signed an agreement of no deforestation with the suppliers. This is to make palm oil more acceptable, more competitive and to give chance for smallholders to grow and compete with big plantations. The governments supported smallholders with fund, good planting materials and fertilizers. The move was against the western challenges and NGOs negative campaign on palm oil. This council could really benefit smallholders to grow without deforestation (Mongabay, 2016).

The Sustainable palm oil manifesto

Europe was recorded as the Malaysian leading market for exporting crude palm oil. Europe was recognized as the imperative target. The Malaysian Minister of plantation in recent times stated that, 'Europe is trendsetter', and 'we want sustainable palm oil' this serves as the final solution to the challenges on palm oil. In history, the best essential trade partner on palm oil in southeast Asia is the EU. The palm oil trade began when the Frenchman precisely hundred years ago, imported oil palm seeds to Malaysia. Meanwhile, Europe became a prominent continent in terms of partnership, not only in palm oil import from Malaysia, but a leader in conducting research with advance technology, then recently it needs to certify palm oil for sustainable development. Currently, the EU remained as one of the largest market to import palm oil from Malaysia (European Commission, 2016).

However, the palm oil companies were pressurized to respond, and some of these major palm oil companies met collectively in 2014, and they created principles for certifying their own sustainable palm oil. This certification was titled the Sustainable Palm Oil Manifesto (SPOM) (Butler, 2014). The transnational corporations comprised of IOI Corporation, Sime Darby, Wilmar, Musim Mas, Asian Agri, and Kuala Lumpur Kepong (Pirard et al., 2015). The goal of SPOM was to observe the principles that the RSPO established on chain of supply through transparency. This is to confirm that, the areas with high carbon stock (HCS) were not cleared for the expansion of oil palm plantation, to certify social impression positively and achieve economic development (Carbon Stock Study, 2016). The companies financed research and study schemes to define the meaning of high carbon stock (HCS) in forests as well as its expansion (Carbon Stock Study, 2016; Pirard et al., 2015).

Malaysia Response on Covid-19 Challenge on Palm Oil

The Covid-19 pandemic significantly affected the entire economic and social activities as well as human health care system. As a result of these challenges, Malaysia government responded with certain formulated policies in form of phases which were implemented as first Movement Control Order (MCO) from 18th March 2020 to 3rd May 2020. On 25th March 2020, the second MCO has been extended by two weeks, until 14th April 2020. The third MCO has been extended to 28th April 2020. On 23rd April 2020, the fourth MCO was again extended to 12th May 2020. Then government proposed Conditional Control Order (CMCO) to relax the lockdown and allow some businesses to be opened on 4th May 2020 and it gave an announcement on 1st May 2020. The Prime Minister gave an announcement on CMCO extension for additional four weeks until 9th June 2020. He gave another announcement on 7th June 2020 for new phase of Recovery Movement Control Order (RMCO) to start on 10th June 2020 and to end on 31st August 2020. Under the RMCO, travelling from one state to another in form of interstate was allowed starting from 10th June 2020, but excluding the remaining zones which were placed under Enhanced Movement Control Order (EMCO). Under this RMCO, the restrictions were relaxed to the economy and other economic and social activities, whereby businesses were permitted to operate with strict Standard Operating Procedures (SOPs) (Department of Statistics: Federal Government Administrative Centre, 2020).

Findings from Interview

This research paper used semi-structured interview to explore how Malaysia responds to the challenges facing the global economy of palm oil. There are three participants, their ages from forty years to fifty years, and all are educated professionals. The first participant is Master's degree holder and Deputy Director-General Services, Malaysian Palm Oil Board (MPOB), Ministry of Primary Industry. The second is a Master's holder and Director, PROFES LIPID SDN BHD, Malaysia. And the third participant is a PhD holder and lecturer from Universiti Sultan Zainal Abidin, Terengganu, Malaysia. This is selected based on the participants' knowledge and will of participating in this research paper.

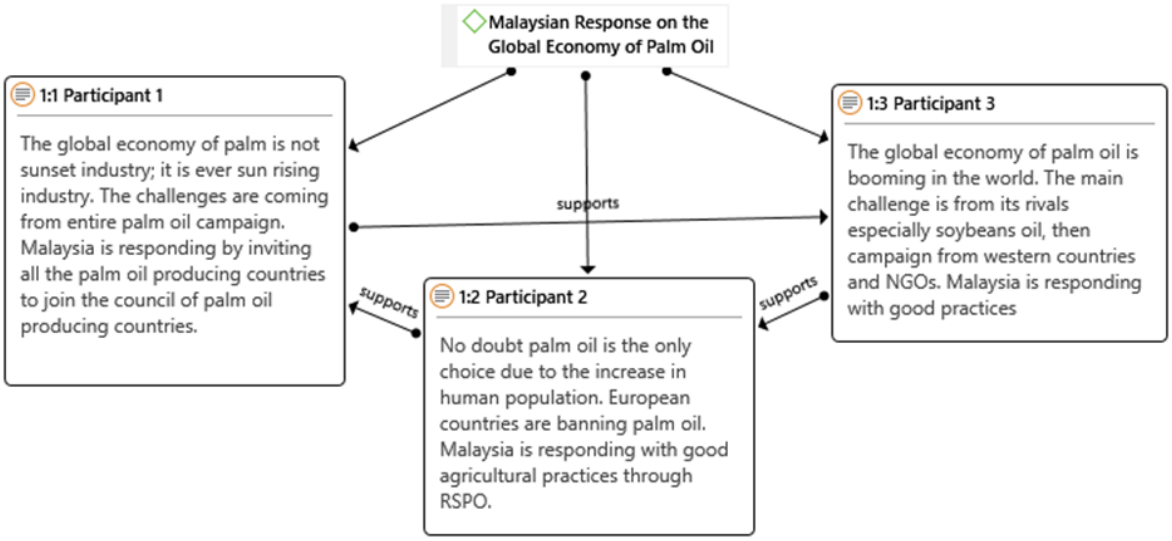


Figure 1. The Malaysian Response on the Global Economy of Palm Oil

In the figure 1 above, the participant one defined, the palm oil global economy as ever sun rising industry, not a sunset industry. The challenge comes from campaign against palm oil. Malaysia is responding by inviting the palm oil producer countries to join the council of palm oil producing countries, this could serve as a strategy to respond to the challenges. The participant two highlighted that, the human population is increasing globally, and palm oil is the only solution. European countries are banning palm oil, but Malaysia responds with good agricultural practice through RSPO. And the participant three discussed that, the global economy of palm oil is booming in the world, but the main challenge is from palm oil rivals especially soya beans, then campaign from western countries and NGOs. Malaysia responds with good practices. All the three participants agreed that, Malaysia is responding to the global economy of palm oil with good agricultural practices and through RSPO and council of palm oil producing countries.

CONCLUSION

This study examines the global economy of palm oil, including certification schemes such as the Malaysian Sustainable Palm Oil (MSPO), while addressing challenges posed by Western countries and Malaysia's responses to these challenges. It highlights Malaysia's commitment to good agricultural practices, especially in light of Covid-19's impact on labor and production. The paper emphasizes the need for continued focus on sustainability, reducing deforestation, protecting ecosystems, and effectively utilizing palm oil by-products to mitigate environmental challenges. Recommendations for future research include exploring the long-term effects of sustainable practices on economic resilience, assessing the MSPO's impact on market access, investigating the socio-economic implications of Covid-19, and conducting comparative studies with other palm oil-producing nations to identify best practices. Additionally, examining innovative uses of by-products and evaluating policies aimed at balancing economic growth with environmental protection would further enhance understanding in this sector.

REFERENCES

Anthony, R., Altala, N., Ramlah, W. S., & Jaffri, W. A. A. (2019). The Mahathir Influence and the Changing Phases of Malaysia-Syria Diplomatic Relations. *Journal of International Studies(Malaysia), 15*. https://doi.org/10.32890/jis2019.15.3

Bissonnette, J.-F., & De Koninck, R. (2015). Large plantations versus smallholdings in Southeast Asia: historical and contemporary trends. *Conference on Land Grabbing, Conflict and Agrarian-Environmental Transformations: Perspective from East and Southeast Asia*.

Butler, R. A. (2014). *New palm oil sustainability manifesto met with criticism from environmentalists*. Mongabay.

Carbon Stock Study. (2016). *About the sustainable palm oil manifesto*. Carbon Stock Study.

Chu, M. M. (2020). *FGV warns its palm oil output will drop due to COVID-19 control order*.

Crossettes, B. (1987). Malaysia Opposes Labels on Palm Oil: Dispute Over Cholesterol. *New York Times*.

Department of State to Kuala Lumpur. (1977). *Malaysia Concern in US Position on Palm Oil*.

Department of Statistics: Federal Government Administrative Centre. (2020). *Malaysian Economic Statistics Review*.

European Commission. (2016). *Study on the environmental impact of palm oil consumption and on existing sustainability standards*.

European Union. (2018). *The documents that help shape new EU legislation*. European Union.

Hairi, A., Najwa, A., Taufik, A. M., Abidin, Z., & Sarah, S. A. (2023). Product innovation: palm oil fat in plant-based meat. In *Innovation of Food Products in Halal Supply Chain Worldwide*. Elsevier. https://doi.org/10.1016/B978-0-323-91662-2.00013-2

IBS Center for Management Research. (2011). *Greenpeace, Nestlé and the Palm Oil Controversy: Social Media Driving Change?* IBS Center for Management Research.

Ismail, A. (2013). The Effect of Labour Shortage in the Supply and Demand of Palm Oil in Malaysia. *Oil Palm Industry Economic Journal*, *13*(2).

Jacobson, M. F., & Fritschner, S. (1986). *The Fast-Food Guide*. Workman Publishing.

Knoke, I., & Inkermann, H. (2015). *Palmöl – der perfekte Rohstoff? Eine Industrie mit verheerenden Folgen*. Südwind Institut.

Malaysia-German Chamber of Commerce and Industry (MGCC). (2017). *Palm Oil: Awareness and Sustainability; A Global Perspective*.

Malaysian Official Report. (1989). *Parliamentary Debates (Senate)*.

Malaysian Palm Oil Board. (2017). *Overview of the Malaysian Oil Palm Industry 2017*.

Malaysian Productivity Corporation. (2014). *Malaysian Productivity Corporation Report*.

Mathiesen, K. (2015). *You're really spoiling us: Has Ferrero been wrongly accused over Nutella?* The Guardian.

Mongabay. (2016). *Aircraft fight Sumatran fires as Indonesian minister looks to counter no-deforestation pledges*. Mongabay.

Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C., Agha, M., & Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery*, *78*. https://doi.org/10.1016/j.ijsu.2020.04.018

Ong, A. S. H. (1987). Argument against the misleading information on palm oil and for fair and non-discriminatory legislation against palm oil. *Washington Post*.

Palm Oil Research. (2014). *Statistics*. Palm Oil Research.

Phuah, E. T., Yap, J. W. L., Lau, C. W., Lee, Y. Y., & Tang, T. K. (2022). Vegetable Oils and Animal Fats: Sources, Properties and Recovery. In *Recent Advances in Edible Fats and Oils Technology: Processing, Health Implications, Economic and Environmental Impact*. Springer. https://doi.org/10.1007/978-981-16-5113-7_1

Pirard, R., Fishman, A., Gnych, S., Obidzinski, K., & Pacheco, P. (2015). *Understanding 'deforestation-free': An application to Indonesia to inform TFD's April-May 2015 dialogue*.

Reuters. (2020). *Impacts of coronavirus epidemic on efforts to expand sustainable palm oil market*. Reuters.

Russell, M. (2018). Palm Oil: Economic And Environmental Impacts. *European Parliament Research Service*, *February*.

Schleifer, D. (2012). The perfect solution: How trans fats became the healthy replacement for saturated fats. *Technology and Culture*, *53*(1). https://doi.org/10.1353/tech.2012.0018

Soedarman, S., Talalla, A., & Pelaez, E. (1987). Why Label Only the Tropical Oils. *Washington Post*.

Sulaiman, N. S., Sintang, M. D., Mantihal, S., Zaini, H. M., Munsu, E., Mamat, H., Kanagaratnam, S., Jahurul, M. H. A., & Pindi, W. (2022). Balancing functional and health benefits of food products formulated with palm oil as oil sources. In *Heliyon* (Vol. 8, Issue 10). https://doi.org/10.1016/j.heliyon.2022.e11041

World Bank. (2010). *World Development Report 2010: Development and Climate Change*.