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The implications of EU palm oil regulations to Malaysian palm oil exporting and its economic consequences

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The implications of EU palm oil regulations to Malaysian palm oil exporting and its economic consequences		
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<p>Abstract</p> <p>As awareness of climate change has globally increased, palm oil's affiliation with environmental issues has been a topic under consideration. In 2018, The European Union declared regulations to phase out the use of palm oil in biofuels 2020 onwards and ban palm oil in the industry by 2030. This thesis concentrates on Malaysian palm oil exports to EU, and how the EU regulations effect on Malaysian economy. The aim is to define the scope of the implications and furthermore propose functions to diminish economic disadvantages of the EU palm oil restrictions. The topic of the thesis was devised during the author's exchange studies in Malaysia.</p> <p>The writing process of the thesis required thorough familiarization with palm oil consumption, climate issues, EU legislation and Malaysian economy. Fundamental information about the topic was applied from literature, yet majority of the data was researched from legitimate web sources including official government agencies, environmental non-governmental organizations and online news articles to ensure the exploitation of recent information. To obtain impartial results, global deviation of the acquired sources was essential. The research method was mostly qualitative, but the data required to calculate the implications was quantitative.</p> <p>The outcome was calculated by taking Malaysian palm oil's export value and end use into consideration by comparing the results with Malaysian GDP. The result indicated that the loss of EU as a palm oil customer in biofuel industry depreciated Malaysian GDP annually by 1-1,6 per mill directly, which equals to 4 billion US dollars by 2030. However, EU is in a transition phase, which complicates the short-term estimation as well as there are several other variables effecting the results, and other aspects besides the countable amount of money must be included in the discussion.</p> <p>Palm oil is ubiquitous, inexpensive and versatile product, and thus challenging to replace. Nonetheless, it can be concluded, that to minimize the implications of EU palm oil regulations, Malaysia should actively search for alternative domestic substitutes for palm oil. The result also emphasizes the importance of certified sustainable palm oil and close monitoring of producers in order to keep entering EU markets.</p>		
Malaysia, exporting, palm oil, European Union, legislation, economic, international trade, climate change		

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1 INTRODUCTION

Over the years, palm oil has obtained a very controversial reputation. Palm oil production has caused deforestation, biodiversity loss and accelerated climate change, but palm oil still maintains its position as the most widely used vegetable oil worldwide. Nowadays, most of the palm oil is produced in South-East Asia and from there, distributed to all around the world.

Malaysia is the second biggest palm oil producer and exporter. According to Malaysian Palm Oil Counseling, in 2019 Malaysia exported approximately two million tons of palm oil to EU. The thesis discusses palm oil production in Malaysia and palm oil exports to EU, which has imposed restrictions on palm oil imports. The thesis discusses issues related to palm oil production, which led to elaboration of the regulations for importing palm oil established by European commission in 2018. The regulations comprise a reduction of the use of palm oil-based biofuels to reach the climate targets.

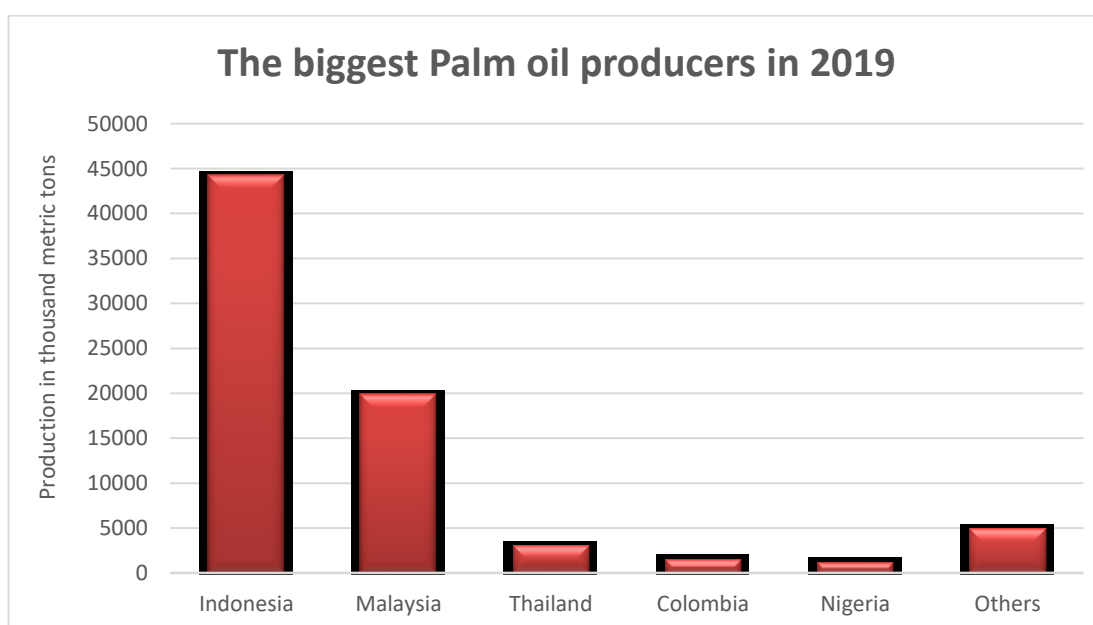


Figure 1. The biggest palm oil producers in the world. (Website of Oil World 2020; Edited by the author of the thesis)

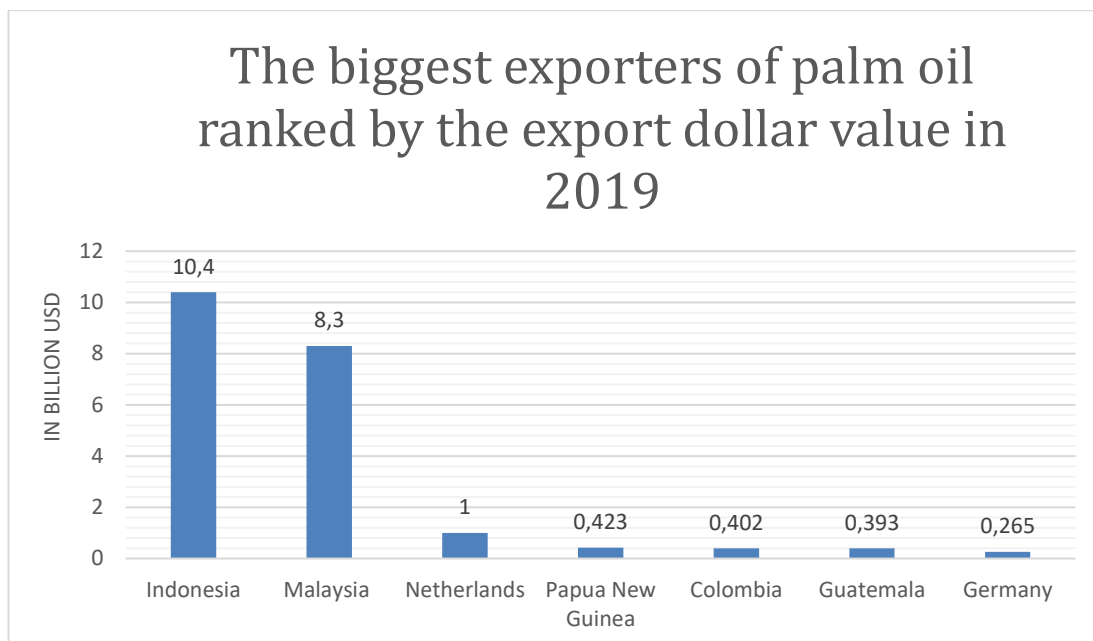


Figure 2. The biggest palm oil exporters in the world. (Website of world's top exports 2020; edited by the author of the thesis)

In the beginning of the decade, Malaysia was the global leader in exporting, but Indonesia has managed to bypass Malaysia's exporting towards the end of the decade. Nevertheless, Palm oil maintains its position as a vital commodity for Malaysia. (Website of Palm Oil World, 2011)

The choice of the topic is based on my exchange experience in Malaysia in autumn 2019. In the beginning of the exchange semester, the air quality suddenly dropped to dangerous levels and local news actively reported forest fires to cause the toxic air. Two weeks upon the arrival to Malaysia, a major part of South-East Asia was covered with thick smoke, which locals called "the haze". Schools in Malaysia, Thailand, Singapore and Indonesia had to shut down due to the haze, and authorities exhorted population to stay indoors and wear face masks. As locals disclosed, the haze occurs annually, when Indonesian and Malaysian farmers burn forests to pioneer more land to harvest palm oil. However, they also experienced, that the situation in 2019 was worse than ever before, due the delayed rain season. The haze made the population sick by causing headache, nausea, cough, nosebleed, pain in people's eyes and throat, but the long-term implications of the haze concern the population the most.

2 PROBLEM SETTING AND CONCEPTUAL FRAME OF REFERENCE

2.1 Research problem and research objectives

Even though the environmental side of palm oil production inspired the choice of the thesis topic, the thesis concentrates on the economic aspects of palm oil. The primary stress of the research is on the implications of the EU regulations to Malaysia, by focusing on the potential financial consequences. The thesis culminates to improvement suggestions and prospective alternatives to minimize Malaysia's economic risk due to collapsed export to EU.

In the beginning of the thesis, it is essential to set the research problem. Research problem defines the extent of the thesis and the thesis aims to answer the following question: what is the scope of the economic loss of EU palm oil regulations for Malaysian economy? In order to answer the research problem, the thesis seeks to answer following research questions:

1. What are the reasons for EU's palm oil regulations?
2. How much do the regulations effect on palm oil importing to EU from Malaysia?
3. What is the impact of the EU regulations to Malaysia?
4. How can Malaysia prevent and minimize the economic risk of EU regulations?

The thesis increases the awareness of the issues attached to palm oil production and its effect on economy, by using Malaysia and EU as an example and indicates how economy and trading must develop constantly to respond to the growing demand for actions against climate change. On a large scale, the thesis expands an overall understanding about world trade and how current state of the world correlates with the trade.

The topic is extremely current due to increased global concern about climate change and the modernity of the topic is supported by noteworthy amount of recent online sources, which will be considered in the thesis. The thesis is implemented by exploiting multiple sources from different perspectives, to achieve realistic and comprehensive view of the topic. The calculations of the extent of the approximate economic consequences are based on several sources.

2.2 Boundaries of the thesis

Palm oil is widely consumed all around the world and related to countless organizations and products, which is why it is vital to determine the scope of the thesis to prevent the thesis to become too wide. Even though several claims regarding palm oil in the thesis are applicable globally, the thesis emphasizes palm oil production in Malaysia and consumption in EU. Palm oil and the production are presented by touching on the ethical and environmental issues as well as health effects of palm oil to provide overall understanding of the topic, but economic aspect will remain as the main theme of the thesis. Palm oil pressing process is completely excluded. The thesis also focuses on recent years and on the future, rather than on the history of palm oil. Palm oil boycotts are increasingly popular among consumers. People are increasingly concerned about climate change, which has evoked individuals to avoid palm oil in their everyday lives and choose palm oil free options in grocery stores and organizations are increasingly attempting to meet the demand. However, the thesis focuses on the palm oil ban on national level and does not concentrate on individuals. Consumption of palm oil in other industries, such as food- and cosmetic industries, are mainly left out from the thesis.

2.3 Conceptual frame of reference

Conceptual framework is a tool, which is used in research to analyze concepts, key elements and their relationships in order to obtain and interpret research results. (Adams 2007, 55) To demonstrate the factors and concepts which lead to the research results and the relationship between the factors, the thesis is analyzed and structured as follows:

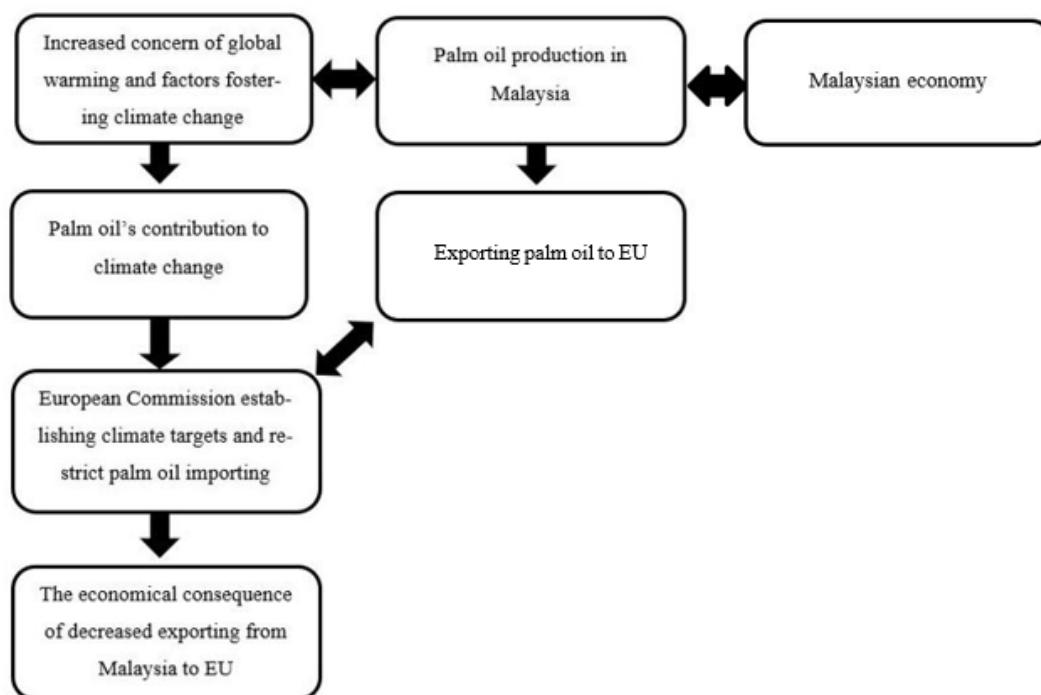


Figure 3. Conceptual framework of the thesis. (Author of the thesis 2020)

3 PALM OIL

Oil palm was discovered 5000 years ago in western Africa (Website of The Oil Palm 2014). Nowadays, the African oil palm, *Elaeis guineensis*, yields the third of all the edible fats and oils in the world (Isomäki 2011, 6). The first evidence of palm oil was found from Egyptian tombs, which proves that palm oil could be one of the oldest traded merchandises. 3000 B.C, Palm oil was used in embalming process as well as making candles and lubricants. As a versatile product, palm oil rapidly begun a momentous voyage. Europeans' high demand on palm oil accelerated palm oil's overseas trade, which led to African oil palm crop exporting to South-East Asia, where the soil and climate were favourable. In Malaysia, the first oil palm plantation for commercial purposes was discovered in 1917. (Website of The Oil Palm, 2014)

3.1 Palm oil usage

Every year, people consume 50 billion litres of Palm oil from *Elaeis guineensis* palm trees (Isomäki, 2011, 6). Approximately half of products in grocery stores contain palm oil, which makes palm oil the most used vegetable oil in the world (Website of Greenpalm; Website of World Wildlife). Palm oil's wide consumption is partly based on its versatility, since palm oil is used in different industries. Food and animal food industry play the greatest role in palm oil consumption worldwide, but palm oil is also widely used in cosmetic-, biofuel-, energy- and pharmaceutical industries (Website of Greenpalm; Website of the rainforest rescue).

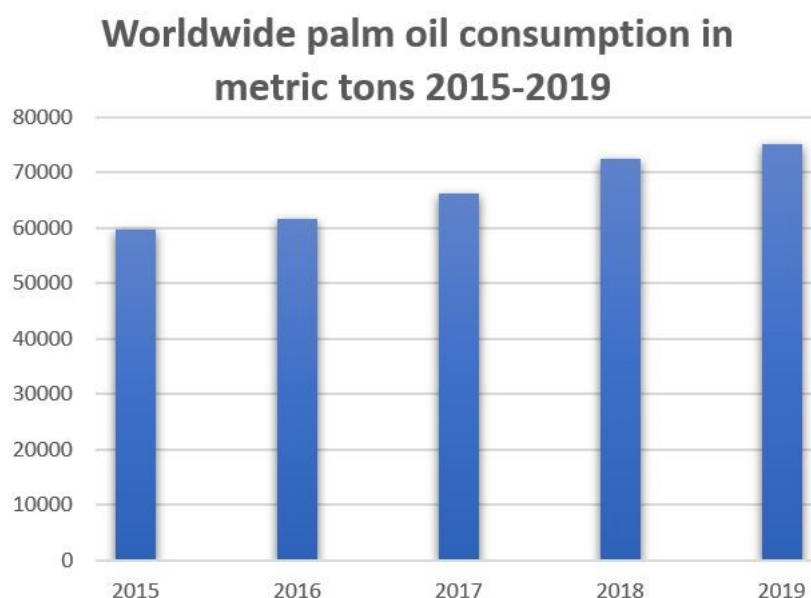


Figure 4. Worldwide palm oil consumption. (Website of Statista by Katharina Buchholz 2019, edited by the author of the thesis)

Palm oil's versatility is not the only reason why it is the most consumed vegetable oil in the world. Palm oil is ubiquitous and cheap compared to other vegetable oils (Floyd 2019). Palm oil can also easily be mixed with other oils, eases cooking and can improve the shelf life of certain products (Tullis 2019).

3.2 Palm oil consumption in EU

As indicated in the chapter 2.1, palm oil is annually consumed billions of liters worldwide, of which food industry takes the majority. However, palm oil consumption by industry is divided differently in EU. In EU, energy including biofuel and heat production, have the highest demand on palm oil. For instance, in 2017, 7,7 million tons of palm oil was consumed in EU in which 4,7 million tons were utilized in energy industry, including biofuel. Information regarding the amount of palm oil end use in EU differs between sources. In total, slightly under half of the palm oil imported to EU, is processed into biofuel. (Website of rainforest rescue) According to European Parliament, 45 % of palm oil imported to EU is used in biofuels (Website of Europarl 2018).

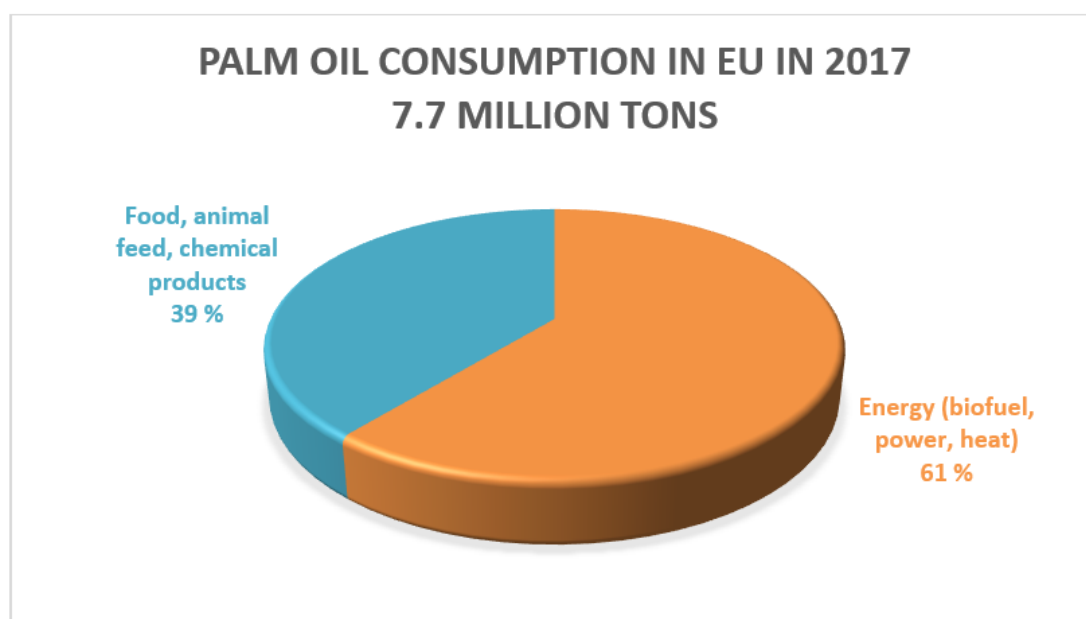


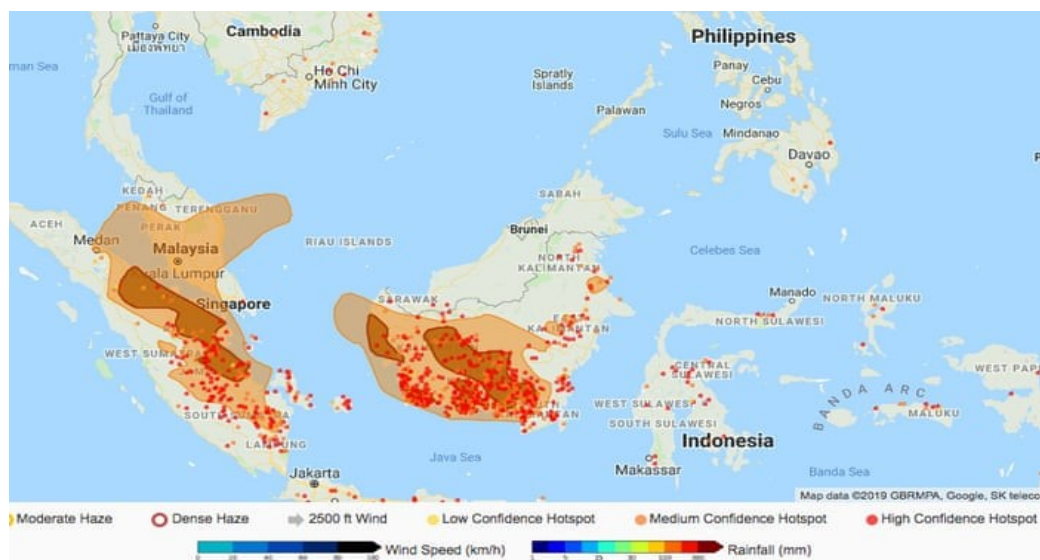
Figure 5. Palm oil consumption in EU. Website of rainforest rescue; edited by the author of the thesis

3.3 Palm oil issues

Despite the bounteous global use of palm oil, it has obtained quite questionable worldwide reputation. To provide a thorough information regarding the issues of palm oil, they will be divided into three categories: environmental-, ethical-, and health issues. Presenting palm oil issues aim to justify EU's decision to regulate palm oil imports.

3.3.1 Environmental issues

Since climate change is a massive concern everywhere in the world nowadays, palm oil's environmental impact has attracted a lot of attention among consumers. The cultivation process of oil palm causes air, soil and water pollution and fosters climate change. Burning is a well-known clearing method, which farmers employ to adapt soil propitious for oil palm plantations. Forest fires also cause a loss of habitat for certain species and has driven tigers, orangutans, elephants and rhinos to almost extinction in Sumatra, Malaysia. (Website of world wildlife) Millions of hectares of rain forest have been permanently destroyed in Indonesia and Malaysia and dangerous amount of carbon dioxide is emitted to nature every year (Isomäki 2011, 5, 51). Between 1990 and 2008, palm oil production was estimated to be the cause of 8% of world's deforestation. (Website of BBC)



Picture 1. Hotspot and Haze situation in South-East Asia in autumn 2019. The website of The Guardian.

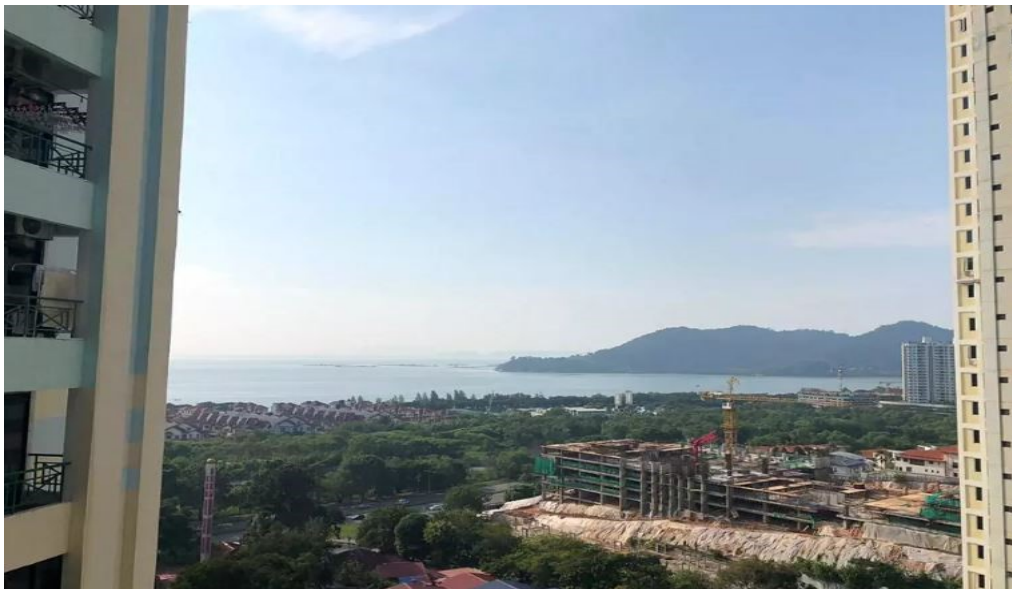
3.3.2 Ethical issues

Palm oil production has caused violent uprisings, since people have been illegally banished from their homes to turn villages to palm oil plantations and people, including children, have been forced to work on the plantations (Isomäki, 2011, 5). Major palm oil producers in South-East Asia, who pledged to commit to sustainability, have gotten

caught of encouraging social conflict and violating laws by land grabbing and constantly ignoring human rights (Vidal J, 2013).

3.3.3 Health issues

Clearing vegetation by burning forests cause sickness to people. Forest fires generates toxic haze which covers a big part of South-East Asia annually. The haze causes symptoms such as respiratory issues and skin irritation and promotes severe long-term diseases. The haze consists of microscopic particles including Sulphur-, and nitrogen dioxide and carbon monoxide, which have an ability to infiltrate deep into peoples' lungs. (Website of BBC 2019)



Picture 2. The view 1.9.2019 in Penang, Malaysia. Picture by the author.



Picture 3. The air quality 14.9.2019 in Penang, Malaysia. Picture by the author.

The haze and the health impacts of the unhealthy air quality are not the only dangerous consequences of palm oil. Studies show that palm oil is unhealthy product by causing cardiovascular diseases. (Isomäki 2011, 5) Palm oil is rich in palmitic acid, which is one of the least healthy fats due its tendency to promote the emerge cardiovascular diseases in humans. Cardiovascular diseases cause approximately 17 million deaths annually. (Isomäki 2011, 36, 37)

4 EU PALM OIL REGULATIONS

European commission has set a long-term strategy to decrease greenhouse emissions to become climate-neutral by 2050. Such act is also known as a “European green Deal”, which aligns with the Paris Agreement. The Paris Agreement is the first global climate change agreement, which was introduced in 2015. The agreement sets a global standard to avoid excessive climate warming and aims to limit the warming to 1.5 Celsius. It also strives to improve member states’ readiness to handle the consequences of climate change. The 2050 long-term strategy consists of several legislative and non-legislative initiatives. (Website of ec Europa)

4.1 Targets

2016 European Commission published a package of measures to maintain competitive in contributing the use of clean energy as a part of the long-term strategy. The EU Commission's goal is to be the global leader in the clean energy transition, instead of following global standards, which is why EU committed to reduce carbon dioxide emissions by 40 % by 2030 without impairing EU's economy and reducing jobs. The package of measure's main target is to prioritize energy efficiency and reach the position of global leader in renewable energies without mistreating consumers. As a part of the package, the Commission established "Clean energy for all Europeans"- legislative proposal, which presents actions to reduce dependency of imported energy and to accelerate the innovation in renewable energy industry. (The website of ec Europa)

In 2018 EU established an extensive update regarding the Clean energy for all Europeans-package. The update focuses on EU's transition further from fossil fuels to contribute the commitment to EU's Paris Agreement. The updates created in 2019 support the proposals published in 2016 and together they form eight legislative acts to reduce greenhouse gas emissions. By the year 2020, each member country had to show initiative to transpose to new directives. (Website of ec europa)

Buildings are the biggest singular cause of energy consumption and carbon dioxide emissions in EU. Buildings form 40% of the energy demand, and 36% of carbon dioxide emissions in EU come from them. Therefore, improving energy performance in buildings is one of the most important parts of the legislative. (Website of ec europa)

4.2 Palm oil's affiliation to EU 2050 long-term strategy

In a modern world, there is an inevitable demand for fuel. In fuel production, there are three options: producing fuel from unclean raw materials such as coal and peat, processing fuel via underground coal gasification, or producing biofuel. Two first options are found to cause enormous greenhouse gas emissions, which is against EU's strategy. (Isomäki 2011, 121)

Biofuel is contemporary fuel, which unlike fossil fuels, is produced from renewable biomass, such as wood, crops, garbage, landfill gas and alcohol fuels. One of the key ingredients of biofuel is vegetable oil, including palm oil (Website EIA 2018). 2018 Biofuel is most commonly used in transportation, but it is also widely used in energy and heat generation (Website of SGB biofuels). Finnish company Neste is the market leader in biofuel. Neste has produced more renewable jet fuel than all the global competitors in total. (Website of Neste) In order to produce biofuel, Neste Oil consumes hundreds of tons of palm oil annually and in the light of current knowledge, it is unclear, whether Neste is leading world to right direction (Isomäki 2011, 148). EU is the world's biggest biofuel producer and Organization for Economic Co-operation and Development (OECD) has estimated that even though EU will likely decrease the biofuel production, it is still expected to continue as the global leader in biofuels. (Website of OECD library 2020) EU's high biofuel production and usage explains the high demand of palm oil in energy sector.

Thus, there is a discrepancy in EU's long term-strategy. As a part of the strategy, EU wanted biofuel's share of all the transport fuels to grow to 10% by the year 2020, with a 33-65-billion-euro budget. As the knowledge of palm oil's negative impact increased, EU had to reform their strategy. Already In 2008, EU reported that studies indicate biofuel consumption at least as adverse as fossil fuels, since palm oil is biofuel's major ingredient and palm oil production releases massively carbon dioxide, causes soil and water pollution and deforestation. (Lukkari 2008) European commission has acknowledged the issues of biofuel and stated, that most of biofuels are unsustainable and thus against the renewable energy targets (Sauer 2019).

Due to the negative impacts of palm oil production, in 2018 European commission declared that by 2020 EU will stop supporting the use of palm oil in fuels and favor other ingredients in biofuels (Klepper 2018). By the year 2030, 32% of energy must come from renewable sources and palm oil will no longer be suitable raw material in biofuel (Website of Europarl, 2018).

4.3 Malaysian government's response

EU is Malaysia's third biggest customer in palm oil industry, which is why EU's palm oil ban has attracted a lot of attention in Malaysian media and caused concern among Malaysian farmers and Malaysian government has stated its dissatisfaction regarding the regulations. There are 650,000 palm oil smallholders in Malaysia and the palm oil ban caused a lot of devastation among the farmers, who are at risk to lose their source of livelihood. (Ellis-Petersen 2018)

Malaysian minister of primary industries Ms Teresa Kok accused EU of starting a trade war by banning palm oil. She initiated a counterproposal to fight back by sourcing trade items which Malaysia used to import from EU, from other countries. (Website of The Straits Times 2019) Ms Kok also indicated, that EU is also violating food business by sourcing palm oil free alternatives. She expressed, that EU is denigrating palm oil's reputation by its actions. (Website of The Straits Times 2019)

Malaysian Palm Oil Counseling (MPOC) published their official opinion regarding the ban. MPOC wished, that EU would operate without discrimination, base their allegations on science and quantifiable data and act within WTO standards. Additionally, MPOC stressed, that Malaysia has put a prominent effort to set targets for palm oil production to ensure the sustainability and hence from 1.1.2020 onwards, oblige palm oil farmers to be certified to work according to *Malaysian Sustainable Palm Oil* (MSPO) standard. (Website of MPOC 2020) Sustainable palm oil is presented in more detail in the chapter 5.1.

European media network EURACTIV reported on 2.7.2020 about Malaysia's intention to file a lawsuit at the World Trade organization over the EU regulations. Malaysian minister, Mohamed Khairuddin Aman Razali, described the regulations as discriminating and adverse towards Malaysia and its economy. (Website of EURACTIV, 2020)

5 MALAYSIAN ECONOMY

Malaysia gained independence in 1957, which changed the structure in Malaysian economy. Before independence, Malaysian economy was relying on agriculture and commodities, but with independence, Malaysia managed to diversify their economy by manufacturing and exporting electrical appliances and electronic components. (Website of World Bank 2020)

In 2019, OECD published a through economic survey, which presents the overview of Malaysia's current economic state by utilizing statistics from 2018. In 2018, Malaysia's gross domestic product (GDP) was 358.7 billion US dollars, in which 69.7 was formed by export activities. (The website of OEDC, 2019) In 2019, the GDP reached almost 365 billion USD. Statistics according to World Bank show, that since 1980 Malaysian economy and population have increased evenly. (Website of World Bank)

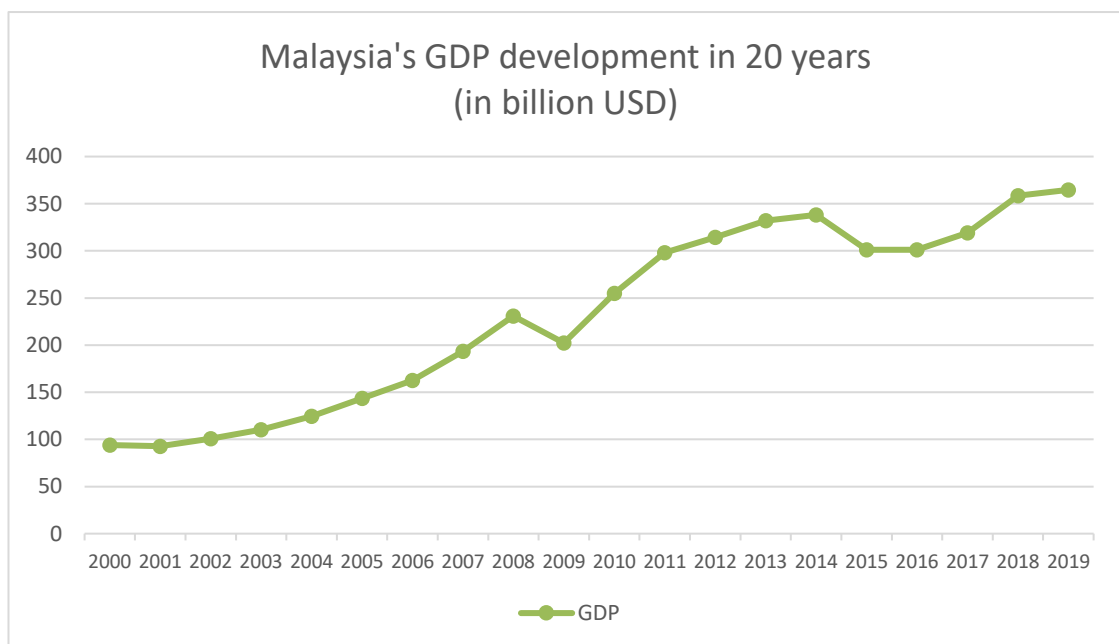


Figure 6. Malaysia's GDP development in 20 years. (Website of The World Bank, 2020; Edited by the author of the thesis.)

Malaysia's trade to GDP ratio, which measures the share of international trade of Malaysian economy, has increased 130 % from 2010 and 40% of jobs in Malaysia are related to export activities. Malaysia is one of the most open economies in the world, which has helped Malaysia to rise from poverty and World Bank estimates Malaysia

to become a high-income economy by 2024. However, The World Bank published a press release on 24th of June 2020, in which they predict Malaysian economy to collapse temporarily due to the ongoing worldwide Covid-19 pandemic by 3.1 %. The economic situation is expected to revert as the outbreak tails off, but uncertainty regarding the impact of Covid-19 remains a global issue. (Website of World Bank 2020)

In 2019, Malaysia's export earnings were 238.1 billion US dollars, which is 18.9 % increase from 2015. In 2019, the exchange rate Malaysian Ringgit depreciated by 6.1% against the US dollar compared to 2015. Thus, in 2019 the exports from Malaysia were inexpensive and lucrative to international buyers. In 2019, the biggest importers from Malaysia were China (14.2%), Singapore (13.9%) and United States (9.7%) Continently, the biggest share of Malaysian export products, 72.3%, was exported to Asia, 11 % to North America and 10.4 % to Europe. Malaysia's biggest export product categories are electrical machinery, mineral fuels, computer components and animal- and vegetable oils. (Workman 2020)

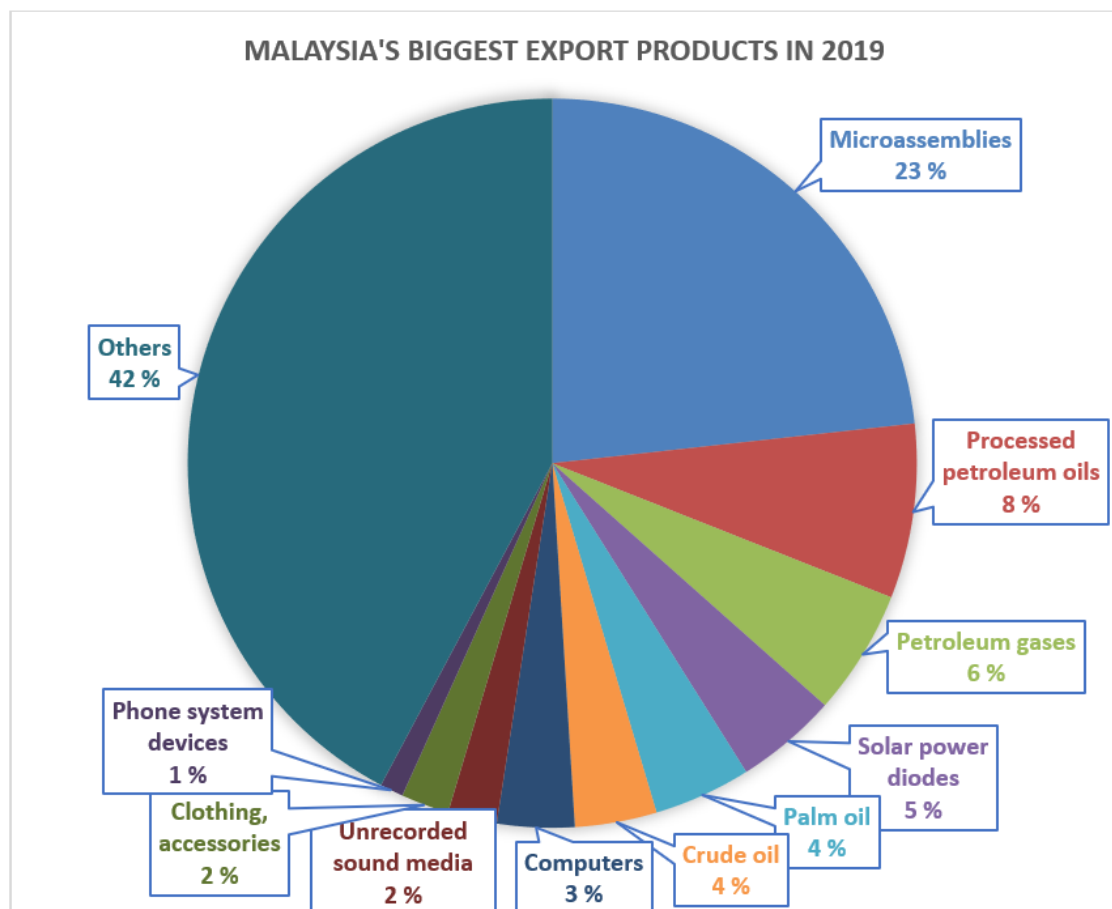


Figure 7. Malaysia's biggest export products in 2019. (Website of World's top exports by Daniel Workman 2020; edited by the author of the thesis)

In 2020, Forbes has published a "Global 2000-list", which ranks the world's 2000 biggest public companies. Ten Malaysian businesses are among the 2000 world's largest companies. Mybank, ranked 349th, was the biggest Malaysian company by considering its sales, profits, assets and market value. Six companies out of ten are from the financial- and banking industry. In addition to them, there are electricity-, chemical-, entertainment and telecom companies. (Website of Forbes 2020)

5.1 Palm oil business in Malaysia

In the beginning of 2010s, Malaysia was the biggest palm oil exporter in the world. However, recently Indonesia achieved the position as a market leader and Malaysia dropped to second place by forming 33 % of global palm oil exports (Website of MPOC). Nevertheless, Palm oil is extremely vital commodity which drives its economy remarkably. According to Malaysian prime minister Mahathir Mohamad, despite the challenges palm oil industry has faced, palm oil exporting keeps contributing to Malaysian gross domestic product and for instance in 2018, palm oil exporting earnings were 16.2 billion US dollars. (Website of Xinhua 2019) In addition to the profit government gains from palm oil exporting, palm oil reduces poverty especially in rural areas in Malaysia by creating jobs and palm oil production employs 721 000 people in Malaysia (Website of European parliament). According to MPOC's current approximation the number is even higher, and it estimated palm oil industry directly employ around one million Malaysians (Website of MPOC 2020). The international monetary fund has pressed Malaysia to produce palm oil as much as possible to contribute national economy (Tullis 2019).

5.2 Sustainable palm oil

Malaysian government has established an organization, Malaysian Palm Oil Council (MPOC), to promote Malaysian palm oil and to increase awareness and present facts. MPOC aims to defend palm oil against current suppositions. According to MPOC,

palm oil is high in vitamin E, which contributes to heart, muscle, bone, skin, liver, prostate, neuro and hair health. According to MPOC, Malaysia plays a critical role in fulfilling the growing global demand for palm oil, which is produced sustainably. (Website of MPOC)

Whereas MPOC is focused on Malaysian palm oil, there is an international non-profit organization, *Roundtable on Sustainable Palm oil* (RSPO), which sets the global standards for sustainable palm oil. RSPO was established in 2004 in Switzerland and its headquarters is in Kuala Lumpur, Malaysia. To become RSPO certified palm oil producer, growers must obey following principles:

1. Behave ethically and transparently
2. Operate legally and respect rights
3. Optimize productivity, efficiency, positive impacts and resilience
4. Respect community and human rights
5. Support smallholder inclusion
6. Respect human rights and working conditions
7. Protect, conserve and enhance ecosystems and the environment

Globally, approximately 40 % of palm oil plantations are RSPO qualified. (Website of RSPO)

20 % of Malaysian palm oil producers have achieved RSPO certification. MPOC's criteria for sustainable palm oil aligns with RSPO's seven principles. In 2020 MPOC ordered its sustainability certification compulsory for every producer to maintain access to western markets. MPOC oblige producers to carry social, environmental and economic responsibility. Some smallholders have encountered difficulties to conduct the principles fully, and thus Malaysian Palm Oil Board (MPOB) was willing to make slight adjustments to enable smallholders to stay in the industry. (Website of MPOC)

5.3 Exporting palm oil to EU

In 2018, EU was Malaysia's second biggest palm oil buyer by forming 12 % of all the palm oil exports. Exports decreased, since in 2017, EU imported 4 % more palm oil from Malaysia. (Tan 2019) In 2019, India remained Malaysia's biggest palm oil buyer, but China became the second biggest buyer by leaving EU on the third place, even though EU increased its imports by 190 thousand tons. (Prem 2020) In 2020, during the period of January-March, EU decreased its imports again and imported 8.1 % less compared to the same period in 2018. Netherlands is EU's biggest palm oil buyer and in 2020, unlike majority of EU countries, Netherlands increased its acquisitions by 30 %. According to MPOC, the acquisition of RSPO certificated palm oil is increasing and in 2020 majority of imported palm oil is RSPO certified. (Website of MPOC) It is inevitable that EU will accelerate the reduction of palm oil imports and according to EU targets, in by the year 2030 palm oil importing achieves its lowest peak. Anti-palm oil attitude and regulations in EU are not only limited to biofuel. In 2014 EU updated the labeling legislation and obliged specific labels, in case the product contains palm oil. Icelandic supermarkets banned palm oil in their own domestic food products in 2018. (Website of BBC 2018)

Table 1. EU's biggest palm oil importers from Malaysia. (Website of Oil World 2020; Edited by the author of the thesis)

EU's biggest palm oil importers from Malaysia until August 2020 (1000 T)				
Country	Jan-Aug 2020	2019	2018	2017
Belgium-Lux	2.0	3.6	2.4	7.1
Bulgaria	7.6	11.9	16.4	22.8
Croatia	5.6	9.1	10.6	10.2
Denmark	32.4	44.3	43.3	37.6
Estonia	-	-	42.0	16.5
Germany	15.9	35.3	14.9	27.3
Greece	9.0	7.1	12.9	17.2
Hungary	1.1	1.6	1.1	0.6
Italy	310.0	476.3	351.2	362.3
Latvia	1.0	2.4	0.2	29.0
Netherlands	747.0	880.8	912.6	1003.9
Romania	4.2	12.1	10.4	11.5

Spain	138.5	486.7	361.6	304.3
Sweden	67.1	104.0	105.7	116.8
UK	10.7	16.1	24.1	21.3

In palm oil exporting it is essential to take into consideration, crude, raw palm oil is not the only type of palm oil exported to EU. Malaysia also exports palm processed palm oils, olein, palm stearin, palm kernel oil, palm kernel olein, palm kernel stearin and even beforehand processed biodiesel to some countries (Website of palm oil world; website of MPOB). On some tables regarding Malaysian palm oil exports all the derivatives are taken into account, whereas some only contain the amount of Crude palm oil. Crude palm oil is most often used in refining biofuels. (Website of trading economics 2020)

6 METHODOLOGY

Research strives to new discoveries or reinforcing existing theories by diligent search and investigation and often generates practical ideas (Adams, Khan & Raeside 2014, 2). As palm oil and the industry, EU targets and emerged conflict are presented, to estimate the economic consequence, collected data must be thoroughly analyzed. In this chapter, implementation of the project, including material collection, research methods and its advantages and disadvantages are discussed in detail.

6.1 Research design

Research design works as a fundament for the thesis and the chosen design will be used to answer the research questions (Mlilo 2016, 166, 167). There are three main options for research design: Descriptive-, Explanatory- and Predictive research and the type is defined based on the desired outcome of the thesis. Descriptive thesis aims to present phenomena and social systems, whereas explanatory research goes further by discussing reason for certain behavior. Predictive research is important for instance for governments, because it strives to predict the future and improve future outcomes. (Adams, Khan & Raeside 2014, 2)

The thesis can mainly be classified as Descriptive research. Descriptive research, unlike explanatory, does not focus on the question “why”, but instead it aims to describe the phenomena and defining a starting point for the topic. The emphasis of descriptive research is in background information, investigating and explaining the relationship between certain events. (Adams, Khan & Raeside 2014, 2) The thesis focuses on the relationship between EU regulations and Malaysian economy and without fundamental background information, it is impossible to discuss the relationship. Additionally, rather than striving to answer the question “why”, the thesis aims to measure the scope of the impact.

Even though the research design can be perceived as a descriptive research, mixed methods are somewhat noticeable. The thesis is future orientated and strives to extrapolate the future impact of the EU regulations, which is why there are features from predictive research design. Predictive research goes slightly deeper and in addition to explaining the situation, attempts to predict the future related to particular event or phenomenon. (Adams, Khan & Raeside 2014, 2)

6.2 Research method

Data collection and analyzation requires a research method. Research methods can be divided into quantitative or qualitative approaches. Quantitative research is based on numerical data, which does not provide a lot of information for reader, without decent analyzation. The foundation of quantitative research are statistics and diagrams. In typical quantitative research data is collected by surveys to maximize the response rate to test theories. Qualitative research is based on concepts and analyzes meanings and non-numerical data. (Saunders, Lewis & Thornhill 2006, 472) Qualitative research requires preparation to conduct observations. In instance, open-ended in-depth interviews are efficient qualitative data collection and analyzation methods. (Adams 2007, 156)

There are references and features from both research methods. Considering data collecting methods related to quantitative and qualitative approaches, the thesis is not

strongly following either of the methods but is very theoretical and benefits from existing numerical and non-numerical data. Regarding the goal of the thesis, it is most beneficial to use both methods. Majority of the used references in the thesis, are qualitative, written theory about palm oil, for instance news articles and EU legislation. However, numerical data is present in the research. Due its versatility, the usage of both methods is beneficial but, in this thesis, mixed methods are also mandatory. Qualitative, written articles and laws justify the meaning of the thesis, and quantitative statistics regarding the amounts of exports and income are necessary to be able to estimate the economic consequence.

An exceptionally large number of sources have been exploited in the thesis, which makes comparing sources crucial. Differences between sources complicates data analysis. Estimating averages and versatile studying sources from different perspectives is compulsory in order to obtain reliable research results.

6.3 Data collection and analysis

The initial material collection started in Malaysia in autumn 2019. Malaysian literature provided basic information and turned out, that online sources offer the widest range of latest information. Benefit of the online sources is the accessibility despite the geographical location. All the gathered material is secondary data, which means that the data utilized in the thesis, is collected and written by someone else than the author of the thesis and for some other purpose. Secondary data contains either primary- or secondary sources. Primary source is a source, which initiated the data, whereas secondary source is a source, which conveyed the data from its original source. (Adams, Khan, Raeside & White 2007, 85) In the thesis, exploitation of the primary source of secondary data is aimed whenever it is accessible. To obtain the most recent data, international news articles are invaluable. To maximize the reliability, fundamental information is based on books and information regarding statistics and legislation are collected from government agencies' websites. To enable comparing sources and hence conduct a versatile and reliable research, dozens of sources from different perspective are studied and applied. During the material collection, it is crucial to pursue critical reading.

6.4 Validity and reliability

The thesis seeks to provide illustrative results, since it is not possible to generate reliably precise numbers regarding the economic loss. To be able to provide reliable information, the impact of the EU regulations is estimated, and it is based on several existing researches. Critically studying articles from many countries and estimating averages between differing information is crucial in conducting the research. Palm oil attracts a lot of opinions, but articles presenting individuals' opinions are not used as a fundament in the thesis. However, opinion pieces are used to provide different views about the topic.

The topic is widely discussed, which brings up challenges. Although there is an abundance of online sources, the diversity, contradiction and reliability of the sources must be acknowledged and carefully considered. Some sources tend to have a biased perspective on the topic, which makes it relatively difficult to maintain an objective approach. Malaysian sources often provide either threats against EU or optimistic and positive information and have an agenda to promote palm oil, whereas other international sources differ with reproachful approach. The research strives to acknowledge both perspectives to come into conclusions. Numbers and statistics vary remarkable between different sources, which hinders accurate research. The topic is very current, and the situation changes constantly. Due to that, there is an abundance of online sources, but very limited amount of recent literature available. Most of the available sources, except online sources, are outdated and do not include recent information enough to assist in the research.

7 RESEARCH RESULTS

In this chapter, all gathered data in the thesis is analyzed by concentrating on Malaysian economy. The calculations and therefore results consider crude palm, which is used in biofuel. Crude palm oil is later processed into biofuel in EU. The total palm

oil exporting and consumption in EU could be slightly higher, if all the palm oil derivatives could be taken into account. Derivatives are excluded from the calculations, since such number are more difficult to estimate. Concentrating on crude palm oil contributes the avoidance of unclarity and inaccuracy.

To provide more realistic notion of the impacts of the palm oil ban for Malaysian economy, the calculations do not only include the numbers from 2019. The implications are calculated by including numbers between 2016-2019. Only including 2019 figures did not seem realistic and reliable as much as calculating the average from last four years. The four-year average indicates exports' general level from recent years and the average is not as prone to market fluctuations. The calculations and justifications proceed in following order:

- Global and Malaysian Palm oil exports to EU
- Raw material end use for biofuels in EU
- Malaysian palm oil's share of biofuels in EU
- Crude palm oil prices
- The value of Malaysian palm oil used in biofuels in EU
- Malaysian total export earnings
- The implications of EU regulations to Malaysian palm oil exporting
- Malaysian GDP
- The value of Malaysian palm oil used in biofuels in EU compared to Malaysian GDP

There are quite many intermediate phases in the calculations, because most of the numbers were not available and needed to be calculated based on each other. All of the above phases were necessary to be able to complete the calculations and justify the results. The validity of the numbers was revised from two different source whenever possible.

7.1 The effect of the EU regulations on Malaysian palm oil exporting

The first numbers that must be calculated are the palm oil exports to EU. The following table indicates the EU's total annual import of palm oil, Malaysia's palm oil exports and based on those numbers, the percentage share of Malaysian palm oil in EU between 2016-2019. On the average, Malaysia exports 28,5 % of all the palm oil imported to EU.

Table 2. Palm oil imports to EU in million tons. (Website of Fedoil and MPOB 2020; Calculated and edited by the author of the thesis)

	Palm oil imports to EU in million tons			
	2019	2018	2017	2016
EU annual palm oil imports globally	7,34	7,08	7,22	6,63
Malaysian palm oil exports to EU	2,09 (28,5%)	1,91 (27%)	1,99 (27,5%)	2,06 (31%)

The table 3 indicates palm oil's share of imported raw material for biofuel usage in EU. The statistics indicate that the usage of palm oil in biofuels in EU is quite even with used cooking oil (UCO), which is excess from food industry. Rapeseed is the most popular oil in biofuels, probably because it can be grown in EU and hence do not need to be exported from overseas. Although, rapeseed's trend is decreasing as a biofuel feedstock, whereas palm oil is maintaining its popularity in biofuels. The last row in table 3 shows the calculation of how many percent of annual palm oil imports to EU is used in manufacturing biofuel.

Table 3. Raw material use for biofuels in EU (Website of United States Department of Agriculture 2019, EU Biofuels Annual 2019 by Flach, Lieberz & Bolla; Edited and calculated by the author of the thesis)

Raw material uses for biofuel in EU (in million tons)				
	2019	2018	2017	2016
Palm oil	2,6	2,5	2,6	2,3
UCO	2,7	2,8	2,7	2,6
Rapeseed oil	5	5,2	6,3	6
Soybean oil	1,1	1	0,9	0,6
Animal fats	0,8	0,8	0,7	0,7
Sunflower oil	0,1	0,1	0,1	0,2
Other oils	0,7	0,6	0,6	0,6

The share of imported palm oil used in biofuel	35 %	35 %	36 %	35 %
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The table 3 shows that the usage of palm oil of all the feedstock in EU used in biofuels has stayed around 35%. The results correlate with Professor Gernot Klepper's approximation, who in 2018 estimated that one third of palm oil imported to EU goes to biofuel production. The approximate share of palm oil usage in biofuels of Malaysian palm oil must be calculated based on the Malaysian exports and the percentage share of palm oil used in biofuel refining.

The table 4 includes Malaysian exports to EU as well as the annual percentage of the biofuel's share of exported palm oil. The last column concludes the annual amount of Malaysian palm oil utilized in biofuel industry.

Table 4. The amount of Malaysian palm oil used in biofuel in EU. (Calculated by the author of the thesis)

Malaysian palm oil's share in biofuels in EU (in million tons)				
	2019	2018	2017	2016
Malaysian palm oil exports to EU - Annual share of biofuels	2,09	1,91	1,99	2,06
Annual share of biofuels	35 %	35 %	36 %	35 %
Total	0,73	0,67	0,72	0,72

Based on the table 4, EU's annual average usage of Malaysian palm oil in biofuels of the last four years is 0,71 million tons. To understand the scope of the impact, Malaysian palm oil's average prices within last four years are estimated in the table 4. In 2019 Malaysia exported quantitatively palm oil to EU more than three previous years, but in 2019, the price of palm oil sunk to the lowest level in four years.

Table 5. Malaysian crude palm oil prices between 2016-2019. (Website of MPOC; Edited by the author of the thesis)

Crude Palm Oil Prices (RM/T)				
2019	2018	2017	2016	

Year's Average	2119	2235	2783	2653
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As the annual price of crude palm oil is known, the value of Malaysian palm oil used in biofuels in EU can be calculated by multiplying the price with the amount of Malaysian palm oil used in EU in biofuels. Calculated prices on the table 6 are exchanged into US dollars.

Table 6. The value of Malaysian palm oil used in biofuel in EU. (Calculated by the author of the thesis)

The value of Malaysian palm oil used in biofuel in EU (Billion USD)			
2019	2018	2017	2016
0,382	0,37	0,494	0,471

Thus, the annual average value of Malaysian palm oil used in biofuels in EU is 429 million USD. To conclude the implications of EU regulations to palm oil exporting, Malaysia's total export earnings between 2016-2019 are stated on the table 7.

Table 7. Malaysian export earnings in billion USD. (Website of the global economy 2020; Edited by the author of the thesis)

Malaysian total export earnings in billion USD			
2019	2018	2017	2016
238,3	246,5	223,4	201,1

Malaysian export earnings have increased evenly from 1970 and nowadays Malaysia exports annually 227 billion USD worth of goods and services on the average. Based on the value of Malaysian palm oil used in biofuel in EU and Malaysian export earnings, the implications of EU palm oil regulations to Malaysian exports can be calculated.

Table 8. The implications of EU regulations to Malaysian exporting. Calculated by the author of the thesis.

The implications of EU regulations to Malaysian palm oil exporting

2019	2018	2017	2016
0,16 %	0,15 %	0,22 %	0,23 %

From the table 8, it can be concluded that the implications of palm oil regulations can be estimated to depreciate Malaysian annual exports by 1,9 per mill.

7.2 The effect on Malaysian economy

To finally reflect the results on Malaysian economy, the US dollar value of Malaysian palm oil in biofuel industry in EU is compared to Malaysian GDP. The table 9 indicates Malaysian GDP between 2016-2019.

Table 9. Malaysian gross domestic product. (Website of World Bank 2020; Edited by the author of the thesis)

Malaysian GDP in billion USD			
2019	2018	2017	2016
365	358,5	319	301

The future impact is predicted by comparing the value of Malaysian palm oil used in biofuel in EU (table 6) to Malaysian GDP. The calculations in the table 10.

Table 10. The impact on Malaysian economy. (Calculated by the author of the thesis)

The implications of EU's palm oil regulations to Malaysian economy			
2019	2018	2017	2016
0,10 %	0,10 %	0,15 %	0,16 %

Assuming that exporting of Palm oil to EU would decrease in proportion with palm oil exporting for biofuels so far, the implications could be as calculated above. The annual average value is 0,13%, which means that the EU palm oil regulations would

depreciate Malaysian economy directly by 1,3 per mill on average. It must be acknowledged, that there are indirect implications of the regulations besides the 0,13 % decrease GDP decrease, which are discussed in the chapter 7.3.

The annual average GDP depreciation of 0,13% does not necessarily seem remarkable, but the result must be placed in the bigger picture to fully understand the scope of the implications. If all the EU countries would take immediate actions to quit the usage of Malaysian palm oil in biofuels, by 2030, that would equal to loss of 4 billion USD. Percentual share of the implications in the future depends on Malaysian market performance in other industries as well, which is why it is impossible to predict whether the percentage share will remain on the same level.

7.3 The future implications and variables affecting the results

The results can only be considered directional, since there are several factors affecting the results. The biggest issue with the research is, that the numbers differ significantly between different websites. Europarl.europa.eu estimates that 45% of palm oil in EU is used in biofuels, whereas the calculations based of United States Department of Agriculture prove that 35% of palm oil in EU is utilized in palm oil industry. Additionally, sources regarding the amount of Malaysian palm oil's end use in EU was virtually non-existent, which is why it must be assumed, that EU utilizes palm oil evenly in biofuels despite the export origin.

As stated in the chapter 4.1, each member country must show initiatives by 2020 to reduce palm oil usage in biofuels and by 2030, be completely palm oil free in biofuels by then. This means that there is a ten-year transition phase for each EU member country to transit to palm oil free biofuels, which makes it very difficult to estimate how fast each country will fully commit to the regulations. The table 11 compares the palm oil exports from Malaysia between January-October in 2020 and the same period in 2019. The comparison below displays, that in 2020 EU has imported less palm oil than in 2019, but the demand has not decreased more than 6,5%.

Table 11. Malaysian palm oil export performance 2020 (Website of MPOC 2020; Edited by the author of the thesis)

Malaysian palm oil exports to EU (MT)		
Country	Jan – Oct 2020	Jan – Oct 2019
Netherlands	915,367	735,843
Italy	374,384	400,000
Spain	143,132	420,854
Sweden	85,906	88,864
Ukraine	48,848	28,912
Denmark	41,659	38,567
Germany	19,239	30,083
UK	14,554	13,944
Bulgaria	10,105	10,082
Greece	9,612	5,957
Croatia	6,796	7,779
Romania	5,587	10,372
Belgium	2,438	3,166
Latvia	1,294	2,229
Hungary	1,274	137
Poland	516	1,573
Portugal	324	44
France	222	418
Lithuania	97	54
Austria	60	0
Slovenia	46	23
Cyprus	42	42
Estonia	24	–
Czech		46
Malta		24
Grand Total	1,681,526	1,799,013

USDA Foreign Agricultural Service has assessed who the COVID-19 pandemic influences in the biofuel demand in EU. Transporting has decreased due to the virus and that can be seen in the fuel consumption. (Kotrba 2020) From this it could be deducted that EU member countries have not yet made big efforts to quit supporting palm oil in biofuels. However, the EU regulations obligate member countries to phase out palm oil usage in biofuels and do not expect it to be eliminated suddenly.

The result does not unequivocally reflect on Malaysia's GDP, but it must also be acknowledged, that the implications of the EU ban impacts Malaysian labor force as well. In 2019 Malaysia's total global exports of palm oil was 18,469,258 metric tons, whereas Malaysian exports to EU for biofuels was 73,000 metric tons. 73,000 is 0,40%

of 18,469,258, which means that the unemployment rate is in danger to increase by 0,4%. As MPOC estimates palm oil industry to employ 1 million Malaysians, 0,4% equals to 4000 lost jobs.

Nonetheless the calculations are indicative, foreign exchange rates' effect in the calculations is worth mentioning. The value of currencies is constantly fluctuating and calculating the prices of the palm oil afterwards can slightly twist the truth. Rounding the numbers during the calculation phase also affects results, but it simplifies the numbers and eases understanding.

The result might be affected by the changes within EU member countries upcoming years. North Macedonia and Albania are striving for EU and they have applied a membership. Affiliation of these countries would oblige them to follow the EU rules and thus reduce Malaysia's palm oil exports to EU. (Website of Europarl 2020) Another change is The United Kingdom's withdrawal from EU in 2020. This has initiated a debate, whether UK will, even though it is no longer a member of EU, continue following the rules and consider palm oil harmful to environment and restrict the usage of palm oil in biofuels. However, it must be acknowledged that starting from January 2021, UK's trade is independent, and UK is free to trade without the liability to reach EU's targets. MPOC wrote an article on their website regarding the implications of Brexit to Malaysian palm oil exports. The UK has underlined their interest in close cooperation with Malaysia, since Malaysia is one of UK's biggest trading partners. In 2020, Malaysia's former minister of foreign affairs, *Mr. Datuk Saifuddin Abdullah*, expressed his wishes about the UK to increase their palm oil imports from Malaysia. (Website of MPOC 2020) Since the transition period is still on, it is too early to estimate accurate implications of Brexit on Malaysian palm oil exporting and the talk about the implications is conjecture. However, it is quite likely that UK's exit from EU will not make a big difference in the EU's palm oil statistics, as UK claimed that they have not used palm oil in biofuels for several years. (Cockburn, 2018)

7.4 Reactions and evaluations of the situation

MPOC has expressed their strong opposition to EU's allegation that palm oil drives deforestation massively and defended, that over half of Malaysia's land is pristine. MPOC stated that the regulations are discriminative and insulting and Malaysia is prepared for the worst, since palm oil business is so important revenue stream for Malaysia. Malaysia's biggest concern is the MPOC is also worried about to long-term implications of the regulations and future employment of smallholders, who account for 40 % of Malaysian palm oil producers. MPOC also sees positive aspects in the situation, as the situation oblige them to rethink the strategies. MPOC is positive that they will find new markets to keep exporting as usual. (Website of MPOC)

Despite that, in 2020, Malaysia together with World Trade Organization (WTO) decided to sue EU for discriminating and restricting free trade practices. Malaysian minister Mohd Khairuddin justified the decision by appealing the regulations to have a negative impact on over three million Malaysians along the palm oil supply chain. (Jafaar, S. 2020)

Malaysian minister Teresa Kok believes that by highlighting the importance of sustainable palm oil Malaysia could stay competitive and maintain the trade of palm oil between Malaysia and EU. She expresses her wonderment regarding the palm oil regulations, since according to her, livestock production, soya and coconut are at least as burdensome as palm oil. (Stam, 2020)

Professor Gernot Klepper discussed in his article in *eco-business.com*, that Malaysian palm oil demand will drop by the EU ban, but not for long. Lower demand will decrease the price of palm oil and hence soon increase the demand elsewhere. Lower palm oil price would also make palm oil even more attractive compared to alternatives. Due to that, EU's palm oil ban can do more harm than good. (Klepper 2018)

Already in 2010, Malaysian government established The Economic Transformation Programme, to improve palm oil processing. Malaysian government aims to accelerate the replanting of the trees, especially by helping smallholders to replace their old infertile palm trees with higher yielding palms. The yield of the fruits is an area, where

especially smallholders could improve, and Malaysian government has set a goal to support and educate smallholders and teach them means to improve the productivity. Close monitoring and quality control to ensure high extraction rate must be prioritized. Malaysian government has stated, that in the future they aim to capture biogas which is released during the palm oil extraction process and focus on developing palm oil derivatives. Malaysian government has also set a target to focus on commercializing these second-generation biofuels. (Website of the palm oil)

8 IMPROVEMENT SUGGESTIONS AGAINST THE SANCTIONS

As estimated in the chapter 7.2 the implications of EU palm oil regulations cause disadvantage to Malaysia, which could decrease Malaysian GDP annually by 0.13 % and by 2030, the impact would equal to 4 billion USD and increase unemployment. Malaysians are worried about the consequences of the EU regulations and actions towards the implications of the regulations have been considered.

In addition to legal actions, Malaysia has stressed the importance of sustainable palm oil. In addition to these, Malaysia should consider taking additional measures. The deliberation in the chapter introduces different views and reflections and do not aim to universally solve the issue of palm oil production, distribution and related laws. Some of the development areas are in disharmony, but the ideas are meant to be applied, depending on the situation and on the target person- or organization. The purpose of the chapter is to bring up which factors are important to consider in the prevalent situation.

Alternatives and development areas

What Malaysia could do to protect their economy from EU palm oil ban is to focus on other products besides palm oil. Malaysia should actively search for alternative raw material, which has similar prosperities than palm oil and therefore could partly reimburse the use of palm oil in biofuels. Due to the versatility and affordable price of

palm oil, it is difficult to replace. The issue with alternatives is that quite often the problem shifts rather than disappears. Soybeans have similar prosperities than palm oil and it has been considered as a substitute for palm oil. However, soy could be even more nonenvironmental option. One hectare of oil palms produces four tons of vegetable oil, which can be used in multiple purposes. The same size area of relatively similar plant, such as rapeseed, sunflower or soy, produce up to six times less oil. Scientists have presented promising results in researching algae. Algae has similar prosperities as palm oil, and it can grow in diverse environment. American bio-tech company Solazyme has elaborated algal-derived fuel for vehicles, but algae has not reached as high effectiveness as palm oil. (Swain, 2020) Scottish entrepreneurs Scott Kennedy and Fregus Moore have invented a method to extract oil from used coffee grounds and they believe that it could work as a substitute for palm oil. Mr Kennedy and Mr Moore are extremely enthusiastic about their discovery, because alone in UK, half a million kilos of coffee grounds are thrown to waste every year. They have also detected that coffee grounds contain very similar components as palm oil. The discovery is quite new, so it is too early to say whether used coffee grounds could become the next challenger for palm oil. (Black 2019) It is clear that palm oil is difficult to replace, but Malaysia should actively take part in research to find alternatives, which could be farmed and produced domestically.

Even though Malaysian government has the pressure to change the market structure, individuals should try to secure their livelihood, if EU succeeds in their targets and palm oil exporting from Malaysia decreases remarkably. European media Euractiv published an article about Malaysian farmer Sounam Kumin, who is worried about the EU regulations and thus has expanded his harvest range to grow pineapples and bananas in addition to oil palms, to avoid dependence on palm oil. (Stam, 2020) Smallholders could consider this method to diversify personal economic risks.

Palm oil will probably never be completely phased out and neither it must be, but the Malaysia should focus more on the methods and monitoring of the palm oil production. The Economic Transformation Programme mentioned in the chapter 7.4 contain very important steps towards more sustainable palm oil production. Prioritizing these targets and is essential, since Malaysian government is confident that succeeding in these targets, they could enhance their economy.

As stated in the chapter 5.2, 20 % of Malaysian palm oil plantations are RSPO certified. RSPO and MPOC should set incentives for farmers to reach the RSPO certificate. Malaysian government should take a long-term orientated approach and see that by supporting companies who are not capable of producing sustainably, they would most likely harm their economy. It is probably difficult to make such decisions in the present moment, since palm oil business brings a lot of income for Malaysia and increases employment rate. Such actions are against Malaysia's targets to achieve the status of high-income country by 2020 (Website of the oil palm) but it must be acknowledged and remembered that such short-term orientation might rebound subsequently. Malaysian government started industrializing palm oil in the during 1970. By the year 2000, 60 % of palm oil plantations were managed by private sector, 10% owned by individual small holders, and remaining 30% of the plantations were owned by the government. (Teoh 2002) The structure of the industry is reforming, and nowadays small holders own and run 40% of the plantations (Website of the oil palm). Malaysian government should make sure that state-owned plantations are all RSPO certified and thereby take the lead towards more sustainable palm oil production. MPOC and RSPO should set incentives and put pressure on the private sector to change their methods towards more ethical actions and fulfill the criteria of RSPO certificate. Educating, especially small holders, could reduce the negative impact of palm oil production. Malaysian government with MPOC and RSPO should focus on educating farmers to utilize sustainable palm oil production methods. Violating environment, such as neglecting the zero burning police and human rights, should never be downplayed and fell silent, but always be penalized transparently to decrease criminality and thus improve the reputation of the industry.

Environmental issues are not the only reason why EU's palm oil regulations were invented, and neither should Malaysia limit their actions to correspond to environmental issues. In 2020, Malaysia's biggest palm oil producer, Sime Darby, encountered serious accusations of using child- and forced labor in their palm oil product process. (Chu 2020) In 2019, one of Malaysia's biggest palm oil producers, FGV holdings Bhd, was prosecuted for child labor (Chan 2020). Government should take serious actions to prevent, detect and sever such violations of human rights. Malaysia should work transparently against human right violations to improve their reliability.

The damage caused by of palm oil production can never be undone. However, Malaysia could indicate their interest and goodwill by conservation. All the efforts to protect wildlife habitats would be especially important since many species have been driven almost extinct due to harmful palm oil production methods. This does not remove the core issue, but such actions could improve Malaysia's reputation in global trade.

It must be acknowledged that suggested actions require time and resources and the input must come mostly from the government and happen on an organizational and political level rather than happen on an individual level. Nonetheless the improvement requires time, recognition of the development areas is very important step towards more sustainable future. Most of the actions are self-evident, yet inevitable to minimize the impact of palm oil ban in EU. By focusing on these issues, Malaysia could improve their position in a long run.

The Director and co-founder of Sorga Ventures, which provides sustainable development solutions to companies, Shareen Shariza Abdul Ghani published an article about his vision of EU's palm oil ban's negative environment impact. He stated that the best way to fight climate change is to work together in global solidarity, but current EU targets do not align with desired co-operation. His opinions are similar to suggestions mentioned in this chapter and he as well is afraid that palm oil ban would increase the harvest of rapeseed, sun flowers and soy, which would require more resources but still produce less oil than oil palms. Therefor he believes that the palm oil ban is not an environmental solution, on the contrary destroys environment more and reduces jobs and undermines Malaysian economy. Mr Ghani is offering certified palm oil as a solution. (Ghani 2019) Mr Ghani is not the only one bringing up such perspectives about EU ban's negative impact. Several publications with similar reflections can be found on the Internet written by experts in various fields despite the country of the origin. Most of the articles offer sustainable palm oil and new growing methods as a solution to this issue. RSPO is constantly observing hotspots with satellite cameras and have detected, that 0.5% of forest fires are ignited by certified farmers. Albeit the percentage is less than one, RSPO is not completely satisfied with the results and admits, that they should be able to reach a lower percentage. (Website of RSPO, 2019)

EU's palm oil targets might not be retracted, but in case studies also in the future indicate that palm oil's substitutes could be more harmful to environment, EU could perhaps make concessions. This would also require Malaysia's input and effort to continuously prevent illegal actions in the industry and to demand RSPO certificate from suppliers. Ethical production would most likely raise the price of palm oil, but palm oil would still probably be the cheapest vegetable oil, especially in relation to its fertility. Perhaps EU would be willing to pay higher price for sustainable palm oil, but there might be a pressure to stay competitive in the price competition with other producer countries, such as Indonesia, which has overtaken Malaysia's position as the world's leading palm oil producer and exporter. However, considering the future and increasing threat of a global climate crisis, sustainability could be a competitive advantage.

9 CONCLUSIONS

Provided that EU succeeds in the targets to ban palm oil in biofuel production by 2030, Malaysian palm oil exports will decrease annually by 0,13%. The implications of the EU regulations to Malaysian economy are unquestionable and it is evident, that the regulations will depreciate Malaysian economy in a long run if measures are not taken. The EU regulations are widely discussed, but on a quite general level, without considering the impact on Malaysian economy specifically. It was rewarding to notice, how the intermediate stages of the calculations aligned with existing researches, which supports the validity of the thesis.

Malaysia should embrace a long-term orientated approach to its economy. From Malaysia's perspective, it is understandable to react to EU ban by lawsuits and increase exports to other countries. Malaysia has already shown initiatives to put pressure on palm oil producers to fulfill the sustainability criteria to commit to sustainability, but further measures are required. Malaysia is aware of the seriousness of the prevalent

situation, but it must be acknowledged that structural changes requires a lot of resources. Prosperity is on majority's agenda on national- and individual level, which sometimes goes against environmental values. Each country should together put effort to be more sustainable and adopt new methods. EU tends to be a forerunner in sustainability and set ambitious climate targets, which is globally indispensable. However, assessing whether the taken actions contribute to environment is complicated. As can be deducted from the thesis, it is not simple to estimate the utility and validity of the palm oil ban. It mostly depends on EU's plan to replace palm oil in biofuels. At its best, EU can set global megatrends and show the lead, but the methods must be thoroughly considered.

This project taught to ponder concepts from different perspectives. International business studies were applied in the research and facilitated the understanding on the topic in general. It was valuable to notice that the project turned out more challenging than I expected in the beginning writing process. Above all, the writing process taught me source criticism. As I mentioned several times in the thesis, the information discrepancy between sources was tremendous, which made it difficult to find truthful and impartial data. Government websites also had a list of EU member countries, which included countries that are not part of EU, so it was necessary to study and examine the sources carefully.

It is interesting to see what the situation will be in 2030. Palm oil has been banned by EU in biofuels, even though there are several studies to prove that existing alternatives will end up just as harmful, or even more destructive as the replacement for palm oil. As I have studied the topic, I believe that it is possible that EU regulations will be modified in the future and it will be interesting to follow how the situation develops. It is impossible to say who is right or wrong, and the discussion and actions should not focus on that. The confrontation should be ignored and together concentrate the energy into innovations for sustainable future.

The thesis did not discuss the palm oil production process. For further research, I would suggest another bachelor student to study the methods of palm oil making in depth. Studying the palm oil making process from planting to pressing could emerge

grievances and thus help to discover detailed improvement suggestions. Another interesting aspect that requires further research, is the implications of the EU palm oil regulations to EU. As palm oil is the cheapest vegetable oil, the replacement of palm oil will naturally affect on EU's economy as well.

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