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INDUSTRIALIZATION AND GLOBAL WARMING

(A BRIEF CASE ANALYSIS OF PALM OIL PRODUCTION: INDONESIA)

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Industrialization and Global Warming

(A Brief case analysis of Palm Oil Production: Indonesia)

Abstract:

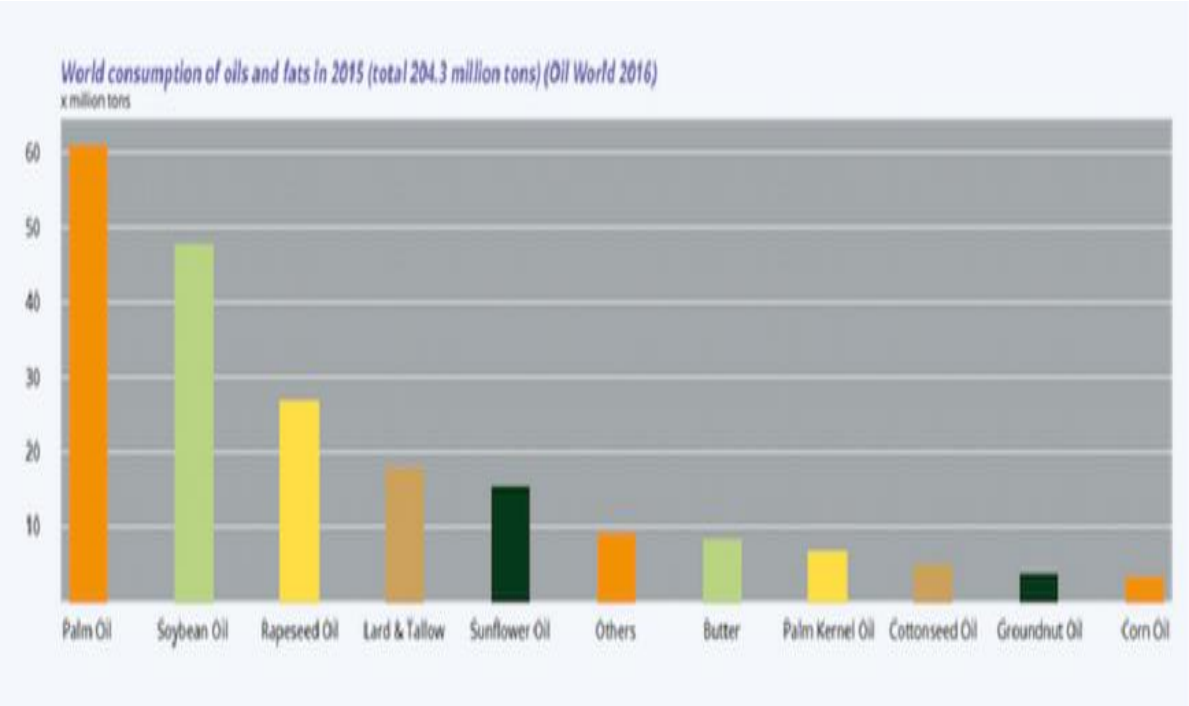
Ever since the last decade palm oil production has increased many folds and so has the use of the oil in various industries. Indonesia is the largest producer of palm oil in the world and produced 32.5 million tonnes of crude palm oil in 2014, exporting almost 80% of it to yield a considerable USD$18.6 billion in revenue. The numbers went up even further with 36 million tonnes of palm oil produced in 2017 alone. Evidently, the surge has given major boost to the palm oil industry, which has become the biggest currency earner in Indonesia, considering it is only second to Malaysia as the world's largest exporter of palm oil. However, the flip side of it is the devastating effect it has on the environment. Destruction of forests has led to catastrophic effects on our ecosystem. Institutional investors as well as individuals play a key role in financing the expansion of palm oil industry and are able to minimize the destruction caused by deforestation. A large-scale promotion of land grab-free investment policies and practices is definitely a first step in the direction. Depletion of natural resources causing serious and immediate health issues, and in some cases, overall survival of communities is an act of human rights violation and must be dealt with seriousness and sensitivity.

Keywords: Climate Change, Global Warming, Ecological Economics, Sustainability

Introduction -

On 28th February 2016, at the 88th Academy Awards ceremony held at the Dolby Theater in Los Angeles, film celebrities, ardent fans and surprisingly, environmentalists from all over the world, rejoiced in common happiness when the blue-eyed-boy of Hollywood, Leonardo DiCaprio was announced the winner in the Best Actor in a Leading role category. Of course, for environmentalists across the globe, the joy was multifold, for DiCaprio's constant efforts in raising awareness for the world's number one environmental challenge – Global Warming had put him in the league of some of the most prolific scientists, explorers and social activists.

Later that year, as United Nations Messenger for peace on Climate change and Global Warming, DiCaprio visited one of the only three remaining tropical rainforests in the world in Sumatra, Indonesia (others being the Amazon in South America and Congo Basin in Africa) and was able to bring to everyone's notice the exceedingly alarming rate with which the forests in Sumatra were being burnt in order to produce 'palm oil" which is used in a variety of processed foods in the domestic as well as international market. Used on a huge scale in cooking oils, processed foods, cosmetics, detergent, shampoo, this cheap commodity is making companies like Burger King, Doritos, PepsiCo, Cup noodles NISSIN, Quaker among others tremendous profits.



Source: Palm Oil Consumption

Statistics show how the surge in demands of palm oil worldwide, primarily due to low cost of production, has fueled interest in global corporations to replace the traditional vegetable oil sources and switch to the all-beneficial palm oil. From a meagre 13.5 million tonnes of production in 1990, to a staggering 155.8 million tonnes in 2014, the rise in demands can largely be contributed to its usage in bio fuel. As per the European Palm Oil Alliance report of 2015, India, China and EU, all major importers of palm oil, accounted for 47.9% of the total global imports.

Literature review

According to a paper written by Helen McGregor (2015) and team, the findings suggested that global warming started as early as 1830 in most tropical and arctic regions. In the years to follow, other continents - Europe, Asia and North America joined the bandwagon of climate change.

Another study by Koh & Wilcove (2016) stated that forest harvested for wood products are capable of regenerating 84% of forest species within 30 years of deforestation. However, expansion of oil palm plantations does not support regeneration, thereby causing significant loss of biodiversity.

According to the Greenpeace UK feature published in June 2017, Indonesia's rainforests are rich in biodiversity and endemic species and play a crucial part in controlling the planet's climate. Despite being such a vital part in the globe's ecosystem, the rainforests are being torn down and burnt for oil palm plantations, making Indonesia the third largest greenhouse gas emitter in the world.

As per the white paper written by Chelsea Petrenko, Julia Paltseva, and Stephanie Searle (2016), Indonesia is one of the world's top five emitters of greenhouse gases, and in a reformatory act, has set a goal to reduce its emissions by 26% by 2020. However, it is nearly impossible for the country to reduce its emissions to such an extent as almost 75% of CO2-equivalent emission is due to land use change including destruction of peatlands, all attributing to BAU palm oil production.

According to an article by Ben Block (2013) of Worldwatch Institute, Indonesia is the biggest producer of palm oil in the world and, alongside Malaysia, is leading the global supply chain. In an attempt to avoid fluctuation in prices, both Indonesia and Malaysia have been urged to increase domestic supply, which resulted in Indonesia passing a mandate requiring all the cars and trucks to run on palm oil mixed bio-diesel. Handling the domestic demands in addition to meeting global requirements of palm oil accelerated its production and has resulted in massive destruction of rainforests and peatlands, carbon rich swamps responsible for 10 times more carbon emission.

The review by Earl Saxon and Sarah Roquemore, carbon emissions by palm oil industries can be significantly reduced if the land selection in the entire process is done more responsibly. Deforestation of national parks and peatlands not only poses threat to endangered animals and biodiversity, but also releases copious amounts of carbon into the atmosphere, in turn, drastically changing the climate. Also, a brief by Friends of the Earth, the magnitude of impact that conversion of peatlands to palm oil plantations has is at par with world's biggest coal and tar sands projects. The expansion of palm oil industry will continue to worsen climate change and severely affect the health and wellbeing of communities and ecosystems across the region.

A feature by Union of Concerned Scientists states that while demand for production of palm oil has increased considerably in South America and Africa, it has skyrocketed in Southeast Asia, particularly in Indonesia, the largest producer of palm oil in the world. Draining and burning of peatlands to clear the land for oil palm plantation has precariously exposed carbon rich lands capable of holding up to 28 times more carbon than usual forests. However, as of 2016, more than 60% of palm oil purchased by US based companies is deforestation and peat land-free, thanks to the intense pressure imposed by environmentalists and social activists globally.

A review of above stated studies clearly reveals an ongoing debatable issue of global warming increasing due to burning of rainforests for palm oil. Even on the demand side the product is widely in depiction and has been a major source of income for countries like Indonesia.

Objectives and Research Methodology:

In lieu of the above stated literature reviews it is clear that the issue of global warming and climate change is gradually increasing pace in the modern world scenario. The question of heavy industrialization in the cost of the environment needs some extremely strong and practical answers. These answers are to be worked upon at the same pace as global warming.

The principal objective of the proposed paper is to analyze the current situation of rainforests being burnt for palm oil in Indonesia as this is one of the three remaining tropical rainforests in the world in Sumatra.

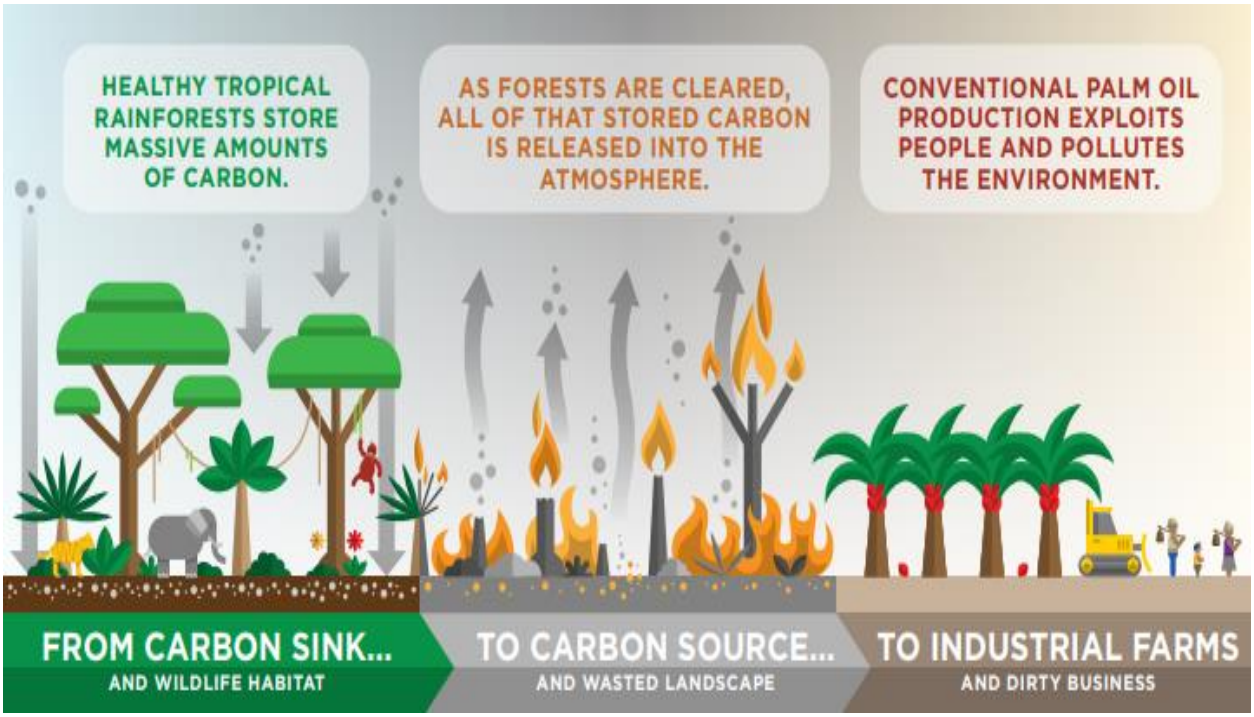
Second objective is to discuss the issue that burning of these forests is largely causing climate change through carbon emissions and are the major source of greenhouse gases. This is leading to climate change and deforestation in the region.

For the purpose of seeking holistic picture of the topic the study is based on secondary data collected from various sources such as Annual Reports of climate change forum and Research Foundation. Data is also collected and analyzed from the yearly publications of Central Statistical Organization on the basis of National aggregates. Article published through online resources were also studied for the overall view of the situation.

Analysis:

Indonesia is the largest producer of palm oil in the world and produced 32.5 million tonnes of crude palm oil in 2014, exporting almost 80% of it to yield a considerable USD$18.6 billion in revenue. The numbers went up even further with 36 million tonnes of palm oil produced in 2017 alone. Evidently, the surge has given major boost to the palm oil industry, which has become the biggest currency earner in Indonesia, considering it is only second to Malaysia as the world's largest exporter of palm oil. However, the flip side of it is the devastating effect it has on the environment. Destruction of forests has led to catastrophic effects on our ecosystem. Sumatran rainforests are the last natural habitat in the world to host orangutan, elephants, tigers and rhinos together. A major population of orangutans is dead as a result of deforestation and fire-destruction with only 70,000 of them alive and still roaming in the rainforests across South East Asia. The expansion of palm oil industries in Indonesia has taken over about 80% of its forests.

In Sumatran rainforests, corporations are intentionally setting fire in large sections to clear the land for palm oil plantations. This has led to copious amounts of carbon being released in the atmosphere, in turn making Indonesia one of the world's worst emitters of greenhouse gases. The carbon emission in Indonesia due to the common slash-and-burn tactic daily is more than the entire US economy.



Source: footprints/palm oil/ foe.org

In addition to tropical rainforests, the peatlands (carbon rich swamps) containing 10 times more carbon are also used for palm oil production, and since the easiest way to clear the lands is by setting them on fire, the irresponsible approach by major corporations has led to more devastation eventually resulting in complete and utter destruction in the region. Trees capture and store CO2 and it is released when trees are burned. Tropical deforestation contributes to about 15% of total global warming pollution on an annual basis, which is way more than cars, trucks, ships and planes in the world combined. In Indonesia, deforestation to clear the land for palm oil plantations is even more devastating since it happens on peat lands. Statistically, the total stored carbon of peatlands in Indonesia is as much as the entire above surface vegetation of the Amazon. Unfortunately, 10 million acres of the country's 22.5 million acres of peat lands have already been deforested by palm oil industries and the number is expected to be doubled by 2020.

Overall projection of land harvesting not only poses a major threat to the ecosystem but is also enough to propel the rate with which we are warming our planet. Land harvesting for oil palm in Indonesia grew from 4.1 million hectares to an alarming 8.9 million hectares in 2015 and is expected to go as high as 17 million in 2025

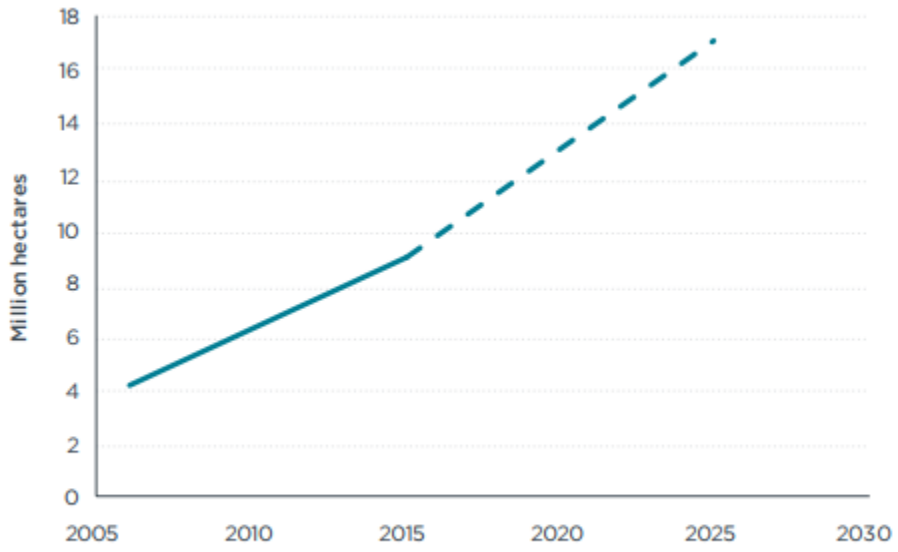
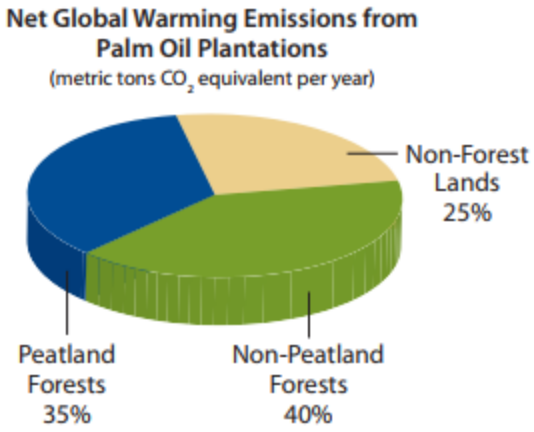


Figure 1. Historical and projected oil palm plantation area in Indonesia

According to a report released by the United Nations Environment program, peatland destruction could result in more than 2000 percent more greenhouse emissions than burning diesel oil.

Simply stated, if all of Indonesia's peatlands were set on fire, they would emit as much greenhouse gases into the atmosphere as carbon emissions from fossil fuel over nine years. Considering the rate with which peatlands are being destroyed to be used for oil palm plantations, the 2025 projections could easily be surpassed by 2020, thereby setting the stage for complete destruction of one of the only three remaining large rainforests in the world.



Source: Palm Oil, Root of the Problem

In a nutshell, after the boreal ecosystem, tropical forests are home to the largest terrestrial carbon sink on planet earth, holding approx. 428Gt C. Our atmosphere, in comparison, stores approx. 589Gt C, leading to the fact that a minor disruption in land carbon emission could result in perilous rise in our planet's temperature. Since its impact is so severe to the nature, many efforts have been made in the direction to not only combat the ongoing destruction of rainforests but also to set global standards in determining which companies are following the safety standards in the overall production of palm oil. The first major step was taken back in 2004 when RSPO or Round Table on Sustainable Palm Oil was founded by group of scientists, environmentalists and stakeholders to promote growth and consumption of sustainable palm oil products through an established set of global standards and their lawful enforcement. In order to get their products cleared with RSPO certification, companies must pledge to meet the globally established criterion including complete withdrawal from clearing peatlands/rainforests.

However, owing to the complex process flow of palm oil production involving a vast network of companies, coupled by Indonesia's corrupt law enforcement, it became quite a challenge to put things into practice from day one. Authorities were unable to stave off the problem because of the high-level corruption. Indonesia is one of the most corrupt countries in the world and in its northernmost region in Sumatra, the law enforcement is even more challenging than the rest of the nation. In 2010, six years after its inception, the credibility of RSPO was challenged when one of the leading palm oil producing companies, the Sinar mas Group came under international scrutiny when Greenpeace report accused the conglomerate of "pulping the planet" by using

slash and burn tactic to clear forests for oil palm plantations. Doing so not only posed great danger to the environment but also threatened endangered species, all in the name of profit.

Despite international pressure and protests from environmentalists, the 'slash and burn' devastation continued and by 2012, Indonesia overtook Brazil as the country with the most rapid deforestation in the world, having destroyed 8,40,000 hectares of forest. The following year, in an attempt to strengthen the lobby against inadequate oil palm plantation, Hollywood actor Harrison Ford visited the epicenter of illegal palm oil production, Indonesia. Welcomed by the thick smog, barring his visibility, he soon realized the smog was actually smoke, generated from the burning of rainforests in the region. When Ford confronted the Forestry Minister, Zulfikli Hasan, his efforts were deemed inappropriate to the extent that immigration authorities were ordered to carry out deportation of the actor. This is not the first time that international pressure has failed to make things right in the rigid presence of Indonesia's corrupt legal system.

The same year, burning of rainforests and the subsequent carbon emission reached frightening levels lasting two long months and eventually impacting the neighboring countries of Singapore and Malaysia. According to the data, the Pollutant Standard Index or PSI reached an average 800 PSI, whereas a PSI of 300 and above is considered hazardous. Singapore, in particular was hit the hardest with levels rising to 401 PSI, officially making it the highest level of pollution ever in the island country. Both Singapore and Malaysia soon realized the root of the problem and accused Indonesia for the same.

In a rare move, then Indonesian President Susilo Bambang Yodhoyono issued an apology to the neighboring nations, taking full responsibility of the exceeding levels of carbon emission and its after effects, suffered by the South East Asian nations. Interestingly and ironically, the biggest palm oil corporations such as Wilmar, Musim Mas, Sime Darby and GAR, operating in Indonesia, and partly responsible for elevated carbon emissions are all registered in Singapore and Malaysia respectively.

Paris Climate agreement 2015:

In a landmark move on December 12, 2015, a total of 196 nations signed a global treaty by United Nations Framework Convention on Climate Change (UNFCCC), pledging to follow UN recognized protocols to combat climate change. With a primary objective to keep the global climate change this century at 1.5degrees Celsius, the treaty aims to deal with greenhouse gas emission mitigation starting in the year 2020, soon after the conclusion of Kyoto protocol. One of the valid arguments in favor of oil palm plantations is the use of palm oil in environment-friendly biofuel. Due to its low cost and mitigated effects on ecosystem, biofuel is fast becoming the No.1 choice of countries like China and India who want 15% and 20% of their fuel respectively to be grown in the fields by 2020. Similarly, EU nations have also shown considerable interest in selling 10% of fuel made from palm oil.

Ironically though, these attempts to reduce the adverse effects and impact of climate change could actually alleviate the problem. Clearing forests and burning peatlands for oil palm plantations will cause more carbon emissions than burning fossil fuels. The carbon footprint of palm oil industry is multifold, with one coming from emissions from deforestation and other from the processing of palm oil in factories. Oil palm plantations currently cover 27 million hectares of earth surface, a result of massive land use change leading to loss of biodiversity on an area the size of New Zealand.

Conclusion -

After his election in 2014 as the president of Indonesia, Joko Widodo addressed many burning issues plaguing the country including corruption and in an attempt to deliver a warning to the web of organizations responsible for such devastation, said – "We all know the problem. Everybody knows problem. Experts, Government, law-enforcers, corporations, all know the problem. It all boils down to one question: Do we have the will? Are we serious? I am. I am very serious."

Institutional investors as well as individuals play a key role in financing the expansion of palm oil industry and are in a position to minimize the destruction caused by deforestation. A large-scale promotion of land grab-free investment policies and practices is definitely a first step in the direction. Depletion of natural resources causing serious and immediate health issues, and in some cases, overall survival of communities is an act of human rights violation and must be dealt with seriousness and sensitivity. Policies such as HCV (High conservation values) assessments may not only protect species but are also capable of resulting in loss of carbon emissions

As a welcome change, recent statistics show that as of 2016, over 60% of US based companies have adopted policies promoting purchases of deforestation-free and peatland-free palm oil. The same approach needs to be followed by corporations globally to act responsibly and well within the timeline to minimize the destruction of ecosystem.

And finally, effective enforcement of environmental standards in palm oil production is crucial, not just in Indonesia, but across the world to ensure the issue is dealt with carefully to prevent any further damage.

In his Academy Award winner speech, DiCaprio remembered that the most critical issue of our times needed to be stressed upon at one of the world's most recognizable stages, and said – "Climate change is real, it is happening right now. It is the most urgent threat facing our entire species, and we need to work collectively together and stop procrastinating. We need to support leaders around the world who do not speak for the big polluters, but who speak for all of humanity, for the indigenous people of the world, for the billions and billions of underprivileged people out there who would be most affected by this. For our children's children, and for those people out there whose voices have been drowned out by the politics of greed."

Through the qualitative analysis of the situation the study can put forth following suggestions as to assess the growth in industrialization and sustainability, an integrated accountability of environment and expanding markets needs to be established. This is possible with some policy measures for both economy and environment. These policy measures will improve the economic stability of the country as well as the growth of the industries. A proper environmental policy scenario for Indonesia will also analyze the ecological norms and check upon the market instruments which are causing environmental degradation. The environmental and economic policies must generate a benchmark for economic behavior and a practical framework has to be adopted to curb down the global warming issues in the country as well as in the world economy.

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