Impact of Indonesia's palm oil export ban on the Indian economy

Introduction

1. Context of Indian import of edible oils
2. Figures and statistics of how much of the imports of edible oils is palm oil
3. Importance of Palm Oil to India

Why does India need to import?

India has a large demand for edible oil. These include palm oil, groundnut oil, mustard oil, sunflower oil, olive oil, soybean oil, coconut oil and more. It produces only half of its edible oil requirements due to rainfed conditions, high seed cost, smallholding with limited

resources, low seed replacement rate, and low productivity. [1] With each consumer consuming almost 19 kg per person per year, India needs an estimated 24 million tonnes of edible oil.

India buys palm oil from Indonesia and Malaysia, soy oil from Argentina and Brazil, and sunflower oil from Russia and Ukraine to bridge this demand gap. About 10.5 million tonnes out of 24 million tonnes of demand is met through domestic production whereas the rest of 13.5 million tonnes is imported.

Ukraine is the world's biggest exporter of sunflower oil and India is its largest market. As a direct consequence of the ongoing Russia-Ukraine War, India has switched to Argentina and Brazil to fulfill its large demand for sunflower oil. Imports from Argentina were up by 37 percent in February compared with last year, and rising even more steeply, by 178 percent, from Brazil. But, even they have not been able to fulfill the supply for an oil- hungry India. World wide the oil industry is taking a hit. Brazil and Argentina are experiencing droughts that are expected to hurt their harvests.[2] And Canada, the world's biggest producer of canola oil, an alternative India might have considered, had its worst yield in 14 years in 2021, also because of a drought.[3] The distance will also prove unfruitful for India as it takes ships carrying oil from Brazil or Argentina several weeks longer to reach India than those from Indonesia. Indonesia exports its palm oil which forms a big part of India's imports of edible oil. More than 60% of imported oil, around 8-8.5 million tonnes, is palm oil and 45% of that comes from Indonesia and the remaining from neighboring Malaysia.[4]

Importance of Palm Oil to India

Palm Oil is an oil that is not confined only to the kitchen in India. Its derivatives are omnipresent. Palm oil is preferred in India's foodservice industry as it is relatively cheaper, lasts longer and is more stable at high temperatures than other oils.

Its wide uses can be seen in the food industry for cakes, biscuits and chocolates, to the cosmetics industry in the manufacture of beauty products. From cleaning agents to laundry detergents to margarine.

With the already staggering edible oil industry due to the surge in prices because of the Ukraine-Russia war, the decision of Indonesia comes as a huge setback. Indonesia announced the ban on 23 April 2022 shocking many countries, including one of its major exporters. This reality has hit the Indian consumers the worst. For Indian families, by

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[1] Sharma, Samrat. "Not Only Crude, India Heavily Depends on Edible Oil Imports Too; Here's Why There Is Production Crisis," February 7, 2020.
[2] Kasturi, C., 2022. *Can Brazil and Argentina satiate India's food oil hunger?*
[3] Kasturi, C., 2022. *Can Brazil and Argentina satiate India's food oil hunger?*
[4] Kasturi, C., 2022. *Can Brazil and Argentina satiate India's food oil hunger?*

end-April, refined palm oil was 27 percent costlier than a year ago, and crude soybean oil was 22 percent more expensive.[5]

In the paper ahead, we analyze the various aspects of the ban on the Indian economy and the way forward.

Role of edibles oils in the Indian Economy

1. Imports of edible oils in the country (spending, survey statistics, etc.)
2. Domestic production of edible oils in India
3. The Indian domestic consumption of Indonesian oil

Consumption

India is the world's second largest importer of vegetable oil and the largest importer and consumer of palm oil. An average Indian consumes more than 18 kg per annum of edible oil. While as per nutritional requirements, 12-13 kg per person per annum is sufficient. Its demand for edible oil is expected to further double by 2030, which cannot be sustained just by increasing the import quantity. Increasing disposable incomes, rising urbanization rates, changing dietary habits and the growth of the food processing sector represent some of the key factors driving the demand for edible oil in India.[6] The edible oil market is fueled by the growing awareness towards several health benefits of organic and low-cholesterol edible oil.[7] The demand for processed food is increasing as the dietary patterns of consumers change along with a hectic schedule. The rising demand for edible oil in the food processing sector as food preservatives and flavoring agents is also catalyzing the market growth in the country. The increasing penetration of international culinary trends are further supporting the need for healthy oil options. Since 2001, palm oil consumption in the country has increased by over 230% from 3 million tonnes to nearly 10 million tonnes.[8]

Palm oil is a difficult crop to produce as a high water intensive crop. Producing palm oil in large amounts can be highly unsustainable. If exported in these conditions, Indonesia and Malaysia would be exporting their biodiversity issues to India.

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[5] Kasturi, C., 2022. *Can Brazil and Argentina satiate India's food oil hunger?*
[6] https://www.imarcgroup.com/india-edible-oil-market
[7] https://www.imarcgroup.com/india-edible-oil-market
[8] Venkatesh, Shreeshan, and Anupam Chakravartty. "Palm Oil Consumption Increased 230% in Almost 2 Decades, Yet India Imports Most of It." Down To Earth.

Edible oils such as palm oil are a key raw material for FMCG and HoReCa (hotels, restaurants and caterers) industries and a rise in the prices of these commodities impacts consumer goods beyond food products such as soaps, shampoos, etc.[9]

In India, there are mainly three main categories which consume palm oil. They are

Production

The Indian vegetable oil economy is the world's fourth largest after the US, China and Brazil, harvesting about 25 million tons of oilseeds against the world. A wide range of oilseed crops are grown in the different agro climatic zones in India. Groundnut, mustard, rapeseed, sesame, safflower, linseed, niger seed, castor are the major traditionally cultivated oilseeds.[10] Soybean and sunflower oil have also come to the forefront of domestic oil production. Palm Oil is mainly cultivated in the Indian states of Andhra Pradesh, Karnataka, Tamil Nadu and North- Eastern parts of the country in addition to Kerala and Andaman & Nicobar Islands. Many initiatives like the National Mission on Oilseeds and Oil Palm have been undertaken by the government to make India self-sufficient in the cultivation of palm oil. However, this is an aggressive push toward domestic oil palm cultivation at the expense of biodiversity. Unsustainable expansion of oil palm cultivation in India with short-term economic goals will lead to both biodiversity and social issues.[11]

India has made many years of effort to sufficiently grow palm oil in its lands. But it has not been able to achieve self-sufficiency in the production of this "wonder" oil despite 40 years of efforts. The efforts have ranged from identifying 2 million hectares across the country for oil palm cultivation to implementing the National Mission on Oilseeds and Oil Palm (NMOOP) under the 12th Five Year Plan. It has been found that the crop could be doing more harm than good to Indian farmers. While returns to oil palm are consistent and stable, oil palms require high maintenance which cannot be managed by the small farmers, working on extremely small wages. Trees grow very tall—up to 12 meters—making harvesting "arduous," as a farmer in Andhra Pradesh says. Unlike coconut, oil palm bunches are heavy and spiny and are thus harvested with sharp sickles on long poles. Many have had

[9]Desk, India Today Web. "Palm Oil Price to Go up? Impact of Export Ban by Indonesia in India." India Today, April 25, 2022

* Verify the statistics and insert credible footnotes

^Additional info needed on the following topics: (Why is this so? Is it the taste? What can be done to prevent this from happening? More awareness camps or medical help or through the help of psychologists and doctors this can be solved?)

[10]Ministry of Consumer Affairs, Food and Public Distribution, and Department of Food and Public Distribution, Government of India, OIL DIVISION § (2022). https://dfpd.gov.in/oil-division.htm.

[11] Sagar, H. S. Sathya Chandra, Amani Mabano, Ramya Roopa, Mahmuda Sharmin, Freddie-Jeanne Richard, and Julia Clause. "India in the Oil Palm Era: Describing India's Dependence on Palm Oil, Recommendations for Sustainable Production, and Opportunities to Become an Influential Consumer," 2019. https://journals.sagepub.com/doi/pdf/10.1177/1940082919838918.

to uproot the plant because the cost of maintaining it is way high, even though the yield would have come after two years. Oil palm is not economical for small landholders and tenant farmers as there is practically no income in the first six years. Besides, it is susceptible to market and seasonal fluctuations.

Imports of Palm Oil

There is a large gap in the domestic production and consumption of edible oils in India. In order to ensure availability of edible oil in the country, export of edible oil has been banned w.e.f. 17.03.2008, which was extended from time to time.[12]

India's vegetable oil economy is the fourth-largest after the US, China and Brazil.[13] Yet the country relies on imports to meet over 70% of its vegetable oil requirements; almost 60% of the requirement is met through palm oil.[14] The reason is simple. Palm oil is cheap—it costs 20% less than most vegetable oils—as well as adaptable to be used in many conditions. As mentioned earlier, its use can be extended to almost any industry due to its varied chemical properties.

Additionally, the oilseed production in India has grown by almost 43 per cent from 2015-16 to 2020-21. The oil production in India has however lagged behind its consumption, necessitating import of edible oils.

India's vegetable oil import bill jumped 63% in the 2020-21 marketing year ended October 31 to a record $15.7 billion.[15] This implies that the central government spends Rs 50,000 crore annually on the import of palm oil.

Ban of Indonesian palm oil

[12] Ministry of Consumer Affairs, Food and Public Distribution, and Department of Food and Public Distribution, Government of India, OIL DIVISION § (2022). https://dfpd.gov.in/oil-division.htm.
[13] Venkatesh, Shreeshan, and Anupam Chakravartty. "Palm Oil Consumption Increased 230% in Almost 2 Decades, Yet India Imports Most of It." Down To Earth. Accessed August 21, 2022. https://www.downtoearth.org.in/coverage/agriculture/palm-oil-consumption-increased-230-in-almost-2-decades-yet-india-imports-most-of-it-61040.
[14] Venkatesh, Shreeshan, and Anupam Chakravartty. "Palm Oil Consumption Increased 230% in Almost 2 Decades, Yet India Imports Most of It." Down To Earth. Accessed August 21, 2022. https://www.downtoearth.org.in/coverage/agriculture/palm-oil-consumption-increased-230-in-almost-2-decades-yet-india-imports-most-of-it-61040.
[15] Vanamali, Krishna Veera. "How Much Should India Worry over Indonesian Palm Oil Export Ban?" Business Standard News. Business-Standard, April 29, 2022. https://www.business-standard.com/podcast/current-affairs/how-much-should-india-worry-over-indonesian-palm-oil-export-ban-122042900082_1.html.

1. Reasons for ban of palm oil (in depth analysis)
2. Indonesian domestic production and profit generated from the export of palm oil/other edible oil

Amid an ongoing global food crisis, vegetable oils registered record-breaking highs. According to data compiled by the Food and Agriculture Organization of the United Nations, the prices for edible oils rose to almost 250% of standard price levels.

Over the past two years, labor restrictions, climate change and violent conflict have contributed to this latest oil crisis. As the COVID-19 pandemic spread rapidly across six continents, lockdowns resulted in work restrictions, affecting production sites and processing facilities in strategic locations such as Indonesia and Malaysia. These two countries are the top producers of palm oil, accounting for approximately 40% of the vegetable oil market.

Indonesia is the world's largest supplier of palm oil, so depriving global markets of the commodity comes as a huge setback. . It will, among other things, affect the cost of basic goods like cooking oil at a time when food prices are already being squeezed. So why did Indonesia take this extraordinary step?

In a catastrophic turn of events in Europe, the Russian invasion of Ukraine caused the price of sunflower oil to soar. When shipments of the important export crop came to a halt due to conflict-induced logistical bottlenecks in the supply chain, the market reacted instantly: futures contracts for sunflower oil suddenly swelled to US$ 2,361 from the previous year's US$ 1,404 per tonne.

Given the market disruptions, commodity traders turned their attention back to palm oil, the cheapest and most abundant vegetable oil. Oil palm plantations yield an average of approximately three tonnes of oil per hectare each year, while other oil-producing crops generate less than one tonne of crude oil per hectare. However, According to the Indonesian Palm Oil Association, local production of crude palm oil fell in 2021 compared to 2020, even as global demand surged. When demand increases and supply falls or remains constant, all else being equal, prices will rise. In April 2020, a ton of Indonesian crude palm oil was fetching around $545 on the European market. Two years later, that jumped to $1,700.

When the price of vegetable oils began to rise steeply, the Indonesian government scrambled to find effective domestic measures that would protect consumers. To bring the price down, the government first tried some regulatory fixes such as export quotas,

domestic market obligations, and price ceilings for cooking oil. Policymakers decreed a price cap on palm oil and imposed a limit of two liters per customer as a rationing measure.

They later increased the levy on palm oil exports and offered direct cash transfers to low-income citizens to subsidize purchases of the staple food. None of their strategies solved the problem.

For palm oil producers, it is much more lucrative to sell their stock abroad instead of to the Indonesian market. The small group of businesses that control the country's palm oil sector benefited financially from the high international prices for edible oils. By allocating more and more of their oil to the export
market, they created a bottleneck in the domestic supply chain.

Public discontent grew in light of the administration's inability to stabilize prices, unleashing a wave of protests in mid-April. The pressure escalated towards the end of the month. Eid al-Fitr, the Muslim celebration that marks the end of the month-long fasting during Ramadan, took place in the beginning of May this year.

Preparations for the festivities caused an upsurge in the demand of cooking oil in Indonesia. For the first time in two years of COVID-19 restrictions, people were hosting extravagant feasts. It was within this context that the Indonesian government ultimately decided to ban the export of crude and refined palm oil.

Although the export ban temporarily quieted domestic critics, the rest of the world was bewildered by the new trade policy. Immediate repercussions were felt most strongly in populous nations that rely on the import of vegetable oils for their cooking needs, like India, Pakistan, Bangladesh and Egypt.

But for now Indonesia controls the raw supply of things like coal and palm oil which are in high demand, so their reach can extend pretty far when they want to send a message. And that message – that the domestic market needs to be supplied first and at affordable prices, even if it forces exporters to leave profits on the table – is coming through loud and clear.

The impact of the ban on palm oil exports on the Indian economy

1. India's immediate response (how do they handle the situation in short-term)
2. Substitution of palm oil from different countries
3. Shift in India-Indonesia trade relations due to the ban
4. Figures and statistics to show impacts on expenditure from the ban of palm oil
5. Deficit generation
6. Overalls impact on the general economy of India

Indonesia announced the ban of Crude Palm Oil on 23 April, 2022. Following this announcement by Indonesian President Widodo, the prices jumped by about 200% on the global market.[16] Cooking oil prices were already high following Russia's attack on Ukraine — the two countries responsible for more than half of global production of sunflower oil, according to the UN's Food and Agriculture Organization (FAO). That caused a jump in prices of all cooking oils, including palm oil.[17]

With such a sudden shock, even Malaysia, the world's second largest exporter of palm oil, could not provide enough to the Asian countries of India, Bangladesh and Pakistan. India's imports of palm oil had also been hampered by the diplomatic dispute with Malaysia, after Malaysian Prime Minister Mahathir Mohamad criticized Indian policy over the Kashmir region and citizenship laws. Limited availability of palm oil and sunflower oil prompted refiners to increase soyoil buying from Argentina, Brazil and the United States for prompt shipments.[18]

Seeing this sudden ban and foreseeing the acute shortage, the Solvent Extractor's Association in India, the national body of the vegetable oil industry and trade, had suggested the Indian Government to immediately initiate government to government discussions between India and Indonesia.[19]

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[16] Welle, Deutsche. "Indonesia Ends Export Ban on Palm Oil: DW: 20.05.2022." DW.COM, May 20, 2022. https://www.dw.com/en/indonesia-ends-export-ban-on-palm-oil/a-61875147.
[17] Welle, Deutsche. "Indonesia Ends Export Ban on Palm Oil: DW: 20.05.2022." DW.COM, May 20, 2022. https://www.dw.com/en/indonesia-ends-export-ban-on-palm-oil/a-61875147.

[18]Reuters. "India's Palm Oil Imports Seen Muted Even as Indonesia Lifts Export Ban." The Economic Times, May 20, 2022. https://economictimes.indiatimes.com//news/economy/foreign-trade/indias-palm-oil-imports-seen-muted-even-as-indonesia-lifts-export-ban/articleshow/91685295.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst.
[19] ET Online. "Indonesia Palm Oil Export Ban: Buyers like India Have Limited Alternatives." The Economic Times, April 26, 2022.

Between 2020 and 2021, palm oil prices have increased by more than 50 per cent. Due to this, the prices of edible oils have increased by more than one and a half times. To control the rising prices, the government had to reduce import duty. But India's increased inflation remained a cause for concern amidst the economy hit by the Covid-19 pandemic.[20] This already existing inflation had further shot up in the post-Covid era during the Ramzan and wedding season. In such a situation, after the move of Indonesia, the prices of edible oil there would come down, but its prices in India would have shot up significantly. Relief will not come quickly for Indian citizens who are struggling from the continuous rise in the cost of necessary items.

But other alternatives such as rice bran oil gained popularity amongst the urban consumers, as it is known to reduce the risk of heart diseases and type 2 diabetes.[21] Soyoil also became more attractive to Indian consumers and leaders. Limited availability of palm oil and sunflower oil prompted refiners to increase soyoil buying from Argentina, Brazil and the United States for prompt shipments.[22] Several industry leaders hinted that they would reduce their reliance on palm oil in phases and shift to alternatives such as rice bran oil and cottonseed oil for food products.

But even though the edible oil industry is gradually reviving, bad news looms over India. Against the backdrop of rising costs of crude oil, coal, vegetable oils, fertilizers and natural gas, the International Monetary Fund has estimated India's current account deficit to widen to 3.1% in FY23 from 1.6% in FY22.[23]

Indonesia lifts ban on exports of palm oil

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https://economictimes.indiatimes.com/news/economy/foreign-trade/indonesia-palm-oil-export-ban-buyers-like-india-have-limited-alternatives/articleshow/91066793.cms?from=mdr

[20] Bureau, ABP News. "Explained: How Indonesia's Palm Oil Export Ban Will Impact India? Which Products May See Price." News, April 25, 2022. https://news.abplive.com/news/indonesia-palm-oil-export-ban-will-impact-on-india-market-president-joko-widodo-edible-oil-sunflower-soybean-oil-prices-fmcg-indian-consumers-1528294

[21] R, Renjini V, Girish Kumar Jha, and Aditya K S. "How India Can Be 'Atmanirbhar' for Edible Oil Production." Down To Earth, February 12, 2021. https://www.downtoearth.org.in/blog/agriculture/how-india-can-be-atmanirbhar-for-edible-oil-production-75517

[22] Reuters. "India's Palm Oil Imports Seen Muted Even as Indonesia Lifts Export Ban." The Economic Times, May 20, 2022. https://economictimes.indiatimes.com//news/economy/foreign-trade/indias-palm-oil-imports-seen-muted-even-as-indonesia-lifts-export-ban/articleshow/91685295.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

[23] Vanamali, Krishna Veera. "How Much Should India Worry over Indonesian Palm Oil Export Ban?" Business Standard News. Business-Standard, April 29, 2022. https://www.business-standard.com/podcast/current-affairs/how-much-should-india-worry-over-indonesian-palm-oil-export-ban-122042900082_1.html

1. India's reaction and response
2. Change in India-Indonesia trade relations

After a three week ban on Crude Palm Oil (CPO), the Indonesian government lifted the ban on 23 May 2022. Following withdrawal of the ban, the government introduced additional requirements for exports, including reinstating the Domestic Market Obligation (DMO) and the Domestic Price Obligation (DPO) in an effort to stabilize the supply and price of domestic cooking oil. The DMO requires palm oil supplies to be reserved for domestic consumption versus export at a 1:3 ratio, with an aim to safeguard 10 million tonnes of domestic cooking oil supplies, the reason for the domestic agitation in Indonesia.[24]

According to the Solvent Extractors' Association of India (SEA), the recent development will not immediately normalize supplies because Indonesia has requested that each mill reserve a certain percentage of their production for their domestic market, which is 10 million tonnes.

Atul Chaturvedi, president of SEA, said in an interview that, in addition to easing the export prohibition, Indonesia has mandated their government agency, BULOG, to construct a buffer stock of around 2 million tonnes. "It will be a few more days before we have true clarification on the matter and Indonesian shipments smooth out."

Despite the lifting of the restriction, Chaturvedi believes that the price of edible oil in India would take time to fall because India relies largely on the international market for 70% of its use. The demand for fried good is lesser over the summer, hence the demand for edible oil is expected to fall. This would come as a good news to many Indian consumers.

"If we don't witness a collapse in pricing in the global market," he said, adding, "at greater levels, we have seen demand shrinkage and demand annihilation." The forward months in the worldwide market were likewise lower than the spot months. Prices would gradually fall, providing relief to Indian consumers."
The SEA president stated that edible oil prices will fall because demand for fried goods decreases over the summer.

To reduce India's reliance on imported oil, the central government established the National Mission on Oilseeds and Oil Palm (NMOOP) during the 12th Five Year Plan to promote

[24] "Indonesia Lifts Temporary Ban on Palm Oil Exports." Indonesia lifts temporary ban on palm oil exports | Food Price Monitoring and Analysis (FPMA) | Food and Agriculture Organization of the United Nations, May 27, 2022.
https://www.fao.org/giews/food-prices/food-policies/detail/en/c/1529567

development and sales. The initiative intends to increase edible oil production and grow oil palm plantations.

Meanwhile, the prohibition on oil imports, combined with supply disruptions caused by the ongoing conflict in Ukraine, has resulted in price increases in the edible oil sector.

Chaturvedi believes that India's reliance on imports, particularly palm oil, will progressively decrease. Indian imports have been gradually decreasing and ideally India has the climate, decent monsoon, and farmers to bring India's import dependency down, he said. The palm oil prices have also become unattractive in the international market even as Indonesia eases the CPO ban. [25]

Policy Recommendations

Increasing Domestic Yield

With the ever-increasing population and the government's leading role in expanding sustainable palm oil farming domestically, India could lead the way in ensuring the sustainable production and consumption of palm oil. Oil palm is more efficient, uses less land, needs fewer pesticides, and less fertilizer and has the potential to help with the food security factor for a populous country like India. Additionally, edible oil is the third largest item being imported after petroleum and gold. As a matter of food security, India cannot depend so heavily on food items.[26] In a few years, even imports will not be able to bridge the gap between the increasing demand and the supply. Hence, India will need to domestically increase its production.

Oil palm is a very profitable crop as compared to other crops, but it would need some adjustments when it comes to its plantation in India. It may need new irrigation technologies and better land management systems to gain economies of scale.[27]

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[25] Reuters. "India's Palm Oil Imports Seen Muted Even as Indonesia Lifts Export Ban." The Economic Times, May 20, 2022. https://economictimes.indiatimes.com//news/economy/foreign-trade/indias-palm-oil-imports-seen-muted-even-as-indonesia-lifts-export-ban/articleshow/91685295.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

[26] "India Can Play Critical Role in Promoting Sustainable Palm Oil: Experts." Hindustan Times, February 25, 2022. https://www.hindustantimes.com/brand-stories/india-can-play-critical-role-in-promoting-sustainable-palm-oil-experts-101645710772739.html

[27] "India Can Play Critical Role in Promoting Sustainable Palm Oil: Experts," Hindustan Times, February 25, 2022, https://www.hindustantimes.com/brand-stories/india-can-play-critical-role-in-promoting-sustainable-palm-oil-experts-101645710772739.html.

To counter India's reliance on other palm oil producing countries and to address the issue of non-employment among the vast Indian population, the Indian government launched the National Mission on Edible Oils – Oil Palm (NMEO-OP) in August 2021. This new palm oil initiative aims to boost India's self-sufficiency in edible oils and helps increase farm incomes. Under the new scheme, oil palm is offered as an alternative to low yield crops such as sugarcane and paddy, with expansion focused on areas where it can be a rain-fed crop.

There are additional deep challenges with increasing domestic oil palm production. Some recommendations are provided to counter the challenges faced by the stakeholders in the production:

1. Water Requirement/Irrigation Facilities

Palm trees thrive in the tropical climate. Although native to many areas of the world, they are typically found in warmer climates like in South-East Asia. In the wild, oil palm can grow to heights of 60-80 feet, but in cultivation, it is rarely taller than 20 or 30 feet. But, the water requirement for the crop is high which can put a large strain on the water table. Both Indonesia and Malaysia have an average annual precipitation of over 2,500 mm. India's average annual precipitation comes to a little over 1,000 mm. The demand for water cannot be met by rain alone, and needs irrigation systems. This, in turn, means greater strain on water sources, especially groundwater, which leads to a falling water table.

2. Industry Status

Oil palm is not declared as a plantation crop so it does not have industry status like tea, coffee or rubber industry. This can be countered by the government putting in research into this crop and the various aspects of its domestic production. Industry status can be given with special care taken to ensure that no biodiversity is put at risk.

3. Land Ceiling Act

The land ceiling act restricts buying of land by an individual.[28] And India would need approximately 2 million hectares of land out of its 160 million hectares of agricultural land to produce enough palm oil to replace its imports and meet its requirements which comes to about 1% of land requirements. [29] Therefore, new techniques will need to be developed

[28] "India Can Play Critical Role in Promoting Sustainable Palm Oil: Experts," Hindustan Times, February 25, 2022, https://www.hindustantimes.com/brand-stories/india-can-play-critical-role-in-promoting-sustainable-palm-oil-experts-101645710772739.html.
[29] "India Can Play Critical Role in Promoting Sustainable Palm Oil: Experts," Hindustan Times, February 25, 2022,

for effective utilization of India's resources, especially land. Additionally, the lands should be properly classified and checked. India is home to two global biodiversity hotspots,[30] but just 4.90 percent of its total land area is protected (Ministry of Environment, Forest and Climate Change [MoEFCC], 2018). Due to a lack of thorough research on the feasibility of oil palm plantations and potential hazards to the ecology and livelihoods of indigenous groups in this region, these sensitive areas, particularly in the northeastern states, are under greater threat from unguided oil palm expansion.

4. Cooperation between Industry and Small Farmers

The leading players in palm oil production in India are corporate players such as Patanjali-owned Ruchi Soya, 3F Oil Palm Agrotech, and Godrej Agrovet. More than half the Indian farmers are totally dependent on rain-fed agriculture, with no access to irrigation. The new scheme rolled out for the small farmers to assist in oil palm production will not be effective until they are given other resources, like irrigation facilities, equipment and techniques. Establishing connections between high industries like these and small farmers can help in paving the way forward for a stable production of oil. Smallholdings like Asian Agri in Indonesia can be established. Asian Agri has helped its smallholder partners improve productivity, yield and supply chain traceability, while assisting them obtain certifications. The company's mills are technologically advanced and energy self-sufficient, minimizing greenhouse gas emissions.[31]

5. Sustainable Practices

Throughout this expansion, it will also be critical to use environmentally sustainable practices, set realistic goals, and respect and strengthen India's biodiversity regulations. This can be achieved by the government putting priority on sustainable forest management, as done in Indonesia. Through this method, there was a drop in the deforestation rate and forest fires by almost 90%.[32]

Unsustainable oil palm expansion with short-term economic goals will lead to both biodiversity and social issues in India[33]. Like in Manipur, social discontent has been caused

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https://www.hindustantimes.com/brand-stories/india-can-play-critical-role-in-promoting-sustainable-palm-oil-experts-101645710772739.html.

[30] (Myers, Mittermeier, Mittermeier, Da Fonseca, & Kent, 2000)

[31] Digital Team, "A Case Study on Responsible Investment into Palm Oil in Indonesia," Asian Agri : A Case Study on Responsible Investment Into Palm Oil in Indonesia, March 7, 2022, https://www.asianagri.com/en/media-publications/press-release/asian-agri-a-case-study-on-responsible-investment-into-palm-oil-in-indonesia/.

[32] "India Can Play Critical Role in Promoting Sustainable Palm Oil: Experts," Hindustan Times, February 25, 2022, https://www.hindustantimes.com/brand-stories/india-can-play-critical-role-in-promoting-sustainable-palm-oil-experts-101645710772739.html.

[33] (Mandal & Shankar Raman, 2016; Nagalimvoice, 2014; Srinivasan, 2014, 2016)

with communities claiming that the proposed New Land Use Policies are damaging to their environmentally sustainable traditional land-use management methods. This could result in costing India potential lands that could support the production of this crop.

6. Roundtable Sustainable Palm Oil

In 2018, the 'Sustainable Palm Oil Coalition for India' (I-SPOC) was formed by RSPO, Center for Responsible Business (CRB), Rainforest Alliance, and WWF-India. Today over 150 RSPO members operate in India and 72 of them are Indian companies with more than 100 RSPO supply chain certified facilities or licenses.

Currently, training and capacity building work is being carried out in the state of Andhra Pradesh, which is foreseen to help support Indian oil palm farmers to adopt best farming practices and increase their yields and income. Since 2020, RSPO and WWF-India have been working together to train about 400 Indian oil palm farmers and several palm oil mills in Andhra Pradesh, the leading producer of India's domestic palm oil market, under the RSPO Independent Smallholder Standard. While this will help increase the production of the crop sustainably and increase the farm income, its implementation will need to be taken care of.

7. Lack of Awareness of Sustainable Palm Oil

To tackle these challenges, including a lack of awareness regarding sustainable palm oil among different supply chain actors and the need for increased capacity building and training building multi-stakeholder collaboration, including businesses, government, consumers, and civil society, consensus is key.

Business models can also be brought into this industry, to not only increase the production level, but grow the crop sustainably. One such enterprise is Navabharat Limited (NBL), an edible oil processor based in Andhra Pradesh and the first private company to breed oil palm seeds, which is currently working with RSPO to get its plantation certified. With the support of RSPO India, NBL conducted a farmer training programme held at Gopalapuram Mandal, with approximately 60 farmers. Once this is completed, NBL will be the first company to be certified as sustainably producing palm oil in India.[34]

8. SSP Framework

The SSP framework can also prove fruitful towards sustainable development of palm oil. The SSP framework comprises Scientific research, Social measures, and Political actions.

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[34] said V N Srinivas Prasad, CEO and Director of NBL.

The government or independent stakeholders who might consider holding smallholdings will have to back the production of Palm Oil on scientific research done. That can be done through the following methods, which are tested,

Spatially Explicit Mapping:

NMOOP is on a mission to plant oil palm on an additional 120,000 hectares of land (Government of India and Cabinet, 2017). In Ghana, where natural areas are being turned into plantations, similar policies are already directing the sustainable development of oil palm farms (National Geographic, 2018). In India, however, existing agricultural areas and non-arable fallow lands must be utilized to cultivate oil palm. Such trade-offs must be investigated at a more regional or local level. Oil palm is the most efficient oilseed, producing roughly 5 times more per unit area than any other major oilseed crop (World Wide Fund, 2016).

Plantations should be expanded on existing agricultural lands by converting other oil seed crops like rapeseed, peanut, and sunflower seed, as well as staple food crops like rice, to oil palm plantations.

With adequate irrigation, non-arable fallow lands could likewise be transformed into plantations. This irrigation can be provided by the businesses or by various stakeholders. Additionally, intercropping can be done to avoid the wastage of land and water.

Replenishing Water Table:

With climate models predicting a 0.5C rise in temperature in India by 2030, heat waves, drought, severe storms, and flooding are projected to worsen in the future, posing a threat to health and livelihoods. Oil palm is a water-intensive crop that requires 280 to 350 L of water per plant per day (Carr, 2011). With rising temperatures, agriculture will find it harder to rely solely on precipitation. Rainfall should be harvested as effectively as possible. The NMOOP (2014) operational rules include incentives for farmers to install drip irrigation and bore wells, as well as build ponds and acquire irrigation pump sets. However, there are no incentives to refill the ground water table. To sustain irrigation, groundwater replenishment must be quickly incentivized and accomplished.

Various stakeholder can also invest in irrigation techniques and further decentralize to the local farmers for implementation.

Increasing Awareness Amongst Farmers:

Many rural Indian farmers and tribal people are unaware of the detrimental effects of oil palm crops. Government decisions based on short-term economic benefits may result in

social and environmental problems, such as the loss of indigenous communities' traditional rights to land and other natural resources, illegal clearing of forest lands, forest fires, and exploitative fertilizer use, as seen in Indonesia and Malaysia (Budi Darsono et al., 2013; Colchester et al., 2007; Cooke, Toh, & Vaz, 2011; Sheil et al., 2009). As a result, holding a series of seminars in each village, engaging all stakeholders, including the local population, village councils, the forest department, the horticultural department, and nonprofit organizations (NGOs). Only with the involvement of these stakeholders will there be a successful attempt at the production of palm oil.

Conclusion

1. Summary of the entire economic situation, possible political repercussions
2. Possible steps taken by Indian Government to ensure steady supply of palm oil in future

India has realized to achieve self sufficiency to reduce import dependency on neighboring countries. For this the Government implemented the National Mission on Oilseeds and Oil Palm to "augment the availability of edible oil in the country by harnessing area expansion and increasing crude palm oil production" (Running Cite). Under this scheme, more than Rs 11,000 crore will be invested, which will promote oil palm cultivation in the northeastern states and Andaman and the Nicobar Islands. The production of oilseeds has increased to 36.57 mt in 2020-21 from 27.5 mt in 2014-15. The area under oilseeds has also increased to 28.8 million hectares from 25.6 million hectares during the period.[35] Over the last couple of years, the Centre has begun distributing oilseed mini-kits with high-yielding seeds of soyabean, groundnut and sesame. It distributed nearly 9.25 lakh mini-kits for last year's kharif sowing.[36]

[35]Subramani Ra Mancombu, "What Indonesia's Palm Oil Export Ban Means for India," The Hindu BusinessLine (The Hindu BusinessLine, April 29, 2022), https://www.thehindubusinessline.com/blexplainer/bl-explainer-what-indonesias-palm-oil-export-ban-means-for-india/article65366502.ece.

[36] Subramani Ra Mancombu, "What Indonesia's Palm Oil Export Ban Means for India," The Hindu BusinessLine (The Hindu BusinessLine, April 29, 2022), https://www.thehindubusinessline.com/blexplainer/bl-explainer-what-indonesias-palm-oil-export-ban-means-for-india/article65366502.ece.

In an effort to become self-reliant in the matter of palm oil, the Government of India has set a target of cultivating palm on about one million hectares of land by the year 2029-30. That much land will be equal to the Tripura state of India.[37]

Technology Mission on Oilseeds and other policy initiatives have helped India increase the area under oilseeds in India from 9 million tons in 1986 to 32 million tons in 2018-19, though not sufficient to meet the domestic demand. Several other initiatives like Oil Palm Area Expansion under Rastriya Krishi Vikas Yojana, increasing the minimum support prices of oilseed crops, creation of buffer stock for oilseeds, cluster demonstration of oilseed crops, etc are being implemented by the government to boost domestic production.[38]

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What would the proposed large-scale cultivation of oil palm mean to India's ecology and economy?

[37] Bureau, ABP News. "Explained: How Indonesia's Palm Oil Export Ban Will Impact India? Which Products May See Price," April 25, 2022. https://news.abplive.com/news/indonesia-palm-oil-export-ban-will-impact-on-india-market-president-joko-widodo-edible-oil-sunflower-soybean-oil-prices-fmcg-indian-consumers-1528294

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