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COVID-19 and the Palm Oil Industry: Navigating recovery

Noor Zahirah Mohd Sidek[1]*, Muhammad Hanif Othman[1], Rizal Hafiz Ruslan[2]
**Corresponding Author*

[1] Faculty of Business and Management, Universiti Teknologi MARA Cawangan Kedah, Kampus Sungai Petani, Kedah Malaysia
[2] Signtake Resources Sdn. Bhd., Pulau Pinang, Malaysia.

nzahirah@uitm.edu.my, hanifothman@uitm.edu.my
Tel: +60134389896

Abstract
This article unfolds the current state of the palm oil industry following the COVID-19 pandemic. Despite the industry being allowed to operate given strict standard operating procedures, palm oil production has depicted a declining trend since 2018. One of the contributing factors is foreign worker shortages for maintenance and palm oil harvesting. Therefore, this article proposes the mechanization and mobilization of local workers, as well as the challenges and the way forward for Malaysia.

Keywords: 2M-mobilization and mechanization; palm oil plantation; challenges; way forward

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1.0 Introduction

The COVID-19 pandemic has brought about unprecedented damage to both health and the economy. With more than three million deaths as of April 2021, governments around the world provided various stimulus packages to cushion the impact of the crisis, revitalize the economy, and set the path for recovery. In February 2021, the unemployment rate in Malaysia stood at 4.8% or a one percent reduction from 4.9% in January 2021. Despite the relatively high unemployment in Malaysia, the palm oil plantation sector faced an acute labor shortage during the pandemic due to the unavailability of foreign workers since borders were closed. The paper aims to identify the challenges in the palm oil sector and present suggestions to remedy the problem.

The palm oil plantation sector is currently subjected to a few serious challenges. First, the lack of foreign workers who perform maintenance and harvesting work in palm oil. The reliance on foreign workers stemmed from the lack of interest among local workers since maintenance and harvesting are viewed as a 4D (dirty, dangerous, difficult, and demeaning). This perception created heavy reliance on foreign workers. To partially mitigate this problem, the Immigration Department launched the Foreign Workers Recalibration Plan in November 2020, which allows illegal foreign workers to stop working in Malaysia or to voluntarily be sent to their country of origin.

Second, mobilization and mechanization of the maintenance and harvesting process faced resistance despite various financial supports from banks and the Ministry for smallholders to acquire machines to assist in harvesting. Such resistance may be attributed to a few factors such as lack of support mechanism, especially on the technical aspects such as maintenance of the machines, high initial costs which later affect the return on investment for estate holders, lack of training and information on available mechanization, and finally, lack of drive from the government to promote mechanization and mobilization of local workers in the plantation sector. Meanwhile, the third challenge is associated with a lack of workers. The decline in crude palm oil production has led to other problems such as lower oil extraction rates and lower opening palm oil stocks. The benefits of the current high palm oil price could be maximized due to lower production.

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The fourth challenge is associated with the social development goals and changes in policies and standards on palm oil. The United Nations since 2015 had outlined 17 sustainable development goals and Malaysia is committed to achieving those goals. Likewise, the European Union passed the Farm to Fork (F2F) Strategy 2024 to ban unhealthy 3-monchloropropane idol (3-MCPD) present in palm oil. Radical measures were taken by the Malaysia Palm Oil Board (MPOB) by setting the requirements to comply with 3-MCPD issues. On the other hand, the government deployed remedial measures in response to anti-palm oil and deforestation campaigns. The Ministry of Plantation Industries and Commodities (MPIC) had promoted sustainable farming such as banned on open burning since 2020, capping the palm oil planted areas to 6.5 million hectares, encouraging estates to be RSPO-certified, and mandating MSPO standards for the entire palm oil supply chain. To date, 2.45 million hectares of palm oil planted areas have been certified by the MSPO, which is approximately 41.9% of the total planted areas. This amount also includes 386,038 hectares owned by smallholders.

Fifth, failure to mechanize and mobilize local workers in the plantation sector can potentially be detrimental in the future. The wage equalization issue may ensue in the next few years given the current rate of exchange rate appreciation of the Indonesian Rupiah. If wages in Malaysia are almost equal to wages in their country of origin, for example, Indonesia, the incentive to come to work in Malaysia will decrease. Although the supply of foreign workers can be obtained from other countries like Myanmar and Bangladesh, Indonesian workers are preferred by local estates and smallholders since their quality of work is much better compared to foreign workers from other countries. Reliance on foreign workers makes Malaysia vulnerable to international criticism of 'unfair treatment of workers' or 'exploitation of foreign workers which could result in banned exports.

In the face of these challenges, mechanization and mobilization of local workers must be undertaken immediately. The next section of the article reviews the palm oil industry in Malaysia, followed by the challenges and way forward for mechanization and mobilization of local workers in the palm oil plantation sector.

2.0 The palm oil industry in Malaysia

Malaysia is the world's fourth-largest producer of oil and fats and the second-largest producer and exporter of palm oil. In 2021, Malaysia exported 15.6 metric tonnes of palm oil, and the export value 2021 of palm oil stood at RM108,51 billion - an increase of 48% percent from 2020 (MPOB, 2021). However, export volume decreased by 9.2% from 26.73 million tonnes in 2020 to 24.28 million tonnes in 2021.

In 2021, the total area planted with oil palm decreased by 2.2%, from 5.865 million hectares in 2020 to 5.737 million hectares. The planted area in Peninsular Malaysia and Sabah decreased to 2.607 million hectares and 1.523 million hectares corresponding to a decrease of 4.7% and 1.3%, respectively. The area of oil palm plantations in Sarawak increased by 1.4% to 1.606 million hectares. Table 1 presents the breakdown of the total planted areas in Peninsular Malaysia, Sabah, and Sarawak. Although Peninsular Malaysia accounts for a much larger proportion of planted areas vis-à-vis Sabah and Sarawak, the average FFB and yield are higher in Sabah with 3.24 oil yield per tonne/hectare compared to 3.22 and 2.77 in Peninsular Malaysia and Sarawak, respectively. In Peninsular Malaysia, Perak produces the highest oil yield per tonne/hectare at 3.79 and the highest FFB yield at 19.43 tonnes per hectare in 2021 (MPIC, 2022).

Table 1. Total Palm Oil Planted Area (hectares)

Year	Peninsular	% Share	Sabah	% Share	Sarawak	% Share	Total
2010	2,524,672	52.0	1,409,676	29.0	919,418	18.9	**4,853,766**
2011	2,546,760	50.9	1,431,762	28.6	1,021,587	20.4	**5,000,109**
2012	2,558,103	50.4	1,442,588	28.4	1,076,238	21.2	**5,076,929**
2013	2,593,733	49.6	1,475,108	28.2	1,160,898	22.2	**5,229,739**
2014	2,617,334	48.5	1,511,510	28.0	1,263,391	23.4	**5,392,235**
2015	2,659,361	47.1	1,544,223	27.4	1,439,359	25.5	**5,642,943**
2016	2,679,502	46.7	1,551,714	27.0	1,506,769	26.3	**5,737,985**
2017	2,708,413	46.6	1,546,904	26.6	1,555,828	26.8	**5,811,145**
2018	2,727,608	46.6	1,549,245	26.5	1,572,477	26.9	**5,849,330**
2019	2,769,003	46.9	1,544,481	26.2	1,586,673	26.9	**5,900,157**
2020	2,737,723	46.6	1,543,054	26.3	1,584.520	27.0	**5,865,297**
2021	2,607,847	45.5	1,523,624	26.6	1,606,261	27.9	**5,737,731**

Source: MPIC (2020), MPIC (2022)

Palm oil plantation has the second largest number of smallholders (37.51%) after rubber (54.73%) compared to other Agri commodities such as cocoa, pepper, or kenaf and the largest total planted areas with 0.816 million hectares or 58.79% of total planted areas by smallholders (MPIC, 2022). In terms of ownership, private and government/state agency estates owned 73.2% of the planted area, while independent smallholders owned 15.1% and organized smallholders owned 11.1% (Figure 1). Foreign workers in the plantation sector constituted 23.2% of the total foreign workers with remittances worth RM 6.7 billion in 2018.

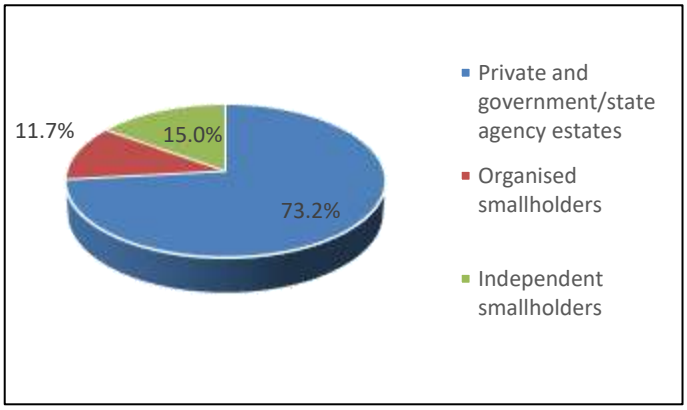

Fig. 1: Oil palm planted area by category in 2021
Source: MPOB (2022)

3.0 Challenges and the way forward

In the 2021 Budget, RM 729.39 million, or an increase of 8.84% was allocated as an incentive to replace foreign labor with local workers. Reduction in the entry of foreign labor due to border closure since March 2021 had severely impacted the plantation sector. For example, foreign workers in the palm oil sector were involved in harvesting palm oil and maintenance of plantation estates. The lack of foreign workers affects the harvesting process. The Khazanah Research Institute (2021) reported that a 30% reduction in labor could lead to oil production plunging by 50%, and the supply chain will collapse in the event of palm oil output being reduced by 80%.

In 2021, fresh fruit bunch yield (FFB) recorded a 7.5% decline from 16.73 tonnes per hectare in 2020 to 15.47 tonnes per hectare. The reduction in Peninsular Malaysia, Sabah dan Sarawak was 8.6%, 6.4%, and 7.0%, respectively. One of the reasons for the reduction in yield was the lack of workers during the harvesting period, thereby resulting in late delivery to the palm oil processing factory and a lower oil extraction rate (OER). Table 2 depicts the FFB, OER reduction, and palm oil production for 2020 and 2021. OER increased by 0.5% in 2021 from 19.92% in 2020 to 20.01%in 2021. However, the overall production of crude palm oil (CPO) reduced by 5.4% in 2021 due to lower FFB processing and lower OER. Sabah recorded the most severe reduction of 6.2%, followed by Peninsular Malaysia and Sarawak by 5.7% and 3.6%, respectively.

Malaysia imported 1.50 million tonnes of palm oil and other palm-based products (POPP) in 2021, 16.7% higher than in 2020, to meet the rising demand of its domestic processing sector (Table 3). With a volume of 1.18 million tonnes, palm oil imports accounted for 78.3% of the total POPP imports, which was 24.3% points higher than what was recorded in 2020. Indonesia supplied nearly all of Malaysia's palm oil imports.

Table 2. FFB, OER, and Production for 2020 and 2021

	FFB (tonne/hectare)		OER (%)		Production (metric tonne)	
	2020	**2021**	**2020**	**2021**	**2020**	**2021**
Malaysia	16.73	15.47	19.92	20.01	19.14	18.12
Peninsular Malaysia	17.76	16.24	19.68	19.83	10.43	9.85
Sabah	16.84	15.77	20.74	20.55	4.65	4.36
Sarawak	14.99	13.94	19.62	19.88	4.05	3.91

Notes: FFB – fresh fruit bunch yield; OER – oil extraction rate; Production – crude palm oil production
Source: MPOB (2021)

Table 3. Malaysian Imports of Palm Oil and Oil Palm Products

2021	**2020**	**Difference**	
		Volume	**%**

Palm oil	1,177,251	946,917	230,335	24.3
Palm kernel oil	273,691	281,514	(7,823)	(2.8)
Palm kernel	52,889	59,854	(6,965)	(11.6)
Total	**1,503,831**	**1,288,285**	**(215,546)**	**16.7**

Source: MPOB (2022)

In addition, since 2018, the production of palm oil, average oil extraction rate, and monthly closing stock of palm oil has been decreasing. The decrease in CPO production in 2021 had a significant impact on the Malaysian palm oil industry. Apart from the limited palm oil export capacity, the reduction in produced CPO exerted considerable pressure on the level of national stocks. In 2021, the monthly closing stock of palm oil fell below 1.50 million tonnes more than twice, which had never occurred in the preceding five years. This brought the average monthly closing of palm oil stocks to 1.60 million tonnes, the lowest level since 2017 (Figure 2). To overcome these problems, mechanization and mobilization of local workers in palm oil maintenance and harvesting ought to be MPIC's top priority.

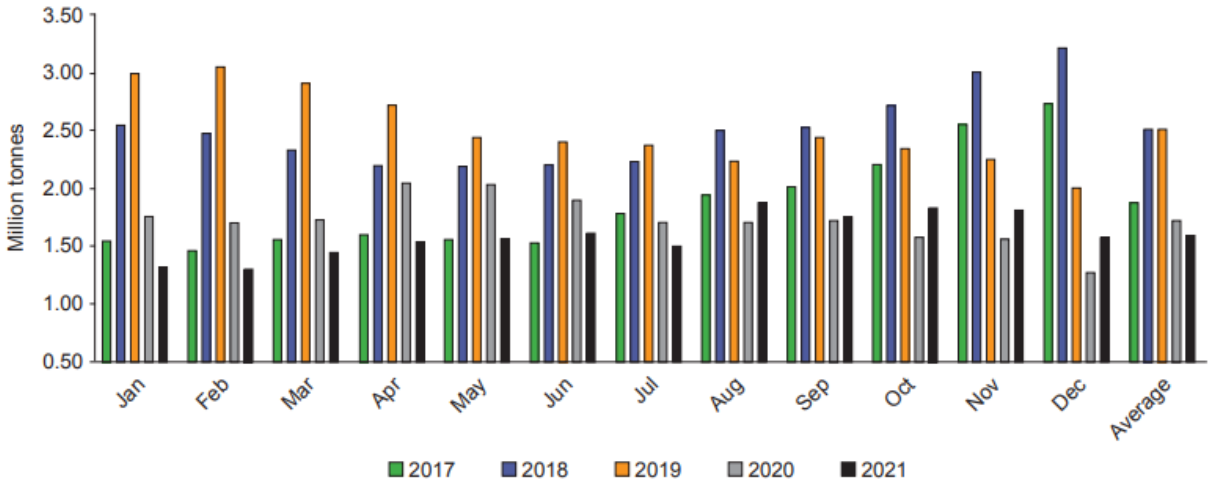

Fig. 2: Palm oil monthly closing stocks and the average stocks level for each year
Source: Parveez et al. (2022)

On a lighter note, the price of palm oil on average has increased by 64.1% from RM2,685.50 per tonne in 2020 to RM4,407.00 in 2021, which cushioned the negative impact discussed above. During the COVID-19 pandemic, the palm oil sector continued to operate with strict SOPs and exports resurfaced as most economic activities resumed. However, given the problems highlighted in Table 2, a movement toward more mechanization to assuage the problem related to palm oil harvesting requires immediate attention. The reduction of entry of foreign workers is a blessing in disguise since this would provide an opportunity for Malaysia to introduce a new business model where harvesting and maintenance of palm oil estate is no longer a 4-D (Dirty, Dangerous, Difficult, and Demeaning) job. This requires:

(i) Repackaging and rebranding the harvesting and maintenance process

Rebranding entails developing mobile applications between the palm oil mill, the owner of the estate (including smallholders), and contractors to enable more efficient communication. This is a vital step since the quality of crude palm oil would affect FFB and OER. The faster the crude palm oil arrives at the mill for processing, the better the overall yield would be. There should be a change of job title from 'labor' to 'maintenance contractor' to attract local workers to participate in this market segment. Rebranding the job title and use of mechanization along with other attractive incentives would draw more locals towards this business segment, hence reducing the rate of unemployment and remittances by foreign workers.

The new business model should entail intensive use of machinery for estate maintenance such as the use of drones for fertilizing and other maintenance activities, and the use of machines for harvesting. Studies have shown that mechanization can double productivity (Khalid & Shuib, 2014). Supporting businesses such as companies selling fertilizers and herbicides should package such sales with other sub-services such as delivery and spraying the pesticides and herbicides in the palm oil estate.

(ii) Policies and incentives

Policies and incentives serve as push factors to expedite the process of mechanization and mobilization of local workers in harvesting and maintenance. Tax incentives should be given to start-ups involved in mechanization and mobilization. New and existing firms employing local workers should be given tax reductions for the first 2-3 years of operation whilst firms employing foreign labour should pay higher taxes.

Existing incentives on machinery should be repackaged into machinery, training on how to use the machines, scheduled repair and maintenance of the machinery, and on-site fabrication of machinery to suit the terrain. The mechanization process requires a high initial cost, which explains why industrial players and smallholders are still resistant to mechanization. Machinery is expensive to acquire and incurs maintenance costs, which in turn, affects the profitability of the company. Hence, government intervention is needed to assist

smallholders to acquire and use mechanization in palm oil harvesting and maintenance. Tax exemption could be given to the major industrial players to help cushion the rising cost due to the acquisition of machinery. The current problem of foreign labour shortages should be the stepping stone for both government and industry players to move towards mechanization and mobilization of local workers in the palm oil industry. For instance, the 'carrot and stick approach uses tax incentives, and disincentives on the use of local versus foreign workers could expedite this process.

(iii) Support system

One of the critical success factors for mechanization is to have an efficient support system. On-going training must be undertaken especially when a new machine is in the market. Research and development are necessary to test the plausibility of using the new machines by taking into account the productivity, cost, and geographical condition of the estate. Maintenance of the machinery is vital to overcome the problem of resistance towards the use of mechanization.

(iv) An Ecosystem for palm oil commodity

The interplay of the ministry, agencies under the ministry, smallholders, and major players in the industry must communicate and collaborate to come up with implementable solutions to all the challenges in the industry. Regular discussion between the stakeholders is necessary to ensure the existence of the ecosystem. The link between the upstream and downstream activities of palm oil has yet to be developed to ensure the uninterrupted flow of the supply chain. Financing mechanization especially amongst the smallholders should also be one of the priority elements in the ecosystem. Creating an ecosystem should consist of the following:

(a) MPIC -Banks – Agencies synergy
MPIC should devise and implement state-of-the-art policies and action plans, and provide incentives such as tax relief, training, and financing facilities in collaboration with banks and all agencies under MPIC.

(b) Stakeholders
Stakeholders for example *Lembaga Pertubuhan Peladang* (LPP) (Farmers' Association) should collaborate with MPIC and its agencies to employ more local workers and embrace mechanization.

(c) Universities and MPOB
MPOB is the lead research and development center for MPIC. Hence, a proposal of better policies-, short-, medium- and long-term action plans, and the development of new value-added products are to be conducted under smart collaboration with the local universities.

(d) Lead Agency
A lead agency is needed to monitor the progress of the action plan and the collaboration of all the stakeholders. The lead agency can be viewed as the agency under MPIC which executes policies for MPIC and, necessitates all projects to take off and to be completed as per schedule. Regular reporting ensures remedial actions could be undertaken if projects are under-scheduled or when major problems arise.

(v) Action Plan for the next five years

Under the 12th Malaysian Plan, we propose the following phases for the palm oil industry.

Phase 1: To remedy the problem of foreign workers shortages via mobilization of local workers including fresh graduates.
Phase 2: Mechanization of palm oil harvesting and maintenance and financing mechanization process.
Phase 3: Exploring new markets for CPO and promotion of research and development in palm oil-based product development.
Phase 4: New market for palm oil-based value-added products and industries.

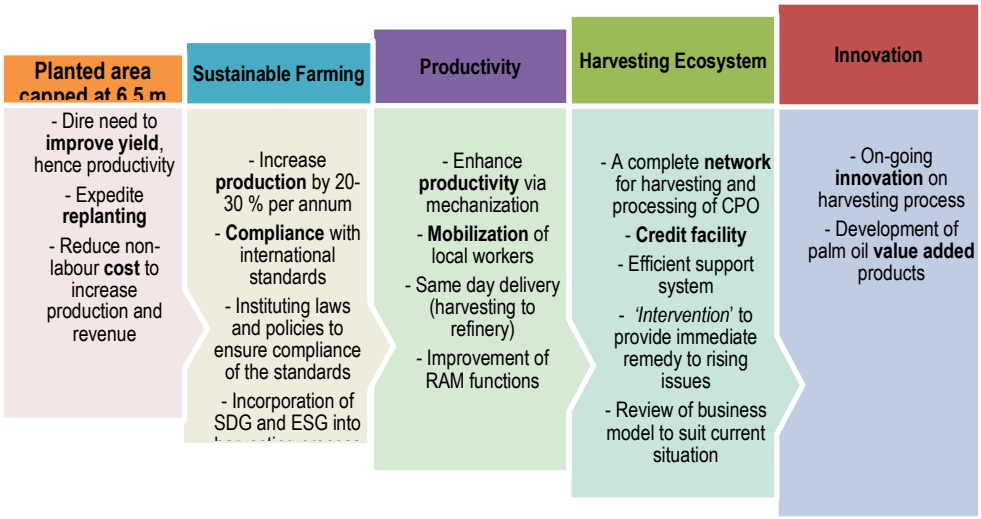

Fig. 3: The proposed trajectory for the palm oil plantation sector for RMK-12

4.0 Conclusion

This paper discusses the challenges and way forward post-COVID-19 recovery. In summary, both government and industrial players must work together to speed up the recovery process. The government must put in place the right policies to deal with the challenges in the palm oil industry. Therefore, the government must play an active and proactive role in navigating the competitiveness of the palm oil industry in Malaysia. Industry players, on the other hand, must be willing to be innovative and embrace changes such as a reduction in the use of foreign workers and adopt mechanization in their harvesting and maintenance activities. This paper is limited to a descriptive discussion of the imminent problems in the palm oil production and suggestions to move forward.

MPIC needs to probe further into the environmental and sustainability issues in the palm oil industry. The effect of palm oil on climate change, resource scarcity, business ethics, and shareholders' rights should be one of the main agendas in the near future. Promoting responsible consumption and production via innovation in the palm oil sector should be part of the national agricultural/commodity reform. Hence, mechanization and mobilization would be a good starting point. Future research should focus on the implementation of 2M – mobilization and mechanization in palm oil plantations to increase production capacity in the near future.

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Paper Contribution to Related Field of Study

This article contributes to the field of economics and national security.

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