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OIL PALM SMALLHOLDER'S INCOME AND SUSTAINABLE DEVELOPMENT GOALS (SDGS) ACHIEVEMENT IN PENINSULAR MALAYSIA

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ABSTRACT

Peninsular Malaysia consists of 11 states, these states account for 46% of the total oil palm plantation land. There are about 184,977 oil palm smallholders in Peninsular Malaysia. The aim of the study is to compare the income capacity generation of oil palm smallholders in Peninsular Malaysia and its impact on achieving various SDGs. The study used primary data, collected through a well-structured questionnaire and oral interviews to elicit vital information from the oil palm smallholders in Johor (n=329), Selangor (n=80), Pahang (n=44) and Kelantan (n=35) in Peninsular Malaysia. Descriptive statistics using frequencies, means, graphs and charts were used to illustrate the importance of oil palm income in achieving SDGs in Johor, Selangor, Pahang, and Kelantan in Peninsular Malaysia. The analysis showed that all the oil palm smallholders in Peninsular Malaysia have a daily average income far above the poverty line. Johor has the highest daily average income in Peninsular Malaysia, therefore, it is easy for the oil palm smallholders in Johor to achieve SDG 1, SDG 2, SDG 3, SDG 5 and SDG 8 faster than the rest of the oil palm smallholders in Pahang, Selangor and Kelantan with lower average daily incomes.

Keywords: Sustainable Development Goals, smallholder, Peninsular

INTRODUCTION

According to the World Bank (2018), agricultural activities can contribute immensely to the achievement of all the Sustainable Development Goals (SDGs). The organization estimated that the effectiveness of agriculture in achieving SDGs is 2-4 times higher than any other sector in the economy. According to the Department of Statistics Malaysia [DOSM] (2018), the contribution of agriculture to the Malaysian economy, in terms of Gross Domestic Product (GDP), is estimated at 7%-8% consistently, 47% of the GDP contribution is accounted by oil palm. Malaysia is the second-largest producer of palm oil in the world, with over 5 million hectares of land under the cultivation of oil palm, accounting for an estimated 15.4% of the total Malaysian land. In terms of export globally, Malaysia accounted for 44% of the total world export in 2016. India remains the major importer of Malaysian palm oil. Palm oil production is found in East and Peninsular Malaysia (Malaysian Palm Oil Board [MPOB], 2016).

Peninsular Malaysia consists of 11 states, these states account for 46% of the total oil palm plantation land. Johor and Pahang have the largest land under oil palm cultivation, estimated at 745,630 ha and 732,052 ha respectively, while Kelantan and Selangor have an estimated 155,458 ha and 138,831 ha of oil palm land respectively. There are about 184,977 oil palm smallholders in Peninsular Malaysia (MPOB, 2016). In terms of the total number of smallholders, Johor has the highest number of oil palm smallholders of 78,711; followed by Selangor 25,543 oil palm smallholders, while Pahang, and Kelantan have a total oil palm smallholders estimated at 12,468 and 1,784 respectively as in 2016. The aggregate of oil palm smallholders in the four locations is 118,506 (MPOB, 2016).

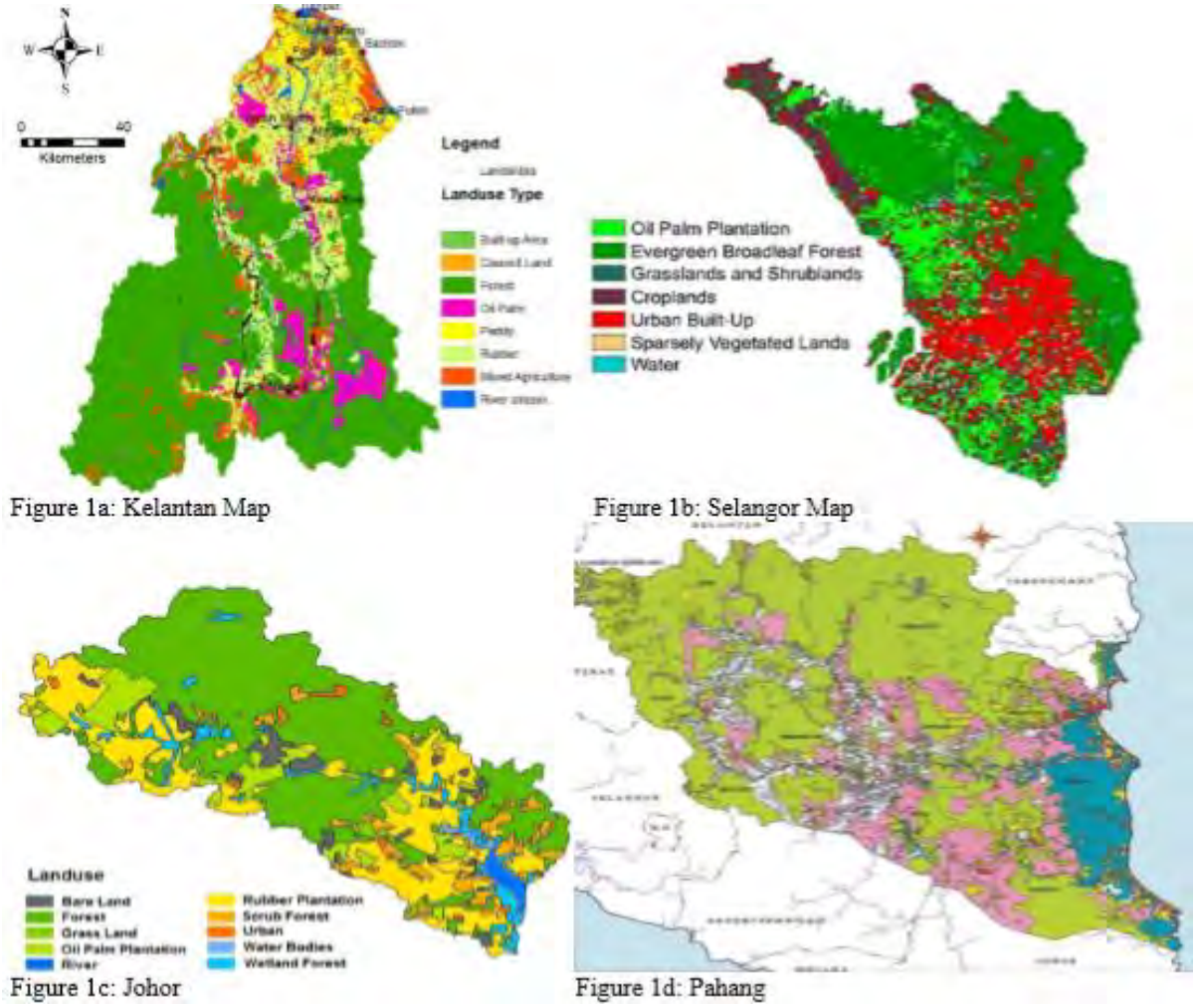

Figure 1a: Kelantan Map

Figure 1b: Selangor Map

Figure 1c: Johor

Figure 1d: Pahang

Figure1 Maps of Kelantan, Selangor, Johor, and Pahang Indicating Palm Plantations Sources: Ooi, Chan, Ashfold, Morris, Oozeer, & Salleh, (2017).

The analysis shows that oil palm smallholders in Peninsular Malaysia have daily average incomes far above the poverty line. The higher daily average income areas, like Johor, the faster for the oil palm smallholders to achieve SDG 1, SDG 2, SDG 3, SDG 5 and SDG 8. Otherwise, the lower daily average income areas, like Pahang, Selangor and Kelantan, show slower achievement of SDGs targets. This result is in line with a study by Widya Alwarritzi, et al. (2015) that found positive and significant impacts of crop income from oil palm and per capita expenditures. The study confirms that oil palm expansion helps to reduce the problem

of job opportunity and poverty in Indonesia. While Belcher, et al. (2015) found that oil palm smallholders that live in the villages within proximity to major roads and towns, higher human population density, and relatively low forest cover are also recognized to be associated with communities with higher baseline cash income and economic welfare.

METHODOLOGY

The study used primary data, collected through a well-structured questionnaire and oral interview to elicit vital information from the oil palm smallholders in Johor (n=329), Selangor (n=80), Pahang (n=44) and Kelantan (n=35). This sample size was in line with the recommendation of Krejcie and Morgan (1970). Based on Krejcie and Morgan's (1970) table for determining sample size, a total of 486 oil palm smallholders was the sample size for the study out of 184,977 oil palm smallholders in Peninsular Malaysia. Descriptive statistics using frequencies, means, graphs and charts were used to illustrate the importance of oil palm income in achieving SDGs in Johor, Selangor, Pahang, and Kelantan in Peninsular Malaysia. The average income was estimated based on per acre to obtain monthly productivity among oil palm smallholders.

However, SDG Goal 1 on poverty eradication implies a focus on not just income. Over the last decades, poverty has evolved to become a multi-cause and multidimensional concept, as articulated in the targets under Goal 1, which refers to, for example, "all dimensions" (1.2), and social protection (1.3), rights, access to resources and control (1.4) and resilience building. It can thus be argued that poverty is in many ways indivisible from other goals. Such an argument is underpinned by the works of development economists and philosophers such as Sen (1993) and Dasgupta (2001) and was even embodied in the Millennium Development Goals (MDGs). These theories of poverty and development typically elaborate a set of basic dimensions (freedoms, capabilities, entitlements), including basic access to health services, education, shelter, nutrition, water, energy and sanitation as well as to human rights and liberties, empowerment, social inclusion, human security, dignified livelihoods, and opportunities to participate in trade and production activities.

The concept of income clearly therefore has implications for sustainable development and, as such, has direct linkages to a number of the UN's Sustainable Development Goals. In particular, clear links can be drawn to SDG's 1, 2, 8, 10 and 17. This is not to say that these are the only associated goals. Therefore, this study aims to discover interlink of better income of oil palm smallholders with a number of SDGs goals. As defined in Figure 2, it shows the relationship between oil palm smallholder's total average daily income and some basic SDGs. The oil palm smallholder's level of average total income has a significant positive impact on the eradication of poverty. The higher the average income generated through palm oil, the lower the level of poverty faced by the oil palm smallholders and subsequently, the likelihood of eradicating poverty SDG 1. Achieving poverty eradication through oil palm income by oil palm smallholders can directly result in reducing hunger in the family and thereby also simultaneously achieving SDG 2, increasing productivity as well as income generation and employment opportunities. Achieving poverty eradication can also lead to an increase in the standard of education SDG 4, this is because oil palm smallholders have more income that can enable them to enroll their children into better schools.

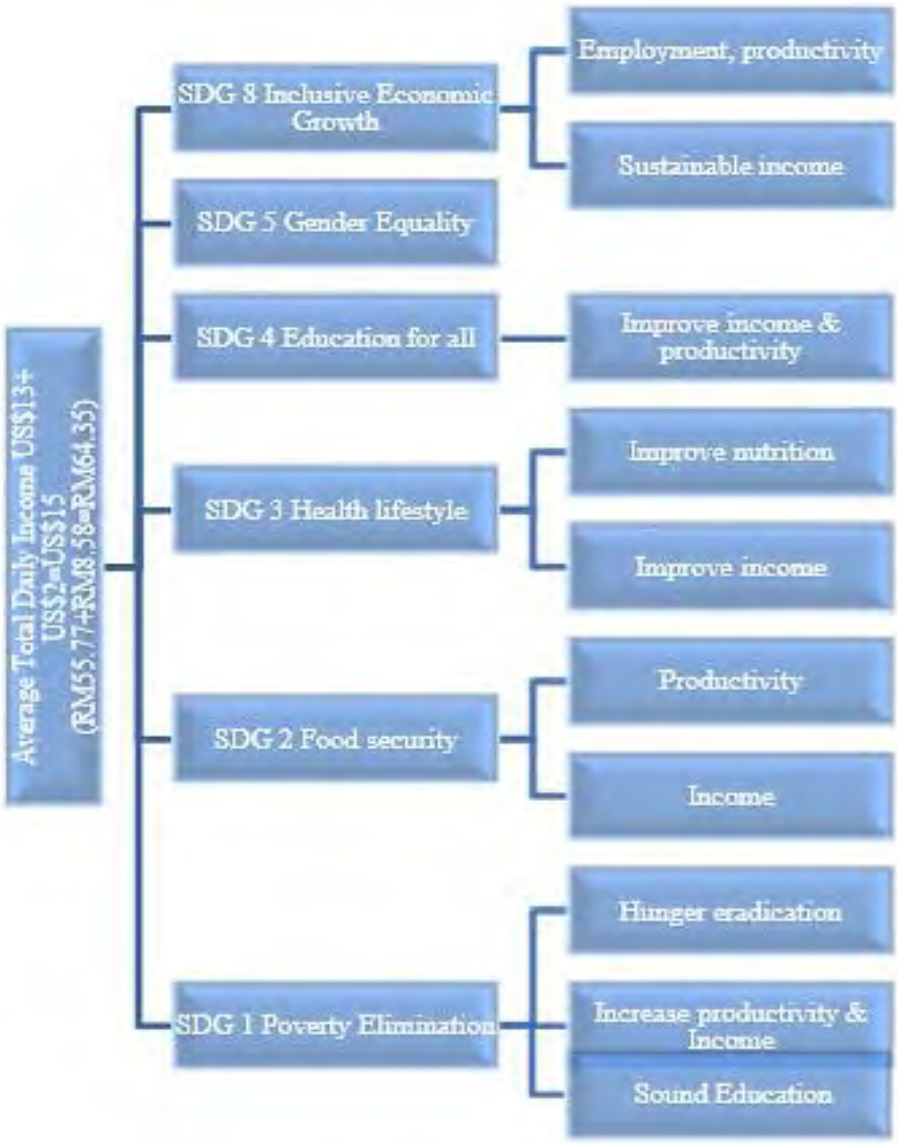

Figure 2 Relationship of Oil Palm Income and Major SDGs in Peninsular Malaysia. Source: Result of Field Survey

RESULT

The descriptive analysis presented in Table 1 reveals that the total oil palm smallholders' income in Peninsular Malaysia is estimated at US$184,747 (RM792,566) monthly. The average monthly income is US$380 (RM1,631) per acre. Johor has the highest monthly average income of US$410 (RM1,760) per acre, followed by Kelantan with a monthly average income of US$334 (RM1,434) per acre, Selangor has an average monthly income of US$329 (RM1,411) per acre, while Pahang has the lowest monthly average income of US$286 (RM1,225) per acre in Peninsular Malaysia.

The monthly income classification reveals that the majority of oil palm smallholders or about 73% are in the low monthly income classification ranging from US$0 to US$466 (RM0-RM2,000) per acre, while about 27% are in the high monthly income classification ranging from US$466-above (RM2,001 above) per acre. Statistical evidence revealed that Johor has

the highest oil palm smallholder with monthly income of US$3,861 (RM16,565) per acre; while Kelantan has US$1,206 (RM 5,172) per acre.

From another monthly source of income apart the oil palm, the oil palm smallholders in Peninsular Malaysia get US$21,343 (RM91,560). This is translated into a monthly average income from sources other than oil palm of US$44 (RM188). Furthermore, income classification from other sources apart from oil palm from Table 1 reveals that about 97% of the income from other sources is US$0 - US$466 (RM0 - RM2,000), while only 3% are in the high-income group US$466 - above (RM2,001 - above).

In terms of education classification, 91% of the oil palm smallholders are in the lower education classification. The majority of about 70% have primary school certificates, while about 21% have secondary school certificates. The average age among the oil palm smallholders in Peninsular Malaysia is estimated at 58 years, with Johor having the lowest average age of 54 years, while Kelantan has the highest average of 64 years as indicated in Figure 3. In terms of gender, about 89% are male oil palm smallholders, while only 11% are female oil palm smallholders. The entire oil palm smallholders are male in Selangor, while 34% are female oil palm smallholders in Johor. About 89% of the total oil palm smallholders are married, 6% are divorced, while only 5% of the oil palm smallholders are single. The majority of oil palm smallholders in Selangor 100%, Kelantan 89% and Johor 87% are married. The average total family size among the oil palm smallholders in Peninsular Malaysia is four (4) individuals in a family, Johor and Pahang has the highest average of family size of between seven (7) and six (6) individuals in each family, while Selangor has the smallest family size of one (1) individual in a family.

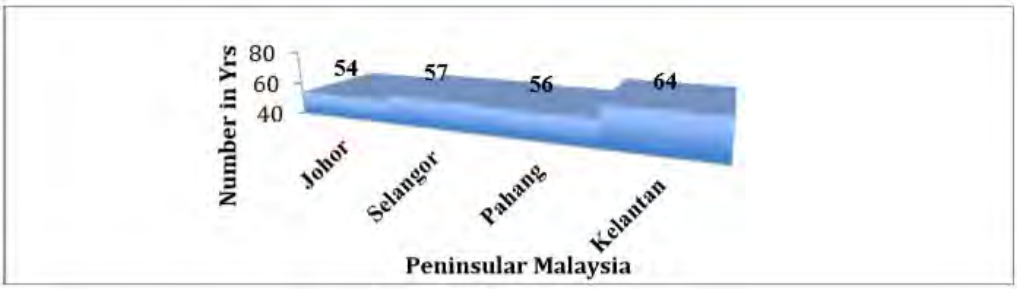

Figure 3 Average Age of Oil Palm Smallholder in Peninsular Malaysia. Source: Field Survey

The average oil palm smallholders' experience in Peninsular Malaysia is estimated at 25 years. Kelantan has the highest average experience of oil palm estimated at 31 years, while Johor has the least average years of experience in oil palm estimated at 21 years. In terms of full-time labor, Table 1 reveals that 22% are family full-time labor, while about 78% are non-family full-time labor. Johor has the highest number of non-family full-time labor with about 79%, while Selangor, Pahang, and Kelantan have 71% each as non-family full-time labor. On average there are three (3) individuals in a family engaged in full-time labor, at least one (1) person from family full-time labor and 2 persons from non-family full-time labor. The average distance covered from home to oil palm plantation among the oil palm smallholders is estimated at 2 km, while it takes an average of 4 minutes to reach the farm from the house.

The average distance covered from the farm to the nearest factory and the nearest fresh fruit bunches collection center is 10 km and 6 km respectively, and oil palm smallholders in Selangor covered the highest average distance from palm oil plantation to the nearest factory and collection center.

DISCUSSION

Generally, the daily average income in Peninsular Malaysia is higher than the poverty line of US$1.90 (RM8.15) determined by the World Bank (2016). Figure 4 shows the total daily average income of oil palm smallholders in Peninsular Malaysia compared to the daily average poverty limit of US$1.90 (RM8.15). The figure indicates that all the study areas in Peninsular Malaysia have an average daily income that is above the poverty line. Johor has the highest average daily income of US$14 (RM60.06) per acre, Selangor has an average daily income of US$11 (RM47.19) per acre, Kelantan with US$11 (RM47.19) daily income average per acre, while Pahang has the lowest daily average of US$10 (RM42.9) per acre. When the average daily income per acre is added to the daily income from other sources, it will give the total oil palm smallholder's daily income.

Figure 4 Comparing the Total Average Income in Peninsular Malaysia with the Global Poverty Level Line in US$. Source: Field Survey

Table 1: Socio-economic Characteristics of Oil Palm Smallholders in Peninsular Malaysia

	JOHOR			SELANGOR			PAHANG			KELANTAN			POOLED		
Variables	No.	%	Avg	No.	%	Avg	No.	%	Avg	No.	%	Avg	No.	%	Avg
Age			54			57			56			64			58
Gender															
Male	293	90	1	80	100	1	34	77	1	24	69	1	431	89	
Female	34	10	0	0	0	0	10	23	0	11	31	0	55	11	
Marital Status															
Married	286	87		80	100		35	80		31	89		432	89	
Single	13	4		0	0		9	20		4	11		26	5	
Divorced	28	9		0	0		0	0		0	0		28	6	
Main Occupation															
Palm Oil	278	85		65	81		43	98		34	97		420	86	
Others	49	15		15	19		1	2		1	3		66	14	
Palm Oil Experience	6,867		21	1868		23	1077		25	1,085		31	10897	2242	25
Family Size	2,002		6	96		1	312		7	82		2	2492	513	4
Full-time Labour															
Family	178	21	1	58	29	1	3	4	0	24	29	1	263	22	1
Non-family	668	79	2	140	71	2	81	71	2	60	71	2	949	78	2
Distance from home to farm													0	0	
Kilometers (Km)	584		2	135		2	87		2	69		2	875		2
Walking Distance in Minutes	0		0	174		2	0		0	0		0	174		1
By Car in minutes	0		0	407		5	166		4	194		6	767		4
Nearest to Factory in Km	3,552		11	1,412		18	243		6	178		5	5385		10
Nearest to Fruit Collection in Km	2,097		6	1,023		13	175		4	83		2	3378		6

	JOHOR			SELANGOR			PAHANG			KELANTAN			POOLED		
Variables	No.	%	Avg	No.	%	Avg	No.	%	Avg	No.	%	Avg	No.	%	Avg
Palm Oil Income															
US Dollar (US$)	134,176		410	26,313		329	12,562		286	11,696		334	184,747		380
Malaysian Ringgit (RM)	575,615		1,760	112,883		1,411	53,891		1,225	50,177		1,434	792,566		1,631
Income Classification - Palm Oil															
US$0-US$233															
RM0-RM1,000	113	35		16	20		21	48		16	46		166	34	
US$233-US$466															
RM1,001-RM2,000	95	29		64	80		16	36		13	37		188	39	
US$466-US$799															
RM2,001-RM3,000	65	20		0	0		3	7		1	3		69	14	
US$700-above															
RM3,001-above	54	16		0	0		4	7		5	14		63	13	
Others Income Non-Palm Oil															
US Dollar (US$)	14,350		44	6,763		85	844		19	0		0	21,343		44
Malaysian Ringgit (RM)	59,840		183	28,200		353	3,520		80	0		0	91,560		188
US$0-US$233															
RM0-RM1,000	298	91		64	80		42	96		35	100		439	90	
US$233-US$466															
RM1,001-RM2,000	19	6		16	20		1	2		0	0		36	7	
US$466-US$699															
RM2,001-RM3,000	8	2		0	0		1	2		0	0		9	2	
US$700-above															
RM3,001-above	2	1		0	0		0	0		0	0		2	0	
Source of Income Non-Palm Oil															

Source: Field Survey, US$=RM4.29 averaging as at 2015 Average US$/RM in Acre

The breakdown of the two daily average incomes is also presented in Figure 5. Figure 4 shows that Selangor has a total daily average income of US$14 (RM60.06) per acre, while Pahang, and Kelantan have a total daily average income of US$11 (RM47.19) per acre, which is lower than Johor with US$16 (RM68.64) per acre. The entire oil palm smallholders have daily average incomes far above the poverty line and therefore, meeting and exceeding the SDGs by 2030 will not pose any serious threat in Peninsular Malaysia among the oil palm smallholders. Peninsular Malaysia has a total daily average income of US$13 (RM55.77) per acre by the oil palm smallholders, while an estimated US$2 (RM8.58) average income is

sourced from another source different from oil palm income is indicated in Figure 5. Figure 5 further shows the disaggregated average income for both the main source and another source.

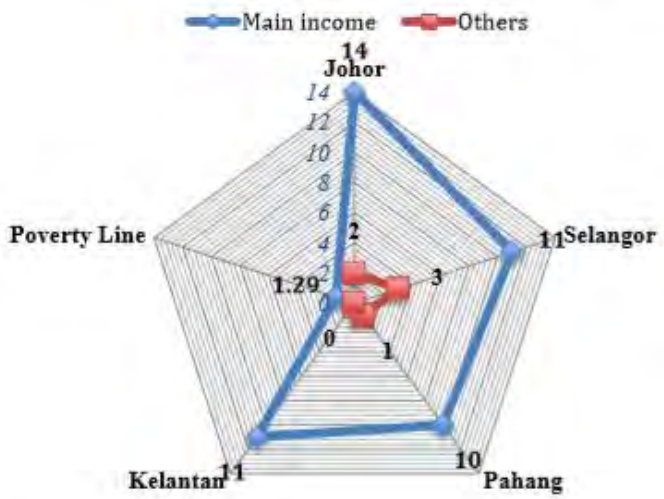

Figure 5 Disaggregated Oil Palm Smallholders' Daily Average Income from Main (per acre) and Other Sources with Poverty Level in Peninsular Malaysia in US$. Source: Field Survey

In terms of high total average per acre, oil palm smallholders in Johor have the highest daily income generation capacity in Peninsular with US$14 (RM68.64) per acre, closely followed by Selangor and Pahang with US$11 (RM32.06) per acre each, while Kelantan has the least daily average income of US$10 (RM25.19) per acre. Consequently, Johor stands a better case of achieving SDG 1, SDG 2, SDG 3 and SDG 4 due to higher average daily incomes per acre in Peninsular Malaysia, than Selangor, Pahang, and Kelantan. In the same vein, oil palm smallholders in Pahang have lower average daily income per acre compared to Johor or Selangor and Kelantan, and as such, the rate of achieving the SDGs will be slower than the other locations with a high average income in Peninsular Malaysia.

Oil palm smallholder's level of daily average income is also directly linked to SDG 2, with high daily average incomes, eradication of hunger, achieving food security and improved nutritional food. It is more possible than with a lower daily average income. Therefore, since the average daily income level in Peninsular Malaysia is considered high, achieving SDG 2 is expected to be possible by 2030. The eradication of hunger also can result in a high number of healthy family whose members, can work in the oil palm plantation as family and non-family labor, thereby improving the level of both income and productivity in the family and the region in general through employment. Hunger eradication and poverty eradication complement each other and therefore need to be implemented at the same time.

Achieving SDG 2 depends on other factors, for instance, the size of the family, gender status of the head of the family, the level of education, main occupation and the distance covered from the house to the palm oil plantation as well as the nearest distance to the factory or fresh fruit bunches collection center. Table 1 reveals that the average distance from the houses of

smalholders to oil palm plantation is 2km. The overall average distance from the oil palm plantation to the nearest factory is 10km. Selangor has the longest average distance to the nearest factory of 18km, closely followed by Johor with an average distance covered of 11km, while Kelantan covered the shortest average distance to the nearest factory of 5km. Table 1 further reveals that the average distance covered from the oil palm plantation to the closest fresh fruit bunches collection center is 6km.

Oil palm smallholders in Selangor covered the longest average distance to the fresh fruit bunches collection center of 13 km, while oil palm smallholders in Kelantan covered an average of 2km to the closest fresh fruit bunches collection center. The shorter the distance covered by the oil palm smallholders from the house to oil palm plantation, from oil palm plantation to factory and fresh fruit collection center, the lower the cost of transportation and the higher the income generated from the oil palm production. Kelantan and Pahang covered the shortest average distance to the nearest factory in Peninsular Malaysia of 5km and 6km respectively; consequently, these two study areas incur the lowest cost, which can increase their income level. In the same vein, these two study areas have the shortest distance covered from palm oil plantation to the nearest fresh fruit collection center of 2km and 4km respectively.

Table 1 shows that Johor and Selangor have the highest number of male oil palm smallholders compared to both Pahang, and Kelantan, therefore, it is expected that male-headed oil palm smallholders can reduce or eradicate hunger compared to female-headed oil palm smallholders due to gender inequality issues. In terms of family size, when the family size is bigger, the tendency of commitment to the palm oil plantation is higher and at the same time the higher the productivity and food security status of the family and the community as a whole. Johor and Pahang have the highest average in terms of family size of six (6) and seven (7) respectively, while Selangor and Kelantan have the lowest average of one (1) and two (2) respectively. Consequently, ending hunger will be achieved much faster in Johor and Pahang than in Selangor and Kelantan.

Also, education and the level of average income have a direct correlation, the higher the level of oil palm smallholder's average income, the likelihood of investing and providing good quality education for all SDG 4. The impact of SDG 4 could be short and long term. The short term SDG 4 can have an impact on the food security status of the family through well informed knowledge of the nutritional content of food and better knowledge of new modern palm oil production, which will subsequently improve the income generation capacity of the oil palm smallholders. On the other hand, investing in children's Education will also enable them to have a better chance of receiving a better education and superior knowledge concerning palm oil production in the future. In summary, SDG 4 tend to eradicate poverty SDG 1, eliminate hunger SDG 2, and achieve a better quality of healthy lifestyle SDG 3, which will subsequently result in sustainable productivity and sustainable income generation. Table 1 indicates that, generally, the educational qualification among the oil palm smallholders in Peninsular Malaysia is low, with only 4% and 3% respectively of the oil palm smallholders in Johor and Kelantan possess a higher learning certificate in the region.

Gender equality SDG 5 plays a significant role in increasing the level of income of oil palm smallholders, thereby reducing poverty SDG 1, increasing productivity and reducing the level of food insecure families SDG 2. Generally, women are considered more productive in terms of agricultural activities, however, there is a limit to what female oil palm smallholders can do,

especially in less developing nations due to existing inequality between males and females (Food Agriculture Organization [FAO], 2018).

Therefore, gender equality has a direct link with the eradication of poverty and the food security status. Also, descriptive evidence from Table 1 reveals that 31% and 23% of the oil palm smallholders in Kelantan and Pahang are female oil palm smallholders, while Johor has only 10% women participation in oil palm plantation. In Selangor there is no woman participation, indicating a high level of gender inequality. Therefore, in achieving SDG 5, which is equality in gender and women's and girls' empowerment, Kelantan and Pahang will achieve SDG 5 much faster than Selangor with 0% participation of women in oil palm smallholder and Johor with only about 10% participation of women .

Economic growth (SDG 8) as a result of poverty eradication (SDG 1), improves food security (SDG 2), better health, gender equality (SDG 5) and educational for all (SDG 3 and SDG 4). Abundant employment is the effect of economic growth. Descriptive evidence from Table 1 shows that all family members in the entire Peninsular Malaysia are either involved in family labor or non-family labor. Furthermore, about 71% of the family members are involved in non-family labor, which pays higher wages, than the family full-time labor.

In this regard, more workers have an income, which will subsequently be translated into economic growth through increasing productivity. Also closely related to productivity and economic growth is the number of years of palm oil experienced that oil palm smallholders have. Statistical evidence from Table 1 reveals that the average oil palm smallholder's year of plantation experience is 25 years in Peninsular Malaysia. However, Kelantan and Pahang oil palm smallholders have more experience , with an average of 31 years and 25 years respectively, while the average experience of oil palm smallholders in palm oil plantation in Selangor and Johor are 23 years and 21 years respectively, which are considered lower.

CONCLUSIONS

The study compared the income generation capacity of oil palm smallholders in Peninsular Malaysia and its impact on achieving various SDGs. The analysis also revealed that all oil palm smallholders in Peninsular Malaysia have daily average incomes far above the poverty line.

However, Johor has the highest daily average income in Peninsular Malaysia, therefore, it is easy for the oil palm smallholders in Johor to achieve SDG 1, SDG 2, SDG 3, SDG 5 and SDG 8 faster than the rest of the oil palm smallholders in Pahang, Selangor and Kelantan who have lower average daily incomes. However, in terms of achieving SDG 5, which is gender equality and women and girl empowerment, Kelantan and Pahang have the highest female participation in oil palm plantations compared to Johor and Selangor in Peninsular Malaysia.

RECOMMENDATION

Meeting and achieving SDG 5 will be faster in Kelantan and Pahang. The descriptive analysis revealed that there is a total of 55 female oil palm smallholders in Peninsular Malaysia sampled in this study representing about 11%. This figure is considered extremely low and therefore, the study recommended various programs for the female oil palm smallholders, that can encourage women participation in palm oil production. Some of the recommended programs include the provision of adequate education for females on palm oil production, giving equal preference concerning palm oil land for cultivation, and encouraging female palm oil producers by providing them subsidy loans. Women are generally considered to be active participants in agriculture and eliminating gender inequality will go a long way in eradicating poverty and food security challenges.

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