Palm oil industry towards Sustainable Development Goals (SDGs) achievements

M Mardiharini1*, D H Azahari2, R M Chaidirsyah3 and K Obaideen4

1 Indonesian Center for Agricultural Technology Assessment and Development, Jln. Tentara Pelajar 10, Bogor, Indonesia
2 Indonesian Center for Agricultural Socio-Economic and Policy Studies, Jln. Tentara Pelajar 3B, Bogor, Indonesia
3 Bureau of Planning, Secretariate General of Ministry of Agriculture, Jakarta, Indonesia
4 Department of Sustainable and Renewable Energy Engineering, University of Sharjah, P.O. Box 27272, Sharjah, United Arab Emirates

*maesti_m@yahoo.com

Abstract. Gender Equality in Sustainable Development Goals (SDGs) has been exclusively developed but, most of our current economies and societies are not able to fully contribute or equally benefit from them. When zooming in, women are generally more excluded than men. Indonesia as the leading of palm oil producing country and given the vital role that women and girls play in the management, care, and use of Palm Oil, the Gender Equality and Social Inclusion (GESI) framework is important to review. This paper aims to review the performance of GESI framework in the Indonesian palm oil sector and links the discussion with SDG 5 (Gender Equality) using qualitative methods, which data and information have been collected through observation, key informant interviews and secondary data. The framework focus on the marginalized groups. The results show that the palm oil industry can improve the gender equality and inclusivity for creating economically, socially, and environmentally sustainable palm oil supply chains and sectors. We need roll out the Gender Assessment to map out the actual roles, inclusivity and involvement of women in the respective area.

1. Introduction

Palm oil production is strategic industry in Indonesian Economy, especially because it contribute to employment opportunity, increase export and trade balance. In addition, the palm oil has also become an important part of Indonesia’s energy sovereignty system. Not many sectors of the economy, especially in the commodity sector in which its contribution to the economy is so large, as inclusive and broad as the palm industry [1].

The rapid palm oil industry development, pushed mostly by global demand for vegetable oils, oleo-food and biofuel. Palm oil industry development in Indonesia has grown rapidly through comprehensive and fast-paced expansion plans driven by economic liberalization and private capital [2-7].

The baseline data shows of the possibility that there is unequal gender relations. Such expansion is argued to create disproportionate consequences for women and women are rarely recognized as agents at palm oil industry [4,8,9]. In their analysis, [10] shows the gender disaggregated impacts of oil palm expansion in Indonesia and the overall lack of women in SDGs achievement. Significantly, palm oils play a major role in achieving these SDGs, though the exact contribution that palm oils have on the SDGs remains unclear. According OECD [11], the main reasons of gender disparities in the labor market
are the deeply entrenched stereotypes that restrain women as a wife to caregiving (reproduction aspect) and men to breadwinning (production aspect).

This paper aims to benchmark: (1) the performance of Indonesia in achieving selected SDG goals, (2) contribution of palm oils development in achieving selected SDGs goals; and (3) the role of women in palm oils as subject of pillar of SDGs.

2. Materials and methods

2.1. Materials

The study used data from the UN database and relevant sources such as The UN Sustainable Development Report, the World Bank Report and interviews with relevant stakeholders.

2.2. Methods

The UN has defined Targets and Indicators for achieving Sustainable Development Goals (SDGs). Targets specify the goals and indicators by which the world be able to monitor whether these targets are achieved [12]. For benchmarking position of Indonesia in achieving SDGs targets, we quote some the original text of some Targets and show the data on the agreed Indicators. The matrix covers the three pillars of sustainable development (social, economy, and environment) and 13 SDGs, which are directly or indirectly impacted by the palm oils sector. We selected some indicators related with the oil palm development in Indonesia, and indicator related with gender Equality and Social Inclusive (SDGs 4 and SDGs 5).

The study uses qualitative methods, which have been conducted through observation, key informant interviews and secondary data from National Bureau of Statistics, Focus Group Discussion and workshop with government, Non-Government Organization (NGO) and Business stakeholders. Analysis of baseline condition or Business as Usual (BAU) gap with ideal condition of SDGs target was implemented the indicators selected SDGs related to palm oil. The process of analysis as follows (1) selected Indonesia as the largest producing and exporting country of palm oil, (2) build the matrix (select SDGs number, indicators, sustainability dimensions, and measurement), (3) data collection, (4) Data evaluation, (5) data interpretation; and (6) conclusion. The review continues more deeper into contribution SDGs5 in palm oils development, we reviewing some results from previous studies and to understand the issue.

2.3. Limitations

The study has some limitations including: data gap, data validity, rapid changes in technology, complexity of supply chain; reliability of the data, completeness of the data, the high uncertainty of the data, geographical correlations and data bias.

3. Results and discussion

3.1. Indonesia performance in achieving selected SDGs

Based on Sustainable Development Goals Report 2020, overall performance of Indonesia in achieving SDGs is 101 of 166 with index score of 65.3 compared to regional index of 67.2. This means Indonesia still need strong efforts to achieve her performance’s and figure out which factor/s could be become a stimulator in doing so. Regarding the UN assessment of achievement of selected SDGs, achievement of Indonesia varies among SDGs number. The UN categories into 4, namely, on track; moderate improving, stagnant and information unavailable. Among17 SDGs, based on some reviews, we selected 14 SDGs which have contribution direct and indirect to oil palm development. For example, some selected SDGs indicators on which related to women participation in oil palm development, mostly already in the position of on track in achieving SDGs targets, however in sub-indicator of mean years of education received ratio of female-to-male, where Indonesia in the position of moderate improving. Other indicators in some goals such as information of adjusted GDP; Gini coefficient adjusted for top
income, and Municipal solid waste are unavailable. Therefore, for reviewing the contribution of oil palm, we modified some indicators, which we think more relevant with the impact of oil palm industry in achieving SDGs targets.

Referring the performance of achievement of selected SDGs related to palm oil development and its selected indicators and sub indicators, 8 SDGs out of 14 were in on track or 57% already approaching the Targets.

3.2. Contribution of palm oil industry to achievement of some critical SDGs

The palm oil is an extremely efficient crop, and both palm oil and palm kernel oil together represent 40% of the global vegetable oil production. Palm oil share of 6.5% of oilseeds harvested area of global vegetable oil harvested area. However, palm oil production contributed to 31.9% of total world vegetable production.

Indonesian palm oil supports poverty reduction and reducing inequality. Since 2000, Indonesian palm oil industry has helped 10 million people out of poverty, and in rural area at least 1.3 million people lifted out of poverty line because of palm oil expansion [10]. That regions, have more significant reduction of poverty compared to regions with no palm oil and to national level [13-14]. Furthermore, if we see the headcount poverty ratio 1.90 USD per day, decreased from 50 % in 1995 to 0.1% in 2019 with average ratio [15].

Contribution of oil palm to end hunger (SDGs 2) can be seen from the decreasing of undernourishment prevalence from 25 % in 1995 to 5 % in 2019 [16] with average growth -6% during the period. In addition, palm oil provides cheapest vegetable oil-based food. In 2020, palm oil provide export of 54.4% of vegetable oils and supply 40.4 % of global vegetable oils and from the Palm oil Global Value Chain.

Related to SDGs 3, Good Health and Well Being, palm oil is a food source of energy and fatty acid. Besides being an energy source, palm oil also relatively high vitamin A. Palm oil produce Vitamin A equal mg Retinol/100 g (edible) and Vitamin E which is contents of Tocopherols and Tocotrienols even higher compared to others commodities [17]. Furthermore, Palm oil is a vegetable oil, the derivatives of which can be applied to many purposes that include food ingredients (edible oil), pharmaceutical and health purposes, toiletries and cosmetic (health products) and fuel and lubricant (non-edible) [18-20]. According to World Bank, women in developing countries produce 80% of the household food. According to [6] in agricultural interventions, that significant improvements in nutrition outcomes, considered as changes in diet. It means that improved nutrition as an objective, included a nutrition education, and/or that included gender considerations [16].

Palm oil plantation and palm oil industry have significant contribution in to education access for worker and employment family through providing health and education facilities as part of Company Social Responsibilities (CSR). The development of palm oil plantations is an economic activity in the context of rural development including improvement in primary education in oil palm expansion district and provinces. This means that palm oil has significant contribution in achieving SDGs 4 (Table 1).

| Table 1. Contribution of palm oil industry in the achievement of some critical SDGs |
|-------------------------------------------------|-------------------------------|--------------|-----------------|-----------------|-----------------|
| SDGs Number | Indicators | Measurement | Year | Impacts | Sources |
| 1.End Poverty: | Rate of poverty reduction | Poverty reduction (%) = 32.24 - 1.0 ; CPO Elasticity = -0.77; R-square = 0.89 | 2020 | Substantial | PASPI 2014 [1] |
| | Average district poverty reduction | Higher in oil palm expansion district (12%) vs (2%) in control districts | 2010 | Substantial | Edward RB 2019 [21] |
| | Poverty headcount ratio at USD 1.90/day | 1995: 50%; 2019: 0.1%; Average growth rate: -14% | 2020 | Substantial | World Bank, 2020 [22]; Goettingen University 2021 [23], Jambi University |
| SDGs Number | Indicators | Measurement | Year | Impacts | Sources |
|-------------|------------|-------------|------|---------|---------|
| 2. Zero Hunger | Provide cheapest vegetable oil-based food | Provide export of 54.4% of vegetable oils, supply 40.4% of global vegetable oils | 2020 | Important | 2021 [24], and IPB University, 2021 [25] Jambi University 2020 [24] and IPB University, 2020 [25] |
| Prevalence undernourishment (% of population) | • 1995: 25; 2019: 5 • Average growth: -6% | 2020 | Important | World Bank, 2020 [22] |
| 3. Good Health and Well Being | Vitamin A equal mg Retinol/100 g (edible) | 5,000 (refined); 6,700 (CPO) 400 (carrot); 300 (tomatoes) 50 (bananas); 21 (oranges) | 2010 | Substantial | Hariyadi (2010) [17] |
| Vitamin E contents | Palm oil 1172; soybean oils 958; corn oils 782; rapeseed oils 546; peanut oils 347; and olive oils 51 | 1971; 1986; 1989 | Substantial | Slover, (1971) [18]; Gunstone (1986) [19]; Kritchevsky and Kalyana (2002) [26] |
| Tocopherols and Tocotrienols (ppm) | Palm oil based daily needs “Washing the world” | 2013 | Substantial | MPOB, 2013 [27] |
| Palm oil based Health Facilities | Food ingredients; soap; shampoo; tooth paste; hand sanitizer; detergent disinfectant | 2014 | Substantial | PASPI, 2014 [1] |
| Net primary enrollment rate | More Health facilities available and developed | 2020 | Substantial | World Bank, 2020 [22]; Goettingen University 2021 [23], Jambi University 2021 [24], and IPB University, 2021 [25] |
| 4 Quality Education | Biopore Percentage of oil palm plant root system (%) | 40 at the age of 13 years 25 at the age of 5 years | 1999; 2007 | substantial | Harahap 1999 [28], Harahap 2007 [29]; Harianja, 2009 [30] |
| Rate of water Infiltration into palm oil plantation rises in line with the age of oil palm trees by age (cm/hour) | • 20 at the ages of 10 years • 80 at the ages of 25 years • 120 at the ages of 35 years | 1999 | Substantial | Harahap 1999 [28], Harahap 2007 [29]; Harianja, 2009 [30] |
| 6.Clean Water and Sanitation | Bio fueling The World (million KL) | Provide raw material for first generation of biodiesel, green diesel, green gasoline, green avtur, bioethanol, biogas, bioelectricity; 2018:3.75; 2019: 6.62; 2020: 9.59 | 2020 | Substantial | USDA, 2020, (https://fdc.nal.usda.gov/download-datasets.html [31] |
| Reduce GHG emission (million ton Co2) | 2018: 5.61; 2019: 9.91; 2020: 14.25 | 2020 | Substantial | INDEF, 2021 [32] |
In relation with clean water and sanitation, natural bio-pores increase the water holding capacity of palm oil plantation through the enhancement of rainfall infiltration into the soil, therefore reducing run-off [28,33,34].

3.3. Contribution of palm oil industry to the achievement of SDGs 5 and GESI framework

Gender inclusivity is argued to have a direct impact on the economic and social growth of a nation [35-37]. The equal access of women and girls to education, health care, and their representation in economic and political decision-making processes will boost sustainable benefit for societies and also for economies.

According to a McKinsey report, equally participation of women and men in the economy can add to the global annual GDP of US $ 28 trillion (26%) by 2025 [35]. Statistical projections indicate that, efficiency in land use can increase by 20-30%, raising the economy by 2.5-4.0% if women have the same access to resources as men in farming. Yet, women still continue to be under-represented and unrecognized at almost all levels and economic sectors. For women to be a part of the formal economy and have equal access to resources and decision-making rights, it is important to equipping them with knowledge and skill sets, to be able to voice their ideas, opinions and decisions.

Women have been the custodian of health and nutrition in a family since the care responsibility still majorly falls on women. The UN assessment, investing in women’s economic empowerment will contribute significantly to gender equality, inclusive economic growth, and poverty eradication [12].

Meanwhile, poverty and lack of opportunity only creates larger inequality between men and women. Women condition improves when economic development reduces poverty, through (1) when poverty is reduced, the condition of everyone, including women, improves, and (2) gender inequality declines as poverty declines.

The palm oil sector had been identified as one of the vehicles for poverty reduction and therefore contributes significantly in gender equality and social inclusive for women. Oil palm plantation and palm oil industry provide job opportunities for women. There are 3 types women participation in oil palm plantation namely (1) oil palm farmer who work in agronomic activities, (2) employees, and (3) oil palm plantation worker [38-39].

In the study area, the male dominated the independent palm oil farming community while the female may not find interest to do so. The analysis shows that an age distribution of the respondents, 42.27% of the independent oil palm farmers were 31 – 45 years old. This indicates that among those, younger people seem to have less interest in palm oil farming.

The total of women agronomic labor in oil palm plantation was 0.34 million (10.90%) of total labor in oil palm plantation in 2010. Data from 22 provinces with oil palm expansion the total number of women workers increased to 1.81 million (56.5%) in 2020 with average growth rate of 9%/year during the period [1,40].

The rate of wages in oil palm plantation relatively proportional with length of working hours. Wages per day of male worker is IDR 95,000/day with working hours of 8 hours while for female worker is IDR 80,000/day with working hours of 7 hours (Table 2). The situation considers oil palm development already implemented the framework of Gender Equality and Social Inclusiveness with proportional way. However, the situation also shows that, women still contribute more in domestic responsibilities compared to men. The burden on women domestic works more suffered in pandemic era as to keep the children safe, governments of many countries shut down schools temporarily and sending students to study at home. The supervision falls into the laps of the parents. But furthermore, the laps of the mothers. Domesticated women have to juggle between doing the house chores and supervising their children's study time. Female employees who are sent to work from home also experience no differences. We can easily find working mothers juggling their time and energy between online meetings, completing work targets, keeping the house in order, and suddenly become a home-tutor for their children.

Social inclusiveness could be seen from the involvement of women in capacity building in palm oil. One of the capacity building training for women in palm oil expansion area in West Kalimantan. The gender-related initiatives in West Kalimantan projects have started as early as the beginning of the
projects. Not necessarily in the form of all-female initiatives but more of the involvement of women and female farmers in the Farmers’ Field School and Financial Literacy Training. The number of women involved in the financial-related trainings is more substantial and presumably this is related to the gender norm within the society where women are often expected to manage the financial aspect of the family. In 2016, a total participant in the project was 617, where the number of males participated in the training was 473 (76.66%) and female was 144 (23.34%). The women participation was increased to 724 out of 2216 participants (32.13%) in 2019. Most of the time women are also in charge for figuring out to generate extra household income as well as helping out the husband and other family members in the plantation.

Table 2. Contribution of palm oil industry in the achievement of SDGs 5

| SDGs Number | Indicators | Measurement | Year | Impacts | Sources |
|-------------|------------|-------------|------|---------|---------|
| 5. Gender Equality | Women as agronomic labor in oil palm plantation in 22 provinces with oil palm expansion (million peoples) and % | 2010: 0.34 (10.90 %); 2020: 1.81 (56.5%) | 2010, 2020 | substantial | Ministry of Agriculture, 2010 [41]; Association of oil palm Farmer of Indonesia (APKASINDO) [40] |
| | Proportional wages and length of working hours (Rp/day) and Hours | Wages and Length of working hours; Male: IDR 95,000/day; 8am - 4pm (8 hours); Female: IDR 80,000/day 7am-2am (7 hours) | 2020 | substantial | Association of oil palm Farmer of Indonesia (APKASINDO) [40] |
| | Participation in Training (case study in West Kalimantan) (people and %) | 2016: M:473 (76.66%); F: 144 (23.34%); T: 617 (100%); 2019: M:1482 (66.87%); F: 734 (32.13 %); T: 2216 (100%) | 2016; 2019 | substantial | Solidaridad Network in Indonesia Foundation, 2019 [42] |

4. Conclusion
Palm oil contribute to 15 goals/sub-goals out of 17 SDGs. Palm Oil contributes 9 goals substantially, 4 importantly and 1 insignificantly for Indonesia SDGs. Palm oil Industry contributes significantly in gender equality and social inclusive for women, by providing job opportunities for women as a farmer or agronomic worker, employee and oil palm plantations. Furthermore, oil palm expansion provides an opportunities capacity building for women.

To ensure participation of women in implement initiatives and making decision, allocation of positions for women, both in the leadership positions as well as for the membership in the Community Based Organization was ensured. Oil palm development already implemented the framework of Gender Equality and Social Inclusiveness with proportional way in some aspects. In the study areas, although of the time women are also in charge for figuring out to generate extra household income as well as helping out in the plantation, some of women active in the Farmers’ Field School (FFS) and Financial Capability (FC) training.

In development process in the future, gender inclusivity not just as a matter of principle, but as key to development. It is part of the systemic change we need in order to face the global challenges of
population growth and our increasing needs. We need work on inclusive and sustainable economic development in partnership with communities and community leaders, local governance bodies, national governments, standards organizations, businesses, funding agencies, financial institutions, civil society organizations, innovators and the scientific community.

Acknowledgements
I am very thankful to all who contributed this paper, especially to Dr. Delima Hasri Azahari who spent her time to collect data and information regarding oil palm development in Indonesia and its contribution to SDGs achievement. Thank you to Dr. Ranny Chaidarsyah and Dr. Khaled Obaideen for their contributions in SDGs measurement methodology. Finally, I would like to thank to The Foundation of Solidaridad Networking Indonesia (Yayasan Solidaridad Networking Indonesia) for their sharing experiences on Farmers’ Field School and Financial Literacy Training the communities in West Kalimantan.

References
[1] Palm Oil Agribusiness Strategic Policy Insitute 2014 *Industri minyak sawit Indonesia berkelanjutan: peran industri minyak sawit dalam pertumbuhan ekonomi, pembangunan pedesaan, pembangunan pedesaan, pengurangan kemiskinan dan pelestarian lingkungan* (Bogor: Palm Oil Agribusiness Strategic Policy Institute)
[2] McCarthy J F 2010 Processes of inclusion and adverse incorporation: oil palm and agrarian change in Sumatra, Indonesia *The J of Peasant Studies* **37** 821–50
[3] McCarthy J F and Cramb R A 2009 Policy narratives, landholder engagement, and oil palm expansion on the Malaysian and Indonesian frontiers. *Geographical J.* **175** 112–23.
[4] Colchester M 2011 *Palm oil and indigenous peoples in South East Asia. Forest People’s Programme and International Land Coalition* (Rome: The International Land Coalition)
[5] Li T M 2015 *Social Impacts Of Oil Palm In Indonesia: A Gendered Perspective From West Kalimantan. Occasional Paper 124* (Bogor: CIFOR)
[6] Wakker E 2005 *Greasy Palms: The Social And Ecological Impacts Of Large-Scale Oil Palm Plantation Development In Southeast Asia* (London: AID Environment, Friends of the Earth)
[7] Eilenberg M 2009 Negotiating autonomy at the margins of the state: the dynamics of elite politics in the borderland of West Kalimantan, Indonesia. *South East Asia Research* **17** 201–27.
[8] Marti S 2008 *Losing Ground: The Human Rights Impact Of Oil Palm Plantation Expansion In Indonesia.* (London: Friends of the Earth, Life Mosaic and Sawit Watch)
[9] Sirait M 2009 *Indigenous Peoples And Oil Palm Plantation Expansion In West Kalimantan, Indonesia* (Amsterdam: Cordaid)
[10] Azzahra F, Dharmawan A H, Dharmawan, and Panjaitan, N K 2017 Perempuan dan resiliensi nafkah rumah tangga petani sawit: analisis dampak ekspansi perkebunan kelapa sawit di Provinsi Jambi *J. Sosiol. Pedes.* **25** -35
[11] OECD 2020 *Development Co-Operation Report 2020: Learning From Crises, Building Resilience* (Paris: OECD Publishing)
[12] United Nation 2020 *The Sustainable Development Goals Report* (New York: United Nation)
[13] Agarwal B 2000 Conceptualising environmental collective action: why gender matters. *J. of Econ.* **24** 283–310
[14] Agarwal B 2001 Participatory exclusions, community forestry, and gender: An analysis for South Asia and a conceptual framework. *World Develop.* **29** 1623–48.
[15] Obaideen K 2020 *Study Contribution Of Vegetable Oils Toward Sustainable Development Goals: A Comparative Analysis* (Jakarta: Policy Analysis and Development Agency, Ministry of Foreign Affairs of The Republic of Indonesia) pp. 149
[16] World Bank and IFC 2011 *The World Bank Group Framework And IFC Strategy For Engagement In The Palm Oil Sector* (Washington, DC: World Bank and IFC)
[17] Hariyadi P 2010 *Mengenal Minyak Sawit Dengan Berbagai Karakter* (Jakarta: Indonesia Palm
[18] Slover H T 1971 Tocopherols in foods and fats *Lipids* 6 291-96.
[19] Gunstone R F and Northfield J R 1986 Learners-teachers-researchers: consistency in implementing conceptual change *Paper given at the meeting of the American Educational Research Association, San Francisco*.
[20] Abazue C M, Choy E A and Lyndon N 2019 Oil palm smallholders and certification: exploring the knowledge level of independent oil palm smallholders to certification *J. of Biosci. and Agric. Research* 19 1589-96.
[21] Edward RB 2019 *Export Agriculture And Rural Poverty: Evidence From Indonesian Palm Oil* (Hanover: Dartmouth College).
[22] World Bank 2020 *The World Bank Group Reengages Palm Oil Sector* (Washington, DC: World Bank).
[23] Policy Analysis and Development Agency 2021 *Study Contribution Of Vegetable Oils Toward Sustainable Development Goals* (Jakarta: Policy Analysis and Development Agency).
[24] Jambi University 2021. Impact of Vegetable Oils on the Achievement of Sustainable Development Goals (SDGs). *Webinar Sosialisasi Kajian-Kajian Kontribusi Minyak Nabati terhadap Sustainable Development Goals (SDGs) 07 and 14 March 2021*.
[25] IPB University 2021. Contribution of Vegetable Oils Towards Sustainable Development Goals: A Comparative Analysis (Bogor: IPB University).
[26] Kritchevsky D and Kalyana S 2002 Palm oil in human nutrition: Recent advances *David*, Asia Pacific *J Clin Nutr* 11 S393.
[27] MPOB 2017 Pocket Book on Palm Oil Uses., (Selangor: MPOB).
[28] Harahap E M 1999 Perkembangan akar tanaman kelapa sawit pada tanah tergeradasi di Tapanuli Selatan Sumatra Utara: disertasi (Bogor: IPB).
[29] Harahap E M. 2007. Peranan Tanaman Kelapa Sawit Pada Konservasi Tanah dan (Medan: Fakultas Pertanian, Universitas Sumatra).
[30] Hanja 2009. Infiltrasi Pada Berbagai Kelas Umur Tegakan Kelapa Sawit (Infiltration in various age grades of oil palm stands). Medan: Forestry department. Agriculture Faculty Universitas of Sumatera Utara (USU), Medan.
[31] USDA 2020 *Food Data Central: Foundation Foods* (Maryland: USDA).
[32] INDEF 2020 Masa Depan Biodiesel Indonesia: Perspektif Finance Sustainability. *Bahan Presentasi pada FGD Narasi Institute and Independent Research and Advisory Indonesia (IRAI), Jakarta 16 Desember 2020*.
[33] Harahap I Y, Pangaribuan Y, Siregar H H, and Listia.E 2005 Lingkungan Fisik Perkebunan Kelapa Sawit (Medan: Indonesian Palm Oil Research Center).
[34] Harahap H 2009 *Infiltrasi Pada Berbagai Kelas Umur Tegakan Kelapa Sawit* (Medan: Forestry Departemen,Agriculture Faculty, USU).
[35] Mc. Kinsey and Company 2020 *Economic Conditions Outlook, Snapshot, June 2020: Mckinsey Global Survey Results* (New York: Mc. Kinsey and Company).
[36] Morgan M 2017 Women, gender and protest: contesting oil palm plantation expansion in Indonesia *J. of Peasant Studies* 44 1103-10.
[37] Pacheco P, Levang P. Dermawan A Schoneveld, G 2018 *The Palm Oil Governance Complex: Progress, Problems And Gaps* 1st ed (Cambridge: Burleigh Dodds Science Publishing).
[38] Nyakwara Z, Mokua M, Moturi W, and Getty M 2015 Assessing gender roles and environmental impacts during oil crop production in Lare Nakuru, Kenya *J. of Agric. and Life Sci.* 2 25-30.
[39] Sinaga H 2013 *Indonesian Oil Palm Plantations: Decent Work Deficit Despite Employment Growth. In The Food Crisis: Implications For Labor* (Munich: Rainer Hampp Verlag) 99–126.
[40] APKASINDO 2020 Program Peremajaan Sawit Rakyat (PSR): peluang dan tantangan. *FGD–outlook industri kelapa sawit Indonesia, 12 October 2020 Serpong*.
[41] Ministry of Agriculture 2010 Statistik Perkebunan (Jakarta: Diektorat Jenderal Perkebunan, Kementerian Pertanian).
[42] Solidaridad Network in Indonesia Foundation 2019 *Report On Gender Development In Oil Palm Sector* (Jakarta: Solidaridad Network in Indonesia Foundation)