

Kent Academic Repository

Full text document (pdf)

Citation for published version

Nurhasan, Mulia and Pawera, Lukas and Lo, Michaela and Pratama, Muhammad Faisal and Rahmah, Mahdiyatur and Utami, Mia Mustika Hutria and Rowland, Dominic (2020) Commentary: Oil Palm Boom and Farm Household Diets in the Tropics. *Frontiers in Sustainable Food Systems*, 4. ISSN 2571-581X.

DOI

<https://doi.org/10.3389/fsufs.2020.00039>

Link to record in KAR

<https://kar.kent.ac.uk/81733/>

Document Version

Publisher pdf

Copyright & reuse

Content in the Kent Academic Repository is made available for research purposes. Unless otherwise stated all content is protected by copyright and in the absence of an open licence (eg Creative Commons), permissions for further reuse of content should be sought from the publisher, author or other copyright holder.

Versions of research

The version in the Kent Academic Repository may differ from the final published version.

Users are advised to check <http://kar.kent.ac.uk> for the status of the paper. **Users should always cite the published version of record.**

Enquiries

For any further enquiries regarding the licence status of this document, please contact:

researchsupport@kent.ac.uk

If you believe this document infringes copyright then please contact the KAR admin team with the take-down information provided at <http://kar.kent.ac.uk/contact.html>



Commentary: Oil Palm Boom and Farm Household Diets in the Tropics

Mulia Nurhasan^{1,2}, Lukas Pawera^{3*}, Michaela Lo^{1,4}, Muhammad Faisal Pratama¹, Mahdiyatur Rahmah¹, Mia Mustika Hutria Utami¹ and Dominic Rowland^{1,5}

¹ Center for International Forestry Research, Bogor, Indonesia, ² Department of Nutrition, Exercise and Sports, University of Copenhagen, Copenhagen, Denmark, ³ Department of Crop Sciences and Agroforestry, Faculty of Tropical AgriSciences, Czech University of Life Sciences Prague, Prague, Czechia, ⁴ Durrell Institute of Conservation and Ecology (DICE), University of Kent, Canterbury, United Kingdom, ⁵ Centre for Development, Environment and Policy (CeDEP), SOAS University of London, London, United Kingdom

Keywords: oil palm, rubber, diet, nutrition, tropics, Jambi, Indonesia, land-use change

A Commentary on

Oil Palm Boom and Farm Household Diets in the Tropics

by Sibhatu, K. T. (2019). *Front. Sustain. Food Syst.* 3:75. doi: 10.3389/fsufs.2019.00075

We read the recent article by Kibrom Sibhatu on the Oil Palm Boom and Household Diets in the Tropics (Sibhatu, 2019) with great interest. The paper makes a valuable contribution to the debate surrounding agricultural commercialization, production diversity, and nutrition. However, we argue that the central conclusion, that “*The results illustrate that land-use change through oil palm adoption significantly improves the diets of farm households in the tropics,*” is misleading and overgeneralized.

This study aims to compare the diets of oil palm adopters and non-oil palm adopters. It concludes that “*rather than support the idea that adopting a perennial and non-food commercial crop worsens dietary quality and diversity in farm households, my findings support the opposite.*” However, the sample is confined only to farmers who have owned agricultural land in the last 5 years, resulting in restricted samples of “*relatively specialized farmers in plantation crops, either rubber, oil palm, or both.*” This indicates that farmers who do not adopt oil palm are likely to be farmers who specialize in rubber cultivation. Likewise, oil palm adopting households were likely to have previously been rubber farmers. Hence, “*non-oil palm adopters*” is a misleading term to refer to a group mostly consisting of farmers specializing in rubber. It overlooks the great diversity of non-oil palm adopters, including smallholders who were not previously engaged in any commercial plantation farming (Jelsma et al., 2017), and households with customary (rather than formal) land rights, who practice diverse traditional food crop production systems across Indonesia (McCarthy, 2010). The terminology implies that oil palm adoption would improve nutrition in all cases, when this particular group only represents a small proportion of farmers within a study context mostly dominated by rubber and oil palm.

The study also claims (with a single exception sentence in the conclusion) that Jambi province is typical of “*tropical rainforest areas of Indonesia*” and therefore, “*...the results illustrate that land-use change through oil palm adoption significantly improves the diet of farm households in the tropics.*” The improvement of economic benefits from oil palm development across Indonesia has been widely documented [e.g., (Edwards, 2015, 2019)]. However, previous studies have also reported heterogeneous effects of adopting oil palm, particularly related to the socioecological aspect of community welfare. Differences in past exposure to plantation management of a village have been associated with divergent outcomes derived from oil palm development (Santika et al., 2019a). In Kalimantan, villages that were already market-orientated prior to oil palm development received greater economic benefits.

OPEN ACCESS

Edited by:

Peter Newton,
University of Colorado Boulder,
United States

Reviewed by:

Vijesh V. Krishna,
International Maize and Wheat
Improvement Center, Mexico

*Correspondence:

Lukas Pawera
paweralukas@gmail.com

Specialty section:

This article was submitted to
Land, Livelihoods and Food Security,
a section of the journal
Frontiers in Sustainable Food Systems

Received: 28 November 2019

Accepted: 20 March 2020

Published: 16 April 2020

Citation:

Nurhasan M, Pawera L, Lo M,
Pratama MF, Rahmah M, Utami MMH
and Rowland D (2020) Commentary:
Oil Palm Boom and Farm Household
Diets in the Tropics.
Front. Sustain. Food Syst. 4:39.
doi: 10.3389/fsufs.2020.00039

However, villages that were mostly subsistence-based only experienced short-term economic gains and reported a rise in malnutrition (Santika et al., 2019b). Compared to other regions of Indonesia, Sumatra has a stronger market economy presence (Baudoin et al., 2017; Giacomini, 2018; Santika et al., 2020). Well-established markets and good infrastructure can provide access to foods by using income derived from commercial farming. In contrast, in areas that lack market access and infrastructure, oil palm development may only lead to short term economic gains, often at the expense of reduced economic stability, socio-ecological welfare and rising inequality. Findings from more heavily forested communities in Papua and Kalimantan, where traditional subsistence based livelihoods are still widely practiced, have shown mixed welfare outcomes (Austin et al., 2017; Santika et al., 2019b), and more mixed and nuanced effects upon dietary intake and nutrition (e.g., Purwestri et al., 2019).

The nutritional implications of the observed changes in diets are central to the argument. Assessments of individual nutritional adequacy require estimation of dietary intake of all foods consumed, using methods validated for this purpose. However, this study uses unvalidated methods to measure dietary adequacy and states that: “*food waste and foods consumed outside the home are not included in the calculation of the dietary outcomes.*” Food consumed outside the home is increasingly important to dietary intake in Indonesia (Vermeulen et al., 2019). This is particularly true in children, and its absence may underestimate overnutrition (Sekiyama et al., 2012; Purwestri et al., 2018). This study classified all individuals (61 and 51% of non-adopters and 71 and 67% of adopters in 2012 and 2015, respectively) consuming more than their calorie recommendations as well-nourished. This approach to calculate malnutrition dilutes the rate of overnutrition. Overnutrition is a significant component of malnutrition in Indonesia, widely co-existing with undernutrition, including in oil palm dominated regions (Hanandita and Tampubolon, 2015; Purwestri et al., 2018). Broad claims of dietary benefits should not be made without consideration of the risk of overnutrition.

Additionally, we observe that there is a lack of justification provided for modifying metrics of dietary diversity. The author uses the Household Dietary Diversity Score (HDDS) (Kennedy et al., 2011), modified by using only 9 selected food groups from the Minimum Dietary Diversity for Women (MDD-W) (FAO and FHI, 2016). However, the food groups

presented in the paper seem to match the Women Dietary Diversity Score (WDDS) (Kennedy et al., 2011). While we recognize that adjusting food categorization might be appropriate in some contexts, dietary indicators are validated for specific uses, such as measuring food security (HDDS measures economic access to food at household level) or dietary diversity (MDDW and WDDS are proxies of dietary adequacy at the individual level) (Kennedy et al., 2011; Verger et al., 2017). We agree with Verger et al. (2019) that researchers who study the complex linkages between agriculture and nutrition should provide solid justification in implementing non-standard or modified dietary diversity proxies for comparison purposes.

As Indonesia continues to experience rapid land use change and large agrarian transitions, including oil palm expansion, it is the role of the scientific communities to inform Indonesian policy makers of the trade-offs between foodsheds that support both livelihood and the diets of local communities, to homogenous landscapes dominated by a few perennial cash crops. This trade-off, as opposed to the comparison between different cash crops, should be the central research question of the “*oil palm boom and farm household diets in the tropics.*”

AUTHOR CONTRIBUTIONS

MN, LP, ML, and DR contributed equally to all stages of the study (designing and formulating the manuscript, collecting of information/literature, interpreting the information, drafting and finalizing the manuscript). MP and MR contributed to formulating the manuscript, collecting of information/literature, interpreting the information, and initial drafting of the manuscript. MU contributed to the initial stage of formulating the manuscript, collecting of information/literature and interpreting the information. MN coordinated the process. DR controlled the quality of the manuscript.

ACKNOWLEDGMENTS

We would like to thank Barbara Burlingame, Chris Vogliano, Kartika Juniwati, and Yves Laumonier for their insightful views on the issues discussed in this manuscript. We would also like to thank the reviewer for the comments, which have improved the quality of our commentary.

REFERENCES

- Austin, K., Mosnier, A., Pirker, J., McCallum, I., Fritz, S., and Kasibhatla, P. (2017). Shifting patterns of oil palm driven deforestation in Indonesia and implications for zero-deforestation commitments. *Land Use Policy* 69, 41–48. doi: 10.1016/j.landusepol.2017.08.036
- Baudoin, A., Bosc, P. M., Bessou, C., and Levang, P. (2017). “Review of the diversity of palm oil production systems in Indonesia. Case study of two provinces: Riau and Jambi,” in *Working Paper* (Bogor).
- Edwards, R. B. (2015). “Is plantation agriculture good for the poor? Evidence from Indonesia’s palm oil expansion,” in *Working Paper* (Canberra, ACT).
- Edwards, R. B. (2019). “Export agriculture and rural poverty: evidence from Indonesian palm oil,” in *Working Paper* (Brisbane, QLD).
- FAO and FHI 360 (2016). *Minimum Dietary Diversity for Women: A Guide for Measurement*. Rome: FAO.
- Giacomini, V. (2018). The emergence of an export cluster: traders and palm oil in early twentieth-century Southeast Asia. *Enterp. Soc.* 19, 272–308. doi: 10.1017/eso.2017.10
- Hanandita, W., and Tampubolon, G. (2015). The double burden of malnutrition in Indonesia: social determinants and geographical variations. *SSM Popul. Health* 1, 16–25. doi: 10.1016/j.ssmph.2015.10.002
- Jelsma, I., Schoneveld, G. C., Zoomers, A., and van Westen, A. C. M. (2017). Unpacking Indonesia’s independent oil palm smallholders: an actor-disaggregated approach to identifying environmental and social performance challenges. *Land Use Policy* 69, 281–297. doi: 10.1016/j.landusepol.2017.08.012

- Kennedy, G., Ballard, T., and Dop, M. C. (2011). *Guidelines for Measuring Household and Individual Dietary Diversity*. Rome: FAO.
- McCarthy, J. F. (2010). Processes of inclusion and adverse incorporation: oil palm and agrarian change in Sumatra, Indonesia. *J. Peasant Stud.* 37, 821–850. doi: 10.1080/03066150.2010.512460
- Purwestri, R. C., Barati, Z., Wirawan, N., Fahmi, I., Lauvai, J., and Scherbaum, V. (2018). “What explains stunting among children living in a rice surplus area in Central Java, Indonesia?,” in *Diversity and Change in Food Wellbeing: Cases From Southeast Asia and Nepal*, eds A. Niehof, H. N. Gartaula, and M. Quetulio-Navarra (Wageningen: Wageningen Academic Publishers), 21–52.
- Purwestri, R. C., Powell, B., Rowland, D., Wirawan, N. N., Waliyo, E., Lamanepa, M., et al. (2019). From growing food to growing cash: understanding the drivers of food choice in the context of rapid agrarian change in Indonesia. *CIFOR Infobriefs* 263, 1–3. doi: 10.17528/cifor/007360
- Santika, T., Law, E., Wilson, K. A., John, F. A. S., Carlson, K., Gibbs, H., et al. (2020). Impact of palm oil sustainability certification on village well-being and poverty in Indonesia. *Land Use Policy* 87:104073. doi: 10.31235/osf.io/5qk67
- Santika, T., Wilson, K. A., Budiharta, S., Law, E. A., Poh, T. M., Ancrenaz, M., et al. (2019a). Does oil palm agriculture help alleviate poverty? A multidimensional counterfactual assessment of oil palm development in Indonesia. *World Dev.* 120, 105–117. doi: 10.1016/j.worlddev.2019.04.012
- Santika, T., Wilson, K. A., Meijaard, E., Budiharta, S., Law, E. A., Sabri, M., et al. (2019b). Changing landscapes, livelihoods and village welfare in the context of oil palm development. *Land Use Policy* 87:104073. doi: 10.1016/j.landusepol.2019.104073
- Sekiyama, M., Roosita, K., and Ohtsuka, R. (2012). Snack foods consumption contributes to poor nutrition of rural children in West Java, Indonesia. *Asia Pac. J. Clin. Nutr.* 21, 558–567. Available online at: <http://apjcn.nhri.org.tw/server/APJCN/21/4/558.pdf>
- Sibhatu, K. T. (2019). Oil palm boom and farm household diets in the tropics. *Front. Sustain. Food Syst.* 3:75. doi: 10.3389/fsufs.2019.00075
- Verger, E. O., Ballard, T. J., Dop, M. C., and Martin-Prevel, Y. (2019). Systematic review of use and interpretation of dietary diversity indicators in nutrition-sensitive agriculture literature. *Global Food Secur.* 20, 156–169. doi: 10.1016/j.gfs.2019.02.004
- Verger, E. O., Dop, M. C., and Martin-Prével, Y. (2017). Not all dietary diversity scores can legitimately be interpreted as proxies of diet quality. *Public Health Nutr.* 20, 2067–2068. doi: 10.1017/S1368980016003402
- Vermeulen, S., Wellesley, L., Airey, S., Singh, S., Agustina, R., Izwardy, D., et al. (2019). *Healthy Diets From Sustainable Production: Indonesia*. Hoffman Center for Sustainable Resource Economy, (CHATHAM HOUSE, EAT).

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2020 Nurhasan, Pawera, Lo, Pratama, Rahmah, Utami and Rowland. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.