



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

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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.

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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.

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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.

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