Imperial College London

Natural Environment Research Council

2024_77_SPH_KB: Evaluating the impact of palm oil sustainability certification on health of local communities in Southeast Asia

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Palm oil makes up 40% of the global production of vegetable oil as food, animal feed, and fuel. Unsustainable agricultural practices in this industry pose substantial risks to individual and planetary health, including respiratory illnesses, deforestation, greenhouse gas emissions, loss of biodiversity, and exposure to biocides with potential toxicological effects. The vulnerable rainforests of Southeast Asia in Borneo, Sumatra, and the Malay Peninsula produce 90% of global palm oil.

Sustainable palm oil certification schemes were established to address negative environmental and social impacts of the industry. Their performance, to a limited extent, has been evaluated in peer-reviewed studies in relation to environmental sustainability outcomes, offering mixed evidence of effect. Many sustainability outcomes are critically relevant to local community health, yet health effects of palm oil sustainability certification schemes have neither been evaluated nor explicitly considered in certification criteria. Potential health benefits may occur through sustainable management of ecosystems that contribute food and livelihoods locally, reduced community exposure to environmental contamination by biocides as result of their better regulation, and better air quality with reduced forest fires from land clearing for palm oil production. These potential health co-benefits so far appear to be overlooked.

This PhD will evaluate the impact of the Roundtable on Sustainable Palm Oil (RSPO) – the dominant sustainable palm oil certification scheme in Southeast Asia – on the health of local communities and identify opportunities for the scheme to produce health co-benefits. The student will:

1. Develop a health impact evaluation framework for RSPO through evidence mapping and engagement of relevant experts and stakeholders in co-design;

2. Design and undertake a quasi-experimental epidemiological evaluation along RSPO's health impact pathway(-s) (of student's choice) identified in the evaluation framework. This will use spatially disaggregated national longitudinal health survey data in Indonesia and/or Malaysia, geospatial data on the location of RSPO certified and uncertified palm oil concessions, and processed satellite data on land cover classes and patterns. It will entail spatio-temporal statistical analyses of relevant health outcomes in relation to the location of RSPO certified *vs* uncertified concessions, other agricultural landscapes, and untouched tropical forests, as well as in relation to the time and location of change of area use from one of these classes to another.

This research will provide analytical foundations for designing solutions that can optimise RSPO benefits for health and sustainability. The student will benefit from our connections with the Global Forest Watch, Brawijaya University in Indonesia, Monash University in Malaysia, and South East Asia Rainforest Research Partnership. Some of them could host the student for fieldwork/placement