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Evaluating the effectiveness of palm oil certification in delivering multiple sustainability objectives

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Abstract

Industrial oil palm plantations in South East Asia have caused significant biodiversity losses and perverse social outcomes. To address concerns over plantation practices and in an attempt to improve sustainability through market mechanisms, civil society organisations and industry representatives developed the Roundtable on Sustainable Palm Oil (RSPO) in 2004. The effectiveness of RSPO in improving the sustainability of the palm oil industry is frequently debated and to date, few quantitative analyses have been undertaken to assess how successful RSPO has been in delivering the social, economic and environmental sustainability outcomes it aims to address. With the palm oil industry continuing to expand in South East Asia and significant estates being planted in Africa and South America, this paper evaluates the effectiveness of RSPO plantations compared to non-certified plantations by assessing the relative performance of several key sustainability metrics compared to business as usual practices. Using Indonesian Borneo (Kalimantan) as a case study, a novel dataset of RSPO concessions was developed and causal analysis methodologies employed to evaluate the environmental, social and economic sustainability of the industry. No significant difference was found between certified and non-certified plantations for any of the sustainability metrics investigated, however positive economic trends including greater fresh fruit bunch yields were revealed. To achieve intended outcomes, RSPO principles and criteria are in need of substantial improvement and rigorous enforcement.

Introduction

The rapid expansion of oil palm (*Elaeis guineensis*) crops over the last five decades, particularly in Indonesia and Malaysia, has contributed to significant declines in biodiversity and has become a major concern for conservation (Koh and Wilcove 2007, Gaveau *et al* 2014a and Vijay *et al* 2016). In Indonesian Borneo alone, oil-palm concessions cover over 115 500 km^2 (15.5%) of the land mass and are considered responsible for 5600 km^2 of forest loss between 2000 and 2010 Gaveau *et al* (2013). As the largest global producer, contributing 54% of global trade, palm oil is an important contributor to the development of Indonesia's national economy with 16 million metric tonnes of palm oil exported in 2011 worth over US$17 billion (7.3% of export earnings, second only to coal (12% and gas 9.1%, United Nations Statistics Division 2013)). Having the highest yield per hectare of any vegetable oil, palm oil and palm oil derivatives provide cost-effective and versatile compounds commonly used in food production, soap, detergents, household chemicals, animal feed and biofuel (Koh and Wilcove 2007). However, palm oil production has other associated costs and the industry is frequently criticised for human labour rights violations, land use conflicts and environmental degradation (Fitzherbert *et al* 2008, Wilcove and Koh 2010, Wicke *et al* 2011, Abram *et al* 2017).