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Oil palm–community conflict mapping in Indonesia: A case for better community liaison in planning for development initiatives

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ABSTRACT

Conflict between large-scale oil-palm producers and local communities is widespread in palm-oil producer nations. With a potential doubling of oil-palm cultivation in Indonesia in the next ten years it is likely that conflicts between the palm-oil industry and communities will increase. We develop and apply a novel method for understanding spatial patterns of oil-palm related conflicts. We use a unique set of conflict data derived through systematic searches of online data sources and local newspaper reports describing recent oil-palm land-use related conflicts for Indonesian Borneo, and combine these data with 43 spatial environmental and social variables using boosted regression tree modelling. Reports identified 187 villages had reported conflict with oil-palm companies. Spatial patterns varied with different types of conflict. Forest-dependent communities were more likely to strongly oppose oil-palm establishment because of their negative perception of oil-palm development on the environment and their own livelihoods. Conflicts regarding land boundary disputes, illegal operations by companies, perceived lack of consultation, compensation and broken promises by companies were more associated with communities that have lower reliance on forests for livelihoods, or are located in regions that have undergone or are undergoing forest transformation to oil-palm or industrial-tree-plantations. A better understanding of the characteristics of communities and areas where different types of conflicts have occurred is a fundamental step in generating hypotheses about why certain types of conflict occur in certain locations. Insights from such research can help inform land use policy, planning and management to achieve more sustainable and equitable development. Our results can also assist certification bodies (e.g. the Roundtable for Sustainable Palm Oil-RSPO, and the Indonesian and Malaysian versions, ISPO and MSPO), non-government-organisations, government agencies and other stakeholders to more effectively target mediation efforts to reduce the potential for conflict arising in the future.

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1. Introduction

Many regions of the world are undergoing rapid land use and land cover change to industrial-scale agriculture, especially in the tropics (Foley et al., 2005; Lambin & Meyfroidt, 2011). From 2006 to 2009, 15 to 20 million hectares of land in developing countries were subject to negotiations and transactions for agriculture (von Braun & Meinzen-Dick, 2009). In many of these areas, land has been historically controlled through indigenous governance systems (Larson & Bromley, 1990), rather than through legislated systems of land and resource use rights (Redford & Sanderson, 2000). However, power realignments over land and its resources is often driven by economic development, and challenge existing traditional systems and local peoples' values. In many countries this is leading to increased social tensions and conflict over land and land-use (Barron, Kaiser, & Pradhan, 2004). Although such conflicts are found world-wide, we use Indonesia as an exemplary case study for highlighting the extent and type of land-use conflict related to agribusiness developments, and demonstrate one method for understanding these at a landscape level.

In Indonesia, forest land-use related conflicts affected 12.3 to 19.6 million people (i.e. 5–9% of the country's population) from 1990 to 2000 (USAID, 2006). More recently, in 2010 alone over 663 documented ongoing conflicts were identified, mostly located on the island of Sumatra and Kalimantan in Indonesian Borneo (Komnas & Sawit Watch 2010). Such conflicts have been largely due to tenuous indigenous or customary land rights for local communities in development agendas as forested lands have belonged to the State i.e. “under the Forest Estate” (Bartley, 2010). This is of particular importance in relation to the countries expanding ‘forest-frontier’ oil–palm sector. Indonesia is globally the lead palm-oil producer country, with oil-palm plantations covering 8.4 million hectares in 2010 (Indonesian Ministry of Agriculture, 2011). By 2009, 9.7 million hectares had already been licensed for oil-palm estates. However, 18 million hectares have been identified as suitable for this crop and targeted for future development (Jakarta Post 2009). With such current extent and future oil-palm expansion, instances of land-use conflicts are inevitable. For example, of the 232 agrarian conflicts documented in Indonesia in 2012, over half (119) were associated with the oil-palm industry.

Major environmental impacts (Abram et al., 2014b; Fitzherbert et al., 2008; Meijaard & Sheil, 2013) and social disruptions by oil-palm plantations have been widely documented in Indonesia (Dhiaulhaq et al., 2014; Obidzinski, Andriani, Komarudin, & Andrianto, 2012). However, simply knowing where land-use conflicts are located is insufficient. It is also important to understand the types of conflicts that have occurred, and if possible the characteristics of the impacted communities and the root causes of these conflicts. Many conflicts are at local scales (i.e. one to several villages) (Meijaard et al., 2013); and at this scale, it is possible to identify such nuances in oil palm-community conflicts. Such conflicts can result from: a lack of appropriate consultation with local communities, land tenure issues where large land leases overlap with community areas, illegal operations, displacement of people from agricultural land (Patel et al., 2013; Yasmi, Kelley, & Enters, 2010); and inadequate provisioning by companies to communities for resettlement or compensation (Colchester, 2010). Although most conflict occurs between large plantation companies and local communities, sometimes conflict arises between smallholders and other community members, especially regarding legitimacy and security of their land holdings (Vermeulen & Goad, 2006). Mapping such nuances is challenging, yet necessary for improving land-use plans and sustainability in the oil-palm industry.

Approaches for creating sustainability within the oil-palm industry include the international certification body of The Roundtable for Sustainable Palm Oil (RSPO). The RSPO is a sustainable certification scheme aimed at mitigating negative impacts from oil-palm production on society and the environment, by improving agricultural production standards through specific principals and criteria (Traeholt & Schriver, 2011). The RSPO's Principals and Criteria, amongst other things, incorporates community aspects such as rights to land, values of forested systems for livelihoods and culture, and receptiveness to development, through requiring High Conservation Value (HCV) assessments and obtaining Free Prior and Informed Consent (FPIC) from local communities (RSPO, 2013). To-date such assessments and engagement have been at a plantation level. However, in 2015 district level commitments to a jurisdictional RSPO certification was given by government in Central Kalimantan (Indonesian Borneo), South Sumatra (Indonesia); and the State of Sabah (Malaysian Borneo). Mapping oil palm-community conflicts across landscapes is challenging, and one that a jurisdictional RSPO commitment will now need to address. Outside of the RSPO, understanding how to map land-use conflicts is important for informed land use planning and for targeting mediation and reconciliation efforts.

No single framework exists for studying conflict, but it is helpful to focus on actors of conflict, underlying causes of conflict, conflict management and conflict resolution (Dhiaulhaq et al., 2014; Yasmi et al., 2010, 2012). In this study we aim to contribute to the growing literature on conflict by applying a novel method for exploring spatial patterns of land-use conflict between local communities and a land-intensive industry. To do this we use conflict data derived through systematic searches of a georeferenced national database (of natural resource conflicts), and local newspapers. For one industry sector, oil-palm agriculture, we extract details on the type of conflicts that have occurred. Using boosted regression tree modelling we relate the types of conflict to a comprehensive spatial dataset of environmental and social variables that describes the characteristics of the locations where the conflicts have occurred and the local communities involved. This study is intended to better inform scientists, policy makers, oil-palm producers, and certification bodies to assist with reforming land use policy and implementing effective management to reduce the potential for different types of conflict and to better target mediation procedures in the future (e.g. Dhiaulhaq et al., 2014; Dhiaulhaq, De Bruyn, & Gritten, 2015).

2. Methods

2.1. Conflict data

We collected land use conflicts reports from the Geodata Nasional (GDN) database ($n = 122$) (http://www.geodata-cso.org/) and from articles in local newspapers ($n = 143$). The GDN database compiles information on natural resource conflicts in Indonesia collected by the following organisations: *Jaringan Kerja Pemetaan Partisipatif* (JKPP), *Perkumpulan Untuk Pembaharuan Hukum Berbasis Masyarakat dan Ekologi* (HuMA), *Perkumpulan Sawit Watch*, *Konsorsium Pembaruan Agraria* (KPA), *Konsorsium Pendukung Sistem Hutan Kerakyatan* (KpSHK), and *Jaringan Advokasi Tambang* (JATAM). We obtained the newspaper articles through online archive searches of the Rakyat Kalbar, Harian Equator, Radar Banjarmasin, Balikpapan Post, Kaltim Post, Samarinda post, Banjarmasin Post, Tribun Kalteng, Radar Tarakan, Tribun KalTim, and Kalimantan news.com; using keywords related to land use conflicts (e.g., *konflik lahan*, *sengketa lahan*).

Overall, 265 conflict reports were collected. Information extracted from these reports included: village names, sub-district, district and province information, general conflict type (i.e., agriculture, forestry, mining), status of conflict (i.e., if underway or