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## Reducing forest and land fires through good palm oil value chain governance

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### ABSTRACT

United Nations' Sustainable Development Goals (SDGs) aim to protect the planet and ensure prosperity. In reaching SDGs, Indonesia's palm oil industry represents a solution for the economy but a problem for environment-related goals. Palm oil is a tremendous land-based commodity that supports the subnational and national economies of Indonesia. With 11.4 million ha of plantations, palm oil has contributed USD 20.75 billion in 2015 to Indonesia's export income. However, fire has been involved in the development and replanting of palm oil plantations. Smoke haze from fires harm the economy, the environment, and the health of millions of people. The research took a normative approach to understand whether the current palm oil value chain governance comply with the principle of good governance. The focus was on analyzing options to improve the current governance towards good governance, which is able to reduce fire uses. We reviewed previous investigations, and carried out focus group discussions, field interviews, and value chain analysis. We found that the palm oil economy distributed enormous value added to those participating in the chain. However, the fire uses in land preparation can be altered by using coercion, dis(incentives) and dominant information that held by district and central governments, growers and mil. The potential benefits from green products, a strengthened growers' association, moving up scenarios can be used to compensate the 'benefits' of using fire. Lessons learnt from the palm oil commodity chain in Indonesia, when the economy and the environment are contested, can be used by other countries to reach towards their SDGs.

### 1. Introduction

Indonesian President Joko Widodo has planned to deliver a moratorium plan restricting the granting of new permits for the expansion of palm oil plantations and mining to minimize the extent of forest and land fires as well as to promote environmental preservation. Fire is often used for land clearing due to its effectiveness and cheapness (Purnomo et al., 2017). The palm oil industry received fresh fruit bunches (FFB) from those who converted protected forest and national park into palm oil plantations (EOF, 2016; WWF, 2013). Forest conversion to palm oil plantations is considered as the source of forest degradation and deforestation (Pearce, 2017; Gaveau et al., 2016). The links between palm oil development and deforestation and involvement actors at different levels have been elaborated (Susanti and Maryudi, 2016; Prabowo et al., 2017).

This growing investment in the palm oil industry has been boosted since the Letter of Intent agreement between the International

Monetary Fund (IMF) and Indonesia was finalized in 1998 to tackle the Indonesian economy crisis; it aimed to liberate plantation investment in Indonesia, among other measures. Afterwards, palm oil investment was sourced in part domestically but also more frequently from neighboring countries, especially Malaysia and Singapore (Varkkey, 2016). This shows palm oil in Indonesia involves regional developments. At the same time, forest and land fires, including peatland fire, which caused smoke and toxic haze impacted the economy, the health, and the environment of Southeast Asian countries (Gaveau et al., 2014). Indonesian fire and haze in 2015 contributed to an economic loss of USD 16.1 billion (Glauber and Gunawan, 2016), 24 people death and 100,300 people preliminary death (Koplitiz et al., 2016).

In the other hand, export value of palm oil has recently exceeded that of petroleum and gas. Indonesia provides 52% of the world's palm oil supply (MoI, 2015). Indonesia aims to remain the biggest supplier of this commodity. Through its 11.4 million ha of plantations, Indonesia produced 33 million tons of palm oil amounting to an export revenue

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USD 20.75 billion in 2015 (Moi, 2015). The Ministry of Agriculture plans to increase the production to 36.4 million tons annually (MoA, 2016).

Indonesia is mandated by Article 33, Paragraph 4 of the 1945 Constitution to conduct economic development under the principles of sustainability and environmental friendliness. Various government policies have been delivered to ensure sustainability of the palm oil industry in Indonesia (Purnomo et al., 2013). Through the Intended Nationally Determined Contribution (INDC) and the Paris Agreement, however, Indonesia aimed to reduce carbon emissions amounting to 29% without international assistance and 41% with its assistance in 2030 from 2.88 billion ton CO<sub>2</sub> equivalent. Sustainability of agricultural plantations, reducing deforestation and forest degradation, and utilizing renewable energy are keys for the CO<sub>2</sub> emissions reduction (GOI, 2016).

However, they failed to disconnect the palm oil business from the environmental degradation and fires. Indeed, 20% of fire in 2015 was in palm oil plantation areas (Glauber and Gunawan, 2016). Improving the governance of palm oil value chains through fair value added distribution, market transparency and green certification can potentially reduce the use of fires. Good governance require all palm oil practices can be exposed to the public. Smallholders, if they are empowered they can get better value added that can be used for green land preparation International palm oil consumers are going stronger and greener and demanding for traceability of palm oil sources. Palm oil certification such as RSPO and ISCC demands for not involving fire in its value chains.

This paper aimed to contribute to palm oil sustainability by understanding palm oil value chain governance and its relation to forest and land fires. The paper answers the following questions: a) Who gets what in fire related palm oil value chains? b) What constitutes the governance of the palm oil value chain and who holds the power to influence the chain? c) What are the solutions to the problems of the value chain of palm oil that will reduce fires in the future?

We used Actor-Centered Power (ACP) approach from Krott et al. (2014) in combination with Social Network Analysis (SNA) to improve the governance of palm oil value chains. We specified how element of power i.e. coercion, dis(incentives) and dominant information to be used to influence the value chain governance in order to reduce fire in land preparing for palm oil plantations. In addition, mapping actors, one to one, together with their power elements is new in the uses of ACP approach. This can be useful for further development of ACP approach. In many cases ACP was used for forest and landscape governance (e.g. Susanti and Maryudi, 2016; Prabowo et al., 2017). Yet for comprehensive value chain governance.

The contemporary scientific debate on landscape sustainability contesting forest conservation and palm oil development (Sayer et al., 2016). Although, RSPO principles include zero-burning methods on palm oil plantation, but it is only a part in fighting the haze problem in Southeast Asia (WEF, 2015). Understanding complex sociopolitical actors in palm oil industry is necessary to create a more sustainable palm oil industry (Ivancic and Koh, 2016). Influencing palm oil actors and their value and supply chains can reduce deforestation and environmental destruction (UCS, 2016), for which this research can scientifically contribute.

Governance of value chains must take into account the power contest among actors in the chains as well as how they are related to each other. Social and institutional setting matter for building good governance (Giessen and Buttoud, 2014) As palm oil is a business, scrutinizing the economic power held by each actor is key (Krott et al., 2014) as well as how policy context influences the actors (Brockhaus et al., 2014). Actors who have more economic power can potentially command those who have less. They have better capacity to negotiate and obtain better value added.

This research can advise to the achievement of Sustainable development goals (SDGs) in the current palm oil countries such as Indonesia and Malaysia as well as emerging palm oil countries in Africa and Latin

America. On September 25, 2015, countries adopted a set of goals to end poverty, protect the planet, and ensure prosperity for all as part of a new sustainable development agenda. SDGs have become a global orientation of development since 2016. Seventeen SDGs are accepted by many countries, and are being targeted and monitored. Each goal has specific targets to be achieved over the next 15 years. Goal 8 encourages decent work and economic growth. Goal 12 outlines responsible consumption and production, while Goal 15 focuses on the sustainable use of land, of which forests and forestry form a part (UN, 2017). The palm oil industry in Indonesia, in which sustainability of production and consumption are in question, is highly relevant to the implementation of Goal 12. Palm oil provides huge benefits to its players and growth to the nation (as per Goal 8), but at the same time it causes environmental destruction and fires (going against Goal 15) if it is not well governed.

## 2. Value chains and good governance

Value chain analysis (VCA) describes activities that are required to bring a product or service from design, through various phases of production, to delivery to end consumers and disposal after use. VCA helps explain the distribution of value added to those participating in it. The value chain provides the big picture and system view of a particular product (Kaplinsky and Morris, 2001). The competitiveness of an individual firm depends upon the competitiveness of its value chain (Schmitz, 2005). Herr et al. (2006) propose the use of VCA to upgrade small-scale industry that has a positive impact on social development. Purnomo et al. (2014) provides an example of the use of VCA in Central Java, Indonesia in the context of timber value chain. Globalized trade and value chains influence value-added distribution in producing countries (Keane, 2012).

Value chain research can be used to develop horizontal and vertical scenarios for better and fair value-added distribution (Gereffi et al., 2005; Herr et al., 2006; Purnomo et al., 2011). Scenarios are descriptive narratives of plausible alternative projections of a specific part of the future (Fahey and Randall, 1998). The subnational and national governments are seeking scenarios to deliver inclusive and sustainable palm oil development (Glenday et al., 2015). A landscape approach, which aims to reconcile forest conservation and agricultural development, is the umbrella of future scenarios of development (Sayer et al., 2013).

Lembito et al. (2013) underline three key components of palm oil value chains, i.e. production (plantation and mill), demand and supply (domestic and export market), and revenue and cost (sales revenue, production cost, logistics cost). Mohammadi et al. (2015) reveal the demand of the world for palm oil and biodiesel and show that their prices will reinforce oil palm planting. Environmental degradation in Kalimantan was aligned with palm oil development (Obidzinski et al., 2012).

Governance refers to sustaining coordination and coherence among a wide variety of actors with different purposes and objectives. Such actors include political actors and institutions, interest groups, civil society, and nongovernmental and transnational organizations (Pierre, 2000). The relative power balance among actors is key for achieving good governance. Governance is the most critical aspects for participation by smallholders that involves producing rules for sharing the benefits and costs (Scherr et al., 2004). Without good governance, problems related to free riders and rent seekers can emerge easily. Moreover, the problem of elite capture as described by Platteau and Gaspart (2003) may also arise. Elite capture had frequently appeared in the decision-making process before good value chain governance was sought (Lund and Saito-Jensen, 2013; Marwa et al., 2010; Ribot, 2006). The elites became the winners while grass-root communities were the losers in the palm oil development of Kalimantan (Obidzinski et al., 2012). Indeed, multiple levels of government actors facilitated palm oil plantation expansion disregarding environmental constraints (Setiawan

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