



Fire economy and actor network of forest and land fires in Indonesia



Herry Purnomo^{a,b,*}, Bayuni Shantiko^a, Soadun Sitorus^a, Harris Gunawan^c, Ramadhani Achdiawan^a, Hariadi Kartodihardjo^b, Ade Ayu Dewayani^a

^a Center for International Forestry Research (CIFOR), Bogor, Indonesia

^b Faculty of Forestry, Bogor Agricultural University (IPB), Bogor, Indonesia

^c Center for Disaster Studies, University of Riau, Pekanbaru, Indonesia

ARTICLE INFO

Article history:

Received 14 April 2016

Received in revised form 30 December 2016

Accepted 2 January 2017

Available online xxxx

Keywords:

Political economy

Network

Patronage

Fire prevention

Value chains

ABSTRACT

Forest and land fires are a recurrent phenomena in Indonesia and little progress has been made in reducing their occurrence. The mineral and peat fire in 2015 burnt 2.6 million hectares, mostly in the provinces of Riau, South Sumatra, Jambi, Central Kalimantan, West Kalimantan and Papua, and costed USD16.1 billion as estimated by the World Bank in 2015. Although only 30% of the fire was on peatland area, it had a much higher impact than that on mineral land because of its fire density. Fires in Indonesia are caused by human both individually or collectively. Indonesian President Joko Widodo has committed to reducing fire during his term of office. Government actions have focused on fire suppression, biophysical and technological issues such as canal blocking and an early warning system. Significant actions on the underlying causes of fires such as providing economy incentives for land preparation without burning are rare. We conducted a political economy study of fire and haze to provide policy makers with an understanding of the economic, social and political causes of forest and land fires. The study focused on four districts in Riau Province, which experienced fires and forest transition to palm oil plantations. We collected social, policy and economy data from survey in ex post fire sites and carried out focus group discussions with the key stakeholders. We implemented value chain and social network analyses to the collected data. We found a diversity of actors were involved and gaining benefits from fires. We found that farmer group organizers obtained enormous benefits, as much as USD486 per hectare. These actors influence decision-making processes through their patronage network for their own interests. The networks provide power, support, protection and access to various resources. To effectively reduce fire, governments need to disempower these farmer group organizers through law and policy.

© 2017 Published by Elsevier B.V.

1. Introduction

Forest and land fires in Indonesia are of local, national and global concern (Edwards and Heiduk, 2015). These anthropogenic fires and hazes caused the death of 19 people and half a million of cases of acute respiratory infections in 2015 (Glauber and Gunawan, 2016). However, the premature death was much higher and estimated 100,300 people (Koplitz et al., 2016). They also caused environmental, economic, and public education losses, mostly in Sumatra, Kalimantan and Papua. Seven provinces were severely affected by haze: Riau, Jambi, South Sumatra, West Kalimantan, East Kalimantan, Central Kalimantan and Papua. Of the 2.6 million hectares of burnt area, 33% was peat land with the remainder mineral land (LAPAN, 2015). However, the peat land emitted much more haze compared the mineral soil. It

was estimated the total emissions from Indonesian fires in 2015 were 1.2 billion tonne CO₂ equivalent (Huijnen et al., 2016), a figure which may not be balanced by re-growth following the fires (van der Werf et al., 2010). The economic disruption caused by the haze has been enormous. In 2015, the cost of fire and haze was USD 16.1 billion (Glauber and Gunawan, 2016). These losses consisted of water resource damage, carbon emissions, destruction of vegetation, biodiversity loss, health expenses, business travel disruption and the cost of ecosystem restoration. The global effects of the fires included global warming, reduced temperatures and light intensity, and a potential influence on the El Niño Southern Oscillation or ENSO (Harrison et al., 2009).

The fires were ignited by human and exaggerated by dry climatic conditions (Glauber and Gunawan, 2016). For the case of peat, intentional canalization drains and dries peatlands, leaving them susceptible to fire. Peatland need drainage and land clearing often by fire to be adequate for crops such as oil palm to grow. Various actors – small and large – were incentivized by financial benefits to convert forest areas into agricultural land to grow, for example, palm oil and rubber (Suyanto, 2006).

* Corresponding author at: Center for International Forestry Research (CIFOR), Bogor, Indonesia.

E-mail address: h.purnomo@cgiar.org (H. Purnomo).

Fires occurred in both forest and land areas (LAPAN, 2015). Forest areas in Indonesia, amounting to 136 million ha, often have patchy tree distribution. About one third of categorized as production forest area by the government, that is mainly for producing timber, is not well covered by trees (Verchot et al., 2010). The conversion of forest area into palm oil, in particular, was conducted both legally and illegally (Wakker, 2014). High profits from the palm oil business drives this conversion as it benefits various actors (World Growth, 2011).

Fires are often used to clear land for agriculture such as oil palm because this method is cheap and easy. Land conflict, land claiming and lack incentive to conduct land preparation without burning are the causes of fires (Suyanto, 2006). Currently, the demand for land in Indonesia is mostly driven by a global demand for palm oil (Sandker et al., 2007). Palm oil is a lucrative business. Indonesia already provides 52.9% of the world's palm oil supply and aims prolong this success (Workman, 2016). > 11.4 million hectares of palm oil plantations produce 27 million tonnes of palm oil for export, reaping revenues of USD 18.6 billion in 2015 (MoA, 2015). Indonesia further plans to allocate millions of hectares of land to agricultural development, including 9 million hectares for smallholders (Cabinet Secretariat, 2015).

The Indonesian government has been attempting to address the problem of forest and land fires for 18 years without great success. Indonesian President Joko Widodo has committed to stopping the production of haze from forest and land fires through, among others, the Peatland Conversion Moratorium of 23 October 2015, the establishment of the Peatland Restoration Agency (BRG) in January 2016 and a plan for a palm oil plantation and mining extension moratorium. However, it is doubtful that these government actions can really reduce fire given its failure for 18 years. The public distrust government institutions due to a lack of transparency (Tacconi, 2016).

This paper focuses on the political economy of forest and land fires in Riau. It highlights how the driver of fire which link to profit, the actors involved, rent-seeking activities and the social networks associated with forest and land fires. It identifies the actors involved and their benefits, through surveys and value chain analyses (VCA), while their roles and relationships with other actors are analyzed using social network analyses (SNA). Economic power is the determining factor in how these actors influence decision-making processes and implementation to work in their own interests.

The research questions were (a) what is the policy environment resulting fire; (b) Who gets benefit from fire and how much? (c) How do the fire actors connect each other and link to decision making processes. Although fire is often perceived as being anthropogenic, there is little literature addressing how actors benefit from it. The research results will be of use to policy makers, civil society organizations, business communities, academics and others, allowing appropriate lessons to be learned and further measures to be executed.

2. Political economic analysis of fires

Political economy views politics as a crucial factor in determining economic outcomes (Drzen, 2000). Specifically, political economy refers to the economic analysis of decision-making processes and their implementation. As such, policy change and the politics of 'who gets what, when and how' are intimately related (Lasswell, 1958). Political economy focuses on how power and resources are distributed and contested in different contexts, and the implications for development outcomes. It is concerned with the interaction of political and economic processes in a society, i.e. the distribution of power and wealth between different groups and individuals, and the processes that create, sustain and transform these relationships over time (DFID, 2009). Governance and political economic approaches are often used to understand and transform national development based on natural resources towards sustainable development. Getting resources out of the ground does not translate into development. Natural resource rents must be collected by government institutions and channeled through the budgetary

process so that they can be transformed into productive public assets and sustainable development (Barma et al., 2012).

Actors and their political affiliations need to be scrutinized in natural resource policy reform. In democracy, policy makers need to operate in ways that respond to their citizens' needs and desires, balance special interests against equity and distributional considerations, and generate political backing. Policy makers need capacity to assess the political environment for decision-making and the ability to develop strategies that will obtain additional resources for the policies (Brinkerhoff and Crosby, 2002).

Within a forested landscape, agriculture usually has greater added value than forest, which drives deforestation (Chomitz, 2007). The direct drivers of deforestation differ in each country (Kissinger et al., 2012). In Indonesia, these can be categorized into direct drivers and underlying causes. The direct drivers are natural causes and human activities, including logging, illegal logging, forest fires related to land preparation for forest plantations and estate crops, and mining. The underlying causes of deforestation and degradation are market failures, policy failures, governance weakness, and broader socio-economic and political issues (Contreras-Hermosilla, 2000). Geist and Lambin (2001) review proximate causes of deforestation, which include agricultural expansion, wood extraction and infrastructure extension. The prioritization of development over conservation also clearly causes deforestation (Hansen et al., 2010). Miettinen et al. (2016) have described the land-use change and forest conversion into plantations from 1990 to 2015 in Sumatra, Kalimantan and Peninsular Malaysia.

Forest and land fire related projects have long been carried out in various provinces in Indonesia, with and without bilateral cooperation, and a number of technical, economic, social and political recommendations have been generated (Dennis, 2009). Gaveau et al. (2016) underlined the role of small-scale landholders in causing fires. Ekadinata et al. (2013) stated as small- and large-scale operators, a third category of 'local, midlevel entrepreneurs' has economic and environmental impact on fires in Sumatra.

Carmenta et al. (2011) described the incongruence between the causes of fires and proposed management solutions occurs in countries all over the world. In Indonesia and Brazil, the underlying causes of fires are social-politic problems, while action plans prioritize technical research into firefighting. This hampers efforts to overcome the problem of forest and land fires This problem is also highlighted by Salvini et al. (2014), who reported that 32% of REDD+ interventions did not have linkages to direct and indirect causes of deforestation and forest degradation. Regional cooperation and funds, such as the ASEAN Transboundary Haze Fund need to consider the benefits gained from the existence of forests such as timber logging for its additional funding sources (Tacconi et al., 2008). Scientists have an important role in promoting efforts to make forest and land fires a policy priority and a global concern (Ekayani et al., 2015).

Political economy has emphasized the embeddedness of economic activity within larger political institutions. While political economy is highly macro level with the nation-state as its most frequent unit of analysis, SNA operates at a more micro level, with individual actors or firms as its units (Mizruchi, 2006). Networking with powerful people (patrons) to receive support, protection and power to access available resources for receivers (clients), the so-called patronage network, is a common practice in Indonesia, Malaysia and Singapore (Varkkey, 2016). Political actors tend to aggregate into groups to allow them to influence policy within existing institutions (lobbies, parties and government) or against existing institutions (Frieden et al., 2000). Purnomo et al. (2012a) showed that for REDD+ actors, networking is a way to get access to power and elites. Van Noordwijk et al. (2014) identified rent-seeking elites among government officials who played important roles in deforestation.

SNA is based on the idea that the most important components of social life the nature of the relations that actors have with one another (Mizruchi, 2006; Borgatti et al., 2013). The network approach

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات