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Land allocation to meet sectoral goals in Indonesia—An analysis of policy coherence

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ABSTRACT

Land is a scarce resource affecting the implementation of many sectoral policies. In Indonesia, the expansion of palm oil plantations has led to non-sustainable land use practices in past years, particularly deforestation. More recently, the government has set ambitious targets for the adoption of biodiesel which will require expansion of oil palm plantations, thus putting further pressure on land. Meanwhile, the need to guarantee food supply, forest conservation and climate change mitigation also imply challenges when it comes to land allocation and use. This paper examines the role that land plays in the implementation of sectoral policies in Indonesia, exploring the availability of land to satisfy the multiple goals defined in national policies. We explore land competition resulting from allocations made in official policy documents starting with biofuel policy. The analysis of policy goals and coherence when it comes to land allocation is made in relation to agriculture, climate and forestry policies. We conclude that adjustments need to be made in the policies to avoid overlappings and misinterpretations when it comes to land allocation. The area made available for meeting each sectoral policy goal when taking into account cross sectoral interactions is: 14.2 Mha for agriculture, 43 Mha for climate mitigation measures, 9.2 Mha for forestry, and 20.9 Mha for biofuels. A more uniform land classification and development of a common reference database will increase transparency on land allocation and use, and help to monitor land use change, ultimately supporting the achievement of multiple national goals.

1. Introduction

Land is a scarce resource affecting strategies in many sectors including food production, energy, forestry and climate change mitigation. Lack of clarity and transparency in land allocation procedures, the involvement of multiple agents in issuing permits and enforcing regulations, and the overlap of responsibilities and actual land use often lead to land disputes and conflicts in Indonesia (Brockhaus et al., 2012; Sahide and Giessen, 2015; Srinivas et al., 2015; Toha and Collier, 2015). This may lead to non-sustainable land use practices such as what has been observed in the expansion of agricultural areas to support economic development in the past years, e.g. oil palm plantations that have threatened natural forests and peatland environments.

More recently, the Indonesian government has set targets for biofuel development (e.g. biodiesel). The effort is tied to 30% biodiesel blending targets for transport, industry, commercial and power sectors by 2025. Despite various feedstock options for biodiesel production, palm oil based biodiesel is currently the single liquid biofuel used in Indonesia. As the largest palm oil producer and exporter in the world, Indonesia palm oil production currently serves domestic and international demand for food and non-food products. This is likely to continue in the near future (OECD and FAO, 2016). Oil palm plantations cover 11 Mha in Indonesia (MoA, 2015b). Future production of palm oil to meet demand for domestic food and non-food products, including ambitious targets for biodiesel, and international export could potentially lead to further

Abbreviations: APL, area penggunaan lain (non-forest area); Bappenas, badan perencanaan pembangungan nasional (Ministry of National Development Plan); BAU, business as usual; CPO, crude palm oil; GHG, greenhouse gas; GoI, Government of Indonesia; Inpres, instruksi presiden (presidential instructions); ISPO, Indonesia Sustainable Palm Oil; LDN, land degradation neutrality; MAASP, Ministry of Agrarian Affairs and Spatial Planning; MEMR, Ministry of Energy and Mineral Resources; MoA, Ministry of Agriculture; MoEF, Ministry of Environment and Forestry; MoF, Ministry of Forestry; Permen, peraturan mentri (ministerial regulation); Perpres, peraturan presiden (presidential regulation); PP, peraturan pemerintah (government regulation); RSPO, roundtable sustainable palm oil; UU, undang-undang (law).

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expansion of the plantation area. Meanwhile, the need to guarantee food supply, forest conservation and climate change mitigation imply challenges when it comes to land allocation and use.

This paper examines the role that land plays in biofuel, agriculture, climate and forestry policies in Indonesia, exploring the availability of land to satisfy the multiple goals set in these policies. We explore land competition as per allocations made in official policy documents starting with biofuel policy and the goals for palm biodiesel production. The oil palm industry has a long history of acquiring large land concessions. The strategic importance of palm oil (i.e. foreign exchange earnings, domestic cooking oil supply, and rural labor absorption) has made the sector a top priority for the government.

Further, we propose an analysis of policy goals and coherence in the interplay of biofuel policies with three other sectoral policies in which land is an essential element: agriculture, climate and forestry policies. The policy analysis carried out here verifies to what extent these policies are favouring multiple goals when it comes to land allocation, particularly biodiesel deployment and the ambitious targets set for Indonesia. The improvement of coherence across sectoral policies is often motivated with reference to better regulation, potential synergies and conflict avoidance (Kautto, 2011; Nilsson et al., 2012). In the case of land, coherent policies may help improve resource allocation, promote optimal land utilisation, inter-sectoral integration and synergies with other sectors, while also contributing to reduce conflict (Hogl et al., 2016; Lindstad et al., 2015; Nesheim et al., 2014).

The four sectors and the associated policy goals were selected considering their importance in the national policy agenda. The agriculture sector has been always the government's top priority for meeting national food self-sufficiency (MoA, 2015a). Due to increasing land demand for agricultural expansion, there has been legal consent to transform forest area into non-forest area for non-forestry activity. This has resulted in a reduction of 28% of forest area from 1990 to 2013 (FAOSTAT, n.d.). Indonesia has now agreed to a voluntary commitment of 23% reduction of GHG emissions resulting from land use change, mainly deforestation and use of peatland. However, potential trade-offs between agriculture, climate and forestry sectors may become more problematic following the enactment of biodiesel blending target.

The remainder of this paper is organized as follows. Section 2 presents a description of land use categories and land administration in Indonesia, defining the context in which policy coherence is analysed. Section 3 outlines the framework used to perform the coherence analysis followed by an explanation of the approach applied to identify land available for delivering policy goals. Section 4 provides results and discussions of the policy coherence analysis and verifies the availability of land as a result of intersection between the four sectoral policy areas. Finally, Section 5 concludes the study.

2. Analysing land use categories and administration in Indonesia

In Indonesia, land is legally classified by its function as forest area (i.e. conservation, protection and production forest) and non-forest area (*Area Penggunaan Lain* or APL), described in Table 1. Of the total country territory of 187.75 Mha, 64.3% is considered forest area and the remaining is APL (MoEF, 2015b). The forestry law (Law 41/1999) defines *forest* as "an ecosystem unit in terms of a plot of land containing bio-natural resources dominated by vegetation in an integrated unity of environment", while *forest area* is defined as "any particular area determined or designated by the government to be permanent forest".

Apart from the legal classification shown in Table 1, Indonesia also recognises a land cover[1] classification i.e. area with forest cover and area without forest cover, as shown in Table 2. The land cover is measured based on Landsat 8 OLI satellite image data scan, which better reflects ground realities (MoEF, 2015b). Imprecise legal definition of forest area allows arbitrary land use definition (Andiko, 2010). The discrepancy becomes even more problematic when the legal land status does not coincide with the physical conditions of the area or its land cover. In fact, many forest areas are degraded, meaning that the original landscape of some APL could possibly have been forest at some point (Resosudarmo et al., 2014; Rosenbarger et al., 2013; Sahide and Giessen, 2015). All in all, these uncertainties about the definition of forest and non-forest land are detrimental to a sustainable development of agriculture in the country, palm oil expansion included. It becomes difficult not only to allocate the land needed for food and fuel production, preservation and restoration, but also to monitor change.

The concept of dual land classification i.e. by legal status (forest area and APL, in Table 1) and by land cover (area with forest cover and area without forest cover, in Table 2), must be kept in mind. The two systems are used interchangeably when land is allocated for delivering government priority commitments across sectoral policy areas.

According to the forestry law and spatial planning law (Law 26/2007), the area available for plantation development consists of (1) APL and (2) released forest area. Other policies that govern the release of forest area for conversion are (i) Government Regulation (Peraturan Pemerintah or PP) 104/2015 stipulating procedures to change forest status, and (ii) PP 105/2015 defining the use of protected forest and production forest area, see also Appendix A. The latter does not change the legal status of the forest and is only applied to activities associated with food and energy security. Both policies provide guidance on how to utilise the forest area with some clear distinctions.[2] In practice, oil palm plantation commonly refers to PP 104/2015, whereas PP 105/2015 is often applied for mining activities until the leasing permit expires and the area can be rehabilitated back to forest.

The Ministry of Environment and Forestry (MoEF) and the Ministry of Agrarian Affairs and Spatial Planning (MAASP)[3] are the main government agencies responsible for issuing land rights. In this dual control system, MoEF is responsible for forest areas and MASSP for APL. In addition to that, there are other agencies such as the Ministry of Agriculture (MoA) and regional governments, which are involved in land administration, depending on the location and purpose of the land utilisation. Each ministry has received the mandate to develop its own economic territory, and this includes land use planning (for example agricultural area, mining area, etc).

The spatial planning law is expected to provide the legal framework for functional spatial plans. However, the law does not regulate the integration of the development plans of various ministries (GoI, 2013). Consequently, overlapping of land permits for mining, agriculture and residential sectors in protection and production forests, as well as conflict among multiple land agencies at national and district levels may occur and become polemic in the formulation of development plans (GoI, 2013).

[1] Ministry of Forestry Regulation 10/2010 defines land cover as "visual appearance of the earth surface condition".

[2] Article 11 of Government Regulation No 104 of 2015 indicates non-forestry activities as follows: reservoir, dam, funeral, government office, education, security, natural disaster, residential, industrial, seaport and airport. Article 2 of Government Regulation No 105 of 2015 indicates non-forestry activities as follows: religious, mining, energy, telecommunication, road, transportation, public service, industry, security and defence, natural disaster, plantation for energy and food security.

[3] Prior to the inaugaration of President Joko Widodo in October, 2014, MoEF and MAASP were respectively named as Ministry of Forestry and National Land Agency.