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## Rice land conversion into plantation crop and challenges on sustainable land use system in the East Tanjung Jabung Regency

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### Abstract

Rice land conversion into palm oil and rubber in the Regency of East Tanjung Jabung has come to the fore but no data to confirm them as threats for the sustainability of rice land. Through overlaying Landsat Imagery year 2006, 2010 and 2014, we find the massive conversion of rice land into palm oil during 2006-2014 as much as 15,616 hectares while rubber was not being a threat. The land rent of palm oil is higher than that of paddy as much as Rp7,661,584/hectare/year. This high revenue together with some difficulties faced by the rice farmers make the sustainable land use system is difficult to achieve.

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### 1. Introduction

Issues of land conversion of food crop into plantation crop especially palm oil and rubber in Jambi Province has been emerging recently. The Regency of East Tanjung Jabung is one of main rice producers in Jambi Province that experiences high loss of rice land. This area was the second biggest rice producer in Jambi Province after Kerinci Regency, which supplied about 102,683 tonnes of paddy in 2013 (SJP, 2014). Based on rice land audit that was

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conducted by the Office of Agriculture and Food Crops of Jambi Province in 2012, rice land in East Tanjung Jabung was dominated by non-irrigated rice land. Its number continued to decline by an average of 10.83% per year. The utilization of non-irrigated rice land to cultivate paddy also declined, of 41,231 hectares of non-irrigated rice fields in 2011 was only about 71.8% or 29,863 hectares that had been cultivated by paddy. On the other side the land for plantation crops such as rubber and palm oil has been growing very fast. As examples, palm oil plantation and rubber increased respectively from 32,759 hectares and 7,172 hectares in 2009 to 107,228 hectares and 7,750 hectares in 2013, while coconut decreased from 59,370 hectares in 2009 to 53,724 hectares in 2013 (SJP, 2009; SJP, 2013).

Realizing this, the Government of East Tanjung Jabung Regency set the target for the Protection of Sustainability Food Agricultural Land (PSFAL) that is considered ambitious and difficult to achieve if we take into consideration that this regency is also being the development area of plantation crops such as palm oil, rubber and coconut. The target of PSFAL is 17,000 hectares plus reserving another 4,000 hectares as mentioned in the Regional Regulation Number 18 year 2013 about protection of Sustainability Food Agricultural Land (GETJR, 2013). PSFAL Program itself is very important as the first step to guarantee the continuity of paddy land supply (Barus *et al.*, 2012) especially when Indonesia Government targets food (rice) self-sufficiency in 2017.

In order to support the implementation of the Regional Regulation Number 18 year 2013, the Local Government had conducted a validation toward existing rice land. It was found a report in Rantau Rasau, one district that experienced the highest rice land conversion, that was only 938.75 hectares of rice land were successfully validated to join PSFAL Program, while the remaining 1,307.61 hectares targeted land could not be validated because the farmers were not willing to make/sign the Statement of Having SFAL or in many cases the land had been converted.

Up to now there are no data about the number of rice land that had been converted into plantation crops. According to Sa'ad (2012), it's important to know the land use change in order to make a development plan for achieving a target in future. This research will answer the doubt whether plantation crops are being a threat for the sustainability of rice land in the East Tanjung Jabung and what crop that threatens the most as well as the analysis of land rent palm oil and paddy that influences rice farmers to do land conversion.

## 2. Methodes

In order to identify rice land that had been converted into plantation crops, we overlaid Landsat Imagery year 2006 and 2010 as well as 2010 and 2014. These result the land use maps year 2006-2010 and year 2010-2014. Subsequently we got the number of rice land (in hectares) that had been converted to develop plantation crops. This data will confirm a particular plantation crop (whether palm oil or rubber or coconut) that become the main threat for the sustainability of rice land in this region. The next step was to analyze the value of land rent of rice field and its plantation crop competitor. Respondents for the land rent analysis were chosen from a district that experienced the highest number of rice land conversion during 2006-2014. This involved 42 rice farmers and 42 palm oil farmers. The equation used to count land rent refers to Rustiadi *et al.* (2011) as follows:

$$LR = Y(m-c) - Y.t.d \quad (1)$$

*LR* = land rent  
*Y* = output per land unit  
*m* = market price per output unit  
*c* = cost per output unit  
*t* = transportation cost per output unit per distance unit  
*d* = the distance between production location and market

We also interviewed government employees to support information and clarify the situation in the study area.

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