



TROPENTAG 2023

Competition on land between food crop and other land use in Indonesia

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Background

Indonesia has since long aimed for self-sufficiency in several essential food commodity such as rice. However, after achieving self-sufficiency in 1984, the country has never been able to achieve it again. With increasing population, competition on land is tightening. In urban and urban fringe area, rice fields are converted into settlement or business complex, while in rural area, the farmers turned to other crop considered more profitable, such as oil palm.

Results

The land use dynamics data of districts surrounding the Jogjakarta City of Yogyakarta Special Province showed a distinct movement of declining agricultural land use and increasing built-up areas. The data from the rural case study areas, however, showed a confusing figures. Land area that supposed to remain the same through years were changing, which is impossible to be true. At a glance, the data seemed unreliable. Nevertheless, when analyzed further, it showed its accuracy and confirmed a suspicion at the same time.

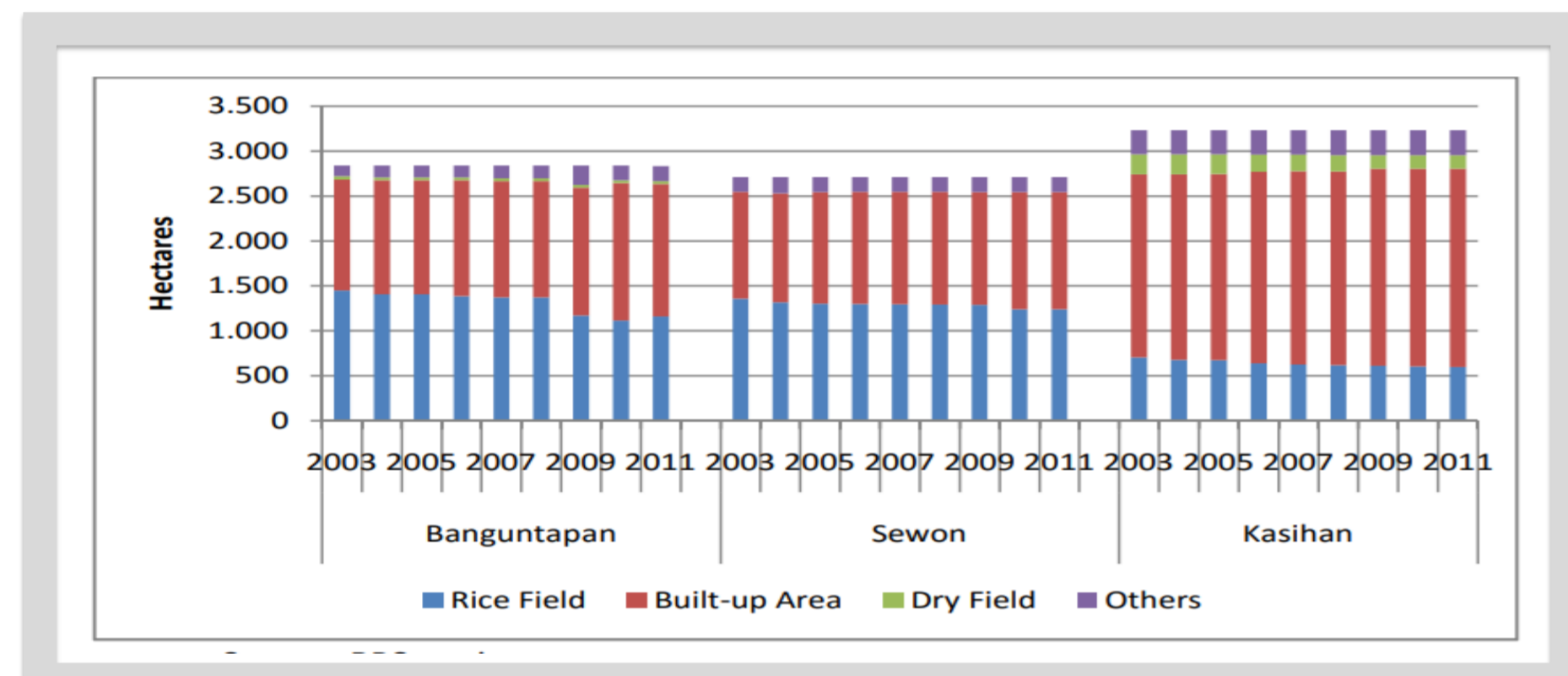


Figure 1: Land use dynamics in the urban fringe of Jogjakarta City, Yogyakarta Special Region, Indonesia [1]



Figure 2: Rice field was being converted to built-up areas

Total land area in Bulungihit is 1,200 hectare. The first rice field conversion was in 1988 and become a common action in 1997-1998. In the year 2000 and 2001 data, rice field was not reported to decrease and oil palm showed a sharp increase. However, the sum of total land area is almost a half of the reality. The possibility is that the missing area was actually an oil palm estate area converted from the rice field. It is possible that the agricultural advisor responsible in reporting this was afraid to report the truth because they felt that the conversion was more or less their responsibility. In the 2007 and 2008 data, the oil palm area even disappeared and 'others' showed. The 'others' is most likely the ex-rice-field oil palm estate. The rice field became extinct from Bulungihit in 2004. The 2007 data still record rice field in large areas. This is most likely the result of the reluctance of the responsible person to report the change as well. In 2015, rice field conversion was a buried history in Bulungihit. The true report of the area of the oil palm estate will no longer trigger a controversy. Similar to what is observable in the Babussalam data. The total land area in Babussalam is 607 hectares. The decrease of total area in the year 2000 data is very likely to be the area of the converted rice field.

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Methodology

The case study is done in three urban fringe area of Jogjakarta City for the conversion of rice field to urban uses and in four rural areas in Merbau District, North Sumatera for the conversion of rice field to cash crop. The land use data is collected through annual publication from the Indonesian Central Bureau for Statistic. The time series data dynamics is analyzed using political ecology concept.

The increase of the total area in the 2001 data is perhaps due to the true report of the total oil palm area, but the decrease of the rice field and rubber estate area that are converted into oil palm estate was not reported. To cover the conversion further, the status of the data is changed to dry field and others in the rest of the data. In 2015, Babussalam is still an important rice-producing village because of the fact that Babussalam hosts the last remaining rice field in the entire Merbau District. The village received an extra attention. Therefore, reporting the true rice

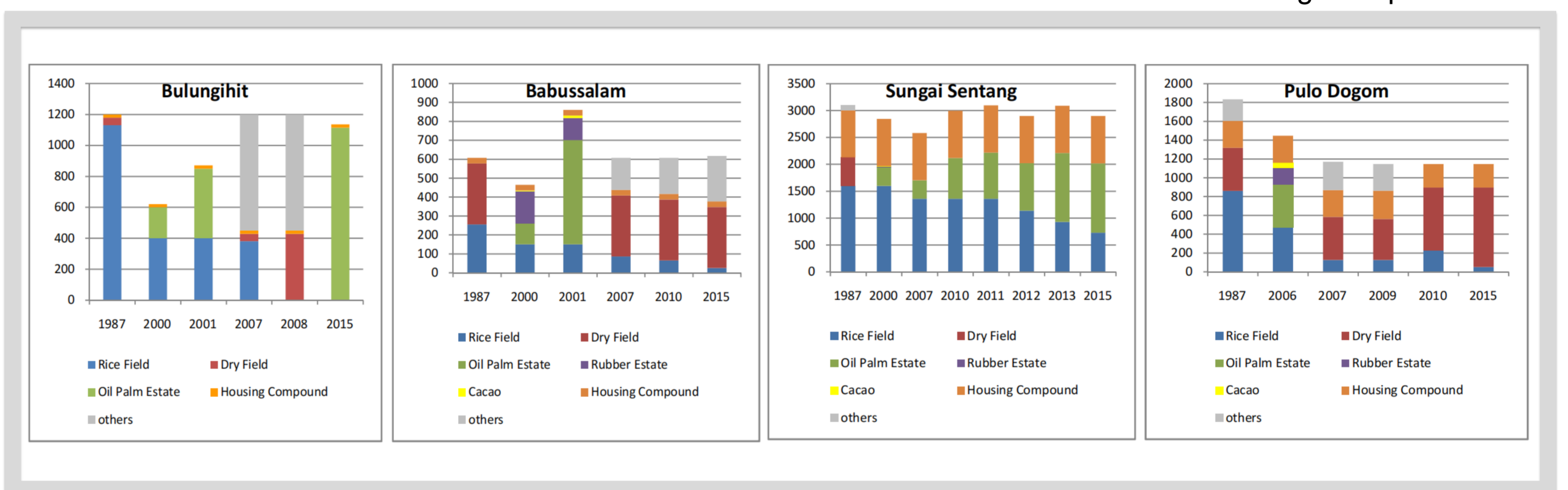


Figure 3: Land use dynamics in four case study villages in Merbau District, Labuhan Batu Utara Regency, North Sumatera Indonesia [2]

field and oil palm area would still be an issue. Sungai Sentang was not an important rice producer in the past. It has just become important lately when it is included in the sustainable rice field program. This is probably the reason that the decreasing rice field replaced by the increasing oil palm is reported nearly as it was. However, the little differences in the total area are perhaps due to underreported loss of rice field. Otherwise, the rest of the data are sufficiently accurate.

The shrinking area of Pulo Dogom was a result of a conflict in the 1990s. The neighboring village claimed a part of Pulo Dogom to be a part of their village. The neighboring village won the battle, having acquired almost one third of Pulo Dogom's 190 hectares. Pulo Dogom was a rather important rice producer in the 1970s – 1980s before the uncontrollable flood faded it away. It was on the spotlight again when the government aimed to re-establish the abandoned rice field after the successful flood control. The plan was finally realized in 2010, 50 hectares of the abandoned rice field was re-established. The much attention was supposedly the trigger of the effort to cover the reality. Oil palm was only reported in the 2006 data, as well as reported the total area more than it should be. Therefore, the reported oil palm was probably a converted rice field, but the missing rice field is not reported. In the 2007 data, the missing rice field was reported, but the oil palm area was gone replaced by dry field. Thus, the reported dry field was most probably an oil palm

Conclusions

Land use dynamics data showed that rice fields in urban fringe Yogyakarta are converted into built-up areas and in rural area of North Sumatera to oil palm estate. Results showed that increasing land price in urban fringe and the perception of high profitability of oil palm and low profitability of rice as the main drivers. Inefficient budget allocation for fertilizer subsidy has also failed to contribute to farmers' welfare improvement.

estate established on an ex-rice-field. These facts proved the reality of the conversion of rice field into oil palm estates.

The massive conversion triggered a question of why does this happen? Rice field received much attention in terms of budget allocation. Infrastructure development for irrigation channel and road improvements, subsidies, agricultural advisors. However these support failed to convince rice field owners to keep their rice field.

The case study in the urban fringe of Jogjakarta City showed that the motives are increasing land price.



Figure 4: The process of rice field to oil palm estate conversion

After selling the rice field they usually buy another more remote land and continue their farming [3]. The case study in Merbau District showed different motives. There was decreasing productivity of rice in the past. Rice harvest in surrounding villages were usually around the same time, causing price to drop. These formed the perception of low profitability of rice among the people. On the other hand, oil palm that was introduced as a part of rural development program succeeded in improving the welfare of the participants. During the 1997 crisis, exchange rate soar more than 7 times. As export oriented crop, the price of palm oil also rose to incredible price. These formed the perception of high profitability of oil palm [4]. Meanwhile, fertilizer subsidy is criticized by some scholars to only benefit large farmers and wholesalers and not smallholder farmers since they often face financial difficulties to buy the subsidized fertilizer [5].



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