World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

Palm oil series

Socio-Economic Impact Assessment of Palm Oil Production

In 1935 Indonesia became the global leader in palm oil export, with a plantation area of 75,000 ha. Seventy five years later it re-gained the number one position that it had lost to Malaysia with a planted area of over 8 M ha, 100 times more than in 1935, but still less than 5% of its land area. In much of the humid lowland tropics, oil palm production is one of the most economically attractive forms of land use. The introduction and expansion of oil palm in Indonesia reflects its economic attractiveness and benefits, but the social interactions between companies and local communities have had a mixed track record that requires attention. Ambiguous and contested land tenure in local communities and the state issuing concession licenses has been at the heart of most of the problems in this regard.

In the debate about the potential negative environmental consequences of conversion to oil palm, the development impacts (negative in situations dominated by conflict, potentially positive elsewhere) also need to be quantified. This study characterizes the social and economic context of palm oil production across the various plantations sampled and the smallholders in their neighborhoods that sell oil palm fruit to the mills involved in the study. Socio-economic impact was assessed at two levels: (1) village level (rural development); and (2) household level (livelihood).

Main findings	Implications
Within a radius of 10 or 20 km around the 23 plantations assessed, 11.4% or 7.9% of the villages have oil palm as their primary economic activity according to data of the National Bureau of Statistics.	In the area surrounding new oil palm plantations, the opportunity to sell palm oil fruits to the mill stimulates land use change, with positive and negative consequences that need to be assessed for each site where permits are approved.
Villages with oil palm as the major source of income show significantly lower prevalence of malnutrition but similar birth and death rates than the comparators; in-migration and percentage of male population are significantly higher in such villages compared to other surrounding villages.	Villages that adopt oil palm as major source of income tend to perform well on indicators of physical, financial and human capitals.
More than 18% of those households had increased their income (in real terms) 2 to 3 times after 5 years engagement in oil palm cultivation. About 35% had increased their income between 4 and 13 times after 5 to 10 years of engagement in oil palm cultivation. About 45% who engaged in oil palm cultivation for more than 10 years had increased their income 22 to 25 times over.	Financial results of engaging in oil palm production vary substantially between households, with clear success stories as well as reported failures; further analysis of this spread in results is needed
The average reported per capita expenditure data was more than 2 times the BPS poverty line in all provinces, except for West Kalimantan	The pattern in West Kalimantan requires further study

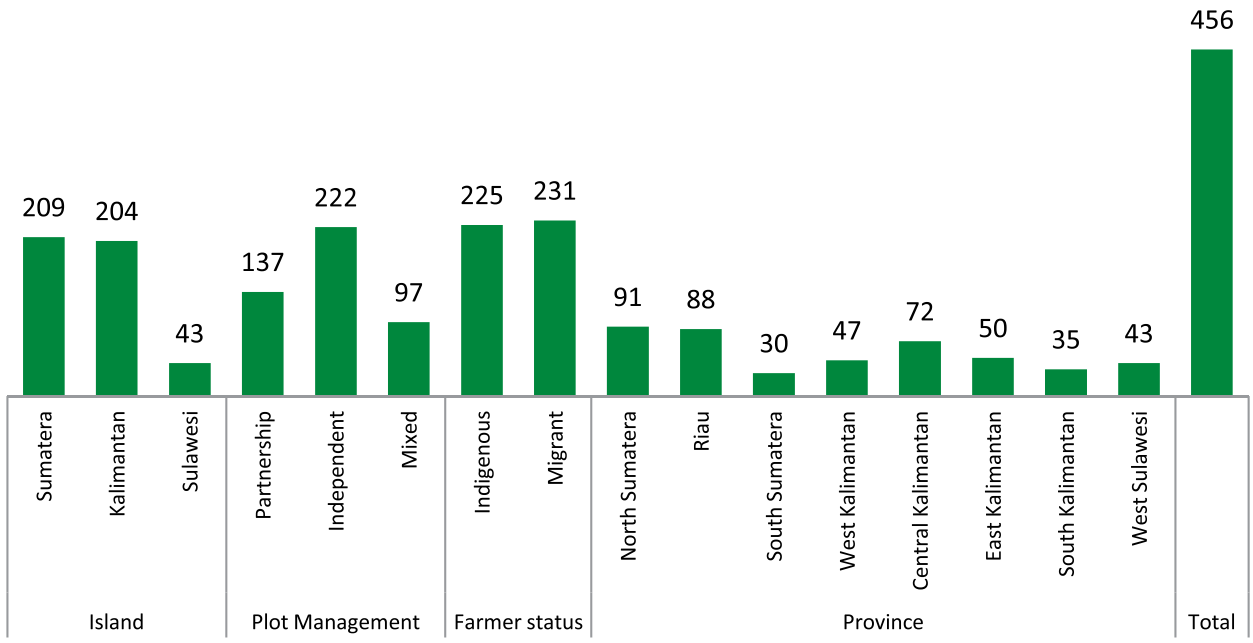

Figure 1. Household sample distribution

Study approach

A. Socio-economic impacts at the village level

The national bureau of statistics of Indonesia (BPS) compiles data on indicators of human welfare such as education and health as well as the dominant economic activities within the village boundaries. These data allowed us to distinguish between villages with oil palm as their main commodity (OPC) and other (NOPC) in the areas surrounding the 23 sample plantations of the footprint study.

The data set was extracted from (1) GPS coordinates of the 23 estates under study (nucleus and plasma), (2) Village maps of 2003 (BPS 2003) that provided polygons of villages, (3) PODES data 2008 (BPS 2008) that provides extensive data at the village level. A one-way ANOVA test in SPSS was conducted to compare means of variables of interests between OPC and NOPC within a 10 or 20 km radius of the 23 estates.

B. Household-level livelihood survey

A livelihood analysis was carried out using a household survey that emphasized household characteristics, farm management and household welfare. We visited 78 villages in 8 provinces. All of the villages are in the vicinity of a large scale plantation. While the biophysical team collected data on the estates, the socioeconomic team visited the villages and conducted household interviews. Due to limited time and resources, we purposely interviewed oil palm farmers living around company plantations. We interviewed 456 farmers both local and migrant, independent and plasma farmers during the study.

Adoption rate of oil palm cultivation within surrounding areas

Within a 10km radius of the 23 oil palm plantations assessed, 11.4% of the villages have oil palm as their primary commodity according to PODES data, ranging from 3% to 45% across the 23 samples. Within a 20km radius, the average is 7.9%, with an adoption rate ranging from less than 1% to 35% across samples.

Figure 2 gives an example of the village-level data for the southern half of Sumatra.

On further analysis, a number of other characteristics of villages may influence oil palm adoption rates: (i) the existence of market links prior to oil palm development; (ii) working as a tandem program with transmigration; (iii) demographic and socio-cultural characteristics; (iv) tenure systems; (v) biophysical characteristics.

Rural development indicators

Comparing the means of several variables of interest using one-way ANOVA (Analysis of Variance), we found that OPC villages tended to be more populated than NOCP villages; birth and death rates do not differ significantly between the two types of village, but in-migration was significantly higher in OPCs than in NOPCs; the percentage of men in the population was also significantly higher.

While access to elementary schools was similar for OPCs and NOPCs, distances to secondary schools, hospitals and other medical services were significantly higher in OPCs than in NOPCs. This possibly means that OPCs are more remote and that public/government facility developments are not prioritized in OPCs.

With regard to health indicators, OPCs showed a significantly lower prevalence of malnutrition, per capita health insurance for poor families, and also per capita services for poor people than is seen in NOPCs.

In terms of industry and economic opportunities, OPCs feature more wood-based industries, and a higher numbers of shops, minimarkets and hotels. The number of cooperatives (*koperasi*) and village unit cooperatives (KUD) are significantly higher in OPCs than in NOPC villages.

Socio-economic impacts at the household level

Household survey data showed that 298 (65%) of 456 household samples engaged in oil palm cultivation to replace their previous source of livelihood. More than 18% of those households had increased their income (in real terms) 2 to 3 times after 5 years engagement in oil palm cultivation. About 35% had increased their income between 4 and 13 times after 5 to 10 years of engagement in oil palm cultivation. About 45% who engaged in oil palm cultivation for more than 10 years had increased their income 22 to 25 times over.

In this study we found that oil palm cultivation is not the only source of household income. About 45% of the family members included in the survey engage in non-oil palm agricultural activities. Oil palm cultivation contributed 61% of total family income. From household survey data in Sumatra, the proportion of income derived from oil palm cultivation was larger (ranging from 63% to 78%) than that in Kalimantan (ranging from 31% in South Kalimantan to 61% in East Kalimantan). Looking at the monthly per capita income based on family income data in 2009, per capita income in Sumatra (IDR 1.34 million) was slightly higher than in household sample in Kalimantan and Sulawesi (IDR 1.22 million).

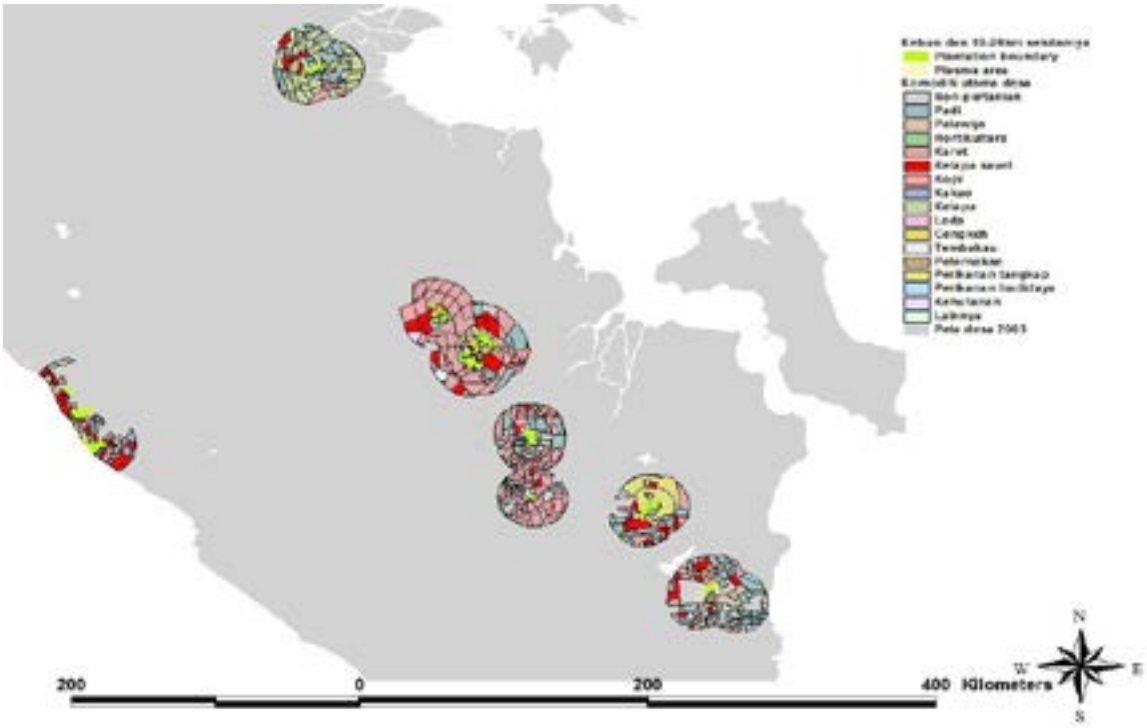

Figure 2. Southern Sumatera with villages surrounding the plantation samples

Photo: Yosi

A household survey that covered 225 local people (non-migrants) and 231 migrants revealed that the migrant households held more oil palm plots than did locals, with 470 and 351 plots respectively. Average area per plot held by the migrants was also larger than that held by the local population; 3.0 ha/plot and 2.1 ha/plot respectively.

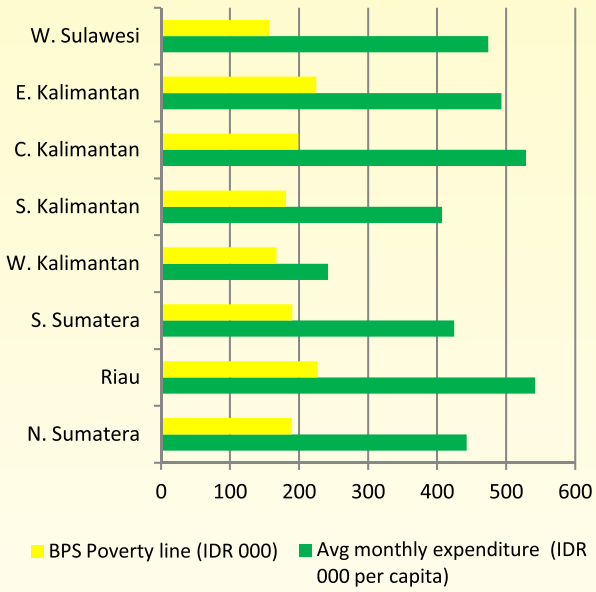

Figure 3. BPS Poverty line and average monthly expenditure of household sample

Conclusions and Recommendations

The data showed generally positive financial and socio-economic consequences of oil palm adoption in the immediate surroundings of oil palm estates. There is, however, considerable variation around the means that warrants further study. The differential results between migrants (either spontaneous or government-sponsored transmigrants) and local population also points to further issues that need be clarified as to the underlying process and consequences.

References

BPS (Badan Pusat Statistik). 2010. Data dan Informasi Kemiskinan Kabupaten Kota 2009. Jakarta, BPS.

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Citation

Budidarsono S, Dewi S, Sofiyuddin M, Rahmanulloh A. 2012. Socioeconomic Impact Assessment of Palm Oil Production. Technical Brief No. 27: palm oil series. Bogor, Indonesia. World Agroforestry Centre - (ICRAF), SEA Regional Office. 4p.

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Layout: Sadewa