

LCA of Palm Oil in Sumatra, Comparison of Cropping Systems

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Abstract

The agricultural sector is facing a huge increase in consumption patterns and food needs. This growth is likely to worsen the pressures on the local and global environments. The CIRAD, within the frame of the ADEME project called Agri-BALYSE, is in charge of assessing the environmental impacts of palm oil. The chosen methodology is Life Cycle Assessment (LCA). Today, Indonesia is the first world producer of palm oil. The Riau Province in Sumatra is one of the most dynamic regions in terms of palm oil production, and has therefore been chosen for our case study. The data inventory was carried out with the assistance of SMARTRI, the research center of PT-SMART. In the study area, diverse types of palm oil producers were identified and characterised in order to produce the relevant LCA for the diverse cropping systems. Data were collected in the field for the company and diverse types of smallholders, i.e. plasma, and independent smallholders with or without advices from the company on the agricultural management. We used SIMAPRO® to build up the LCAs and compare the environmental impacts of the different types of palm oil producers in Sumatra. We present here the preliminary results of the study. The functional unit was one metric ton of crude palm oil (CPO). The hierarchy of impacting cropping systems varied with the type of producers. Globally the Fresh Fruit Bunches (FFB) yields were lower per hectare for the independent smallholders and impacts per metric ton of CPO were larger. Despite the management advices that some independent smallholders received, their yields were still lower than those of the company probably due to non-selected plant materials. Further field data collection is still needed however, i) to survey more smallholders and insure the representativeness of modelled cropping systems, and ii) to gather more data on differential agricultural managements, notably on very diverse organic fertilizers used by smallholders..

References

Vélú A. (2011) Analyse du Cycle de Vie (ACV) de l'huile de palme indonésienne. Mémoire d'ingénieur de VetAgroSup. 75p.