

Life cycle assessment (LCA) is an analytical tool that is used to evaluate the impact to ecosystem quality, resources and human health along the whole life cycle of a product. In the case of palm oil production, LCA captures these effects at the various stages, which cover the production of oil palm seedlings plantations, the milling and refining of palm oil, and the processing of palm oil into palm biodiesel. More importantly, LCA is a site-specific assessment. As such, input and output inventories may vary from plant to plant, even if the same production technology is used.

METHODOLOGY

The system boundary of LCA for the production of biodiesel will be set up based on the specific processing technology. The life cycle inventory will be obtained and verified according to the functional unit used. The life cycle impact

assessment will be conducted using SimaPro Version 7.1 with the methodology of Eco-Indicator 99.

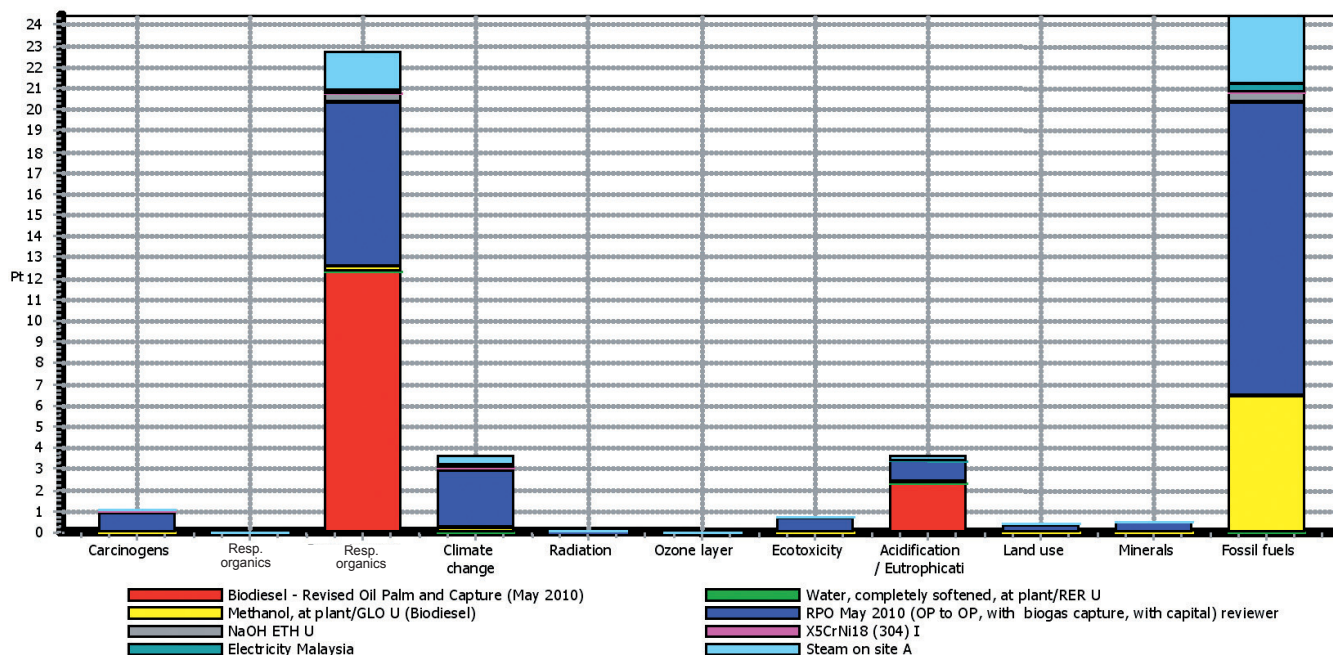
Figure 1 shows an example of weighted life cycle impact assessment of the *cradle to grave* study for the production and use of palm biodiesel (Puah *et al.*, 2010). In this example, the assumptions included the no land use change and biogas capture at palm oil mill.

COST

The cost of the service varies depending on the comprehensiveness of LCA conducted.

REFERENCE

PUAH CHIEW WEI; CHOO YUEN MAY and MA AH NGAN (2010). Life cycle assessment for the production and use of palm biodiesel (Part 5). *J. Oil Palm Research*, 22: 927-933.



Analysing 1 MJ Biodiesel - Revised Oil Palm and Capture (May 2010); Method: Eco-Indicator 99 (H) V2.03/Europe EI 99 H/A/weighing

Figure 1. Example of weighted life cycle impact assessment.

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