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“Bridging the gap between increasing knowledge and decreasing resources”

## Effects of Land Use Changes on Forest Use in the Rural Village Mentu Mawang, Malaysia

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### Abstract

South East Asia is facing immense land use changes, out of which the most remarkable are the establishment of large scale oil palm plantations along with deforestation. Consequently, the aim of this case study was to identify the effect of land use changes on forest use by rural communities. The study was conducted in the rural village Mentu Mawang in Sarawak, Malaysia.

To answer the research question, a biodiversity assessment of woody species and a forest resource assessment were conducted on three different sites (primary forest, secondary forest & oil palm plantation) with three replicate plots. Both of the assessments included individual trees with a trunk diameter of 5 cm. Apart from that, 4 semi-structured interviews with the headmen and guides, a questionnaire with 30 respondents, 4 participatory rural appraisals (transect walk, village map, timeline & Venn diagram), a focus group discussion with women and participant observation have been carried out.

The results show that a shift from subsistence to cash crops has taken place since 1974, mainly due to governmental promotion of the tree/shrub crops pepper, rubber, cocoa and oil palm. This has led to a decrease of both secondary as well as primary forest along with a loss of biodiversity. Primary and secondary forests were found to have a higher biodiversity than oil palm plantations with Shannon Index scores of 2.14, 1.39 and 0.28, respectively. Furthermore, primary forest was reported to have more biomass (815 t ha<sup>-1</sup>) and thus carbon storage (408 t ha<sup>-1</sup>) than secondary forest (136 t ha<sup>-1</sup>; 68 t ha<sup>-1</sup>) and oil palm plantation (150 t ha<sup>-1</sup>; 58 t ha<sup>-1</sup>).

Coupled with access to modern products, the decrease in forest extension and biodiversity has resulted in a decline of forest use, loss of indigenous knowledge and less value attributed to the forest by the villagers. For the primary forest that is still left, the main reason for protection is drinking water conservation as it is located right above the community's dam.

For future forest preservation, both value rebuilding within the community as well as governmental forest protection programmes seem to be necessary.

**Keywords:** Biodiversity, cash crops, deforestation, forest use, indigenous knowledge, land use changes, oil palm, rural communities