

Effects of reforestation, abandoned areas and natural forests
on Sakaerat environments.

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ABSTRACT

Studies on effects of reforestation, abandoned area and natural forests on Sakaerat environments were carried out in Sakaerat environmental research station and in the adjacent area by selecting two forest types : dry evergreen forest and dry dipterocarp forest, one abandoned area after slash and burned farming and five age series of 3-7 year old *Acacia mangium* plantations using different size of sample plots. The study on biological environments was focused on species abundance, diversity and phytomass of plant component of the communities. Physical environments were investigated relative humidity, air and soil temperature profiles and vertical relative light intensity distribution within stands to represent the plant community microclimate. Biogeochemical environments were investigated on plant and soil organic matter and nutrient storage of the three vegetation-covered types. The studies revealed that although the reforestation was limited to a single tree species resulting in having no species diversity but stand density was possible to control to be approached to that of the natural dry evergreen forest and produced large amount of phytomass both in fresh and dead plant materials following the stand ages and superior to the uncontrol species composition, density and diversity of abandoned area, The plantation of this species were not comparable to the natural forests in that there was only one upper layer of perennial tree while the abandoned area was highly diverse but mostly composed of unvaluable species. Relative humidity, air and soil temperatures and relative light intensity in *A. Mangium* plantation were kept at a comparable level with dry evergreen forest in both two seasons and with less variations as compared to dry dipterocarp forest and abandoned area where low relative humidity, high temperature and relative light intensity were found in both seasons. Storages of organic matter and macronutrients in plant and soil systems increased with stand age of plantation to be over the abandoned area and would be more than and comparable to the natural forests in the future.