

This report presents the results of an investigation on the relationships between terrain characteristics and nature of aggregate deposits in Chiang Mai Basin. Agricultural soil maps of Chiang Mai Province, compiled by Department of Land Development, were used in selecting appropriate study areas and soils in the area of Mae Rim, Lat Ya and Tha Yang soil series, totalled about 500 square kilometre, were selected.

Steps of investigation include: aerial photograph interpretation ; field investigation of terrain conditions and soil profile; laboratory testing of engineering properties of soils. Black and white aerial photographs, series NS.3, scale 1:15,000, and mirror stereoscopes were used. Soil profiles were studied from sections of road cuts, side of borrow pits and natural cuts. Only samples of potential soil aggregates were collected and tested in laboratory.

The Mae Rim soil series is an old alluvial deposit in high terrace which have been intensively eroded. The soil profile is typified by alternating layers of gravelly and fine grain soil in which layer thickness and pattern of interbedding are highly varied. This variation can be related with such terrain characteristics as drainage density and pattern, slope form and surface texture. Engineering properties of soil from the gravelly layers, however, do not vary significantly.

Soils in the Lat Ya and Tha Yang series, which are weathering products from clastic rocks, occur as colluvium deposits or residual deposits on slope of gently undulating hills. Properties of soils vary with their parent rocks which are either sandstone or shale or shale-chert intercalation. The deposits may be covered with fine silty sand alluvium up to about 1.0 m. thick. Variation in soil conditions can be related with such terrain characteristics as type and nature of vegetation covered, ground slope and altitude.

At the altitude between 330-370 m. above mean sea level, there appear to be certain similarities between all the soil series investigated. Ground surfaces are usually of broad convex form, gently undulating with surface slope between 2-4%. Lateritization occurs in the soil profile and large trees covering the areas are poorly grown.

Beside establishing relationships between terrain characteristics and soil conditions, potential sources of soil aggregate in the area studied were mapped using the relationships established. Together with the maps is a summary of properties of soil aggregates from the various sources. These information will be very useful to the construction works in Chiang Mai basin.