

## CHAPTER 5

### CONCLUSION

It can be concluded from the samples collected from 10 locations within the Bangkok Metropolis, 48 of soils samples were obtained. Mineral contents of the soil in Weathered Crust Layer and Soft Bangkok Layer can be estimated to consist of mainly Kaolinite, Illite, and Montmorillonite in the mineral composition of clay fraction. Chlorite and Vermiculite were also found in some locations, but very small quantity. Halloysite and Metahallosite were not found. Silt fraction consists of mainly quartz and very small amount of mica and feldspar were only present in some locations.

Mineral contents can be summarized in more details that in the clay fraction consists of Kaolinite about 40 - 50% in the samples from most locations, Montmorillonite is present about 30 - 40%, except in some locations which Montmorillonite is predominated, such locations are Tha Rue, Phrapradaeng, Bangna. Samples from Tha Rue show that about 60 -70% of montmorillonite is present, about 10 - 20% of Illite is also found in almost every sample. Moreover, Interstratified clay minerals between  $10^{\circ}$  to  $14^{\circ}$ A groups, and  $7^{\circ}$  to  $10^{\circ}$ A groups are also present but at very small quantity.

From the experiment, it can be concluded that mineral clay compositions will not vary with depth but will vary with locations.

It can be noticed that the presence of montmorillonite is higher in the South ward direction.

By chemical analysis of clay, if one assumes that  $K_2O$  is only derived from illite not from Potassium Feldspar or free Potassium and  $Na_2O$  is negligible, then one can calculate illite in clay fraction will not exceed 28%.

Conclusion can be made on cation exchange capacity of soft Bangkok Layer is containing about 20-30 meq. per 100 gm. of dry soil, but in Weathered Crust layer is containing more Cation Exchange Capacity than lower layer because it contains more organic substances, except from location at Tha Rue which gives the result of cation exchange capacity about 30-40 meq. per 100 gm. dry soil due to the fact that 60-70% of montmorillonite is present in clay fraction.

Chemical compositions of clay fraction in Weathered Crusted Layer and Soft Bangkok Layer consist of:

$SiO_2$	58	-	65%
$Al_2O_3$	15	-	21%
$Fe_2O_3$	3.8	-	5.4%
CaO	1.2	-	2.5%
MgO	1.0	-	1.6%
MnO	0.1	-	0.3%
$SO_3$	2.2	-	2.6%
$K_2O + Na_2O$	1.4	-	1.8%
Loss on ignition	6.2	-	9.3%

Notice can be made that the result of this research has shown significant difference from many researches done previously as the following:

1. The Bangkok clay layer compose of the mixed minerals namely kaolinite, illite, montmorillonite and chlorite and the predominant clay minerals is kaolinite.

2. Montmorillonite is found by higher content in the southern part of Bangkok. It seems to be that marine depositions might be higher in this part of the city.