



FINAL YEAR PROJECT REPORT
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**ENVIRONMENTAL EFFECT OF LEACHATE
ON SOIL CHEMISTRY OF A LANDFILL SITE.**

BY

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ABSTRACT

An experimental project was conducted on samples of contaminated soil to investigate the effect of leachate on the soil chemistry of a landfill site. The investigation was done on soil obtained from landfill site at Batu 10, Jalan Bukit Kemuning, Kelang. The landfill was selected because it was the only available site nearby and a particular it was not provided with lining. Laboratory tests were conducted at the Sanitary and Public Health Laboratory Civil Engineering Department and the tests were of pH, conductivity and some of dissolved metals such as sulphate, chloride, iron, nitrate and manganese. The prime project objective was to investigate the effect of leachate on soil chemistry and its implications on the environment and human health.

From the tests, it was found that the soil samples were not very affected by leachate and the level of Sulphate, Chloride, Iron, Nitrate, Manganese, pH were within a acceptable range as specified by BS 1377:Part 3:1990, ASTM and EPA Standards. Finally conclusions was made and further work was suggested.

CHAPTER 1

INTRODUCTION

1.1 Introduction.

Landfill sites have been used for many years for the disposal of wastes be it industrial or domestic wastes (e.g.: waste from cooking, serving food, broken glasses, plastics and e.t.c.). Some of them were organic and others were non-organic. They can also be toxic and non-toxic. As a result of rainfall and the chemical composition of the waste themselves leachate (a by product of chemical reaction that take place) seeps into the ground if the site is not lined. The effect of this disposal is the generation of leachate that alters the chemical composition of the soil.

The landfill site at Bukit Kemuning was expected to be closed in June, 1996. Since its operation was started in 1989. The total amount of wastes approximately dumped at the landfill site is 265,000 tonnes. The landfill site was covered 12 acres area of waste and is sited beside Klang River. It is controlled tipping landfill which the wastes will be covered by river sand layer by layer.

1.2 Problems Statement

1.2.1 The high concentration of Sulphate in soil will attack underground concrete structure such as foundation and ground services such as concrete pipe.