

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM**



**A Project report on
IMPACT OF MUNICIPAL SOLID WASTE DISPOSAL ON
SOIL AND GROUND WATER**

Submitted in partial fulfillment for the award of the degree in

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in

CIVIL ENGINEERING

By

Mr. MADHU KUMAR S

1NC05CV021

Mr. NAGENDRA PRASAD N

1NC06CV016

Mr. NAVEEN KUMAR S

1NC06CV017

Mr. AMBRISH V

1NCO6CV035

Under the Guidance of

Dr.H.S.NANDA
Principal

Mr. SHIVARAJU.R
Lecturer



NAGARJUNA
COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING

NAGARJUNA COLLEGE OF ENGINEERING AND TECHNOLOGY

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SYNOPSIS

This study is intended to evaluate the effect of Municipal solid waste on soil and water bodies in and around Chikkaballapura city and to provide remedial measures.

Municipal Solid Waste (MSW), a complex refuse composed of various materials with different properties. Some of the components are stable while others degrade as a result of biological and chemical process. The leachate resulted from this; pollute the soil underlying and subsequently ground water. MSW management is mainly focused on major cities in India. Safe and scientific practice of MSW disposal for any developing city is need of the hour.

The previous studies and investigation by various investigators has indicated that the leachate can modify the soil properties & significantly alter the behaviour of soil

Substantial release of leachate from dump yards (Landfills without top and bottom impermeable layers) has occurred during past few years & the soil at the dump yard experience extensive contamination. These releases may have also covered extensive areas adjacent to the dumping area resulting in contaminating the soil, surface and groundwater. The main focus of this study is to determine the effect of leachate contamination on hydraulic conductivity and other characteristics. Representative soil samples from the sources will be obtained from test pits. The experimental studies will be carried out so as to know the effect of leachate on the soil properties in the case of leachate pH = 7.00. and at various pH values. To vary the degree of contamination the dry soil samples will be mixed with various percentage of common contaminate by weight of dry soil. A light compaction & hydraulic conductivity tests will be carried out on native soil & contaminated soil samples.

Chickballapur, a sprawling city, located on NH-7 about 25 K m from Bengaluru International Air Port, now became a District Headquarter of recently formed Chickballapur district. The population of the city is around 80,000 spreading over an area of 18 Sq Km. The city is fast developing, inviting a large number of Governmental, public, private residential, commercial and industrial establishments. Two major proposals are on the anvil ie, to establish VTU Research Centre and an IIT at Muddenahalli, the birthplace of Sir. M V Visvesvaraiiah, situated about 4 Kms from this city.

In this study, to understand the effect of solid waste disposal on prevailing water sources experiments in laboratory were carried out for water quality parameters along with the studies are also carried out to determine the effects of leachate contamination on the geotechnical properties of native soil and local soil contaminated by disposal of MSW in the region.

With an expectation that the contaminated soils exhibit altered geotechnical properties compared to native soil, Efforts were made to make use the results that can be obtained from this study to evaluate the consequences of contamination of MSW on soil and water bodies in the study area.