

# **ASSESSMENT OF OIL AND GREASE AND ORGANO CHLORINE PESTICIDES IN MATHARE RIVER WATER.**

**MWATHE LOISE NDOTU  
I08/7781/2002**

**SUPERVISORS: G.A.WAFULA AND V.MADADI**

## **ABSTRACT**

Rapid industrial development to meet societal demands coupled with slow advancement in management of industrial chemicals has resulted in gross environmental pollution. One of the culprits of these includes the ground and surface water resources. Water pollution has raised concerns in many major cities in the world over the years. Nairobi City included and many rivers draining through her expose the inhabitants to various pollutants. Mathare River constitutes one of the three main tributaries in the Nairobi River Basin (NRB) and is the least studied [NRBP, 2006]. The river meanders from Loresho swamp and empties into Athi River. Along the river profile, it interacts with many sources of effluents from domestic, industrial to agricultural activities. This is as a result of myriad socioeconomic activities practiced by the riparian communities. Though relying heavily on this water, these communities have subjected the river to excessive pressure including intensive domestic, agricultural and industrial pollution. This prompted our investigation to find out the levels of oil and grease, organochlorine pesticides and extent of selected physicochemical parameters.

A study was done over a period of four months (January to mid May) covering dry and wet seasons. Five sampling points were chosen to represent the area of study. The selected points had GPS points between  $01^{\circ} 14' 50S$ ,  $036^{\circ} 46' 43 E$ ;  $01^{\circ} 15' 31S$ ,  $036^{\circ} 51' 48E$ . Physicochemical Parameters studied included temperature, pH, Dissolved oxygen, conductivity, total dissolved solids, total suspended solids oil & grease and Organochlorine pesticides. EPA 1664 rev A method was adapted for analysis of Oil Grease, while organochlorine pesticides were determined following EPA 8081B method by gas chromatography using electron capture detector (ECD).

The study revealed that temperature varied from 21.1 to 25.6 °C, pH 6.46-7.88, Conductivity 0.184 to 0.554 mS/cm, dissolved oxygen 2.5-6.6 mg/l, TDS 160-150 mg/l, TSS 50 to 260 mg/l and Oil and grease 4.9 to 27.8 mg/l. Most of the parameters were below WHO guidelines, except oil & grease limits. The results shows that there is need to take into consideration the health implications and environmental change which results from improper disposal method of Oil & Grease, domestic waste and persistence of some organochlorine pesticides.