

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of Study

Soil erosion is the removal of soil particles by wind, gravity, mass movement and water. There are many agents of erosion, but the most significant agent for soil erosion in the Malaysian environment is water. In Malaysia, soil erosion has become an important environmental problem in recent years especially in areas where intensive use of land for development, including urbanization and agricultural activities are being carried out. The erosion can be affected with water, ice, and wind are fluids because they will flow to one place to another place with to the force gravity. These are three elements is a main agent to happen of soil erosion in the earth's surface.

Water Erosion is rainfall and the surface runoff which may result from rainfall. For the land areas, erosion is dominated by sheet and rill erosion due to surface runoff, initiated by heavy rainfall, and for the lake system, it is dominated by bank erosion partly due to the impact of ripples created by moving motorboats. To manage erosion, it is important to identify the suitable erosion and sediment controls for the site. These controls are based on the condition of soil loss, types of soil, topographical features, location of erosion, and the surrounding activities (Abigail Jenkins, 2009).

## 1.2 Problem Statement

Soil erosion can be effect for the land and its inhabitants in both off-site and on-site effects. Off-site effect, movement of sediments and agricultural pollutants into watercourses are the major problem, leading to sedimentation in rivers and disruption of ecosystems. While in, on-site effect is directly created through the loss of soil nutrients. This effect is particularly crucial on agricultural land because it involves the loss of soil stability, soil quality, and structure.

Soil erosion caused by logging can affect the land and its inhabitants in both on-site and off-site effects. On-site effect is directly created through the loss of soil nutrients. This effect is particularly crucial on agricultural land because it involves the loss of soil quality, structure and soil stability. While in off-site effect, movement of sediments and agricultural pollutants into watercourses are the major problem, leading to sedimentation in rivers and disruption of ecosystems.

Nowadays, the rate of soil erosion increases the rate of soil formation over wide areas resulting in the depletion of soil. Malaysia different greatly in terms of vegetation, due to the leaf size, tree diameter and soil formation, compared to the temperate countries. Erosion particularly in forested and cultivated areas needs the accurate measurement of rate of soil loss (Liu & Evett, 2005).

### **1.3 Objectives**

The objectives of this study are:

- a) To determine the soil eroded properties at Tasik Chini.
- b) To identify rate of erosion at Sungai Jemberau.

### **1.4 Scope of Study**

This study will estimated the soil erosion rates on the disturbed soil surfaces;

- a) Identify the properties of soil using laboratory test (sieve analysis and moisture content).
- b) To calculate the erosion rate at study area using soil trap and Revised Universal Soil Loss Equation (RUSLE).

### **1.5 Location of Study**

The location of this study is located at Sungai Jemberau, Tasik Chini. This area has been proved from time to time to be highly affected during heavy monsoon rain due to the area incapability to flow and infiltrate the excessive water. Floods in Tasik Chini are mainly due to overflowing from Sungai Pahang which coincides with high tide that cause an increase in water level at surrounding swamps (Morgon,1991). Flooding at Sungai Jemberau has causes loss to soil properties. The soil trap is located at 03°25.167'N 102°55.860'E in Sungai Jemberau, Tasik Chini. Figure 1.1 shows the location of sample plot at Sungai Jemberau, Tasik Chini.