CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Groundwater is an important part of the hydrological cycle and must be able to play a greater role in adding water utilities in the country. Groundwater is water located beneath the ground surface and underground water movement in soil and rocks usually crust (usually in aquifers). It can produce the quantity of water that can be used. The depth at which soil pore spaces or fractures and voids in rock become completely saturated with water is called the water table. Groundwater is recharged and will flow to the surface naturally. The function of groundwater is also often used in the extraction well operating activities, agricultural, industrial and municipal.

Groundwater pumped more often in areas where the pumping total more than the natural flows. Typically such hydrology test, pumping will be done to achieve the target aquifer. Generally, the figure shows that the water table is an irregular surface that a gentler version of the overlaying ground surface. The water table also depend on the rising when rainfall adds more water to the ground and falling when drought reduces the water supply. When groundwater is pumped out of the ground the depth and shape of the water table can also change dramatically. In other word, quick pumps can drawdown the local water table right around a well and excessive pumping can also lower the water table over a wide region.

1.2 PROBLEM STATEMENT/MOTIVATION

The groundwater is the biggest reservoir of fresh, liquid water of earth. There also stored more water within the ground in all the lakes and rivers. In many parts of the world, agricultural, industrial, and domestic water demands can only be met by pumping water out of the ground. Pumping test can be undertaken to test the operation of the pumping and monitoring equipment, to make sure that everything safely and effiencienly. Typically, monitoring of groundwater level due to the water extraction or pumping in an aquifer is an importance as a fundamental for groundwater resources management. In order to study about this effect in groundwater aquifer, the hydrology apparatus was be used to analyse the drawdown of groundwater pumping.

1.3 OBJECTIVES

The objectives of this study are:

(i) To identify the drawdown effect due to pumping activities using 2 different conditions.

(ii) To determine the value of hydraulic conductivity (k) due to uniform size of sand.

(iii) To prove the Darcy's Law equation is relevant to apply in the study of the groundwater flow.

1.4 SCOPE OF STUDY

This study was focused on the drawdown effect due to pumping activities and the rainfall distribution. The experiment of this system was carried out in laboratory UMP

The scope of study includes of data collection for groundwater level and pumping rate using hydrology apparatus. Hydrology apparatus is the equipment to study the effect of rainfall distribution by using coarse sand.

1.5 IMPORTANT OF STUDY

The importance of this study is to observe the managing groundwater resources related to the quantity of groundwater due to pumping and effect of rainfall distribution pattern. This study is focused on groundwater that frequently used as a source of supply. In realise life, the water table is drawdown when pumping apply in well. The level of this drawdown depends on the quantity of water pumped out and ability of the surrounding aquifer to refill it. Thus, there is the limit to the quantity of water which may be drawn from a well, both from resources and economic aspects.

The apparatus of two well and a range of piezometer tapping in the base of the tank is equipped. The drawdown of either a single well or the interference of two wells may thereby be investigated. Water may be fed to the aquifer through the end of the tank rather than from the overhead sprinkles for these studies. Besides, it will be exposed to a significant role on drawdown patterns during this experiment. It also make more motivation about rising and falling off the groundwater level pumping and investigation flow from well.