CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Flood is an overflow of a large amount of water beyond its normal limits. It is also can be refer to the inflow of the tide or the backflow of the river; which occurs at the location where the rivers meet. From a geological perspective, floods are natural consequences of stream flow in a continually changing environment. The streams receive most of their water input from precipitation and the amount that falling in drainage basin varies from day to day. Based on the role of precipitation, the amount and time which precipitation takes places is not constant for any given area. Overall, the water cycle is a balanced system and the reason for the flood to occur is a large amount of precipitation, causing the river/ basin to overflow due to not efficient cross section of the river itself. As the amount of water is increase, the stream must adjust its velocity and cross section in order to form a balance. The discharge increase as more water is added through rainfall, tributary streams, or from the groundwater seeping into the stream resulting in floods due to increase of width, depth and velocity of streams (Ismail DID, 2009).
1.2 PROBLEM STATEMENT

In terms of geography, the Kuala Krai city lies on the outskirts of Sg.Kelantan and only a few kilometers downstream from the confluence of Sungai Nenggiri and Sungai Lebir as mentioned in the early history of Kelantan. The population of Kuala Krai territory was 117,800. For the past few years Kuala Krai has faced with flood.

The territory contains the confluence of two major rivers, the Lebir and Galas, to form the Kelantan River. One of the most affected town in the year 2014 is Manek Urai. Manek Urai is a small town in Kelantan state. The town is located about 25 kilometers from Kuala Krai town.

The downpour in Ulu Kelantan, which covers Gua Musang and Kuala Krai, lasted over 48 hours. It brought to life the fears of the residents of Gua Musang that was inundated on 22 Dec 2014. In just a short time, Sungai Galas overflowed and submerged the old town of Gua Musang and the surrounding villages including Manek Urai through Sungai Lebir. Figure 1.1 shows the Manek Urai area affected by flood. The water rose two to five meters, crippling the entire area. Although the people of Kelantan have annually endured devastating floods, 2014 was on an unprecedented scale.

According to the Sinar Harian 6 January 2015, the “mud flood” was from the hilly region of Ulu Kelantan, following the massive clearing of forest for oil palm plantations and vegetable farming. According to the source, it was the cause of the steep and sudden rise in water level, contributing to what was now dubbed as a ‘tsunami over land’.
1.3 OBJECTIVES

In order to make this study successful, two objectives have been determined. It works as a guide line so that the outcomes of this study can be easily achieved. The objectives are,

- To analyse hydrological data of Sungai Lebir for critical river sections.

- To estimate the flow rate of the water catchment area of Sungai Lebir using HEC-HMS.

**Figure 1.1:** Manek Urai Area Affected by flood 2014

Source: (http://www.bharian.com.my/node/25984)