CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Water is important in all aspects such as transportation, irrigation in agriculture, domestic consumption and for other use purposes. The availability of water in any area is come from rainfall or precipitations. Rainwater harvesting is a technology used for collecting and storing rainwater from rooftops, the land surface or rock catchments using simple techniques such as jars and pots as well as more complex techniques such as underground check dams (Kumar et al., 2014).

Rainwater harvesting can be used for landscape irrigation, cleaning and washing, source of drinking water supply in rural areas and other uses. The hydrologic cycle is a conceptual model that described the storage and movement of water between the biosphere, atmosphere, lithosphere, and the hydrosphere. Water on our planet can be stored in any one of the following major reservoirs such as atmosphere, oceans, lakes, rivers, soils, glaciers, snowfields, and groundwater.

Water moves from one reservoir to another to another by way of processes like evaporation, condensation, precipitation, deposition, runoff, infiltration, sublimation,
transpiration, melting, and groundwater flow. From this evaporated water, only 91% of it is returned to the ocean basins by way of precipitation. The remaining 9% is transported to areas over landmasses where climatological factors induce the formation of precipitation over land and ocean is corrected by runoff and ground water flow to the oceans (Website The Encyclopedia of Earth, http://www.eoearth.org/view/article).

Kuantan is the place with 36,000 km² immensity (Website Wikepedia, https://ms.wikipedia.org/wiki/Kuantan). Kuantan is one of the places that tend to get flood because the amount of rainwater for every year are mostly high, this is shown from the rainfall data information. Therefore, from the rainwater harvesting research, it is can help to reduce the flood problem become worse at Kuantan. Then, caution step and data need to involved must been complete and enough to evaluate the information. Moreover, if the place with high amount of rainwater a year, it is suitable for applied and know the catchment area that has a potential to been a good area with use collection device and the conveyance system for rainwater harvesting.

Kuantan river flows from Hutan Simpan Reman Cereh to Kuantan City before discharge into South China Sea, then four main tributaries discharge into downstream of Kuantan River namely Soi River, Belat River, Pandan River and Pinang River. About 488,409 population of Kuantan by the year 2015, the population living in urban areas has increased to 60% of the population due to the new urban areas and extension of existing administrative (Hui et.al, 2015). Meanwhile, on 2013 and 2014, floods have occurred in Kuantan, is caused by several factors, namely drain that’s been made specifically form emergency cases such as flash flood have been blocked and the other factor is there is not enough area that applied rainwater harvesting system. Therefore, it is important to search the potential and capability area to apply this effective system.
1.2 PROBLEM STATEMENT

It is need to collect some of data to search and observe the effective area with high rainfall value to apply a good system which is rainwater harvesting system to reduce the risk of severe flooding. Besides that, rainwater harvesting system, it will provided effective technology to reuse or recycle the rainwater for example it can use agriculture process, washing and cleaning. From that, it can save water, environmentally friendly and the water got is from natural resources without any high cost.

1.3 RESEARCH OBJECTIVES

i. The main objective is hydrology study to identify potential site for rainwater harvesting in Kuantan, Pahang.

ii. In order to achieve this objective there are specific objective as follow:

   a. To analysis the hydrological data at Kuantan catchment.

   b. To identify the potential site for rainwater harvesting at Kuantan.

1.4 SCOPES OF STUDY

i. This study will focus to collect and analysis rainfall data from Jabatan Pengairan Malaysia, JPS for 7 years duration from year 2008-2014.

ii. The rainfall intensity for selected station will be calculated by using MASMA 2nd Edition.