CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

Windmill is a machine which converts the energy of the wind into rotational energy by means of vanes known as sails. Windmills were originally developed for food milling purpose. Based on history, the windmill machinery was adapted to many other industrial uses;creating electricy or water pump. Windmill pump has been used to drain land or extract underground water since the 9th century. It is also being used to pump water from farm wells for cattle. In 1854, most of the wind mill pump is made out off wood, but eventually over the years steel blades and steel towers replace the wooden construction.

Denmark pioneered wind energy technology as early as 1970. Installation widely known as wind farms were build in large numbers to generate large amount of electrical energy. They were so advanced in wind mill technology that in Denmark alone a 50kW wind turbine facility went into operation as early as 1941 and a 100kW operation went online in 1957. There are about to

expand the deployment of wind turbine technology to meet the needs of its citizens. [8]

The Peoples' Republic of China has large tracts of open lands in the Ghobi Desert region, where high wind speed are available throughout the year. It is the most ideal location for wind turbine installation and most off it have been build there. Between 2000 and 2008, China installed hundreds of 100MW wind turbine in the Ghobi Desert area and plans to install more wind turbine in the Tibet region[1]. Most of these wind turbine generators are connected to utility power grid system to ensure continuous supplies of electrical energy at minimun cost to the consumers. The availability of large quantities of electricy at minimum cost is critical because of China's huge population. [8]

1.2 PROJECT BACKGROUND

This wind mill was build to generate electricity for the use of the water pump. Windmill is a good source of green energy because:-

- can generate a huge amount of electricy in low cost
- take up only a small plot of land
- is very friendly to the environtment.
- Create an interesting feature to the landscape
- Available in variety of sizes

Conducting a studies on wind mapping before executing the design and construction of wind mill pump is important in order to obtain the location with the optimum wind speed which suitable to build the wind mill and the type of wind mill need to be build as well as the blade design itself. Universiti Malaysia Pahang, Pekan Campus and Kuantan were choosen as the location of studies because of it availabality, smaller scope of studies and the presence of strong sea breeze (located near the sea shore)

1.3 PROJECT OBJECTIVE

- To analyze the wind speed distribution of UMP Pekan Campus and Kuantan.
- To determine the optimum speed needed before choosing the type of wind mill to be build
- To determine the optimum speed needed before designing the blade of the wind mill pump.

1.4 PROJECT SCOPE

The duration of experiment conducted to gain the data needed in order to tabulate the graf and speed distribution of the area of UMP Pekan was one week, from 2nd to 8th May 2013. Apart from that, the duration of data collection for Kuantan was 3 years from 2010 to 2012. The area that cover the periodic experiment were UMP Pekan and Kuantan.

1.5 PROBLEM STATEMENT

Pahang still has many a under-developed area where the always faced a defficiency in source of energy. Since the location choosen is situated near to sea, it provides huge potential wind power which can be utilize to produce electricy to empower the area. Building a huge wind mill pump may be too expensive. Therefore, a well studies wind mapping is crucial in order to know what types of wind mill is suitable to be build and the specification needed for its motor.