CHAPTER 1

INTRODUCTION

1.1 Research Background

Water is one of the most important substances on earth. Water is very important in daily lives and the ecosystem. The water quality is important in lives because it is essential to support physiological activities of any biological cell. The clean water is needed for the purposes such as drinking, cooking, cleaning, agriculture and also wildlife.

Therefore, there are many water catchment whether man- made or naturally such as river, dam, stream and lakes. Tasik Chini is one of the examples for the natural lake. Tasik Chini is located at Pekan, Pahang and the total area of the lake is almost 5,026 hectare (12,565 acres). Tasik Chini is blessed with vast treasures of nature, which is rich in biological resources. There are 138 species of territorial flora, 300 species of non-aquatic vertebrates and 144 species of freshwater fish. There is a group of aborigines from Jakun tribe who live by the lake. Nowadays, there are many issues that related to the environmental that involve to the water quality. Water pollution has many causes and characteristics. If the quality of water is changed by the presence of toxins, it becomes potentially harmful to these life forms, instead of sustaining the life. At the Tasik Chini, there are recently activities that now on going such as mining and agricultural activities that was affected the current of water quality in the Tasik Chini (Gasim et al., 2009).

1.2 Problem Statement

The development due to modernization has negatively affected the environmental. The profit and the economic value from development are more important than the environmental care. For the research study of water quality, Tasik

Chini has been selected to recognize the water quality due to the pollution of the mining activities and agricultures activities surround the lake. Application of modern techniques and use newer chemical in the form of pesticides, insecticides, herbicides and fertilizers have enhanced the prospect of agriculture to fulfil the requirements of human population. But this practice has negative aspect in the form of contribution to water pollution in particular. Concern of agriculture with the water pollution has been mainly due to fertilizers, insecticides, pesticides, farm animal wastes. From the agricultural land, the pollutants can enter waterways as runoff. The excessive use of fertilizers also can arise the pollution problem. Fertilizer chemical can find access to ground water by leaching and to surface water by natural drainage and rainwater runoff. Contamination of water with nitrate creates great problem with its user and consumer of aquatic organisms (Gasim et al., 2006).

While, the mining activities give the environmental impact such as erosion, formation of sinkholes, loss of biodiversity and contamination of soil, groundwater and surface water by chemicals from mining processes. Besides creating environmental damage, the contaminations resulting from leakage of chemicals also affect the health of the local population. The mining activity is a dirty kind of industry. It has led to creation of some of the largest environmental disaster zone in the world. Unfortunately, the mining activities that are seriously affected the Tasik Chini. The lake became harmful to the health due to the increasing of concentration of heavy metal such as copper (Cu), iron (Fe), aluminium (Al), barium (Ba) and nickel (Ni) in the water body (Islam et al., 2010).

1.3 Objectives

a) To analyse the water quality based on spatial variation due to mining and agricultural activities in Tasik Chini.

b) To identify the level of pollutant in the Tasik Chini water based on water quality standard and index.

1.4 Scope of Study

The study area will be conducted at the Tasik Chini. For sampling process, there are 3 stations which are focusing on the agricultural activities, mining activities and for

constant variable. The sampling taken will be do the in- situ test and the laboratory test to identify the physical and chemical condition. The sampling was taken from September until November 2017. The evaluation of current status of water quality for Tasik Chini based on the National Water Quality Standards (NWQS) and the Water Quality Index (WQI).

1.5 Significance of Research

The study is important because water quality it is directly affects the health of the people, animals and plants that drink or otherwise utilize the water. When water quality is compromised, its usage puts users at risk of developing health complications. The environment also suffers when the quality of water is low. Water quality is commonly defined by its physical, chemical, biological and aesthetic (appearance and smell) characteristics. A healthy environment is one in which the water quality supports a rich and varied community of organisms and protects public health.

Therefore, this study is to minimize the problem in water pollution due to the mining activities and agricultural activities. Besides that, to do the evaluation of current status of water quality based on Water Quality Index (WQI) and National Water Quality Standards (NWQS). Therefore, from this study can provided some suggestion, opinion, precautions step and an action can be taken to maintain and save the water quality for the Tasik Chini.