

CHAPTER 1

1. INTRODUCTION

1.1 Background

Water is indispensable to our existence in life and its critical in our everyday life makes it basic which has been a piece of planet earth for a huge number of years as its accessibility has involved concern everywhere throughout the world. Water is particularly momentous in light of the fact that it can happen as liquid, solid or even gas. Regardless of this obvious wealth, a few components serve to restrain the measure of water accessible for human utilize. Containing over 90% of the fluid freshwater on the surface of our planet, water bolsters a scope of human exercises which incorporate horticulture, trade, transportation, diversion, tourism, and sustenance and vitality generation. Moreover, they likewise give a vital environment to an assorted cluster of living beings. For the most part, water quality is connected to land utilize or arrive cover in catchment with the connection on factors, for example, broke up salts, suspended strong and supplements.

In these days the water pollution is a major problem for the urban planners and the managers, because in different reigns we have two factors that affect the reign which are natural factors (rainfall, weather, basin physiographic, soil erosion, etc) and anthropogenic factors. Therefore, the quality of the water can be decreased by their impacts, nutrients, toxic substances, and the petroleum products leaked to the rivers, estuaries, lakes or other water source. The anthropogenic factors such as residential and industrial wastewater are a regular polluting source in urban areas while natural factors, like rainfall, surface runoff, and groundwater level are serial factors that are primarily affected by climate. The water discharge of

the river can be affected by different serials in rainfall, surface runoff, ground water flow and water interception and abstraction which will cause concentration of poisons on the water river. As a result, the study of differences of time alongside the differences of the reign of the water quality is important to get a good investigation and evaluation of the water quality of watersheds.

Chini River is one of the important rivers in Pahang state because it connects the Pahang River and Tasik Chini Lake together. Along Chini River, there were some human activities that directly and indirectly affect the quality of the Chini River. This research is prepared to study on water pollution due to industrial activities and Water Quality Index (WQI) especially in Chini River, Pahang. Water Quality Index (WQI) is a water pollution indicator that used to determine the physic-chemical parameters of surface water.(Reza & Singh, 2010)

1.2 Problem statement

This research was carried out to identify the Chini River water quality based on the physicochemical and biological. The Chini River is connected with the Chini lake which gets dry in the dry seasons so to prevent that from happening the government built a dam to solve the problem but it will reduce the water quality of the lake and because it is connected to the Chini river it will affect the water quality of the river, so this research is to check if there is a pollution happened to the river's water from the anthropogenic activities that reduces the water quality.

The nature of rivers water is relying upon many components, for example, its geography, land use, atmosphere, topography and the organic procedure. Be that as it may, there is additionally another conceivable element, for example, anthropogenic activities. Numerous production lines worked close to the streams to get the waterway water and utilized as apparatus power or to chill off the hardware. Be that as it may, there are such a large number of streams polluted because of modern activities.

1.3 Objectives

- 1) To identify the effect of anthropogenic activities on water quality based on national water quality standard (NWQI) and water quality index (WQI), Malaysia.
- 2) To determine the influence of pollution source on water quality parameter of the Chini River basin.

1.4 Scope of study

For this assessment we will be doing few experiments and it may be concluded as:

1) Sampling Methods and Analytical Procedures. Water must be done twice amid stormy and dry seasons. Three water tests were gathered from each station near the privilege and left banks and amidst the waterway with triplicate. Water tests were gathered in particular jugs. Samples must be kept in sterile glass carafes (bacteriology) and corrosive washed plastic containers (science), cooled, transported to the research facility, and handled inside 6 h of accumulation. Temperature, Dissolved Oxygen (DO), conductivity, and pH were measured in-situ as field parameters by YSI meter (display 1945), while BOD5, COD, TSS, O&G, Turbidity, NO₃, NH₃-N and Total Hardness (TH), and will be analyzed in the research centre. BOD5 will be broke down as portrayed by 5-day test, and COD will by methods for the open Reflux Method. Besides, turbidity, phosphate, sulphate, nitrate, and smelling salts nitrogen will be analyzed by Absorptometric, Acid Ascorbic, Sulpha Ver. 4, Cadmium Reduction, and Nessler strategies, separately. (Haji Gholizadeh, Melesse, & Reddi, 2016)

2) Statistical Analysis. Statistical analysis of data will be satisfied using SPSS rendition 20. Analysis of variance (ANOVA) will be done to decide the noteworthy contrasts between testing stations. Additionally, various levelled group examination (HCA) will be executed by methods for squared Euclidean separations and the Ward's technique to sort the factors of inspecting stations and water quality markers, respectively. Moreover, the Ward's method will be used for the analysis of variance to determine the separations between bunches to lessen the squares entirety of conceivable bunches at each progression. Also, Principal Component Analysis (PCA)/Factor Analysis (FA) will be proficient to distinguish