

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 INTRODUCTION**

In this chapter there are a number of elements and issues arise that need to be clearly explained. From the study will be conducted there will be some matters that need to be stated clearly which are Background of Study, Problems Statement, Objectives, Scope of Study and Significant of Study. All these matters are reference points and research should be conducted in accordance with required specifications and also follow the standard provided. Methodology used in flow chart diagram should state clearly how the research is carried out according to the exact scope that have been set.

Bauxite mining in Pahang is not a new issue since the operation of the bauxite mines at Bukit Goh and Gebeng area has started around 2014. This research was conducted to determine the impacts of bauxite on human's health, social economy, aesthetic value and environmental in Bukit Goh, Kuantan. Data was collected to see if the result from data analysis matched the objectives and significance of study of this research. The data analysis was conducted to investigate if there were significant different between time living in the area of Bukit Goh with respondent's opinion on how bauxite mining activities affected human and surrounding environments. Also, to examine whether the significant different between gender on effects of human and environments affected the result gained from questionnaire.

## **1.2 BACKGROUND OF STUDY**

Bauxite is well-known as one of earth's mineral that have high value. Bauxite is an amorphous clayey type of rock that is the originally commercial ore to make aluminium. It consists largely of hydrated alumina with variable proportions of iron oxides. One of the main components of bauxite is aluminium oxides, which can be used to make aluminium products. Bauxite is mined in several regions of the world by several companies interested in aluminium products. Australia was one of the bauxite producer followed by China, Brazil and India. These companies can sell the raw ore of aluminium or aluminium processing to produce their own products, depending on the size of the company and its business model. The bauxite ores are usually russet colour in nature. It was formed by weathering, leaching and deposition, and often contains impurities such as titanium, silica, iron oxide, and aluminium oxide (King, 2005).

When bauxite is processed, it produces alumina, which can be used alone or used to produce aluminium as said before. Bauxite is formed by the effects of sedimentation and compression miles of rock that takes a long period (perhaps millions of years). Mixture with elements of dehydration (drying) by hot temperatures. Bauxite usually found in the soil compared to oil and gas as well as some iron ore and tin, which requires certain very deep excavation (King, 2005).

Bauxite is mainly used in the ceramics industry, production of machinery and equipment, particularly vehicles hull, industrial packaging, especially packaging food in cans, as well as the construction of buildings such as the roof structure and roof. The bauxite is said to be able to survive the temperature resistance and very high combustion. In addition it is also used in the chemicals to rid of impurities such as oil, gas, nitrogen and sulphur. In 2015 alone, more than 20 million tonnes of bauxite have exported to China (Balakrishnan, 2016).

Usually, bauxite deposit is found near the earth's surface. For this reason, the process of open pit mining is very popular to mine the bauxite ore. Open pit mining can contribute to environmental degradation through the loss of top soil, leaching dangerous chemicals, and natural erosion formation, which makes it a concern in some areas of the world. Companies that engage in this practice is expected to meet the environmental standards that are designed to reduce the environmental impact of mining (Balakrishnan, 2016).

One of the problems with the mining process is a byproduct of mining and ore processing. Aluminum oxide is extremely valuable, but other components of bauxite may be useless. Companies need to find a way to remove as much ores as possible as cheaply as possible to keep production costs down, and then they have to decide what to do with the waste after processing.

According to Professor Dr. Hamzah Mohamad, Geologists are now served the center for Global Archaeological Research, USM, Pulau Pinang, through his research journal: In addition to containing mineral Gibbsite  $[Al(OH)_3]$  and Boehmite  $[AlO(OH)]$  extracted aluminum for commercial use, ground bauxite also contains mineral side such as kaolinite, calcite, rutile and minerals iron, primarily hematite and goethite. It said to not be surprised that all three of these aluminum-rich minerals (Gibbsite, Boehmite, Diaspora) actually colored white, as if kaolin. Mineral that produces a red color to the ground bauxite is hematite  $[Fe_2O_3]$  and goethite  $[Fe_2O_3 \cdot H_2O]$ . Any mineral matter if high ferric iron content,  $Fe_2O_3$ , this will lead to the production of red. He said average the content of the bauxite that is mined on a large scale in five countries, namely Greece, Brazil, Australia, India and Indonesia and found the content is 10% hematite and goethite 5% of the total mined bauxite land. The change came after Indonesia banned bauxite exports in early 2014 which forcing the world's top aluminum producer, China to find another source of suppliers somewhere else (Hamzah, 2015).