CHAPTER 1

INTRODUCTION

1.1 Background of Study

The term brick alludes to little units of building material, regularly produced using clay and secured with mortar, a holding specialist involving concrete, sand, and water. Long a well-known material, brick holds warm, with-stands consumption, and opposes fire. All of bricks in Thailand produced using mix amongst dirt and rice husk or sawdust. This blend material sinter with brick oven for unbending nature and reinforce. The brick is the primary material in development because of reinforce, toughness, stacking, smallness and light weight. The Brick's utility in development of Thailand had been utilized since long time back. A large portion of old developments can affirm the ubiquity of brick. The brick is notable and across the board because of toughness and nearby creation which by neighbourhood synthesis and work. General properties of brick effectively permit warm exchange and keep the warmth inside for long time which implies high warmth limit. At that point, the brick is proper for development material. The result of brick in Thailand creates all districts from cabin industry until huge modern plants. The normal issue which is handling and system happens underway. For instance, the irregularity proportion of piece and low effectiveness of learning in crude asset cause low brick's quality. Numerous specialists concentrated the impact of rice husk to item. The outcome plays out that expansion of rice husk in structure impact to diminish compressive quality and to get greater porosity. The best possible temperature of sintering is 1100 degree Celsius. The review impact of rice husk fiery debris to increment compressive quality of cement, and impact of rice husk powder to deduct temperature of white ware. For this exploration we think about mechanical properties of cement brick using rice husk ash as cement replacement.

Cement is the crucial building material as a cover that utilized as a part of development industry. The requests of concrete are becoming quickly because of the fast improvement and development around the world. An information from U.S Geological Survey appears that the world cement creation of year 2011 is 3.6 billion tons and year 2012 the creation is 3.7 billion tons (USGS, 2015). The information demonstrates that the request of the cement is ceaselessly expanding. The essential item to create concrete is limestone and required 1400 °C to warm in the oven. The outflow of carbon dioxide (CO_2) can be specifically and by implication. CO_2 discharge as a by-item when the generation of clinker that calcium carbonate is calcinated and swing to line and it considered as specifically discharge. While in a roundabout way emanation is originated from the necessity of consuming petroleum products to warm the oven, roughly 4.9 million kJ is required to deliver a huge amount of bond. Hence, delivering a huge amount of bond will produce around a huge amount of CO_2 (Shivaram, 2014). CO_2 is an outstanding ozone harming substance that ascribed to an Earth-wide temperature boost and nursery impact. As appeared in Figure 1.1, the CO2 outflow of Malaysia from years 2005 to 2010. The CO_2 outflow of years 2010 had achieved 216804 kilotons (World Bank, 2015).

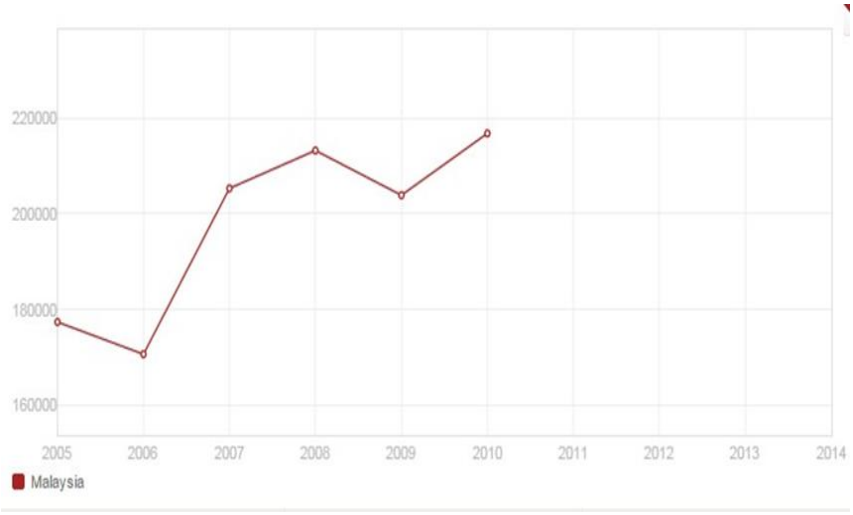

Figure 1.1: CO_2 emission of Malaysia from years 2005 to 2010 (World Bank, 2015).

Rice is an essential sustenance hotspot for billions of individuals and couple of hundred million tons of rice paddy are plant every year. As indicated by Food and Agriculture Organization of the United Nations, the information demonstrates that the creation of rice paddy is expanding yearly. World rice paddy generation for year 2010 is 701 million tons, year 2011 is 722 million tons, year 2012 is 734 million tons and year 2013 is 740 million tons (Food and Agriculture Organization of the United Nations, 2015). Rice husk is the external front of paddy and it covers 20-25% the paddy weight. When all is said in done, hundred million tons of rice husks are delivered every year and make the transfer issue. In Malaysia, rice paddy generation as per Food and Agriculture Organization of the United Nations for year 2010 is 2.4 million tons, year 2011 is 2.5 million tons, year 2012 is 2.6 million tons and year 2013 is 2.6 tons roughly (FAO, 2015). The request of rice paddy is expanding and around 0.52 tons of rice husk, an agro-waste is created yearly. This makes the natural issue transfer such agro-squander because of its plenitude. By and large the rice husk will be singed in outside or being sent to land fill however both strategies are making colossal CO2 discharge to the environment (Kartini, 2011).

1.2 Problem Statement

Malaysia is a creating nation, development in populace, rising ways of life what's more, expanding of urbanization had prompted vast request of building material and sustenance source. Concrete is a typical fastener and essential material that utilized as a part of development. The generation of bond is costly, requires high vitality, decreases characteristic assets and emanates expansive measure of CO2. It has been accounted for that the generation of one ton of concrete produces roughly one ton of CO2 specifically and in a roundabout way (Khan et al., 2011). CO2 is a known nursery gasses that cause an unnatural weather change and nursery impact.

The request of sustenance source is expanding because of the quick development of populace in Malaysia. The huge development of plantation in Malaysia has created expansive measure of agro-waste and tremendous natural concerns. Rice