CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Malaysia has a total capacity pulp and paper production at over one million per year (Asia Pro Eco Program 2006). Most of the waste paper is end up in landfill or dump site than those recycled. This is one of the factors of increasing in the number of solid waste at the landfill. Fortunately, from the recent research study it has proven that paper also can be used as a construction material. Apart from reducing the number of solid waste the usage of recycled paper also can reduce the demand pressure and global natural resources.

In the recent study, quite a number of researchers had done a study on the usage of paper as a recycled waste in construction. There is a point where papercrete were produced. Papercrete is a construction material which consists of Portland cement, water, waste paper and/or sand. It is also like replacing coarse aggregate and/or sand in the concrete mixture with recycled paper. This is a new composite material that is using the recycled paper to produce a lightweight concrete material. Its advantages are there is a reduction of dead load, faster building rates in construction and lower haulage and handling costs.

Other than that, lightweight concrete also easy to carry and easily transferred to construction site as it is light and does not required heavy machineries. Besides,
papercrete is a structural lightweight concrete that has an in-place density of 1440 to 1840 kg/m³ compare to normal-weight concrete with density in the range of 2240 to 2400 kg/m³. As Hussein and Mugahed (2013) carried out their study, for structural applications the concrete strength should be greater than 17.0 MPa.
1.2 PROBLEM STATEMENT

Nowadays, as we already known construction fields has widely develop in all around the world. This is leading to the decreasing amount of raw material such granite and gravel. In order to overcome this problems arising, the alternative ways should be implemented. The application of lightweight concrete in the construction industries is a bit helpful in preventing the depleted resources. This is because in producing a lightweight concrete, recycled paper will be used as an aggregate replacement.

In addition, an increasing amount of waste product is also a problem that we had facing. High number of waste paper is one of a factor in the increasing amount of waste product. In order to help reducing the waste product, the waste paper can become one of a material in producing lightweight concrete. It can be used as an aggregate replacement or as an addition in producing a lightweight concrete. Even though it has been used as building materials for decades, there is still no research result on the use of waste paper in the structural concrete.

Meanwhile, there are several types of lightweight concrete that are quite expensive. For example shale, expended clay and pulverized fuel. From this matter, by using recycled paper in the concrete cost of producing the lightweight concrete could be saving. Besides, the recycled paper is also easily got and low cost is needed in produced the lightweight concrete.

The aim of this research is to study the usage of recycled paper as an aggregate replacement in producing a lightweight concrete cube for structure purpose.