



**THE CONSTRUCTION OF SALINITY GRADIENT SOLAR
POND FOR HEAT STORAGE**

AMIR HARITH BIN JOHARI

(2016666106)

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“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrent submitted in candidature of any degree”

Signed :

Date :

Amir Harith Bin Johari

UiTM No: 2016666106

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ABSTRACT

Solar energy is a sustainable, green and clean energy that can satisfy the demand of the 21st century as the world slowly fade from depending fossil fuel as the main source of energy. Therefore, renewable solar energy has been the key energy source for the future alongside other sources such as wind and hydropower. Malaysia enjoys a tropical weather climate where it is exposed to sunlight annually. Solar energy is very suitable in this nation for energy harvesting. Solar pond is one of the methods by which solar energy is used as its energy source. The method of establishment of the solar pond used is to obtain three zone layer which is Upper Convecting Zone (UCZ), Non Convecting Zone(NCZ) and Lower Convecting Zone(LCZ). An experiment was conducted for the construction of solar pond by using recycled goods as generally the solar pond is a cheaper alternative to photovoltaic(PV) panel in solar energy harvesting. Arduino was used as a data retrieval medium during the duration of the experiment. The highest temperature obtained in the LCZ after 13 days of project 319.4 K. This experiment shows that a small salinity gradient solar pond can store a total of 47.083 *W* in a span of 13 days and the efficiency for the overall performance of the solar pond in this experiment is 6.7%.

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