Abstract

This research carried out the design and developed the physical model of electrical energy generated by wave energy. The wave energy conversion system of Oscillating Water Column (OWC) has been selected. This type is simple technology and appropriate technology.

The OWC consists of two parts. The first part is cylindrical column uses for converting wave energy becoming of air pressure energy. While the second part is for converting the air pressure energy becoming an electrical power. The first part has been extensively study by the author.

This research concerning on the second part i.e., the use of turbine. Unlike, the previous inventor likes Masuda, McCollum etc, which use a propeller type of turbine with open-close valves or type of complicated blade turbine, this research use of simple and appropriate technology without any valves. In the terminology of wind turbine, the turbine classified as the vertical turbine type. This turbine is horizontally placed on to the orifice of the OWC where the air pressure comes out.

The designing of the OWC is based on mathematically modelling and the physically model is based of the capacity of the wave tank. From these calculation can be found the diameter of the model of OWC of 0.5 m and the orifice of 0.05 m.

The research has carried out of much kind of turbine models and by certain model of turbine made by balsa wood, the model can rotate very well.