

## IMPROVEMENT OF AN EXISTING SOLAR BOX COOKER IN RIVERS STATE

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### ABSTRACT

A new 50cm X 50cm X 30cm solar box cooker was designed and fabricated. The new design is an improvement of an existing solar box cooker. The improvement focused on increasing the solar collector area of the existing type from 0.52m<sup>2</sup> to 0.9171m<sup>2</sup>. The improved solar box cooker was evaluated by conducting no-load and load test and the solar cooking efficiency calculated. The results of the test showed a progressive increase in solar cooking chamber harvested temperature and cooking capacity over a period of 60mins and 100mins during no-load and load test conditions respectively. A solar cooking efficiency of 2.8% was obtained. The result further indicates that solar cooking can supplement fossil-fuel powered cooking.

**Keywords:** Solar energy, solar concentrators, solar box cooker.