

Collapsible Solar Food Dryer

Eric McGill

ODP Mysore, India

Abstract

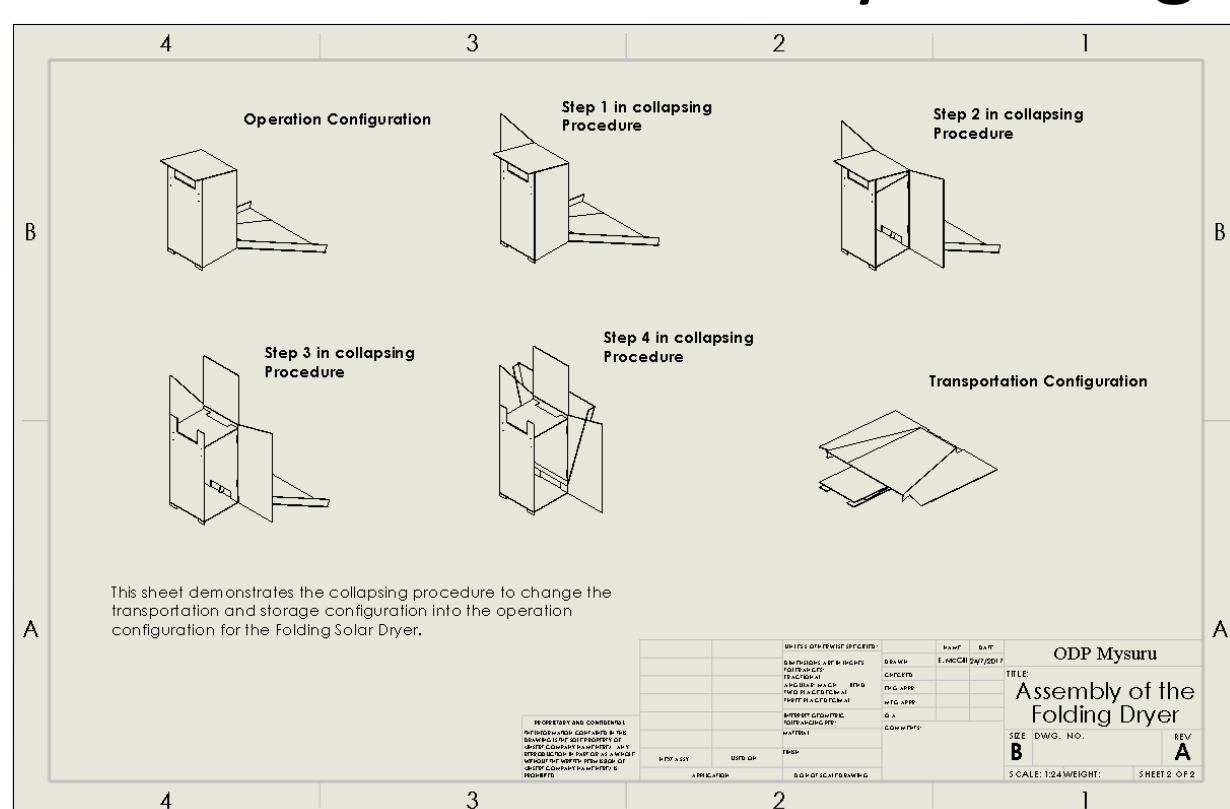
The Organization for the Development of People (ODP) is an NGO in serving the social needs of the people in the Diocese of Mysore in India. In addition to the many social services that ODP offers, it has a fledgling Research and Development program. Eric McGill went to ODP to work within this R&D program, and to investigate and design a device to help ODP's beneficiaries in the future.

Introduction

- According to MIT, Food Spoilage in India causes the waste of 7% of grain, and 30% of fruit grown
- Small business and cottage industry is the norm in India, ODP seeks to foster Entrepreneurship
- Improve the performance of the Solar Dryer built by ETHOS in Summer 2016
- Reduce the Cost and other barriers to Entry

Project Description

- Identified communities that may be in need of Solar Dryer Technology by operating within the Social Services framework of ODP.
- Designed the Foldable Solar Dryer using Solidworks.



- Utilized materials that were for Sale in the City of Mysore to construct the Solar Dryer, Final Cost ~\$35.
- Ran tests to determine effectiveness of Solar Dryer.



Results & Discussion

- When testing the temperature inside the Solar Dryer, maximum result was 140°F
- When testing the effect of drying Green Chillies over 11 hours, traditional methods out performed the solar dryer.



- Green Chillies may not be the ideal food to test in a solar dryer
- The device is proven to work, only needs to have its performance improved
- Dryer is structurally sound and lightweight.

Recommendations

- The solar dryer is manufacturable with materials available in Mysore, a city of 800,000 people. For remote villages, research into their manufacturing abilities should be done.
- Make the Solar Collector Longer, in order to raise temperature in the Cabinet and increase the performance of the dryer.
- Immerse the next group to work with ODP in the lives of potential clients.
- Determine the balance between drawing air through the Dryer, and lowering the air temperature by doing so, size Solar Panel and Fan based off of this balance point.

Acknowledgements

Thank you to Father Staney, Gita, and all the other employees of ODP.

Also, Thank you to the Brother Arokiadoss and the Marianist Brothers in Bangalore, India.