

Title: Solar Kitchen for Hot and Dry Climate of India: A Hybrid Solution with Solar and Heat Pump Technology for Mid-Day Meal Schemes (OLP 2606)

Abstract:

Solar Assisted Heat Pump Based Green kitchen system for community-scale cooking.

Dual-mode reliability: Solar Assisted Heat Pump Technology.

Reduces LPG usage by up to 50% and eliminates smoke of cooking.

Improves women and children's health by reducing exposure to indoor air pollution.

Demonstration model for replication in schools, hostels, rural kitchens, NGOs, and disaster-relief centres.

Contributes directly to SDG 3 (Good Health), SDG 7 (Affordable Clean Energy), SDG 13 (Climate Action).

Objectives:

The objective of the present work is to design and develop a community-scale solar-assisted heat pump-based kitchen system with an LPG backup, intended as an alternative to conventional large-size Scheffler solar cooking systems. The proposed system aims to offer a compact, cost-effective, and energy-efficient solution capable of stable operation under varying solar irradiance.

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PI: Dr. Chandan Swaroop Meena

CO-PI: Dr. Kishor S Kulkarni, Dr. Veena Chaudhary

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