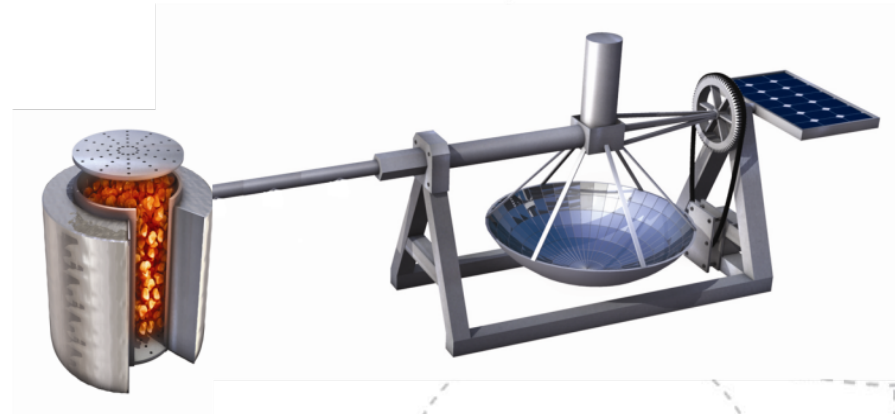




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“Small scale concentrating solar energy systems: Technical development and social adoption”

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Project collaboration

- University collaboration
 - Norwegian University of Science and Technology, Norway
 - Institute of Technology, Addis Ababa, Mekelle, Bahir Dar
 - Eduardo Mondlane University, Maputo, Mozambique
 - Makerere University, Kampala, Uganda
 - University of KwaZulu-Natal Durban, South Africa
- PhD/MSc based research, 2007-2011
 - About 10 PhDs (3 from social science)



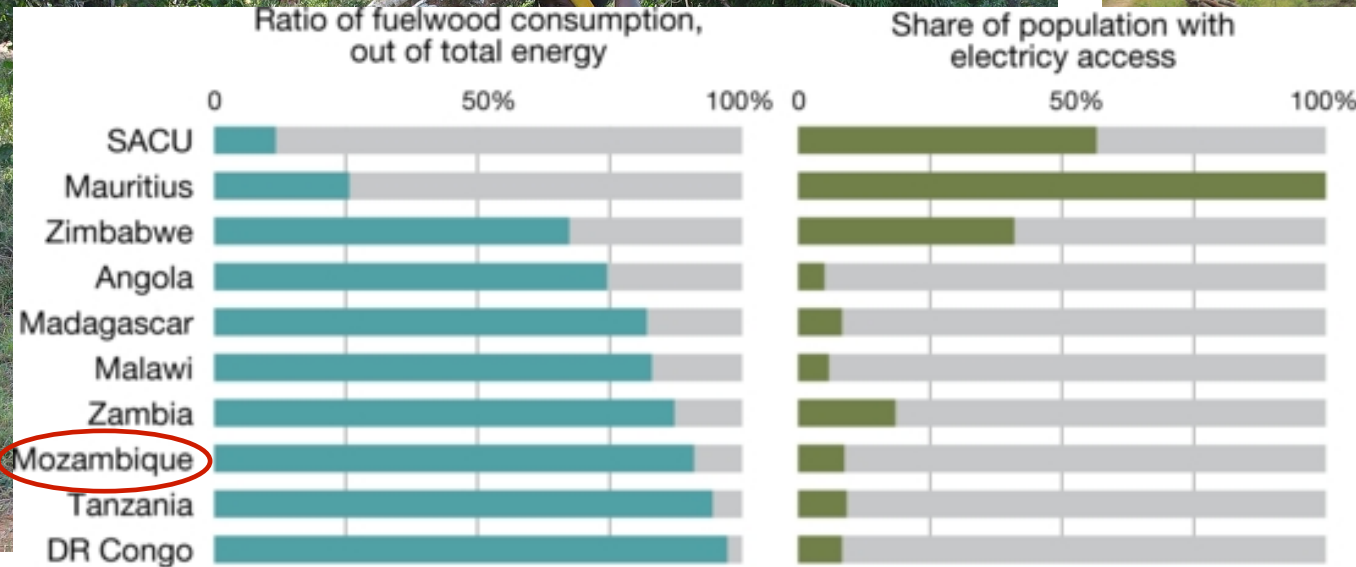
Project Financing

- NUFU Solar project, NORGLOBAL, RENERGI program, Quota Program



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Background



SACU = Southern African Customs Union: Botswana, Lesotho, Namibia, South Africa and Swaziland

Source: GRID Arendal (2008)

<http://maps.grida.no/go/graphic/electrification-and-traditional-fuels-in-sub-saharan-africa>
16.03.2011



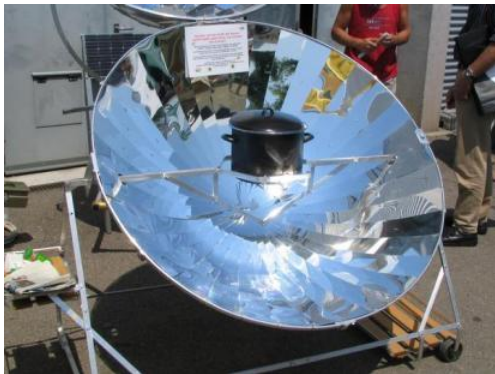
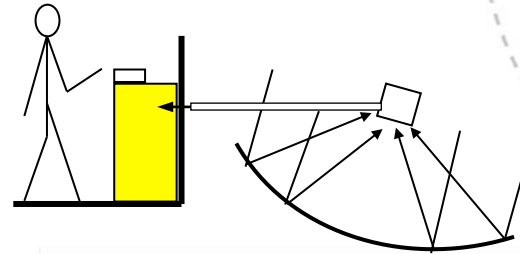
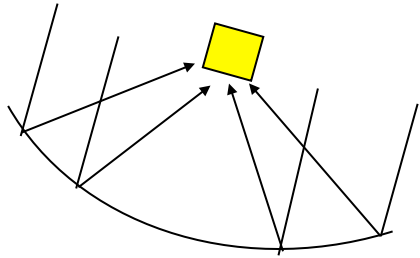
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Objectives

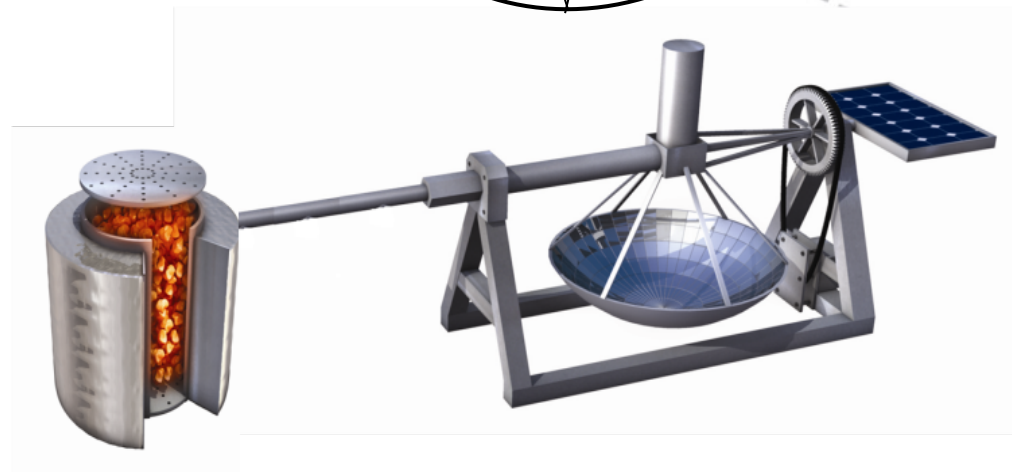
- Develop and test small scale pilot units for concentrating heat collectors with integrated heat storage units (250 degrees C)
 - Applications:
High temperature energy storage has several areas of application
Project focus: food preparation
Injera baking requires high temperatures (200-220 degrees)
- Develop guidelines for the successful implementation of a prototype
 - comparative analysis of an existing institutional solar cooking system to identify the factors which lead to an adoption/rejection of such a system
 - implementation & testing of a prototype in Mozambique



Concept



Standard small scale
solar cooker



Project concept: include heat storage
Energy available after sunset



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Approach

- **Target: Institutional level**
(universities, schools, hospitals, bakeries, restaurants...)
 - Solar cookers for households have been available for long times, but not gained widespread use
 - Institutions have better resources: costs and maintenance of systems
 - Solar energy can be demonstrated through the implementation at institution
- University based work: PhD, MSc
- **Interdisciplinary**
 - Students from social science, natural science and technology
- **Organization**
 - All participating universities targets the same concept (heat collection and storage)
 - Work plan: each focus on a particular part of the solar system
 - NTNU laboratory hosts visitors: 1-3 months
 - Yearly workshops



Status

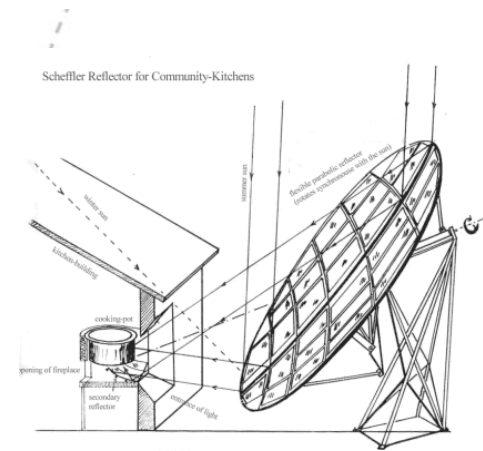
- Testing of social & technical concepts

1) Social adoption

- identification of energy patterns & cooking habits of public institutions in Mozambique
- comparative study on Scheffler system in different settings

2) System testing

- air based system
- steam/oil system
- direct system
- Particular application: Injera baking



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Mozambique



