

Solar Cookers for All: Towards a Sustainable Future

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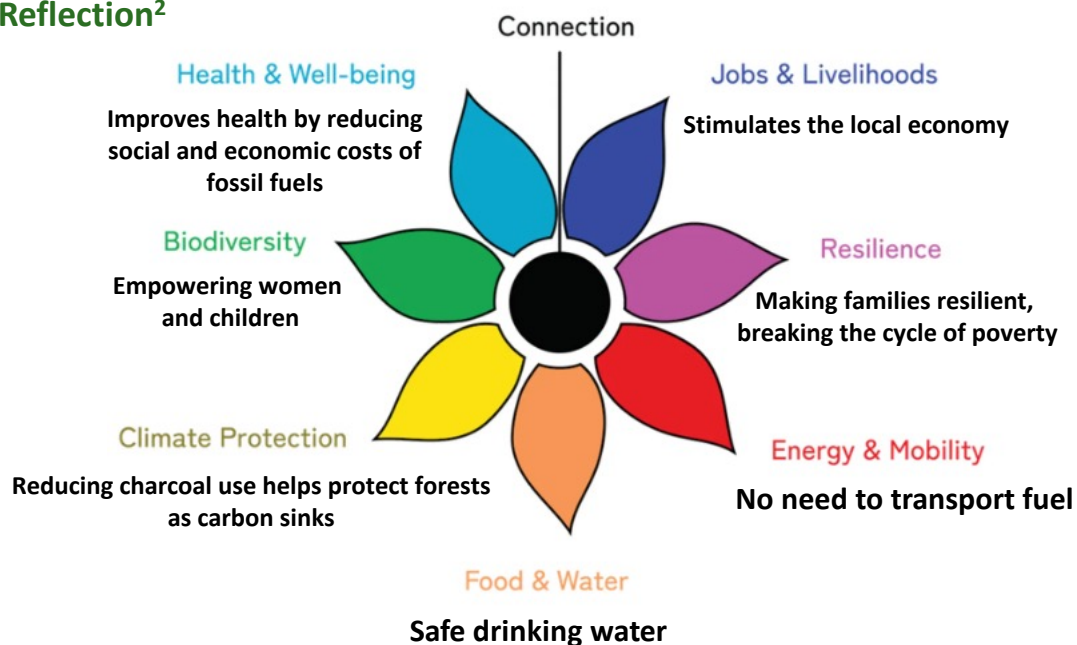
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Why solar cookers¹?

- **3/7 people** lack sustainable fuel for cooking
- **2.4 billion people**
 - cook over wood fires, animal waste or charcoal
 - breathe smoke and soot
 - depend on expensive and unsustainable fossil fuels
- **All 17 United Nations Sustainable Development Goals (SDGs) addressed**

FLOWER: Framework for Long-Term, Whole-System, Equity-Based Reflection²



Commercial cookers work well, though our aim is to develop solar cookers for all

- Alternative to charcoal / Healthy and easy to use /No negative impact on climate
- Good performance / Inexpensive
- Locally recycled raw materials / Locally manufactured

Development of a solar cooker prototype by students at UHasselt and University of Lubumbashi

- Students selected from different programs: physics, engineering, statistics and data science, economics
- Field experiments in the DRC in July 2023
- Quantification of the performance of prototypes

Sc4All–students team

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Performance testing of the second prototype of the University of Lubumbashi in July 2023 by visiting UHasselt students in collaboration with local students

Preliminary results (since mid 2022)

- New prototypes compared to commercial cookers with
 - 50% performance
 - 10% production cost
- Two home made electronic testing stations
- Several recycling materials tested for their reflection capability, e.g., soda cans 50-60%, alu foil 92% of true mirror
- Fine tuning of best practices for domestic usage based on field work and literature review³

Next steps

- VLIR-UOS Short Initiative to promote mobility between staff at UHasselt and University of Lubumbashi
- Selection of a new group of students to continue the work on the development of a solar cooker with good performance
- Involvement of colleagues in social sciences and law
- Bachelor and master thesis projects in different educational programmes
- Set-up of small spin-off companies for distribution of locally made solar cookers

References

- ¹www.solarcookers.org
- ²www.multisolving.org
- ³Vanschoenwinkel et al. (2014) Energy Policy