

LESSONS LEARNED FROM APPLIED SOLAR COOKING IN COMMUNITY TAMERA/PORTUGAL

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Abstract: The Solar Kitchen in Tamera's Solar Test Field is a living research kitchen which demonstrates how to live in energy abundance using regenerative technology, showcasing viable models for decentralized energy autonomy. It is the living heart and home of our community. The kitchen combines various solar cooking tools (Scheffler Reflector, Tolokatsin, Parabola/Yaholnitzky, solar box-cookers, solar water heaters and a solar dryer) with a small-scale biogas system running mainly on kitchen leftovers. This combination of direct solar cooking and stored biogas energy allows us to provide three meals a day for 35-50 people and to feed up to 110 people at special events. Our experience leads us to believe that, taking in weather conditions, year-round solar/biogas cooking would be possible. Bringing together the kitchen as a central aspect of our home and daily living with future-oriented technology is important for a technically and socially sustainable future.

After seven years of practical experience in the Solar Kitchen, a number of conclusions about the practicalities of solar cooking can be drawn. Flexibility, adaptability and good time management are indispensable requirements for solar cooking. Safety aspects such as eye protection, as well as burn and fire risks, must be taken seriously, especially as the power of solar radiation is often underestimated. Particular cookers are suitable for particular types of food, therefore a variety of cookers is recommended. Most of the solar cookers we use were originally not intended to cook for many people. We aim for extended designs for large-scale cooking. Close and ongoing communication between cooks and designers is vital for improvement and maintenance. The simplicity of the designs leads to self-responsibility of the cooks and fosters a wish to actively participate in the design improvement.

Our research consists of using regenerative technology in daily life, adapting the technologies to the needs of the user and giving feedback for ongoing development. With this work we contribute to the application, improvement and development of solar cooking tools, as well as to their wider uptake. Transitioning the kitchen, as a central aspect of home and daily life, into a Solar Kitchen with up-to-date regenerative technology, is essential for a technically and also socially sustainable future. We conclude that the design of easily understandable and user-friendly solar cookers is crucial, because it fosters the decentralized application of solar cooking, which is important for developing forms of regenerative energy autonomy on a global scale.

Keywords: applied solar cooking, community, biogas