

## **1. INTRODUCTION**

Palmer Development Consulting (PDC) was contracted to participate in the project “Assessment of the commercialisation of selected sustainable energy technologies, products and services”. The focus of the project was to provide AREED<sup>1</sup> with background information on the suitability of providing selected technologies, products and services in a commercially sustainable manner, in order to guide the screening and selection of investments and the development of business models. The aim was therefore, to increase the understanding of commercial applications and business structures through the completion of number of small and focused technology commercialisation assessments. These technology commercialisation assessments will emphasize the commercialisation of the products or services by describing not so much the technology itself but the technology specific factors required for commercialisation.

PDC was specifically instructed to complete the component focusing on solar cookers. The report on the commercialisation potential of solar cookers is largely based on the results and experiences of the GTZ/DME Solar Cooker Field Test Programme currently being implemented in South Africa.

## **2. BACKGROUND**

The South African Solar Cooker Field Test aimed firstly to establish the social acceptability of solar cookers (phase 1) as well the potential commercialisation of solar cooker technology.

In preparation of phase 1, a baseline study was carried out in four potential areas, of which 3 test areas were selected. This included deep rural, rural and peri-urban with concomitant differing fuel use patterns. A total of 100 families made up the test sample, 70 user families (with cookers) and 30 control families without cookers. The test also included 14 institutions, in all cases education centres and in most cases pre-schools. Seven different cooker types were placed with the user-families in a yearlong study. The year-long placement is the first interesting component of the study, which allowed the research team to evaluate the solar cooking habits in detail, and it also allowed for seasonal use to be analysed. This was a unique approach – a world first for two reasons:

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<sup>1</sup> With the support of the UN Foundation, UNEP is initiating an effort directed at the African rural energy service sector. The AREED initiative seeks to create energy companies that use renewable energy technologies to meet the energy needs of the poor, thereby reducing the environmental and health consequences of existing energy use patterns. The objective of the AREED programme is to expand and support the private sector in five select African countries (Botswana, Zambia, Mali, Senegal and Ghana) in the delivery of products and services in the sustainable energy field. Sustainable energy in this context is associated with the use of renewable energy technologies, energy efficiency measures and changing energy use patterns to reduce environmental impact and in particular reduce green house gas emissions. The term technology, as used here, includes both products and services.

- The field test was designed to be a comparative test of the various solar cooking technologies;
- Families used a different cooker every two months in a “round robin” to ensure that users get to know all the different cooker models.

### **3 RESULTS OF PHASE 1**

Use rates of the cookers have been used as one indicator of end-user acceptance. Before the solar cookers were placed with families, wood collected from the environment to be used in an open fire or wood stove was the primary energy source for cooking. Families used wood and wood-fueled appliances for approximately 50% of all meals. Gas, paraffin and electrical appliances were used to a lesser degree, in that order. After solar cookers were placed with user-families, the cookers joined wood and wood stoves as the most used appliances, each now being used just over one third of the time. Solar cookers were reported to be used to cook 35% of meals, or looking at it from another set of questionnaires, they were used at least once on 37% of all days. The remaining third of all cooked meals was prepared on gas, paraffin and electric appliances in that order. It should be noted that only one of the study areas is electrified and this would reduce the number of times an electric appliance was used. Users also reported good results for 93% of all solar cooking attempts.

The end-user acceptance being sufficient to warrant large-scale dissemination, the second phase of the project is underway. This entails:

- Technology transfer from Europe to South Africa;
- The production of 3 of the improved solar cooker types in South Africa;
- Testing various marketing and advertising schemes by selling solar cookers in selected marketing areas;