

Summary of wood consumption study in Kakuma
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A solar cooking promotion project has been underway in Kakuma Refugee Camp in northern Kenya since 1995. The camp houses refugees principally from Sudan, Somalia, Ethiopia, Rwanda, Burundi, Zaire, and Uganda, with its population increasing from 28,000 in 1995 to approximately 60,000 in 1998. Details of the project's implementation and a number of evaluations of progress are available from the sponsor, Solar Cookers International, an international non-governmental organization based in Sacramento, California.

This paper presents the methodology and findings of a small pilot research project intended to assess the actual fuel saving made possible by the use of solar cooking in this refugee situation. Seventy households were surveyed for a period of 12 days, using locally recruited and trained enumerators. The households were divided into three groups: 1) experienced solar cooks who agreed to use solar cooking on all days when weather permitted, 2) trained solar cooks using their normal cooking patterns, and 3) households which had not yet been trained in solar usage or provided with equipment. Using spring scales to measure household wood stores daily, enumerators recorded actual wood and charcoal usage.

The households chosen closely approximated the population within the camp which was involved in the solar cooking project. (Somalia, late arrivers in the camp, were not included.) The households varied in size from one person to 20; a total of 517 individuals were in households which averaged 7.4 persons. Survey days included one half-rainy, one full rainy, and one cloudy day, with the remaining 9 perfect sun for cooking.

The results of the research show significant differences in fuel usage between the three groups, even in this brief small study. The group who agreed to cook maximally did indeed cook nearly 75% of the time, the "normal" solar cooks 45%. Excluding the rainy days, the use figures are 89% and 54% for the two solar cook groups. Significant differences between the three groups in fuel usage were seen on 11 of 12 days. Both wood and

charcoal usage were measured; greater differences were found in use of wood (the fuel which is distributed by the camp's administration) than in charcoal (which refugees must either purchase or barter for).

Using a weighting formula (which valued charcoal more heavily than wood, because of its higher "cost" and efficiency as a cooking fuel, even if inefficient in overall terms of energy gained from wood), the seventy families used the following amounts of fuel per household per day:

Group 1 (near-maximal usage) = 8.89 pounds

Group 2 (normal solar usage) = 9.13 pounds

Group 3 (non solar cooks)
=12.25 pounds

The savings thus are 25-28% for this short period. Extrapolating that to the camp's population, 400 metric tons (880,000 pounds) of fuel could be saved each month, or 4800 metric tons (10,560,000 pounds) per year. A final fact noted in the study is that on 10% of the family-days surveyed, households did not cook at all, largely because they did not have food or fuel. Since food is routinely bartered for fuel, solar use also can contribute to lessening hunger and decreasing nutritional shortfalls for refugee families.