

SUMMARY OF NYAKACH SURVEY ON SOLAR WATER PASTEURIZING
June-July 2005
Solar Cookers International

A small survey was conducted in mid 2005 in the cluster of villages where Nyakach Community Development Association and Solar Cookers Int'l. began the Sunny Solutions project two years ago. Most families purchased their solar cookers within the past year for cooking but quickly also began pasteurizing their water, as most local water sources are polluted and water-borne diseases are a major concern.

HOUSEHOLDS SURVEYED: Forty-seven households with 87 children below the age of five years were interviewed 5 times about two weeks apart for a total of ten weeks' data for each. Average family size was 6.3 with an average of 2 children under the age of five. Thirty-nine households had solar cookers, 8 'controls' did not.

FREQUENCY OF SOLAR COOKING: As recent buyers, use is still low, averaging 16 uses in 10 weeks (range from 3 to 36). Based on patterns elsewhere we expect frequency of use to double and then level off in the next year.

FREQUENCY OF WATER TREATMENT: The baseline data indicated high awareness of the need to treat water but low actual treatment due to lack of fuel and women's time (to boil) and bad flavor of chlorine-treated water. In this small survey 46 of 47 households reported treating their water and 83% of said they always treat their water. That 83% reported 33% fewer diarrheal incidents per child - .16 incidence per week, compared to those who treat 'sometimes' (.24 incidence per child per week). Nearly all (38 of 39) households with solar cookers use them for both cooking and to pasteurize their water.

WATER TREATMENT METHODS AND DIARRHEAL INCIDENTS: Water treatment methods available in Nyakach are chlorine tablets or drops, boiling, and – now – solar pasteurizing. No one method is sufficient - chlorine gives water a bad taste, boiling requires fuel and women's time, and solar requires sunlight. **Those whose water treatments include solar pasteurizing some of the time had fewer diarrheal incidents.** Compared to boiling alone, diarrheal rates dropped from 13 to 7%.

Method of water treatment used N=# of kid weeks	Incidence of diarrhea/child/week	% using these methods during a given 2-week period
Chlorine (n=36)	.28	7%
Solar or chlorine (n=151)	.24	28%
Boil or chlorine (n=22)	.23	4%
Solar (n=48)	.16	9%
Boil (n=28)	.13	5%
Solar or boil (n=241)	.07	44%

IMPACT OF SOLAR WATER PASTEURIZING IN NYAKACH:
Solar pasteurizing has been quickly adopted and has reduced diarrhea among small children in Nyakach. Used alone, boiling and solar are about twice as effective as chlorine, and when used together they are four times as effective. In actual practice, solar was mentioned 92% of the time as having been used in the previous 2 weeks.

Future studies will confirm whether these apparent benefits continue and grow as we expect, based on solar cooker uptake and use patterns elsewhere.

More details available on request: bev@solarcookers.org