

25 COUNTRIES

WITH THE GREATEST POTENTIAL BENEFITS FROM SOLAR COOKERS ^{10/04}

	Annual % forest/ insolation: 2=best 1=good (NASA)	wood- lands (UNFAO data)	Est. fuel scarcity 2 = >1/2 pop., 1=<1/2 pop. (SCI est.)	Est. population 2020 (in millions) (UN data)	Est. % pop. with Both sun & fuel scarcity	Est. no. of people with both sun & fuel scarcity 2020 (in millions)
ASIA						
1 India	1.2	21	2	1,312	12%	157.4
2 China	1	16	2	1,402	7%	98.1
3 Pakistan	1.5	4	2	227	20%	45.4
10 Afghanistan	1	2	2	40	17%	6.8
12 Nepal	1	33	2	35	17%	6.0
22 Sri Lanka	1	35	1	21	11%	2.3
E., S. AFRICA						
4 Ethiopia	1.5	5	2	105	23%	24.2
6 South Africa	2	7	1	44	20%	11.0
8 Uganda	1	26	2	47	16%	7.5
9 Tanzania	1	45	1	50	15%	7.5
11 Sudan	2	30	1	93	15%	6.6
13 Kenya	1	32	1	39	15%	5.9
14 Somalia	2	13	2	18	27%	4.9
16 Mozambique	2	40	1	24	16%	3.8
19 Madagascar	1	22	1	27	11%	3.0
20 Malawi	1	34	2	17	16%	2.7
21 Zimbabwe	2	58	2	13	20%	2.6
23 Eritrea	2	14	2	7	27%	1.9
25 Zambia	1	54	1	14	8%	1.1
W. AFRICA						
5 Nigeria	0.5	19	1	177	7%	12.4
15 Niger	2	2	1	22	22%	4.8
17 Burkina Faso	0.5	27	1	21	16%	3.4
AMERICAS						
7 Brazil	0.75	67	1	210	4%	8.4
18 Haiti	2	6	2	10	31%	3.1
24 Dominican Republic	2	28	1.5	11	15%	1.7
TOTAL				3,959		433.6



Solar Cookers International (SCI) is a nonprofit organized in 1987 to promote the spread of solar cooking and solar water pasteurization to benefit people and environments worldwide. Solar cookers address severe fuel shortages, the health hazards of traditional cooking and water-borne diseases. SCI promotes networking among hundreds of solar cooking promoters worldwide through websites, conferences, publications and correspondence, and works with local groups in selected countries.

www.solarcookers.org

COUNTRIES WITH HIGHEST POTENTIAL FOR SOLAR COOKING

One third of the world's people cooks daily meals over open wood fires and, for many, wood fuel is growing scarce. About one-fourth live in areas of abundant sunshine. We estimate that 500 million people urgently need solar cookers today.

Most of these live in twenty-five countries. These rankings are based on *total annual average sunlight* (from NASA), *national fuel shortages/net energy imports*, and *estimated populations for 2020* (UN data) and an *estimated per cent of the population* living with both ample sunlight and fuel shortages.

Other countries also have sunny areas and fuel shortages, and in future decades as fossil fuels become costlier and less available, other well-insolated parts of the world – notably the Middle East and Australia – are likely future markets. Most countries have varied microclimates, including areas where microclimates and many varied health and environmental issues make them potential markets for cooking. These were the criteria used:

1. Insolation: the amount of sunlight that reaches the ground, usually measured in Watts per square meter. This varies by season, time of day and atmospheric conditions. First all countries having high annual average solar radiation somewhere are rated as follows: 1.86 terawatt hours per square meter = rating of 1, areas with 2.09 or more = 2.
2. The % of each country with forests/woodlands (from UNFAO)
3. Estimated total country populations in 2020 – UN data.
4. Estimated portion of country's population suffering fuel shortages, based on government imports of fuel and % of forest cover. Of the top ten, only China has large coal reserves and Nigeria is an oil producer/exporter, yet in both countries many rural areas have only access to biomass (wood, dung and crop residues) which, when depleted, weaken the environment.
5. The % of population that is urban (UN data). Countries with 30% or less urban population were given 1% point extra.
6. Estimated % of population within each country with both good insolation and fuel scarcity. Arid regions are often sparsely populated, supporting only scattered small villages and/or nomads, but they also have the greatest scarcities. Many countries have newly deforested areas, creating new fuel scarcities.
7. The % of the population with safe drinking water. Countries with <50% were given 1% point extra. This data from the UNWHO appears unreliable.

Although all of the above estimates combined mean little more than educated guesses, the top 25 countries as calculated in 2004 are nearly all the same as ones identified by similar calculations six years earlier. For each country, similar educated guesses are needed to predict where solar cooking will be of greatest benefit. Helpful tools include insolation maps with averages by month or season; maps of deforestation; and local population distribution data.

Solar Cookers International