

The New York Times

November 12, 2012

Solar Power: An Alternative Device to Sterilize Surgical Instruments in Rural Areas

By **DONALD G. McNEIL Jr.**

Solar power can steam-sterilize surgical instruments, [according to a new study](#) — but the contraption needed to do so is not pocket-size.

Sterilizing instruments needed in surgical emergencies like Caesarean births or appendectomies can be a problem in rural clinics in Africa: There may be no electricity, jugs of [bleach](#) or tanks of [propane](#).

So a Rice University team recently modified a prototype of an old solar stove to power a simple autoclave, which is a pressure-cooker for instruments, and tested it in the Texas sun.

On all 27 attempts, it reached United States government sterilization standards.

How practical it is awaits African trials; it is nearly 12 feet long and 6 feet tall and has bright curved mirrors to focus sunlight on a water-filled pipe. On sunny days, it can make steam at 150 degrees Celsius (302 degrees Fahrenheit) from about 9 a.m. to 3 p.m.

[Douglas A. Schuler](#), above, a Rice business professor and lead author of the study, published in *The American Journal of Tropical Medicine and Hygiene*, said he “married into the project.” His French father-in-law designed the solar stove years ago after a student trip to West Africa. But women in Haiti, where they tested it, “just hated cooking on it,” Dr. Schuler said, so they found a different use for it.

The initial setup costs about \$2,100. But sunlight costs nothing, making five years of operation about \$2,000 cheaper than using propane.

