Heating Water for Space Heating

Target temperature 45°C.

Many parts of the developing world are well above sea level and the nights can get chilly. One way to provide space heating is to heat a large amount of water, perhaps 6 to 12 20-liter buckets during the day time, then bring them inside and wrap them in blankets in the evening, then when it's time for sleep, unwrap the buckets. By morning they will have cooled and released many megajoules of energy into the home. For a 6-bucket system about 12 MJ of heat could be released. The is the equivalent of 3.5 kW-hr of electricity, or 12 cubic feet of natural gas.

For this application you typically want a large number of buckets and heat them to a temperature not as warm as for wash water, as shown below.

This shows 6 buckets of water in a Solar Household Energy Bank, which is about the optimum for water heated for space heating purposes. Larger systems, or two systems side by side, could be used to heat more water.

Typically, temperatures of about 45°C can be achieved with 6 buckets. The buckets would be covered as soon as they come out of the Solar Household Energy Bank.

For occupants of a room, the temperature that the room "feels" is partly determined by the air temperature and partly determined by the temperature of the objects in the room. Large warm objects in a room make

the room feel warmer by radiating heat to the occupants. Even if the home is drafty, the hot buckets of water will provide some benefit, though of course not as much as if the house is not drafty.