

### INTRODUCTION:

Solar cookers have existed since the 1800s, but in the past decade or so, there has been a sudden explosion of interest in this area resulting in hundreds of new solar cooker designs. However, that one kind of solar cooker that would make it an every household's commodity is missing. Through our design of a solar cooker, we aim to attain regular, desired cooking temperatures, at minimized costs. Apart from this our design also helps to purify water and get DISTILLED WATER.



Fig.1) SOLAR COOKER.

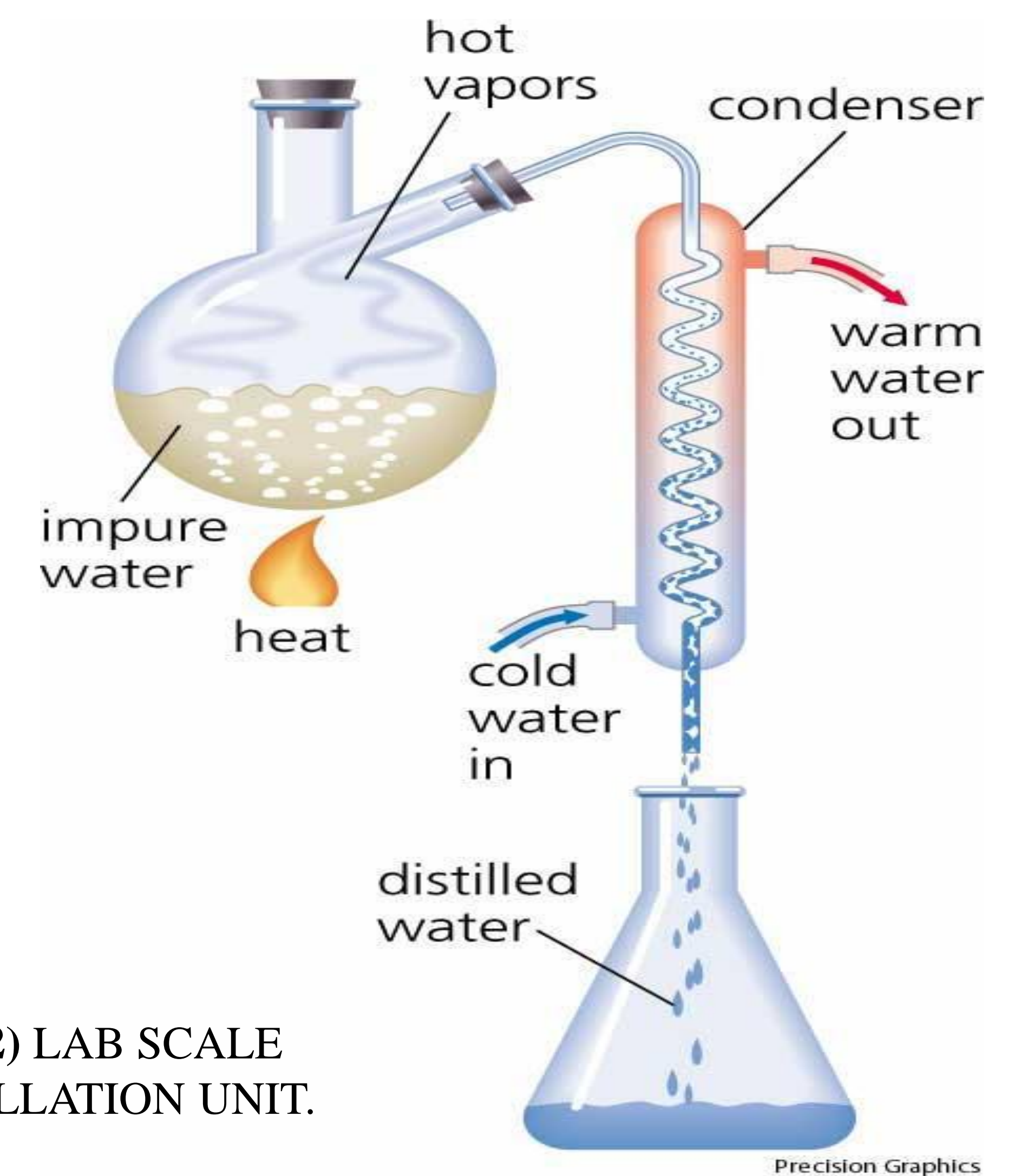


Fig.2) LAB SCALE DISTILLATION UNIT.

### METHODOLOGY AND RESULTS:

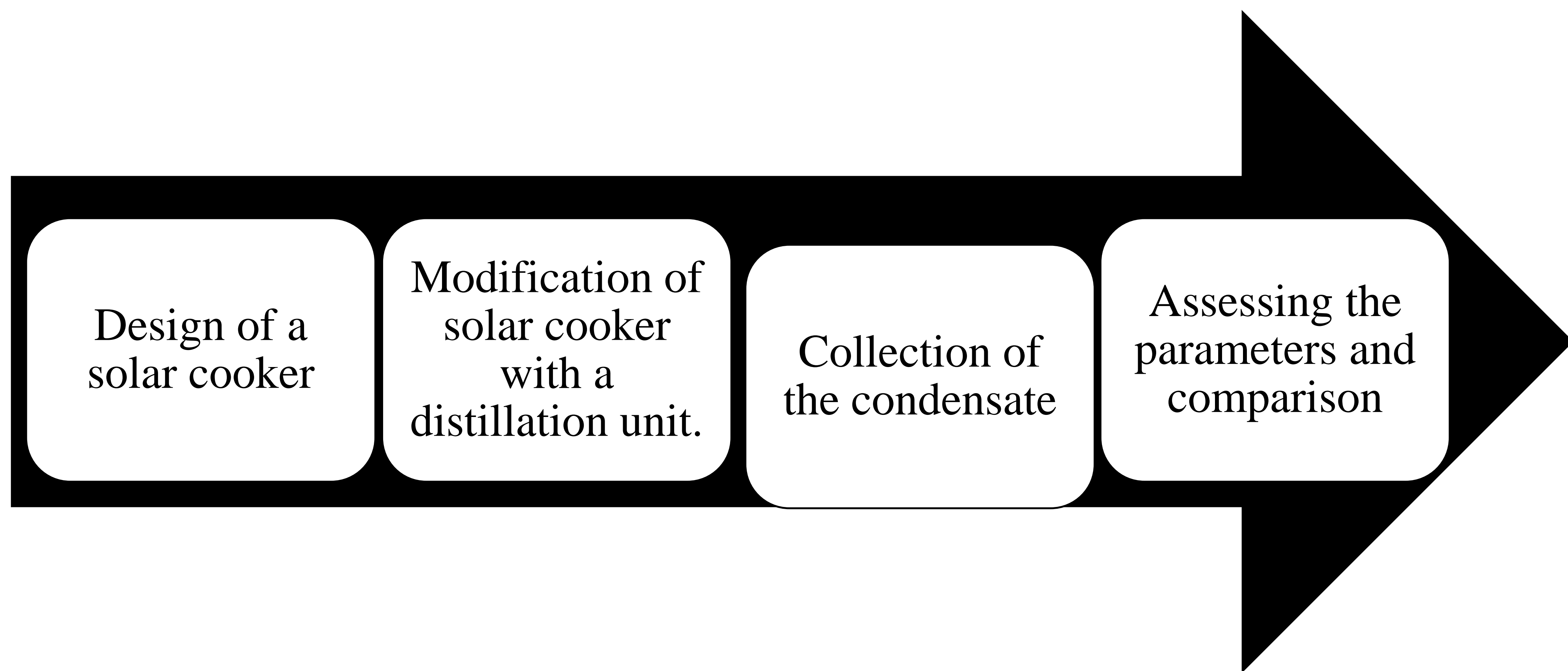


Fig.3. Interior view of the solar cooker.



Fig.4. Solar cooker setup in the sunlight.



Fig.5. Condensation column with bottle as the collecting point of the Distillate

Property/Sample	Tap Water	Sample Collected	Pure Water
pH	7.69	7.38	7
T.D.S	0.201	0.195	0
Conductivity	0.268	0.306	0.55

Fig.6. Results:

pH = Measure of the Acidity or Basicity of an Aqueous Solution.

T.D.S = Total Dissolved Solids. (Units – ppm)

Conductivity = (Units – micro Siemens/meter)

### CONCLUSION:

- The efficiency in terms of the amount of heating and time required to get fractionation, can be improved by insulating the outside of the column in an insulator such as wool, aluminium foil or preferably a vacuum jacket.
- Usage of a continuous heat exchanger instead of batch condenser.
- We need a large number of solar panels to produce the needed heat in less amount of time and boil the water at a higher temperature where you need a large land spot for this purpose.
- The main reason for getting such low value of efficiency is to produce the needed heat for evaporation it takes a lot of time, in ambient conditions. so, we are getting a very low value of efficiency.
- Solar energy can also be replaced by BIO-gas or LPG gas which will give us more efficiency.