



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Vinayak V. Viswanadham	Project Number 25407
Project Title Project S.P.U.D.D (Solar Powered Ultimate Distillation Device): Pure Water from Pure Power	
Objectives/Goals The purpose of this project is to find out how to make solar water distillation using solar stills very efficient and test the quality of the distilled water. Abstract Methods/Materials Two different types of distillers, a planar distiller and a dome distiller, based on the principle of solar distillation, were built for this purpose. Planar distiller: Using Styrofoam, wood, and plexi-glass, a right prism shaped distilling structure is formed. All faces of the structure are covered except for a rectangular face where the pan of water is placed atop black Styrofoam packed inside under the sloped glass; the insides are sealed and coated with FDA approved caulking and black paint respectively. A collection trough is drilled into the structure to catch the distilled water, and an inlet water tube and an outlet tube for unwanted residue are similarly wired in. Dome distiller: The instructions are similar as above, but instead of a planar glass top, this distiller is built with a Pyrex glass dome with a diameter between 10-14 inches, and a black, metal, circular structure with the same diameter as the dome is used instead of a rectangular base. To collect the water, a circular lip with a trough surrounding the whole circumference of the structure is inserted. This circular trough leads to a hole through which the distilled water passes out for collection. Results Both distillers distilled the water given to them. Even though both distillers functioned as expected, the dome distiller could distill more water because of the dome's ability to function at any time of day. Most of the dissolved materials were expelled, and the water was potable. Lab tests proved that the distilled water was pure and contaminants free. Conclusions/Discussion Two methods to distill water, dome distilling and planar distilling, were used. The distillers functioned on the environmental process of the water cycle in which water in the tank was evaporated, condensed on the cooled glass, and collected through either a trough or circular lip. This process is effective yet simple and easy to set up. Both distillers could purify the water and allow it to be a replacement for diminishing fresh water.	
Summary Statement This project demonstrates a method to improve the quantity of distilled water using the solar distillation stills and tests the quality of the distilled water.	
Help Received My father helped me build the distillers and drove me to the test site. My mother guided me through out the project and my sister encouraged and supported me with timely help.	