

**Eliminating Water Crisis and Conflict**  
**Pakistan**  
**Williams College**  
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**Section I**

**Summary of Goals:** The project aimed to ease issues of clean water scarcity in Jurr village, Pakistan and provide the 1,500 or so residents with a sustainable and maintenance-free supply of clean water that also bypassed the energy crisis. The project also intended to understand and resolve some conflicts arising from a lack of clean water such as fights and discontent between neighbors.

The project broadly proceeded in two phases. The first phase of the project involved speaking with locals and understanding their problems. The second phase involved constructing a solar water pump. I tackled both aspects with help from enthusiastic friends and student volunteers.

***Phase I: Survey and Problem Assessment***

For the first phase of the project, I wanted to conduct a survey in Jurr to better and more closely understand the problems of the residents. I contacted my former high school to recruit some ten interested students who were then given training on conducting surveys. I took the students to Jurr where they spoke with some 50 households asking about the severity of the crisis and how locals have managed to cope with a lack of clean drinking water over the years. The responses made for some very insightful data, and largely helped confirm my concerns.

These surveys were beneficial for all three parties involved: firstly, and most obviously, they benefited me by helping deepen my understanding of past attempts at drilling in the area, the current sources of drinking water and the severity of the electricity shortage – the information helped optimize my approach. Secondly, they greatly benefited the high school students, who not only had a chance to contribute to a noble cause but also picked up some important survey training. On completion of the program, students were made ambassadors for clean water so that they can continue to advocate water preservation. Thirdly, but most importantly, they instigated hope in the small village that someone was looking into this grave problem and this local support became instrumental as villagers would go out of their way to greet solar workers and provide them food while they worked on the site during phase II.

***Phase II: Solar Pump Construction***

The survey phase helped confirm my belief in solar pumps as the most viable solution to the compounded consequences of a water and energy crisis in the area. I contacted a number of local and national companies specializing in solar solutions and drilling services and settled for the most economical ones.

There was, however, one important factor that only became clear when drilling experts visited the village – the area has large amounts of salt deposits around making it somewhat likely that a bore would encounter salty water, “*khara pani*.” Hence, while it was possible to make an educated guess about how deep underground, on average, reservoirs of clean water exist in a given area, there existed no timely way of being absolutely certain that we would obtain access to salt-free drinkable water. The only alternative to heeding the advice of local authorities was to submit soil samples to research labs. However, this process can take months making it infeasible for most time-sensitive projects. Our first attempt fell victim to this problem and got us water that was mildly salty, making it unsuitable for drinking. This meant that I would have to devote a big portion of the resources to a second bore in a different location, and constrain a number of other expenditures. Fortunately, taking notice of previous

attempts at smaller bores and our attempt, drilling experts were able to figure out more precisely the location of salt deposits and hence suggest a much more accurate location for the second attempt. This subsequent attempt was immediately successful.

The rest of the process was somewhat straightforward and I employed my solar contacts to help install the equipment and power our water pump.

The system guarantees clean water to anywhere between 600-700 people on a daily basis. Solar panels offer a life of 25 years at a minimum and are largely maintenance-free. The contractor has agreed to make a site visit every two months to ensure optimal working of the equipment.

## **Section II:**

Peace is an ability to co-exist. Co-exist with harmony, tranquility and a sense of fulfillment. Nothing upsets more the fine balance of peace than the lack of basic necessities. How is one to devote attention to societal wellbeing and think beyond one's interests if a lack of clean drinking water constantly occupies one's thoughts and goals?

My project appreciates the concept of "peace" as a luxury that can be afforded only after a number of prerequisites are fulfilled. Without delving into any explications of what these various factors may be, it suffices to say that a person's bare necessities must feature high on this list. Amongst these basic necessities, water undoubtedly hammers home the first prize.

My solar water pump releases the villagers from a worry that has occupied an entire generation's mental processes. In the short run, it ensures an immediate supply of clean drinking water that is unaffected by any number of other personal, financial or governmental constraints. It bypasses the many excuses offered by the authorities for their inability to secure clean water for the population. My project achieved this goal and that too in a relatively economical fashion. The system ensures, for example, that a laborer has his 15 recommended cups of water each day and that women don't have to travel many miles to get water. It secures for the villagers a necessity often taken for granted in the developed world.

In the long run, it allows a chance for the villagers to use the time and resources released from this commitment and use those to better, more productive effects. It, for example, allows a farmer to spend more time and have more energy to cultivate and nurture his crops. It allows a mother to spend more time thinking about her children's wellbeing and education and allows the children to focus on their studies uninterrupted by thirst. I am certain that this project will continue to make waves in the community for years.

Each of us has a project, idea, goal, something which we consciously work towards; these are objectives that are too apparent to ignore and for good reasons - I'm thinking of a college education or a nice job. But, then, there are projects that are seemingly "secondary;" it seems to me that social work for a large part falls within that spectrum for most people. While there is nothing really selfish about this, I learned that devoting time to social betterment did not impede any of my other projects. If anything it gave me practical and very useful experience to tackle future challenges. The sense of fulfillment and purpose I received from successfully executing my Davis project convinced me that I would continue to devote my time and resources towards social betterment.

*"Davis Peace Projects reaffirm hope in miracles. It was no less than a divine intervention for Jurr's inhabitants to have the decade-long water crisis successfully resolved in a matter of weeks."*

- **Hamza Farrukh**



The drilling rig in place, with filter pipes waiting to be lowered. A drill worker rests on his bed, where he slept during the round-the-clock drilling process.



The blue power cords extend into the bore hole (marked by the white bag) while workers attend to the converter that transfers power from the solar collector into an electric current.



***The Finished Product:***

A worker enjoys water drawn from the well and stored in the 500 gallon reservoir.