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Water for the Trees, Water for Tomorrow

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Photographs provided by Jon Allen

Kabul, Afghanistan – No matter which way the wind blows, some situations just stink. Running out of water for cleaning, cooking and drinking is one of those situations.

Many places in Afghanistan are deprived of surface water. This leads to well drilling that averages depths of over 100 meters. The many projects the US Army Corps of Engineers, through its Afghanistan Engineer District (AED), are involved in require these wells as part of the contract. Whether it is a small compound for the Afghan National Police or a major complex for the Afghan National Army, the requirements of the wells are in the contract.

Changing the Landscape

Long before the occupation of Afghanistan by the Russians, this area was known by some as a garden spot of central Asia. This beautification of the country side is instilled in the people of Afghanistan. This is highly evident with each road you turn on when traveling through an Afghan National Army (ANA) base. As Jon Allen, Construction Representative and Operation and Maintenance (O&M) Manager, at Camp Thunder, Gardez, said “the ANA guys have been planting trees and shrubs around here like there's no tomorrow”.

Jon’s initial predictions were at least a couple of thousand. Substantiated or not, there was one factor that was well know, it takes a lot of water, on a daily basis, to water them all. Jon says that at least once a day, “they fill up the tankers with fresh water, drive around and give each one a five-gallon drink!” Compounding the concerns over consumption exceeding supply is that the normal “rainy” season has come and is almost gone. With summer right around the corner, so is the concern for low water levels and possible rationing.

Time for a Change

Each of the ANA camps is under contract for O&M awarded to Contract International, Inc. (CII). The O&M contractor for Camp Thunder came to Jon with concerns about the water pressure and levels of the wells. “John Rutherford has been keeping a sharp eye on the pressure levels of our wells, and he's getting

concerned” Jon said; “we've been getting wind that other facilities are getting concerned about their fresh water supplies too”. Current calculations reveal that between watering plants and the wash rack, over 12,000 gallons, 250,000 liters a day, and almost 85,000 gallons, 1.2 million liters a week are used.

The water treatment used at the ANA camps is a process that uses holding ponds. It uses six very large lagoons. The lagoons are placed in a series of three sets, which provide three levels of purification. After the water leaves the last pair of lagoons, it goes through a chlorinator prior to leaving the base. The water meanders for about 400 meters and empties into a small 2 to 3 acre lake. “We thought that's a lot of wasted potential energy just begging to be used” Jon says.



Through a collaborative team effort, they developed a plan of action. Jon says “my O&M contractor and I have taken a pro-active stand, and there is going to be a ton of good things come from our plan”. He continued “we're not going to wait until we turn the tap and nothing comes out or have to consider water rationing”.

“A supervisor wrote me in an e-mail, ‘If you can get the Garrison to buy into it, you will have triumphed where many others have failed”. He said “we have a total buy-in from the ANA on this, they're very supportive”.

Jon and his O&M counter part requested permission from the ANA Garrison Commander to create a large holding pond just beyond the fence from the lagoons. Permission was granted and an execution plan was set into motion. The next step was to get a bulldozer on site to create the large holding pond. Jon also requested and received funding, through AED, for a pump and housing unit for the pump.

By design, the pump is placed on the ANA side of the fence for security and water tanker servicing. Water tankers are able to drive up to the pump house, pump water from the large holding pond and fill up the tanker. The ANA troops are then able to drive the tanker around the base, watering all the new trees and plants with recycled water.

After the holding pond was created, they changed the requirements for the pump. Submersible pumps were placed in the pond and water lines were run underground to bring the discharge end of the water line inside the ANA camp. A pump operation switch was protectively placed near the discharge outlet of the water line.



The large holding pond serves two purposes. First and foremost as the holding tank for processed water; secondly as another level of purification by catching solids that may get by the first three ponds. This will allow the solids to settle harmlessly

to the bottom.

Every single liter of fresh water pumped out of the well costs money. “We already have a strong data base of past and current consumption” Jon said. “We will monitor how many tankers of recycled waste water are used every day to water the trees and shrubs. When we begin to see our daily fresh water usage shrink, we’ll have the hard data that proves the waste water recycling program here works”.

The Long Range Plan

Prior to this, the need for formal water conservation was something that had not been addressed. Jon soon learned there were other situations not previously addressed. Jon said Afghans here had a phobia about having anything to do with recycled water. “It was the smell and the color that was the problem”. The skepticism over the water is clearing and the smell is gone which is providing the reassurance that was needed.

Currently chemical analysis of the water coming out of chlorinator is under way to make adjustments, as needed, so that the water can safely come in physical contact with humans. The ANA are planning a horticulture project sometime in the future to grow their own vegetables. “We’ll get our chemistry of recycled water to the point that we can use it for irrigation”.

Once the results are well documented, Jon predicts it’ll snowball not only in other waste water projects, but hopefully at the other ANA sites AED oversees. “This might sound crazy, but John and I are shooting for a 25% savings in fresh water”.

Looking to the future Jon sees many ways to reduce the consumption of fresh water. “Our future plans are to relocate the vehicle wash rack very close to the lagoons so that all the water used finds its way into the first stage of purification at the lagoons”. Other uses he sees are on the vehicle wash rack and for every toilet to use recycled water.

“Our end-goal is for all non-potable water needs to be filled with non-potable water” he said “and once we can prove we’re saving money by conserving fresh

water, we may go back to the piggy bank and ask if we can have some more” to implement more of their recycling initiatives.

Jon felt it very important to point out that the entire process took less than a month from idea to reality, cost less then \$2500 to implement and the vegetation is receiving its normal water rations through recycled water.

For further information about the US Army Corps of Engineers in Afghanistan, visit www.aed.usace.army.mil