

PhATS Field Note



Demand Creation in
Learning Institutions
& DCC

September 2015



ARCHE NOVA INSTALLS SOLAR PUMPS FOR TYPHOON YOLANDA-AFFECTED SCHOOLS

In the Phased Approach to Total Sanitation (PhATS), learning institutions (schools, day care centres) are used as entry points and venues to improve health status of children and adolescents while enabling them to be messengers for change for community interventions. The implementation of WaSH in schools and day care centers uses the Three Star Approach to effectively help schools to meet the minimum standard for WaSH in learning institutions. The PhATS partners are using schools as platforms for their intervention to ensure that children have access to soap and water for handwashing; safe water for drinking; gender segregated toilets; and access to functional washing facilities.







To that end, UNICEF and arche noVa (AN) have entered into a partnership to install solar pumping systems in 100 schools in Leyte Province. Reaching 30,000 students, the systems intend to provide a reliable and independent water source for the learning centers and will offer safe water access during emergencies.

In order to increase ownership of the school, its administration is requested to engage four volunteers who can help with the installation of the solar pumping system and to support infrastructure works. When the solar panels are set up, four people from the School-Based Management (SBM) team or the Parent-Teacher Association (PTA) are required to be present in order to participate in a hands-on training led by Leyte Municipal Water District (LMWD) technicians on dismantling and mounting the panels.

This training is provided to ensure that the school will be able to safely take down the device's solar panels and mount them again in case of storms or extended closing periods of the school. A user-friendly maintenance and operational manual for the solar pumping system is provided to every school which includes an LMWD hotline number if needed for support in an emergency.



THREE STAR APPROACH

STAR RATING	WATER	SANITATION	HYGIENE
	Children bring individual water bottle to school	 including gender separated toilet for Grades 4-6	Minimum Hygiene education by Implementing Partner and/or school teacher
	Water for hand washing is available Regular low cost water treatment at point of use (Jerry Can/Ceramic filter etc.)	 including gender separated toilet for Grade 4-6 MHM: Trash bins with cover present in toilets Schedule of facility cleaner/ focal point visibly posted and followed	Daily supervised group hand washing! Soap is available at hand washing station MHM: Distribution of IEC materials; training of teachers on MHM Regular WaSH Hygiene Promotion activities are conducted
	Safe drinking water is available in school from an improved source including for children with disabilities	 Accessibility for children with disabilities Access to PWD Toilets meeting national technical standards	Institutionalized Hygiene Education in schools (DepEd); WaSH hygiene promotion is integral part of curriculum

 Toilet  50 Persons

PROGRESS AND RESULTS

As of March 2015, AN has acquired all necessary materials and contracted personnel to install the systems. After the six day training on assembly and installation of the solar pumping system, AN asserted that more practical on-site training was necessary in order to ensure the proper and safe assembly and installation of the solar pumping systems. Therefore, relevant LMWD staff will be retrained.



RAINWATER HARVESTING INSTALLATION AT LORENZO DAA ELEMENTARY SCHOOL

Lorenzo Daa Memorial Elementary School (LDMES) is located in a lush valley one hour's drive from Tacloban City, Leyte. Since its opening 19 years ago, the 227 students and six teachers have relied on a well in the village to provide them with water. Students and teachers would cross a street and climb down a steep slope to fill buckets of water for handwashing, tooth brushing and other sanitation needs. The return trip up the steep slope and across the street with vessels full of water often required additional helping hands.

Due to poor groundwater quality, a rainwater harvesting system was devised for LDMES. Two gutters installed on classroom roofs can yield up to 16,000 liters of water per month. The collected water is stored in a 7,000L cemented ground cistern. Three connected solar panels of 240w each were installed on a neighboring roof and will ensure that the submersible water pump transports water from the rainwater cistern to an elevated water tank. Through floaters in the water tank and in the rainwater cistern, the pump automatically starts and stops pumping, making the system very low-maintenance for the school's administration. Through the elevated water tank, enough pressure is created to move water to a newly constructed handwashing facility with ten faucets and a separate latrine block with six rehabilitated toilets.

At the end of February 2015, the first solar pumping system was officially handed over to LDMES, launching the project's implementation phase.



BOREHOLE INSTALLATION AT SAGKAHAN NATIONAL HIGH SCHOOL

While Sagkahan National High School has an LMWD connection, the size of the school's property and the number of plumbed toilets and handwashing facilities connected to it reduces the water pressure to a slow trickling. The school's property was divided into two parts: one section would continue to be serviced by the LMWD connection, while the other through a solar pumping system. In order to improve the school's water supply situation, a borehole was drilled to a depth of 29ft, which provided a continuous water flow. The borehole was drilled through sandy soil found in this area of Tacloban. To prevent sand infiltration, a single perforation to the pump casing was made at the very bottom, and a vertical 5ft gravel filter was packed around the

pump with the intention of reducing in-flow rate. Due to the school's large population of 2,565 students, 29 toilets and 17 handwashing stations requiring water for flushing and rinsing are required. Arche noVa installed a system with five solar panels to meet this need; more panels will produce more solar power and enable to the pump to suction and discharge a larger quantity of water into the system. The solar pump transfers water to a 2,000L elevated water tank for storage. Through 117m of new water grid, water from that tank will supply unfiltered water to 17 toilets and two handwashing facilities, each with five faucets.

SCHOOL STATISTICS



SAGKAHAN

NATIONAL HIGH SCHOOL



2,565 STUDENTS



29 TOILETS



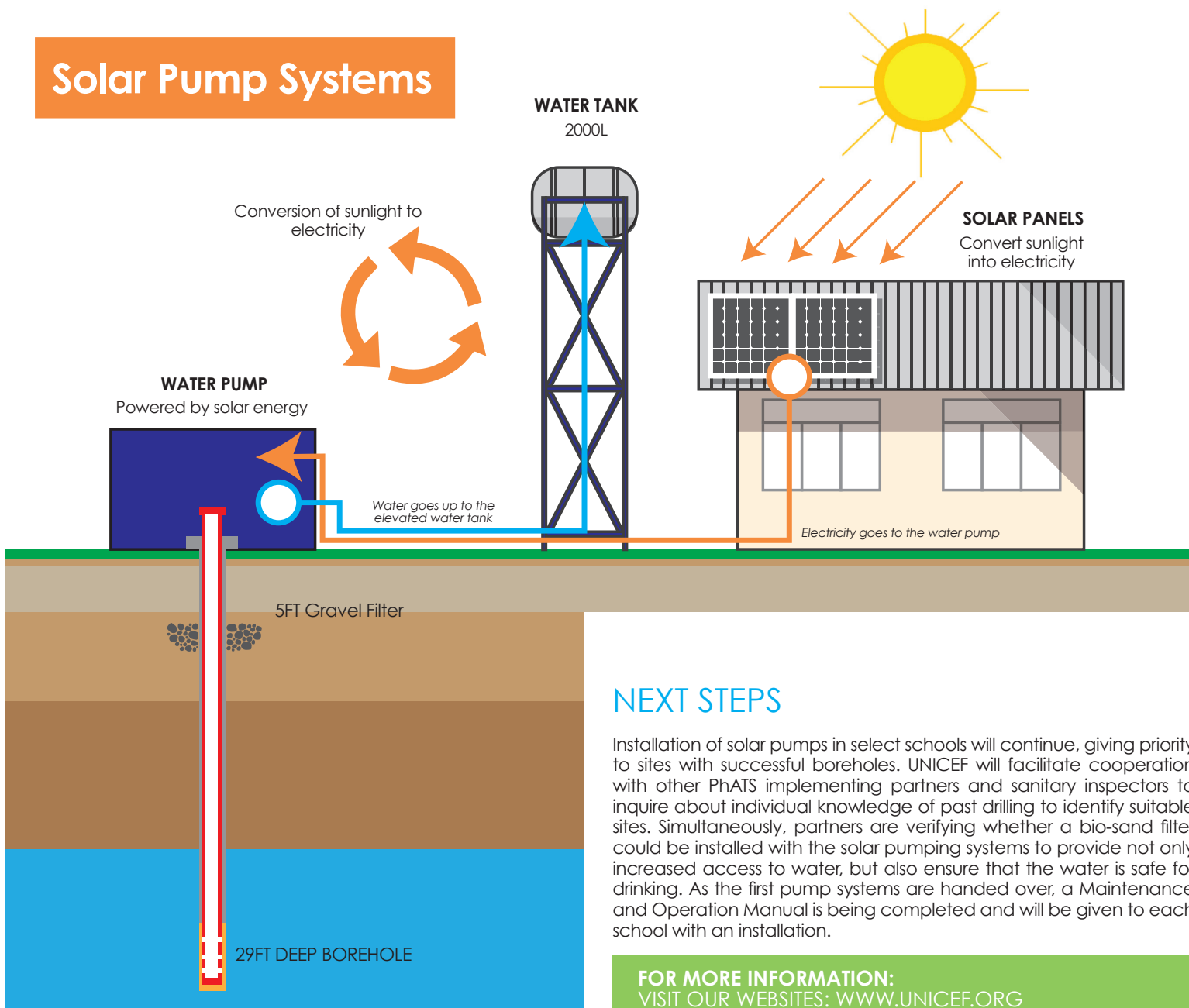
17 HANDWASHING STATIONS

LESSONS LEARNED

The AN pump installation requires that a 6", 30ft deep borehole be drilled. As drilling a borehole of that size is often labor intensive, occasionally requiring days to complete if the soil profile includes hard rocky layers, an alternative source of sustainable water supply was needed. A standardized rainwater harvesting system was developed to allow for this need. At the same time, different methods and providers of borehole drilling were tested to improve results matching design of pumps. In order to mitigate costs, AN and UNICEF have started exploring ferrocement construction as an alternative to the traditional cement water storage cisterns.

Sustainable operation and maintenance is ensured by the involvement of local water utility servicemen who are trained in installation and maintenance of the system and will provide support within a service agreement for two years after project completion. The Parent Teacher Association (PTA) is involved in planning and implementation to ensure ownership and appropriate handling and safeguarding of solar panels in case of typhoon warning or extended school holidays. Close cooperation with the Department of Education allows for hygiene education to be coordinated with installation of solar pump systems and rehabilitation/construction of WaSha facilities in schools.

Solar Pump Systems



NEXT STEPS

Installation of solar pumps in select schools will continue, giving priority to sites with successful boreholes. UNICEF will facilitate cooperation with other PhATS implementing partners and sanitary inspectors to inquire about individual knowledge of past drilling to identify suitable sites. Simultaneously, partners are verifying whether a bio-sand filter could be installed with the solar pumping systems to provide not only increased access to water, but also ensure that the water is safe for drinking. As the first pump systems are handed over, a Maintenance and Operation Manual is being completed and will be given to each school with an installation.

FOR MORE INFORMATION:

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