

Annual Report of Project Well of 2022-2023

[Project Well](#) is a California-based nonprofit that has been a tax-exempt 501(c)(3) organization since 2004 (EIN# 20:1306611). Project Well has collaborated with [Change Initiatives](#), a Kolkata-based non-government organization (NGO), since April 2021.

For more than 15 years, Project Well has provided safe drinking water through specially designed wells for arsenic-contaminated villages in the State of West Bengal, India. In the two pandemic years of 2020 and 2021, Project Well continued to implement and manage this scientifically-based program, with some change in methods, until January 2022. Then in February 2022, regular field activities resumed. The monthly surveys by field staff visiting the water sites were done to observe the physical condition of the wells, their water quality, and the number of consumers.

Health meetings resumed in September 2022 when it was safe to visit homes and meet with the family members and sometimes their neighbors. These community meetings are held to discuss how after years of exposure, arsenic in drinking water can cause many serious diseases, including cancers of the lung, bladder, kidney and larynx, and cardiovascular disease including acute myocardial infarction. **Childhood arsenic exposure is linked to very high risks of disease as adults, higher than from any other toxic early life exposure.** The only human exposure with higher mortality risks is active cigarette smoking--yet in contrast to cigarette smoke, arsenic-contaminated water is crystal clear, and looks and tastes clean, so people do not realize they are ingesting a poison. In India, millions of people of the Ganges-Meghna-Brahmaputra belt are at risk of arsenic health effects. Levels of arsenic in West Bengal groundwater are among the highest in the world. Risk assessments based on epidemiologic studies show that 1 in 100 people could ultimately die from regularly ingesting just 50 µg/L of arsenic in water (an arsenic level often greatly exceeded in the private tubewells of many West Bengal villages). West Bengal's population was about 91 million in 2021.

Our achievements

Construction, Installation, and Status:

Bi-tech wells and low-cost toilets

Project Well has modified the traditional local dugwell into customized modern bore-dugwells, known as bi-tech wells, that tap water from the upper arsenic-free aquifer.

In the months of April, May, and June of 2022 construction of six unfinished bi-tech wells of the previous year (2021) were completed (Figure 1, 2, 3, 4, 5 & 6). Concurrently, field staff were

instructed to select 16 sites for new wells, out of which six sites were finalized that met the site selection check list (reference: [Project Well Guidelines](#), pg 10) .

In the budget year of 2022-2023, 16 bi-tech wells, and 40 toilets were constructed. During the months of July, August and September, 10 sites for bi-tech wells were finalized and pilot tests to assess the depth of the water-bearing sandy layer and presence of arsenic in the private tubewells were also performed. After one month, the water of the pilot shallow tubewell is analyzed for arsenic. Simultaneously, during this second quarter, 34 sites were selected for toilets to be constructed for low-income families.



Figure 1: PW365_Ghoraghata, Chakdah



Figure 2: PW366_Ghetugachi, Chakdah



Figure 3: PW367_Keotali, Swarupnagar



Figure 4: PW368_Gopalpur, Swarupnagar



Figure 5: PW369_Hugli, Swarupnagar



Figure 6: PW364_Gobardanga, Gaighata

Forty toilets were constructed during the months of October, November and December and construction of 16 bi-tech wells was completed. During the process of site selection, 71 sites were seen. Two methods were used to select sites this year: (a) sharing the video of the site and its surrounding area by the field staff in charge and (b) the checklist. These sharing were done over the WhatsApp with the assistant director, field office manager, director of Project Well and the technical

advisor and if the sites were approved then a final inspection was done by the assistant director and the field office manager by visiting the sites.

Based on the survey report of January 2023, there are currently 207 active wells. There has been an increase of 31 working wells from the previous year, including six new wells. Out of these 207 water sources, 112 are working well and used efficiently for cooking and drinking purposes, while 23 are used for other purposes, such as washing and bathing; 18 need maintenance and 3 are dry.

An assessment of the monthly survey reports shows that the number of beneficiary **families** has increased from 1971 to 2598 between January 2022 and January 2023. The number of **consumers** went up from 8859 to 10738. This increase of 2458 consumers is due to the continuous maintenance of the wells by the field staff, with good coordination and monitoring by the newly appointed assistant director.



Figure 8: Toilet PW49T227_Kamdebkathi, Deganga

Iron Removal Filters:

This year, instead of the metallic-alloy-steel Iron Removal Filters, a trial is being conducted of a 200 liter double layered polyvinylchloride (PVC) plastic drum (Figure 9). It is packed with charcoal, gravel and sand to remove iron and other impurities and odor. This one container filter is cheap with very low maintenance. The flow of water is good. The user community of the well ID# PW320 (constructed in 2014) appreciates the change very much. The filter was installed on 24th February 2023. That month, the number of user families increased from 78 to 100 and the number of consumers from 350 to 450. In another block, one more locally available similar 200 liter plastic drum is being installed and observed for a month. If the response from both communities is positive, then 13 more such filters will be installed at 13 new wells.

Figure 9: The drum filter is installed at the well ID# PW320 on 24th February 2023 as a pilot test. This well water contains high levels of iron, and hence two previous metal filters became defunct. This filter is made of polyvinylchloride (PVC) that is double layered. [Sintex](#) is a company that manufactures water storage tanks. Such tanks or water drums are used for residential and commercial purposes in India.



Surveillance and Maintenance:

Every year, we conduct surveillance on all wells, including monthly community visits. The well water is also monitored for arsenic and pathogenic bacteria (total coliform and fecal coliform). This year the arsenic test, using the palintest field kit, was done on 145 wells including bitech wells and modern dugwells, 18 pilot tests, 120 shallow tubewells, 24 deep tubewells. In total, 310 samples were analyzed by the field office manager with the help of field staff.

Bacteria tests have been done through Briggs laboratory, a Kolkata-based reliable laboratory that Project Well has used before. Eighty water samples were collected by the representatives of the laboratory (Baduria, Deganga and Habra-22 wells; Gaighata-19 wells; Swarupnagar-19 wells and Chakdah-29 wells). These samples were collected in October and November 2022.



Figure 10: Maintenance of PW365 in Chakdah



Figure 11: PW 358 filter maintenance in Swarupnagar



Figure 12: PW207_Replacement of the filter drums on 22nd Nov 2022

Priority is given to maintaining the wells and the iron removal filters (IRF). From January 2022 to January 2023, 725 maintenance sessions took place. The maintenance was generally minor, often related to the hand pump like changing the valve, washer, nuts, plunger, base plate and the delivery pipe at the base of the hand pump. The lift-and-force pump that is attached to the iron removal filters was repaired 215 times at different wells. The IRF filters were washed 60 times. This regular maintenance has been instrumental in increasing the number of consumers by 2458 in one year.

Awareness meetings:

Awareness programs resumed in September 2022. There were 139 meetings, of which 31 meetings were held with women, and 108 meetings were held where men, women and children were included. To increase the use of water, door-to-door meetings were held with the families where the water was being used by less than 7 families.



Figure 13: PW 364 – Health Meeting at ICDC school on



Figure 14: PW220 – Health Meeting at Taranipur, Swarupnagar on 14th February 2023.



Figure 15: PW242 – Door -to-door health Meeting at Tengra, Chakdah on 14th March 2023

Administration and meetings

Several office meetings are held every month: two by the assistant director and one by the field office manager. In addition, meetings are held in the field by the assistant director and the field staff in charge of the respective blocks. The accountant attends one monthly office meeting and also visits the sites at all the blocks whenever possible.

As per the attendance record, the assistant director has visited the field 30 times in one year from January 2022 to December 2022. The technical advisor has visited six times, the director at Change Initiative visited twice, and the President of Project Well visited four times in July 2022 and three times in January 2023 during visits from the United States. The Treasurer of Project Well visited twice, once in July 2022 and once in January 2023.



Figure 16: PW55 - Inspection of well(s) at Gaighata and Swarupnagar on 21st November 2022.



Figure 17: Office meeting of the field staff, technical advisor and accountant on 14th November 2022.



Figure 18: Six out of nine field staff ready to go to the field work after office meeting on 28th October 2022.



Figure 19. Office meeting on 21st August 2022



Figure 20: Office meeting on 8th July 2022



Figure 21: Discussion with advisor (geologist) on 10th March 2023

Goals for construction of wells and toilets in the upcoming year

Our first new construction target goal for 2023 is to construct 10 bi-tech wells. We hope these will be completed by March 2024. **These 10 bi-tech wells will** cater water to 400 **people** (with 40 persons per well). We also plan to construct **40 toilets** for 40 families with about 5 persons in each family, and to install 15 iron removal filters (10 for the new bi-tech wells and the remaining five for existing wells that now contain organic odor, fine sand, or high iron levels).