

# Arsenic Free Drinking Water: A Success Story

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People who try can never be defeated... Poet Sohan Lal Dwivedi

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Awareness regarding water is increasing among rural farmers and therefore, demand for clean and pure water is increasing day by day. Rural areas need over 8000 litres of refined water per day but as there is only one pond, people are getting only 4000 litres. To deal with this issue, a new pond measuring 180 feet in length, 80 feet in width and 18 feet in depth is being dug near the existing pond. The capacity of this new pond will be same as that of existing one. If it gets ready soon, supplying pure water to 400 more families will become possible.

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An honest effort was attempted against Arsenic in Madhusudan Kathi village in North 24 Pargana district of West Bengal. That effort is now reciting a success story today.

It can be said that a revolution against Arsenic has started in this village, which will take an even larger form in coming days. With the help of Madhusudan Kathi Samanvay Krishi Unnayan Samiti, Sulabh International and 1001Fontaines, an international organization, a water treatment Plant of 4000-litre capacity has been established in Madhusudan Kathi village. This Plant is supplying clean water to 400 families of Madhusudan Kathi, Vishnupur, Tegharia and three other nearby villages at the rate of 55 Paisa per litre.



Kalipad Sarkar, Advisor of Madhusudan Kathi Samanvay Krishi Unnayan Samiti said, 'I never imagined that a water treatment Plant will be established in my village which will prove helpful to thousands of people.' He said that generosity

and shared effort have made this possible. A total of Rs 20 Lakhs were spent to establish the Plant.

Madhusudan Kathi Samanvay Krishi Unnayan Samiti contributed one acre land and manpower. 1001Fontaines and Sulabh International provided technical and financial help respectively. This is how a very important project was executed.



Adheen Pramanik, arsenic affected farmer from Vishnupur village said, 'It is because of this Plant that I am being able to access clean water today.' Another villager from the same village, Vasudev Pramanik said, 'I am suffering from Arsenic, therefore the Plant is providing me water free of cost but seven other members of my family are having to drink arsenic contaminated water.' He further said, 'I am afraid that my family members would also get affected by arsenic. We want that other members of our family also get filtered water.'

Like Pramanik, other farmers are also becoming aware about the importance of water and therefore the demand for clean and pure water is increasing day by day. Mr. Sarkar said, 'The daily requirement for filtered drinking water is 8000 litres, as there is only one pond, we are able to provide only 4000 litres of water to the public. If we purify more water the pond will soon become empty and it may result in a water crisis.' Mr. Sarkar has found a solution to this problem. A new pond measuring 180 feet in length, 80 feet in width and 18 feet in depth is being dug near the existing pond. The capacity of this new pond will be same as that of existing one. If it gets ready soon then 400 more families can be provided pure drinking water.

Professor K. J. Nath, Advisor, Sulabh International and Former Director, All India Institute of Health and Hygiene said, 'Except for Ultra Violet Rays (UV Rays), the entire technique is generic. Any person can establish such a Plant. There is no need for any patent to set up such a Plant'

In this technique, Alum and Chlorine have the most important role in water

purification. Kalipad Sarkar says, 'Only 100 gramss of Alum and less than 50 gram of Chlorine are required to make 4000 litres of water potable. The cost of pumping water from pond to the Plant, refining it and filling it in 20 litre jars comes to just 20 to 25 Paise per litre. We sell it at a rate of 55 Paise per litre. Even after deducting the salary of employees and expenditures on caps and stickers for the jars, we save 1 Rupee. This savings is put into a welfare fund so that more works in the interest of public can be done in future.'

Sulabh International founder, Dr Bindeshwar Pathak said, 'This Plant is a part of the ongoing campaign for accessibility to water. The cost of purifying water through this technique is minimal. This makes it possible to provide purified drinking water to the economically marginalized people at a nominal cost. People affected by arsenic need to take initiatives so that more projects like this one can be established.' He assured about assistance of every kind from Sulabh International.

It has come to our knowledge that Arsenic affected people of a nearby village, Jhaudanga are also willing to establish a similar Plant. Villagers are widening a small pond for this purpose. Villagers are also contacting Sulabh International for the Plant.

The story of establishing the Plant is an interesting one

Although the Plant was established in 2014 but it was conceptualized in 2000 itself. Mr. Sarkar said, 'There was a big flood in our village in 2000. Even the tube wells were submerged in the flood. It resulted in potable water crisis so office bearers of the Village Coordination Committee decided to work towards making the tube wells potable. We built a overhead tank at a considerable height. We pumped up water from the tube wells to the tank through a pipe. We treated the water with Alum and Chlorine. The water was then made available for the villagers. The price of the water was fixed at 10 Paise per litre. The groundwater was contaminated by Arsenic. Even after the treating, it contained 0.02 to 0.04 mg of arsenic. Though our experiment was not fully successful but our effort received appreciation at national level. From then on we started to ponder about how to provide the people drinking water, which was devoid of arsenic. Meanwhile, we contacted office bearers of Sulabh International and in this way an idea took the shape of a project.'

These processes help to purify water

First of all, water from the pond is transferred to a reservoir using a motor. 100 grams of alum and a little less than 50 grams of chlorine are added to this water. The water is stirred in order to dissolve the alum and chlorine. After that, the water is left unattended for 8 hours. After that, the water is poured into a triple-chambered filter bed. The first chamber has silica and gravel. The second chamber has activated carbon. The water passes through both the chamber to reach the third. In the third chamber, water crosses 5 filters including ultra violet rays and reaches the jar.

The Plant will last long provided it is maintained well

Professor K. J. Nath said, 'If maintained properly the Plant can easily last for at least for 10 years. The only mechanical components in this Plant are ultra violet rays and some filters. They might need to be replaced after 4-5 years. The water purification process in this Plant is so economical that if water is sold at double the price, new filters can be purchased from the savings itself. Moreover, one can also take loan to establish this Plant if one wants to. He or she can repay the loan from the profit that he or she will make by selling water in just 6 to 7 years.'

Not effective in purifying Arsenic contaminated water

The technology being used in this Plant is only effective in treating bacterial contamination. This is the reason why pond water is being used in them as pond water do not contain arsenic. To refine water contaminated by arsenic and other chemicals, different technologies are used which are very expensive.