

JalKalp: a sustainable solution to clean drinking water

By Upasana Upadhyaya

A worthy investment for a need so big!

Water is the very essence of human survival. But more than 163 million people in India, the highest number of any country in the world, do not have access to clean water. Even where there is abundance of water resources, the consistent challenge is accessing clean and safe drinking water. Here access does not simply mean safety, it also includes quality, quantity, and reliability, all of which should be used as a measure for water security. Sehgal Foundation's Adaptive Technologies, Water Management team, with support from the Department of Science and Technology, Government of India, developed a low-cost biosand filter called the JalKalp, specially designed for people living in rural communities who have low access to potable water. The steel filter does not require electricity and requires less cleaning. The filter removes biological impurities, arsenic contamination (with adoption), iron contamination, and turbidity. It provides much relief to families who cannot afford high-priced water filters.

Dharmendra Rai, a primary school teacher from Sedukha village, Khanpur block, Samastipur, spent twenty rupees for a water jug of twenty liters to meet drinking and cooking requirements every couple of days. Dharmendra learned about the JalKalp filter from a neighbor and decided to install it in his house. Since then, they have been using water from the filter. He says, "It has provided much-needed relief for my family." His wife, who is a thyroid patient, used to suffer from severe back pain between the neck and shoulder and was undergoing treatment. After starting the consumption of water from JalKalp, she says the pain has gradually decreased. The investment in the filter has saved the family from buying water every week with questionable quality and has also reduced their medical expenses.

Water source matters

A hand pump is a common source for water where the depth of the pump is 60/70 feet. Hand-pump water poured through a diffuser in the JalKalp filter travels through sand and stone gravel where biological and physical processes combine to filter and treat water. Inside the filter, water trickles through tiny pores (spaces) between sand particles. Impurities, pathogens, and turbidity larger than the pores are trapped by the sand and removed. Up to 0.6 liters of water are filtered each minute.



Mahendra Sahini, from Vikrampatti village, Khanpur block of Samastipur, was on medication for high blood pressure for the past ten years. "I had no option but to consume water from a hand pump, which was contaminated with iron and arsenic

and resulted in more intake of medicines besides my continuing medication.” But after being introduced to JalKalp filter in a community meeting he attended, he wanted to install one at home. But he could not afford the household contribution of Rs. 2,500 for JalKalp. He shares, “I am a small farmer with no steady income. My son is physically disabled and unable to work. So when I came to know about JalKalp, I approached one of the staff from Sehgal Foundation and shared my concern. The team decided to waive the contribution part. After I started using JalKalp, I have been able to reduce the intake of medicines. Besides reducing the expense of medicine, my health has also improved.”

Mala Devi from Sedukha village says her swelling due to filaria has considerably reduced, a change she owes to JalKalp water. Although it has not returned to its normal state, her leg has stopped swelling further. Her husband, Umesh Mathur, also had an interesting story to share. Suffering from a gastric problem, Mathur stayed away from drinking tea or eating spicy food. After drinking water for fifteen days from their neighbor’s JalKalp to test and see whether they noticed any improvement in their health, Umesh installed JalKalp in his seven-member household and has been using it ever since. “I had tea for the first time after eighteen years with Dharmendra ji from Sehgal Foundation.”



With a reach of eleven districts, 61 blocks, and 460 villages in Bihar alone, the team has been successful in providing 1,718 filters since 2017. Besides providing the low-cost filter, the foundation team is constantly working toward creating awareness for clean drinking water in rural areas where people are generally ignorant. The team’s aim to promote community health by addressing the incidence of waterborne diseases in selected villages of Bihar is making people more aware about the water they are consuming and what harm untreated water does.

Challenges and way forward

There are challenges with the JalKalp as well, with water being extremely cold during winter because of its steel container and also getting people to adopt and inculcate the habit of treating water through the filter.

Besides promoting the JalKalp filter, the Sehgal Foundation team has worked on a ceramic water filter named MatiKalp unit. Aimed at providing accessibility and affordability for safe drinking water to the poorest of the poor, these filters will cost approx Rs 300 per filter.

(Upasana Upadhyaya is working with Sehgal Foundation as an Ideosync UNESCO Information Fellow)