

From Scarcity to Security: Reviving Safe Water Access through Community-Led Rehabilitation of a Pond Sand Filter in Paikgacha, Khulna

Background

Paikgacha Upazila in Khulna District, situated along the Shibsra and Kapotaksha rivers near the Sundarbans and the Bay of Bengal, lies within Bangladesh's southwest coastal belt — a region acutely vulnerable to climate-induced hazards. Despite facing cyclones, tidal surges, and salinity intrusion, the community's most persistent challenge remains access to safe drinking water.

Groundwater in Paikgacha is heavily contaminated with arsenic, iron, and salinity, rendering it unsafe for human consumption. Consequently, most families rely on rainwater harvesting as their primary water source. However, rainwater systems are expensive to install and maintain, making them inaccessible for poor and middle-income households. As a result, many families store limited rainwater during the monsoon and are forced to consume unsafe surface or shallow groundwater for much of the year — or purchase costly jar or RO-treated water that many cannot afford.

This persistent crisis underscores the importance of community-managed surface water treatment systems, particularly Pond Sand Filters (PSFs), as sustainable sources of safe drinking water in coastal areas. Recognizing this, the GoB–UNICEF 'Technical Assistance to DPHE for Strengthening Community Capacity and Arsenic Mitigation Initiatives to Ensure Drinking Water Safety for All' Project, implemented by EPRC, is working to rehabilitate defunct systems, enhance local capacity, and promote equitable access to safe water.

The Situation in Kazi Musha Village

In Kazi Musha Village of Kapilmuni Union (Ward No. 6), residents once depended on a PSF installed in 2009 within a household compound in Kagojipara community with NGO support. For years, this facility provided safe drinking and cooking water to local communities.

Over time, however, cyclone damage, neglect, and lack of maintenance rendered the PSF inoperative. About five months before project intervention, the system had become completely defunct — the tube-well, filter bed, intake pipe, and protective shed were all damaged.

With no functioning safe water source, 105 families (around 397 people) reverted to unsafe alternatives, heightening the risk of waterborne diseases and deepening their daily hardship.



Project Intervention

Community Engagement and Awareness

Upon identifying the defunct PSF during initial field WASH assessments, EPRC's project team prioritized its rehabilitation. The first step was community mobilization and dialogue.

- Several meetings were held with the original caretaker family and nearby households to discuss the PSF's condition, safe water importance, and the project's technical support capacity.
- Courtyard sessions were organized to raise awareness about arsenic and salinity contamination, safe water options, and the operational principles of PSFs.
- These participatory discussions motivated community members to take ownership of the PSF rehabilitation and commit to maintaining it sustainably.



Planning and Implementation

- Following joint consultations, the community and project team developed a rehabilitation plan that included: repairing the tube-well and fixing the intake pipe from the pond, replacing sand and gravel in the filtration chamber, rebuilding the protective shed, and cleaning and restoring the pond catchment area.
- A detailed cost estimate was prepared. While the project provided technical support and partial financial assistance, community members contributed the remaining costs in both cash and kind. Many residents volunteered their labor, while others contributed small monetary amounts — establishing a community maintenance fund for future repairs. This collaborative model strengthened community ownership and ensured sustainability beyond project support.



The Kagojipara PSF is now fully functional, providing safe and reliable water access to 105 households (approximately 397 people). Families who once struggled daily for potable water can now collect safe drinking water from within their community. Through this joint effort, a critical water source has been restored in Kagojipara village. Residents expressed heartfelt gratitude to the GoB–UNICEF project team and EPRC field staff for reviving the facility and restoring their confidence in community-driven solutions.

This case demonstrates that with modest investment, technical guidance, and genuine community participation, even long-defunct systems can be transformed into sustainable water supply sources. Strengthened community ownership, with households now committed to collective fund-raising for minor repairs.

Lessons Learned

- **Rehabilitation over reconstruction:** Reviving existing, non-functional Pond Sand Filters (PSFs) is often more cost-effective and faster than constructing new systems. Moreover, communities tend to value and maintain assets more actively when they contribute to their restoration.
- **Small investment, big impact:** Even long-defunct water sources can be successfully revived through modest investment when combined with strong community mobilization.
- **Engagement ensures sustainability:** Community awareness and participation are as crucial as technical repairs. Without behavioral change and local capacity building, infrastructure improvements alone cannot ensure long-term functionality.

The revival of the Kagojipara PSF in Paikgacha is more than an infrastructure success — it is a story of community resilience and shared responsibility. Through the joint efforts of local residents, and the GoB–UNICEF project, families have transitioned from scarcity to security, securing a sustainable source of safe drinking water that will continue to serve generations ahead.

