# Solidarités International chlorination pilot – summary

The activities will take place in Burkina Faso.

The pilot project will be implemented in the North and Center-North regions of Burkina Faso. Solidarités International (SI) has maintained bases in Ouahigouya and Kongoussi, located in these two regions, for the last nine years. This longstanding presence has enabled the successful implementation of multiple donor-funded water supply projects

Diarrheal diseases are among the leading causes of morbidity in the target areas, particularly among children under five. In Titao, for example, 63% of medical consultations are linked to waterborne illnesses. Water quality is often compromised, with 25–30% of samples contaminated with fecal coliforms, and household-level water treatment remains limited (20–45% of households), based on data from a multisectoral needs assessment conducted by SI in December 2024. Diarrheal morbidity can reach 24%, with a direct link to 43% of cases of severe acute malnutrition. Infant mortality rates are 72 per 1,000 in the North and 64 per 1,000 in the Center-North. Internally displaced persons are particularly vulnerable due to deteriorating infrastructure, overstretched resources, and heavy reliance on unsafe water points.

During this pilot phase, **fifty (50) water supply systems** will be selected for installation of in line chlorination devices. Selection of the systems will be done at the start of implementation, in consultation with the Regional/Provincial Water and Sanitation Environmental Authorities (DREAE), local governments, and public water service providers where present.

Two chlorination models will be deployed during the pilot phase:

- **Venturi-based injection with on-site production of chlorine solution using electrolysis.** PocEau Pro, a device locally designed in Burkina Faso by BUREX–3eA, uses a Venturi-based automatic injection system with no electricity required. It is installed on the delivery pipe or at the storage tank inlet and uses hydraulic suction to draw chlorinated solution from an external container.
  The system is designed for the types of water network which are typically found in rural Burkina Faso. Compatibility checks will be conducted before installation.
  The chlorine solution will be produced on-site using solar-powered WATA electrolysis kits — a small device that converts water with salt into chlorine solution. This method is ideal for rural or remote areas: it is autonomous, user-friendly, environmentally friendly, and enables communities to reduce dependency on external disinfectant supplies while ensuring regular and effective water treatment.

- **Dissolution of slow-dissolving chlorine tablets.** Using a CTI-8 inspired device — a simple, low-cost, non-electric system designed to disinfect drinking water in gravity-fed rural networks. Built from standard PVC pipes, it guides water over solid chlorine tablets to provide constant and adjustable dosing. Designed for small networks with flow rates up to around 5 $m^3/h$. It uses solid chlorine tablets or pellets which dissolve gradually

depending on incoming flow to ensure proportional dosing. The system allows dosage adjustment via rotation of the dosing tube, enabling ongoing monitoring of residual chlorine levels to ensure safe and effective disinfection. With minimal maintenance, the device will be locally built using simple tools and cost less than $300 USD, supported by local training workshops to foster community ownership and long-term sustainability.

Installation will be conducted by SI's technical teams with trained local artisans, under supervision by technical water services.

Daily management including refills, cleaning, purging, and routine data collection will be handled by existing operators either from local water committees or in some situations hired by local farmers.

Community engagement activities will accompany the project at each site including awareness campaigns, visual tools, involvement of local leaders and influencers to promote chlorine acceptance and local ownership. A kick-off meeting with local, regional, and national authorities will precede deployment to ensure strategic alignment, followed by quarterly coordination meetings to ensure effective project management.

To encourage involvement by technical services, MoUs defining roles and responsibilities will be prepared and signed by all stakeholders.

The estimate of beneficiaries is based on the number of public taps per system, with an expected number of users per tap of 325 (based on a previous survey we have conducted).
Based on this, equipping 50 systems will directly serve approximately 236,000 people.

**M&E / Partnership:**

We have identified an external M&E partner – Impact Water Works (IWW). IWW is a Canadian not-for-profit organization, affiliated with York University's Dahdaleh Institute for Global Health Research. Their team brings deep expertise in water quality monitoring, chlorination optimization, and operational research, including tools such as the Safe Water Optimization Tool (SWOT).

A key strength of this approach is that Free Residual Chlorine (FRC) testing will be carried out routinely by the water system operators as part of ongoing monitoring. IWW will analyse these data in real time and provide regular feedback. This enables us to optimise dosing, detect issues early, and adapt operations as needed throughout the pilot period.

In addition, SI will work with Aquaya as part of a broader partnership between that organisation and Givewell on the pilot project. The division of roles and responsibilities for monitoring and evaluation between Aquaya and IWW is still under discussion.

SI will also collaborate with Mangrove Water on technical aspects of chlorination systems.

| # | Activity | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15 | M16 | M17 | M18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Project launch and meeting with authorities | | | | | | | | | | | | | | | | | | |
| 2 | Signing of memoranda of understanding (MoUs) | | | | | | | | | | | | | | | | | | |
| 3 | Final selection of 50 pilot sites | | | | | | | | | | | | | | | | | | |
| 4 | Technical evaluation of systems and upgrades | | | | | | | | | | | | | | | | | | |
| 5 | Procurement of equipment and chlorine | | | | | | | | | | | | | | | | | | |
| 6 | Installation of chlorination devices | | | | | | | | | | | | | | | | | | |
| 7 | Training of local operators and management committee | | | | | | | | | | | | | | | | | | |
| 8 | Chlorination and FRC / quality monitoring | | | | | | | | | | | | | | | | | | |
| 9 | Community mobilisation and awareness raising | | | | | | | | | | | | | | | | | | |
| 10 | Taste and odour acceptability test | | | | | | | | | | | | | | | | | | |
| 11 | Calibration of the SWOT model and optimisation of dosage | | | | | | | | | | | | | | | | | | |
| 12 | Monthly microbiological monitoring | | | | | | | | | | | | | | | | | | |
| 13 | Household surveys (baseline/endline) | | | | | | | | | | | | | | | | | | |
| 14 | Comparative monitoring of the two models | | | | | | | | | | | | | | | | | | |
| 15 | Quarterly coordination meetings | | | | | | | | | | | | | | | | | | |
| 16 | Interim technical review and adjustments | | | | | | | | | | | | | | | | | | |
| 17 | Final evaluation and capitalisation | | | | | | | | | | | | | | | | | | |

The project is divided into an initial phase (site selection, initial survey, installation of chlorination systems, training) lasting approximately nine months, followed by a monitoring and evaluation phase. The consultant's assignment will need to be adapted to this structure (with the possibility of greater involvement at the start of the project/during the initial phase).