



Rehabilitating Peripheral Health Units to Save Lives



Benguima Grassfield Maternal and Child Health Post before renovation.



Benguima Grassfield Maternal and Child Health Post after renovation.

BACKGROUND

Sierra Leone, a small country of 7 million people, was devastated by the Ebola virus disease outbreak, which killed nearly 4,000 people between May 2014 and January 2016. The response to the outbreak highlighted critical challenges and gaps in the country's health system, including the lack of trained peripheral health unit (PHU) personnel; necessary medical equipment; basic infection prevention and control (IPC) practices; and dilapidated or non-existent infrastructure for water, sanitation, hygiene (WASH), and waste management.

Basic WASH infrastructure—which includes available water, waste pits, a functional incinerator, latrines, and hand hygiene stations—allows health workers to practice IPC effectively, which lowers patients' risk for infection and saves lives. A clean, well-maintained facility also gives people confidence in the quality of care, which may increase health care-seeking behaviors and boost attendance, leading to better health outcomes.

To better understand staff capacity and WASH/IPC infrastructure needs in United States Agency for International Development (USAID) priority districts, the Advancing Partners & Communities project conducted a baseline assessment of 268 PHUs in January-February 2016. The assessment showed that—

- 79% of PHUs lacked continuous electricity
- 59% lacked access to water on-site
- 50% lacked a waste pit and a working incinerator
- 53% were in need of repairs.

Based on this assessment, the project and its partners—Action Against Hunger, Adventist Development and Relief Agency, GOAL, International Medical Corps, and Save the Children—and district health management teams selected 110 sites for upgrades to meet WASH/IPC standards and other infrastructure improvements.

WASH/IPC UPGRADES

Clean water and sanitation, the sixth Sustainable Development Goal (SDG) indicator, is poor in Sierra Leone. According to the Demographic and Health Survey 2013,¹ only 10.6 percent of the population has access to a toilet or latrine, and 59.5 percent has access to an clean and safe source of drinking water, placing clean water and sanitation far off-track from the SDG target of 100 percent by 2030. A similar situation was highlighted by the project baseline assessment: of the 268 PHUs assessed, 14 percent had no toilet. Of those that had toilets, 64 percent had toilets that needed repair.

Support to MOHS WASH Standards

The project supported the completion and printing of the 2017 Ministry of Health and Sanitation (MOHS) *Standards & Guidelines for WASH Services in Health Facilities in Sierra Leone*, contributing technical feedback on incinerators, pits, drainage channels, and water storage. The document establishes minimum standards for PHUs and provides specifications for water on site, waste management pits, incinerators, latrine systems, and hand hygiene stations within the PHU, which includes having two stations in the delivery room—either a Veronica bucket (a plastic bucket with a water spigot) or a sink. These guidelines set the standard for future renovations nationally.

BASELINE ASSESSMENT

268 PERIPHERAL HEALTH UNITS



79%

LACKED CONTINUOUS ELECTRICITY



59%

LACKED ACCESS TO WATER ON-SITE



50%

LACKED A WASTE PIT & WORKING INCINERATOR



53%

BUILDINGS WERE IN NEED OF REPAIRS

Rehabilitation

The project used the *Standards & Guidelines for WASH Services in Health Facilities in Sierra Leone* in the rehabilitation of the 110 PHUs. The guidelines recommend that facilities have year-round access to clean potable water that has passed Ministry of Water and Resources (MOWR) quality testing, which evaluates 36 specific indicators (e.g., water temperature, odor, pH balance, and alkalinity). The project improved water supply to the main health post buildings by installing piping, storage, and support structures. This included placing hand washing sinks in critical areas of the PHU: the entrance, the delivery room, the back, and near latrines (whenever possible.)



Sussex Maternal and Child Health Post shower and flush toilet.

¹ Statistics Sierra Leone – SSL and ICF International. 2014. *Sierra Leone Demographic and Health Survey 2013*. Freetown, Sierra Leone: SSL and ICF International.

The project repaired or installed toilets with dedicated septic systems and supported improved waste management systems, with focus on the addition of IPC pits (placenta, sharps, and ash pits) and repairing or building functional incinerators. At some posts, showers and flush toilets were rehabilitated in delivery rooms and soak-away pits attached to drainage channels.

PHU building upgrades and repairs included ceilings, roofs (new corrugated iron sheeting), walls, floors, painting, handicap accessibility, stencils to indicate the type of room in the facility, improvements to windows and doors for security, and provision of medical equipment and non-clinical furniture.

These improvements led 105 of the 110 PHUs to become fully compliant with the minimum IPC and sanitation standards. Building renovations and access to clean water and toilets have enabled staff to improve cleanliness in the PHUs, leading to better IPC.

Bore Holes and Hand-dug Wells

Finding sustainable water in Sierra Leone has always been difficult because of fluctuation in the water table and underground bedrock formations. At the recommendation of both the MOHS and the MOWR, the project dug wells and drilled boreholes from March–June.

Three new hand-dug wells were installed and 59 existing hand-dug wells were rehabilitated in a variety of ways (re-deepened, casings added, disinfected, cleaned, and hand pumps replaced). Across the five districts, 26 new boreholes were drilled and water wells completed: four in Western Urban, four in Western Rural, six in Port Loko, six in Bombali, and six in Tonkolili.

The project faced a number of challenges in finding sustainable water sources that would be available 365 days a year:

- In some cases, geophysical survey readings indicated a 70 percent or greater chance of finding sustainable water, yet drilling yielded no water.
- Over time, some boreholes and hand-dug wells collapsed.
- At some sites, there was indication of high iron content in the water after boreholes were fully developed, although original water quality tests had shown no iron content.

Borehole projects at any given site consisted of the following stages: 1) geophysical survey(s); 2) drilling and water-quality testing; 3) securing the borehole; 4) installing the water tower and tank; 5) installing piping to the PHU; and 6) installing solar-powered submersible and hand pumps.

Solar Power Installation



Solar light and water tower with tank at Benguima Grassfield Maternal and Child Health Post.

To install solar power systems, the project hired solar photovoltaic electrical contractors that had existing operations in Sierra Leone. The contractors provided all labor, materials, tools, and equipment to undertake the installation of solar power systems.

The project's solar technical specifications for PHUs were developed in cooperation with and approved by the MOHS. 108 of the 110 PHUs received eight LED bulbs producing a minimum of 500 lumens each, with two waterproof fixtures for installation outside the entry/exit doors. Because of past problems with solar panels mounted on PHU roofs, the panels were mounted outside the PHUs on 12 ft. poles with supporting frames and protected with anti-theft screws. The systems provide a minimum of 10 hours of continuous nightly operation and can recharge a hand-held lantern (or head lamp), as well as mobile phones.



26

NEW BOREHOLES WERE DRILLED AND WATER WELLS COMPLETED



59

EXISTING HAND-DUG WELLS WERE REHABILITATED



3

NEW HAND-DUG WELLS WERE INSTALLED

“PATIENTS WHO COME FOR TREATMENT NOW HAVE ACCESS TO CONSTANT WATER IN THE TOILETS, IN THE LABOR ROOM AS WELL AS OUTSIDE THE FACILITY FOR REGULAR HANDWASHING. BEFORE, IT WAS DIFFICULT FOR US TO PRACTICE EFFECTIVE WATER SANITATION AND HYGIENE (WASH) AND INFECTION PREVENTION AND CONTROL (IPC). WE ARE HAPPY THAT THIS WORRY IS OVER.”

—Doris Kargbo, Maternal and Child Health Aide and In charge of Benguima Grass Field Maternal and Child Health Post, Western Area Rural District.

INNOVATION

Throughout this effort, the project and its partners looked for ways to improve processes and methods, especially related to sustainability and community ownership. The following are two examples of project-derived innovations that helped promote safe maternal deliveries at the PHUs.

Tokeh Maternal and Child Health Post, located within Western Area Rural District and supported by Save the Children, was one of the PHUs that received a borehole. Because boreholes should only be drilled when the water table is low, several sites, including Tokeh, had to wait. As an interim solution, the project installed a rain-water harvesting system that captures rain through the PHU's gutters and channels it to a 2,500 liter storage tank. The tank is connected to the maternity ward bathroom, piping clean water to the sink, toilet, and shower for more sanitary births.



Rain-water catchment system at Tokeh Maternal and Child Health Post.

At the beginning of the project, the community of Rofoindu in the district of Port Loko had no road access to its PHU. This prohibited vehicle traffic, which made it impossible to bring water to the PHU. To solve the problem, the community decided to build a bridge so the borehole contractor could access the PHU and investigate water access possibilities. Because of this initiative, the project was able to drill a borehole and the PHU and its clients now have year-round access to potable piped-in water.

THE WAY FORWARD

To ensure sustainability for the improvements done, the Advancing Partners & Communities project used a community engagement approach to work with beneficiaries, PHU staff, and the District Health Management Team. In each of the 110 communities that received PHU rehabilitation, the project activated or re-activated facility management committees (FMCs). The FMCs engage community members and PHU staff to increase community ownership for the day-to-day activities at the PHU and ensure that health workers are accountable to their community. Through capacity building done with FMCs, they now monitor, maintain, and care for their PHUs through individual facility improvement plans and management plans provided by the project. The role of the FMCs within their community and their link to the facility will contribute to the sustainability of the rehabilitation work.

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