



## EMERGING LEARNING

# Ensuring the Quality of Sanitation Products During Project Scale-up

## Introduction

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Benin is a West African country of more than 11 million people, nearly half of whom live in urban areas. According to the 2018 national health survey<sup>1</sup>, only 22% of the urban population use basic sanitation facilities, while 26% of Beninese use shared toilets, and 38% practice open defecation. Achieving universal access to basic sanitation has been out of reach, largely due to the lack of affordable, high-quality, and accessible toilet options available to consumers.

To address this challenge, the USAID-funded Sanitation Service Delivery Project (SSD) uses a market-based approach to optimize the design of sanitation solutions and reduce the cost of pour-flush double-pit latrines, marketed as the “WC Mimin” brand. In its fourth and fifth years, the project has been scaling up product sales through private sector actors, with a focus on ensuring the quality of pre-fabricated toilet components and installation.

## Program Approach

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### Market-based approach

SSD uses a market-based approach to increase access to sanitation. This includes identifying and supporting private sector actors to produce pre-fabricated latrine materials and install household latrines. Through the provision of training, equipment and start-up materials, and sales and marketing support, the project is developing a profitable and sustainable service sector to offer toilets to low-income urban households.

### Product

Project-affiliated businesses are building and installing toilets under the WC Mimin brand developed by the project. WC Mimin toilets are manual-flush latrines with two alternating-use offset leach pits and a seated user interface that includes a SATO pan. This improved latrine eliminates odors and keeps away flies and other insects that spread disease. Its target market is low-income households living in urban and peri-urban areas in Benin.

## Intervention

The project team developed a capacity-building program to enable selected construction entrepreneurs and masons to become experts in constructing WC Mimin latrines. Initially the program included three days of formal training, two of which were dedicated to hands-on practical training, followed by project oversight of the first five toilets installed by each entrepreneur or mason. This oversight, conducted by the project's engineer, included evaluation of the following quality parameters:

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- Pre-fabricated components: Concrete ring pit liner and latrine slab met strength/resistance standards; compliance with specified slab thickness and diameter; correct size of the slab opening.
  - Latrines: Specified distance between the two pits and between the latrines and a water source; compliance with structure size; proper installation of the seat and pan to guarantee elimination of odors and insects; proper installation of SATO pan for flushing with limited water.
  - Poor quality finishing of toilet components;
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After casting pre-fabricated components for five toilets and installing five toilets that met the quality standards, an entrepreneur or mason was declared capable of supplying quality products.

## Challenges

WC Mimin is a relatively simple, mostly standardized product that relies on prefabricated parts. Because the project partnered with existing construction entrepreneurs, the SSD team anticipated that entrepreneurs would be capable of working on their own after three days of training, followed by on-site supervision during the first five toilet installations.

However, this approach quickly proved to be insufficient. Of the first 100 latrines installed by project-supported enterprises, more than 20% had problems with the quality of the pre-fabricated components or the installation. The most common quality issues were:

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- Digging pits too close to water sources and digging pits too deep, risking contamination of the water table;
  - Non-compliance with protocols for producing pre-fabricated components, including using incorrect proportions of materials for mixing concrete, use of pipes that were the wrong size, and failure to adequately cure concrete rings;
  - Incorrect slope of pipes leading to offset pits;
  - Connecting the pipe from the handwashing station directly into the toilet, leading to bad odors;
  - Poor quality finishing of toilet components;
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Problems were exacerbated by a successful communications campaign that led to a rapid increase in demand. Entrepreneurs who were just learning to install toilets accepted too many orders to fill in a short time period, leading them to cut corners and compromise quality.

While the SSD team quickly rebuilt the poor-quality latrines, avoiding similar issues in the future was essential for preserving WC Mimin's reputation as a high-quality toilet product.

## Solutions

### *Increased oversight*

In order to resolve the issue of quality control, the project team first tasked its field-based sales agents with monitoring the manufacturing and installation of WC Mimin latrines. Unfortunately, this approach was unsuccessful. Without experience in construction engineering, the sales agents lacked the technical capacity to advise the entrepreneurs. In addition, this added task negatively impacted the time sales agents had to fulfill their main responsibility of demand generation activities and household sales.

Next, SSD established a quality oversight team composed of the project's sanitation engineer, a government hygiene and sanitation officer, high-performing masons, and a municipal technical officer. In addition, the project also recruited recent graduates with relevant education to work as interns on the quality control team. Collectively, this team oversees quality before, during, and after toilet installation.

The project engineer and interns focus primarily on ensuring the quality of pre-fabricated components. They make a surprise visit to every entrepreneur/mason every month to check for proper mixing of concrete, sufficient curing, and correct size of pre-fabricated components. A sclerometer or Schmidt Hammer is used to test the strength of concrete components, and those that don't meet standards are destroyed.

The high-performance masons, hygiene officers and municipal technical officers focus on ensuring the quality of latrine installation in their respective geographic areas. Thus far, the project has found that at least three additional supervision visits by high-performance masons during latrine construction are required to reliably improve the quality of work by poorly performing masons. The project pays the supervising masons \$10 per day to supervise a construction site.

As the project has expanded to new geographical zones, engagement of local government and market actors to oversee quality in places further from the project headquarters has been critical for providing necessary oversight. This team verifies the quality of every WC Mimin installation.

### *Standardization*

One specific quality problem centered around the standardization of production tools to make prefabricated toilet components. Some entrepreneurs did not have a sufficient number of concrete ring molds to meet growing demand and began to manufacture their own imitation molds. These molds were not made according to specifications, resulting in low-quality concrete rings. In response to this issue, the team standardized all molds and gave them to the microentrepreneurs as part of a comprehensive starter kit. Once the molds were standardized, all prefabricated rings had the same technical specifications.

### *Quality protocols*

In an effort to further standardize manufacturing and installation of prefabricated components, the project team established a quality control protocol and checklist that is used by all project staff and partners that provide quality oversight. The team also provided all microentrepreneurs with a quality control reference guide, which includes the construction guidelines as well as the required measurements and dimensions of materials used in the construction of latrines.

### *Continuous learning*

Both project staff and individual entrepreneurs continually look for ways to improve the product offering and lower costs, without compromising quality. To share these innovations and reinforce a culture of quality, the project offers ongoing learning opportunities to affiliated entrepreneurs/masons, including provision of technical guides with clear, step-by-step guidelines and refresher trainings after three months of building WC Mimin toilets. In addition, entrepreneurs are invited to attend one workshop every three months, where they share best practices and provide peer education.

### *Ensuring customer satisfaction*

A quarterly customer satisfaction survey is conducted to ensure that customers are happy with their final product, as well as with the professionalism and timeliness of the service they received. This survey helps ensure that entrepreneurs are following protocols between oversight visits.

### *Project sustainability*

Upon completion of the SSD project, capacity building and quality control will be managed by the municipal governments, as mandated by sanitation law in Benin. Project-affiliated microentrepreneurs will organize themselves into associations, which will receive support from the municipality for the sustainable supply of sanitation products and quality controls. The SSD team has worked collaboratively with government stakeholders, municipalities, waste operators and SSD project partners to develop a sustainability plan, in order to ensure that the high quality of sanitation products is maintained after USAID funding ends.

## **Results**

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Strengthening quality oversight has yielded impressive results.

- More than 90% of pre-fabricated toilet components meet technical standards;
- More than 90% of installed toilets comply with quality standards;
- More than 95% of customers are satisfied with the service and product they received;
- Involvement of government officers has led to commitments from municipal authorities to continue playing a role in ensuring quality of latrine construction after the Project period;
- Through offering internships to recent graduates, SSD has trained the next generation of sanitation professionals;
- Engagement of high-performing masons has helped develop a cadre of professionals dedicated to continuing to grow the sanitation market.

## **Lessons Learned**

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Standardization and a protocol for continuous quality oversight must be established at the beginning of any effort to develop a sanitation market. Failing to assure quality from the start jeopardizes the value proposition of a new product and can discourage both consumers and businesses from engaging in the sanitation market.

Important lessons learned include:

Entrepreneurs/masons building a branded, standardized product require **access to standardized molds** for prefabricated components and should be discouraged from producing their own molds. In a fledgling market, project funds may be needed to supply molds.

Entrepreneurs/masons need **practical tools**, such as established quality control protocols and latrine construction reference manuals.

Following training and supervision of the first several latrine installations, **unannounced monthly visits to test pre-fabricated components are effective for improving quality.**

Skilled entrepreneurs and master masons acting as **peer educators** can cost-effectively improve performance of less skilled masons through additional on-site coaching. Continuous opportunities for entrepreneurs/masons to **share experiences** improve quality and promote innovation.

By law, municipal authorities are accountable for ensuring compliance with sanitation standards. **Involving those authorities in routine quality assurance activities** is a promising approach for nudging municipalities to commit to this responsibility.

## References

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<sup>1</sup>The 2018 national health survey.

[https://www.insae-bj.org/images/docs/insae-statistiques/sociales/Sante/Enquête\\_Démographique\\_et\\_de\\_Santé\\_au\\_Bénin\\_\(EDSB\)\\_de\\_2017-2018.pdf](https://www.insae-bj.org/images/docs/insae-statistiques/sociales/Sante/Enquête_Démographique_et_de_Santé_au_Bénin_(EDSB)_de_2017-2018.pdf)

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Population Services International (PSI) is a global nonprofit organization focused on the encouragement of healthy behavior and affordability of health products. PSI was founded in 1970 to improve reproductive health using commercial marketing strategies and has expanded to work in over 50 countries in the areas of malaria, family planning, HIV, diarrhea, pneumonia and sanitation. PSI is headquartered in Washington, DC.

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## About Sanitation Service Delivery

The Sanitation Service Delivery Program (SSD) is designed to improve sanitation outcomes for the urban and peri-urban poor through developing and testing scalable, market-based models that contribute to structural change within the region's sanitation sector.

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## Our Partners



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