



USAID/WEST AFRICA SANITATION SERVICE DELIVERY PROJECT

Better fecal sludge management in Côte d'Ivoire

User research on improving storage and containment

BACKGROUND

The Sanitation Service Delivery (SSD) program is a United States Agency for International Development (USAID)/West Africa urban sanitation project being implemented in Benin, Côte d'Ivoire, and Ghana by Population Services International (PSI) in collaboration with PATH and Water and Sanitation for the Urban Poor (WSUP).

The goal of the SSD project is to improve urban sanitation outcomes through developing scalable, market-based models that contribute to structural change within the region's sanitation sector with an initial focus on the cities of Cotonou (Benin), Abidjan (Côte d'Ivoire), and Accra (Ghana), and Kumasi (Ghana).



*Informal housing in Attécoubé commune of Abidjan, Côte d'Ivoire.
Photo. Population Services International*

GOAL/OBJECTIVE

Côte d'Ivoire is experiencing unprecedented population growth, particularly in its largest city, Abidjan.ⁱ The country's sanitation indicators show roughly one-third of the urban population has access to improved sanitation facilities.ⁱⁱ Data from the National Office of Sanitation and Sewerage in Côte d'Ivoire indicates 60% of urban residents in Abidjan use onsite sanitation facilities.ⁱⁱⁱ Fecal sludge management (FSM) remains a problem, with transfer stations needing maintenance, emptying trucks removing

only liquid (not solid) waste, low-quality and leaking storage and containment tanks, and illegal dumping of waste.

Formative market and product landscapes conducted by PSI and PATH highlighted additional challenges related to storage and containment in Abidjan: (a) limited supply of affordable, appropriate, and quality products; (b) non-hygienic and low quality emptying services; (c) limited space and access to tanks; and (d) lack of trust between clients and fecal sludge (FS) emptying service providers.

MEETING USER NEEDS—IMPROVING CONTAINMENT

Based on the findings from the formative research, the PSI Côte d'Ivoire team prioritized improved storage and containment products, in particular, identifying existing and/or developing new, lower-cost septic tank designs. The hypothesis was that improved products would lead to (1) more hygienic management of FS, (2) improved efficiency and effectiveness of emptying services, and (3) reduced environmental contamination.

ACTIVITY DESCRIPTION

In April 2015, PSI Côte d'Ivoire and PATH conducted market- and product-specific research on FSM technologies and practices. The overall goal was to develop a list of affordable FS containment technologies or designs appropriate for Côte d'Ivoire that could be piloted by the SSD team.

Specific objectives included:

- Better define user- and market-actor needs and desires.
- Characterize existing sanitation products and services.
- Identify locations for pilot testing potential products.

PSI conducted interviews with tenants (n = 7), landlords (n = 10), and septic tank manufacturers and vacuum truck operators (n = 5) in three communes in Abidjan: Attécoubé, Abobo, and Koumassi. Eleven site evaluations (n = 11) were also completed.



PATH and Population Services International project team members take measurements to determine space constraints for septic tanks in the compounds and households. Photo: Population Services International.

KEY STUDY FINDINGS

Research results validated previously collected insights and generated additional, in-depth information about user needs and experience around FS storage and containment.

Feedback on septic tanks and FSM

- Variable definition of a septic tank.
- Neighboring compounds not interested in a shared tank.
- Cost and space are top concerns.
- Manufacturers decide what type of tank is installed based on their perception of consumers' ability to pay.
- Potential to connect existing compound systems to public sewer network.
- FS removal costs ranges from 24,000 to 80,000 CFA (Central African Franc)
- Consumers not satisfied with quality of FS emptying services (bad odors, spilling, and partial emptying).
- Customers prefer annual sludge removal frequency.

ⁱ African Development Bank. Tracking Africa's Progress in Figures. Tunis: African Development Bank; 2014. Available at: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Tracking_Africa%E2%80%99s_Progress_in_Figures.pdf.

ⁱⁱ World Health Organization/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation. June 2015. Accessed April 20, 2016.

Product specifications, materials, and cost

- Seven septic tank and onsite digester designs analyzed.
- Majority constructed of cement and brick.
- Maximum users ranges from 10 to 100.
- Area required for tanks is 2m² to 42m².
- Product costs range from US\$300 to US\$6,500.
- Plastic products exist, but are expensive.

Compound site characteristics

- Varied water table depths, from standing water to >3 m.
- Average open area: 12m × 10m (or 120 m²).
- Almost all entrances within 5 m of main road.

CONCLUSION

User feedback clearly showed shared containment between neighboring compounds is not a desired option. Findings also showed additional improvements are needed around functionality, design, and cost of products. Building capacity and improving service provision of manufacturers and sludge-removal actors could further improve FSM practices, as well as increase awareness of product requirements and fecal sludge emptying regulations for demand and supply-side users.

Following the completion of this research study, additional information was collected on the potential commercial viability, user acceptability, and technical feasibility of storage and containment technologies. Two product solutions—an improved septic tank design and an onsite biodigester system—will be explored in the coming months in Abidjan, with an initial priority on improved septic tank designs.

http://www.wssinfo.org/fileadmin/user_upload/resources/Cote_d_Ivoire.xls

ⁱⁱⁱ Nodalys Conseil. Evaluation of the lease contract for the maintenance and operation of networks and sewerage and drainage works in the city of Abidjan. Paris: Nodalys Conseil; 2012.



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