



How to Assess the Size of a Sanitation Market and Segment It

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INTRODUCTION

Any market-based intervention must be based on a good understanding of the size and characteristics of the potential market for various products and services in the target areas. This information helps to prioritize activities, define sales and marketing systems that are appropriate for different market segments, and help service providers understand the size and nature of the market opportunity.

In general, potential customers have diverse profiles with different needs and aspirations. To understand a market, it is necessary to group potential customers into submarkets, called “segments,” with similar characteristics, such as behaviors, socioeconomic status, needs, and desires. Depending on the size and characteristics of these segments, targets can be defined, and a marketing strategy adapted to the objectives and resources available can be developed.

Ultimately, being able to show the market size and its characteristics will also help to stimulate public and private investments in the sanitation sector toward the products most likely to contribute to the sustainable economic viability of the sanitation market.

Step 1: Compilation of Key Data

Initially, the assessment of the market size for sanitation products and services will be based on two types of data:

- **Demographic data:** population, population growth rate, and average household size. If a spatial analysis is planned, disaggregated data should be collected for different levels (regional, communal, or localities).
- **Data on sanitation practices:** rates of improved toilet use, unimproved toilet use, and open defecation (OD).

For a more detailed analysis (for example, potential total demand, effective demand, and so on) it is necessary to collect **indicators related to the standard of living** of households (such as the percent of those living below the poverty line) and the **willingness to acquire and desirability** of improved sanitation products. Figure 1 identifies various data sources to consider at this stage:

FIGURE 1. Data sources to consider

| TYPE OF DATA | SOURCES | CHARACTERISTICS |
|--|--|---|
| Population, population growth rate, average household size | Census of population and housing | Official data per municipality or locality |
| Access rate to sanitation services | Joint Monitoring Programme (JMP) website ¹ (link) | Data disaggregated by year and setting (national, urban, rural) |
| | National sectoral reports | Data by region or by municipality, depending on the country |
| Standard of living indicators: median household income | JMP website | Data disaggregated by wealth quintile |
| | Metrics for Management website (link) | Data by national wealth quintile |
| Willingness to acquire and desirability of improved sanitation products | Surveys | Priority given to sanitation improvements over other purchases |

In practice, it is rare that all of the required data are available. It will likely be necessary to compile data from various sources to achieve a complete database. Only official, locally recognized data should be used.

For the study conducted in Niger, several data sources were integrated. In three communes, demographic data from a more recent census conducted by one of the Resilience Food Security Activities in 2019 was used instead of the 2012 General Census of Population and Housing.

- » **At the end of Step 1, the following should be available: (1) the population data of the area (total, by area, by commune, and by locality), (2) the annual population growth rate(s), and (3) the household access rates to sanitation services.**

¹ World Health Organization/United Nations Children’s Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene

Step 2: Evaluation of the Market Size

The **market size** for a given product or service is the number of people who are likely to need to purchase that product or service. For improved toilets, this population falls into different categories defined by the JMP sanitation scale:

- new households with “safely managed” (SM) or “basic” (B) access who own their own houses and have installed sanitation facilities
- households with shared improved or “limited” (L) access toilets who upgrade to additional stalls or new toilets for more privacy
- households with “unimproved” (UI) toilets who upgrade to improved toilets
- households that practice OD

To determine the size of the market for improved toilets in a given year (N), the following are calculated:

- the number of individuals in the L, UI, and OD categories in year N. These numbers are calculated by multiplying the population in year N by the rate of households in each category in year N.
- the difference between the number of individuals in the SM and B categories between year N and the previous year (N-1). It will be assumed that the number of individuals served in year N-1 are no longer in need in year N.



Assessing the market size for sanitation products and services will require data on demographics and data on sanitation practices.

In the Niger study, calculations were assigned using Excel spreadsheets as shown in figure 2:

FIGURE 2. Spreadsheet used to calculate the size of the market in the Niger study area in 2020

| KEY | | | | | | |
|----------------|-------|---------|------------|-----------------|--|--|
| SM | B | L | UI | OD | | |
| Safely Managed | Basic | Limited | Unimproved | Open Defecation | | |

| %JMP 2020 | | | | | | |
|---------------|------------------|--------------|--------------|--------------|--------------|---------------|
| Environment | POPULATION 2020 | SM | B | L | UI | OD |
| Rural | 1,955,189 | 7.62% | 0.81% | 6.42% | 9.09% | 76.06% |
| Urban | 60,129 | 24.72% | 22.10% | 35.98% | 8.30% | 8.90% |
| GLOBAL | 2,015,318 | 7.88% | 1.40% | 6.88% | 8.81% | 75.03% |

| # JMP 2020 (Individus) | | | | | | |
|------------------------|--|----------------|---------------|----------------|----------------|------------------|
| Environment | | SM | B | L | UI | OD |
| Rural | | 148,985 | 15,837 | 125,523 | 177,727 | 1,487,117 |
| Urban | | 14,864 | 13,288 | 21,634 | 4,991 | 5,351 |
| TOTAL | | 163,849 | 29,125 | 147,157 | 182,717 | 1,492,468 |

| % JMP 2019 | | | | | | |
|---------------|------------------|--------------|--------------|--------------|--------------|---------------|
| Environment | POPULATION 2019 | SM | B | L | UI | OD |
| Rural | 1 885 792 | 7.38% | 0.79% | 6.02% | 8.78% | 77.03% |
| Urban | 57 622 | 24.29% | 21.53% | 34.93% | 9.65% | 9.60% |
| GLOBAL | 1 943 414 | 7.88% | 1.40% | 6.88% | 8.81% | 75.03% |

| # JMP 2019 (Individuals) | | | | | | |
|--------------------------|--|----------------|---------------|----------------|----------------|------------------|
| Environment | | SM | B | L | UI | OD |
| Rural | | 139,171 | 14,898 | 113,525 | 165,573 | 1,452,626 |
| Urban | | 13,996 | 12,406 | 20,127 | 5,561 | 5,532 |
| TOTAL | | 153,168 | 27,304 | 133,652 | 171,133 | 1,458,157 |

| # Market 2020 (individuals) | | | | | | |
|-----------------------------|--|---------------|--------------|----------------|----------------|------------------|
| Environment | | SM | B | L | UI | OD |
| Rural | | 9,814 | 939 | 125,523 | 177,727 | 1,487,117 |
| Urban | | 867 | 882 | 21,634 | 4,991 | 5,351 |
| TOTAL | | 10,681 | 1,822 | 147,157 | 182,717 | 1,492,468 |

To convert this population into **potential sales units**, an average number of individuals (users) per improved toilet will be considered, which will generally correspond to the average household size. An average number of users per shared improved toilet will also be included in order to assess the needs at this level. (For example, if two households share an improved toilet, one additional toilet will be sufficient for each household to have a “non-shared” toilet. Two will be needed if there are three households sharing the same toilet initially.)

In the Niger study, the size of the market for improved toilets was estimated at more than 1,834,000 individuals, corresponding to 293,545 potential sales units, considering a household size of six individuals and two households per shared improved toilet.

TABLE 1. Assessment of market size in the 18 intervention communes of Maradi and Zinder, Niger

| Environment | SM | B | UI | OD | TOTAL |
|--------------|--------------|---------------|---------------|----------------|----------------|
| Rural | | 10,460 | 29,621 | 247,853 | 289,726 |
| Urban | 145 | 1,803 | 832 | 892 | 3,818 |
| TOTAL | 1,780 | 12,263 | 30,453 | 248,745 | 293,545 |

- » **Step 2 will lead to (1) an assessment of the size of the market in terms of the number of individuals, households, and potential sales units; and (2) an initial understanding of the type of needs based on the living environment (urban or rural) and customer profiles.**

Step 3: Market Segmentation

A **market segment** is a group of customers who share similar characteristics with respect to a product category—in this case, sanitation products. Segmentation consists of dividing the market into homogeneous groups that are different from each other, before choosing which groups to target. Thus segmentation is a prerequisite for choosing targets and refining products and services by adapting them specifically to the targeted customers.

Two categories of criteria are used to segment a market: The first category of segmentation criteria is behaviors related to the category concerned (user status, level of use). This segmentation could be coupled with attitudinal criteria (such as beliefs and perceptions), but since the JMP sanitation scale already offers a segmentation in which each category groups individuals with similar **user status**, research was limited to user status (household using a toilet or household practicing OD). This first behavioral segmentation is often called “strategic segmentation” because it is highly predictive of behavior. For example, a household that uses a toilet will want to improve it.

The second category of segmentation criteria is related to geography, psychography, and demography. The criteria describe intrinsic characteristics of clients (**such as geographic location, sociodemographic status, and economic status**). In the Niger study, the degree of urbanization of the locality of residence (city, town, village) was used as the second segmentation criterion. It was chosen on the basis of the observation that the demand for sanitation evolves with the degree of urbanization, as shown by the figures relating to OD (9 percent in urban areas, compared with 76 percent in rural areas). This second category is often referred to as “tactical segmentation.”

The study distinguished six market segments defined by the combination of the two previous criteria, noted below in table 2:

TABLE 2. Market segments defined by the Niger study (size in potential sales units)

| | CITIES | TOWNS | VILLAGES |
|--------------------------|--------------------|---------------------|----------------------|
| Households using toilets | Segment 1 7,600 | Segment 3 4,800 | Segment 5 32,300 |
| Households practicing OD | Segment 2 860 | Segment 4 32,080 | Segment 6 215,900 |

- » **Step 3 will lead to the identification of different market segments whose geographic, socioeconomic, and behavioral characteristics will be studied later.**

Step 4: Characterization of Market Segments

The purpose of this step will be to provide evidence to assess the appropriateness of targeting the different segments identified. To do so, these elements must provide information on the attractiveness of each segment, which is mainly related to their potential demand and profitability levels.

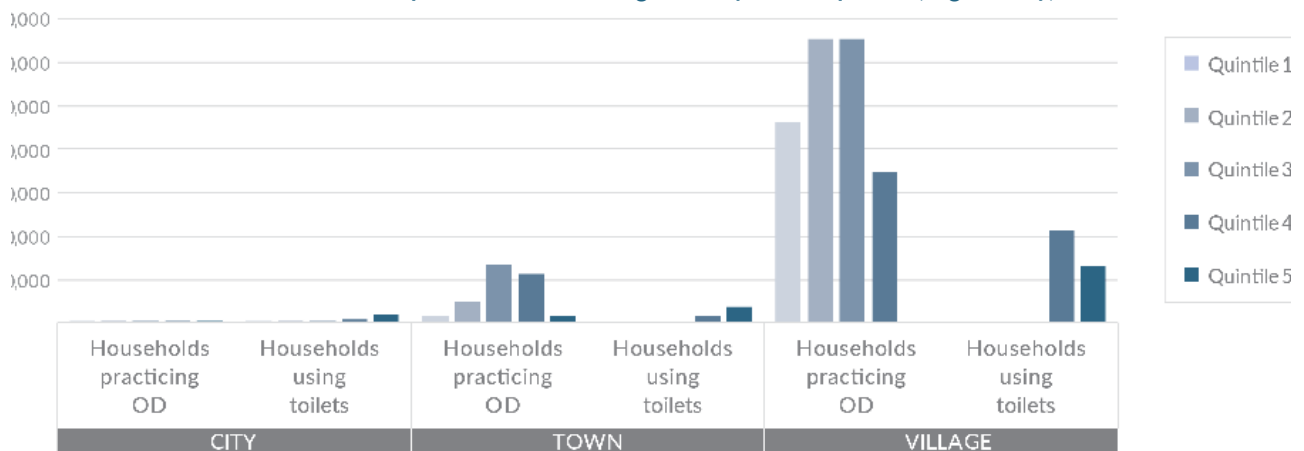
Characteristics of the potential demand

Potential demand refers to households that are likely to consume a product. Its analysis generally requires the collection of primary data via surveys that should provide sufficiently reliable data on each segment. The calculation of samples can be based on the principles described in [data sheet No. 4](#) of the GRET sanitation handbook.

In practice, this potential demand can be understood for each segment through the following indicators:

- **Suitable product type(s).** In particular, for households with existing toilets, it is important to consider whether the need is for interfaces, pits, or both. Commercially, an user interface upgrade offer is often easier to develop than a pit offer, which is more expensive and less visible.
- **Size of the segment.** The size will have been assessed in Step 3 based on key data and may be further refined through surveys that will specify indicators such as average household size or average number of users at the improved shared toilet facility.
- **Level of satisfaction.** This indicator can be measured by a multiple-choice question (Likert scale). A “satisfied” population will be less likely to invest in improving their sanitation level.
- **Willingness to pay.** This indicator provides information on the percentage of households who say they are willing to buy a product at a given price. For example, in the Niger study, 21 percent of households practicing OD in the towns indicated that they were willing to pay 30,000 West African CFA Franc (FCFA) or approximately \$51 for a toilet.
- **Distribution by wealth quintile.** This indicator makes it possible to visualize the share of “well-off” households within each segment using the equity tool developed by the World Bank. This tool can be used in combination with the Metrics for Management Asset to Income Estimator, which specifies the median salaries of households according to the wealth quintile to which they belong, as shown below in figure 3.

FIGURE 3. Composition of market segments by wealth quintile (Niger study)



Profitability factors

At the stage where the products are not yet fully defined, this analysis will focus on the geographical and environmental factors leading to additional costs that could strongly impact the potential profitability:

- **Soil stability.** Non-cohesive soils (sands, gravels) will require pits reinforced by masonry structures that will be more expensive than pits in cohesive soils (clays, silts).
- **Population density.** It is more expensive to serve the demand of small villages of a few dozen households than that of a town of hundreds (economies of scale).
- **Accessibility.** The proximity of drivable roads minimizes the need for costly and difficult transportation on bad roads.
- **Tendency for flooding.** In areas that tend to flood, the sanitation products will require attributes, such as waterproofing or elevated platforms, that add additional costs.

In the Niger study, the entire intervention area has low or non-cohesive soils requiring a robust masonry structure. As shown in Table 3, on the other hand, the different market segments have varying shares of flood-prone areas.

TABLE 3. Distribution of households according to criteria affecting profitability (study conducted in Niger)

| | ACCESSIBLE | | INACCESSIBLE | |
|-----------------------|----------------------|-----------------------|----------------------|-----------------------|
| | Low risk of flooding | High risk of flooding | Low risk of flooding | High risk of flooding |
| Cities Segment 1, 2 | 41% | 59% | - | - |
| Towns Segment 3, 4 | 48% | 7% | 37% | 7% |
| Villages Segment 5, 6 | 17% | 2% | 70% | 11% |

For comparison or projection purposes, the above indicators can be incorporated into calculations based on segment size. For example, the potential demand (PD) for Segment 3 (households in towns practicing OD) for a toilet at 30,000 FCFA in an accessible, non-flood-prone area can be estimated as follows:

$$\begin{aligned}
 \text{PD (towns, 30,000 FCFA)} &= \\
 &\text{Market Size} \times \text{Willingness to Pay (30,000 FCFA)} \times \% \text{ Accessible Population Non-Floodprone Area} \\
 &= 32,080 \text{ units} \times 21\% \times 48\% = 3,233 \text{ units}
 \end{aligned}$$

- » **At the end of Step 4, a set of indicators will be available to evaluate, from different angles, the attractiveness of the different market segments and subsegments. The intervention will be able to set its targets and marketing strategy based on quantitative information.**

The largest market segment will not always be prioritized, as it may also be the most difficult to reach if, for example, it is also the poorest. Prioritizing a smaller, easier-to-reach market segment is often the best strategy for catalyzing market activity and attracting business and investor interest.

CONCLUSION

Understanding market size is important for developing a market-based sanitation strategy. In Niger, this has helped guide Resilience Food Security Activities and will help them demonstrate the market potential to businesses. Understanding and further refinement of the market segments will be gained during an iterative approach to implementation.

PHOTO CREDITS

Boukari Idrissa and Abdoulrazak Mahamadou BAGOURME, PSI Niger

CONTACT INFORMATION

PRO-WASH

Nicole Weber, PRO-WASH Director
nweber@savechildren.org
<https://www.fsnnetwork.org/PRO-WASH>

PSI

Jennifer Marcy, Senior WASH Manager
Jmarcy@psi.org

PRACTICA Foundation

Xavier Gras, Sanitation Expert
xavier@practica.org

ABOUT PRO-WASH

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