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From subsidizing to segmenting: the changing role of non-governmental organizations in sanitation provision

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THE FUTURE OF WATER, SANITATION AND HYGIENE:
INNOVATION, ADAPTATION AND ENGAGEMENT IN A CHANGING WORLD

From subsidizing to segmenting: the changing role of non-governmental organizations in sanitation provision

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REFEREED PAPER 1119

Business-as-usual in the sanitation sector has traditionally involved government or non-government organizational supply-led strategies focusing on maximizing one-off beneficiaries through subsidization of hardware. Recently, a methodological shift has occurred focusing on more demand-responsive approaches that prioritize sustainability not only of infrastructure, but of processes as well. Promoting a sustainable sanitation process is distinct from subsidizing toilets. Market segmentation-the process of dividing communities into semi-homogenous groups based upon their demand characteristics- is a tool often utilized throughout the commercial sector, but has not been documented extensively as a population-demand assessment strategy in the sanitation development sector. This paper describes Water For People's experience segmenting a population in Majes, Peru, with the eventual goal of designing sustainable sanitation process methodologies by assisting businesses to better respond to diverse demand characteristics in a given population. It is hoped that this experience will contribute to better understanding sanitation demand characteristics worldwide.

Introduction

As the clock ticks closer to the 2015 deadline of the Millennium Development Goals (MDG), sector actors are increasingly calling for a shift from supply-led sanitation projects to a promotion of a pro-poor business approach to the global sanitation challenge (WSP, 2004; Lane, 2010; UN, 2010; WSP, 2007). Public and private finance for sanitation continues to be much less than water investments and what finance is allocated is often still directed at hardware subsidies for once-off construction of toilets, creating situations that are neither replicable nor scalable and inherently always dependent on external finance for both capital and eventual operation and maintenance expenses. This dependency hinders long-term impacts of development investments in the sanitation sector and moreover, heavily subsidized toilets do not often achieve their stated goals of health improvements as many fall into disrepair, are abandoned, or were never used for their intended purpose in the first place.

The advantage of building something that somebody actually wants is that the chance they will use and maintain it is much higher than a solution that is imposed, either implicitly or explicitly, because of a lack of other options. To ensure consumers are obtaining what they want out of a sanitation service, the time is ripe for non-governmental organizations (NGOs) to move out of direct service provision into one of facilitation and promotion of small business approaches to sanitation. This paper will describe the collaboration between Water For People, an international non-government organization, and the Mortenson Center for Engineering in Developing Communities from the University of Colorado-Boulder (USA), in developing a sanitation program, not based on numbers of toilets to be built, but on describing one key component of sanitation business promotion-- market segmentation- within the district of Majes, Peru. It is hoped that sanitation market segmentation methodology will provide a useful tool for practitioners to assess demand characteristics and lead to more sustainable sanitation programming in the future.

Background: towards demand-driven sustainable sanitation

Although the sector is currently racing towards the MDGs, at the end of the 1980 Water and Sanitation Decade, chief among the principal lessons learned in regards to sustainable sanitation provision was that "progress and continuing success depend most on responding to consumer demand." (Cairncross, 1992 v). Supply-led sanitation projects--be they led by governments or NGOs--continue to suffer from weaknesses including limited demand generation for sanitation services, dependence on external finance, and inability to scale beyond the project level (Jenkins and Sugden, 2006). Putting consumers at the center of the decision-making process, instead of government or NGO project managers, is the first step away from a supply-driven program towards a truly demand-driven process.

The ultimate goal of supporting market-based sanitation efforts is to create a sustainable sanitation industry which continues delivering sanitation products and service long after short term donor-restricted funding has ended. It works on the principle of creating latrine designs, components and associated services that households want and positioning them using the marketing approaches developed and utilized for any other type of commercial product. The approach requires a supportive regulatory framework so that a community/social/governance system exists that will foster, generate and maintain toilet coverage and usage at high levels without the need for repeated externally funded sanitation projects.

Marketing is about satisfying consumer and product and service supplier needs and wants through an exchange process (Cairncross, 2004). Marketers offer the consumer (no longer thought of as a beneficiary) something they want and are prepared to pay for. NGOs in the sanitation sector exist primarily because of public and private sector failures to develop, provide, and sustain sanitation services for all populations. The norm in the sanitation sector has been for an implementing agency (government, NGO, etc.) to design a toilet construction program[i]. The donors or implementing agency assume people want toilets for health, typically design a single toilet option, and the number of beneficiaries depends directly on their available project budget. To most efficiently maximize beneficiary coverage, toilets are often completely or heavily subsidized by the implementing agency. Little consideration is given to long-term maintenance or how new community members will be able to build toilets, thus limiting the long-term sustainability of these interventions. Although long-term monitoring and evaluation in the sanitation sector is notoriously weak, many of the studies in the Andean region of South America confirm that toilets are not used as intended in over 50% of the samples (WSP, 1999; UNICEF, 2006; Water For People—Bolivia, 2009).

In the case of sanitation, an inclusive business strategy starts by looking at the problem of lack of sanitation by viewing people as potential clients and customers, not passive beneficiaries who simply wait for development to happen to them. There are potential business opportunities all along the sanitation chain: from the purchasing of products and services to construct a toilet, to on-going maintenance (i.e. pit-emptying services, cleaning, etc), to re-use of final products. Understanding *who* your client is and *what* they want and *why they want it* is the first step towards supporting inclusive sanitation businesses.

Borrowing from both the commercial and social marketing sectors, in order to stimulate a sanitation business, one must first understand who the customer is (Jenkins and Scott, 2007). Segmenting-the process of dividing up communities into smaller, similar and semi-homogenous groups based upon their demand characteristics, socio-economic strata, or land tenure, is an early step in the promotion of market-based sanitation (Jenkins and Cairncross, 2010). Targeted promotional messages, affordable and appropriate technologies, and financial options can then be developed that respond more realistically to any given segment's demand, motivations and constraints. (Ibid).

Methodology

Site description

Peru continues to be one of the most dynamically growing regions each year, yet social development has not kept pace with general economic growth. An estimated 12 million Peruvians do not have access to a toilet (MVCS, 2006). Water For People's baseline mapping exercises consistently show that coverage is actually less than government estimations, meaning the problem is most likely much greater. A pilot program sponsored by the Water and Sanitation Program in Peru discovered that 7 out of 10 respondents were interested in improving their sanitation situation (WSP, 2007). Qualitative research conducted by Water For People-Peru demonstrated that while some people do have economic constraints, many are also not improving their sanitation solutions because of lack of technical options, lack of qualified labor, and property rights issues.

Majes, located in southern Peru (Figure 1), was desert land until twenty-five years when a government irrigation program brought migrants to settle, farm, and work the land. The agricultural zone is divided into six sections: A, B, C, D, E and Pampa Baja,. Each section is further divided into sub-sectors (B1, B2, C1, etc.), with each subsector containing between 100 and 150, 5.5 hectare parcels. Nearly 50,000 people call Majes home, with many of those being temporary workers from different regions of Peru who come for a few months to several years to work the land (Fernandez, 2006). In this context, these 50,000 people can be generally categorized as either: landowners, or those people who own one of the agricultural parcels; and workers, those households who have emigrated to work on farms owned by the landowners.



Figure 1. Map/location of Majes, Peru

Source (of Peru political map): CIA World Factbook

The sanitation situation among households is extremely diverse, from shared, unimproved latrines (generally among the workers) to conventional toilets and septic tanks (landowners).

Process

Three primary tools were utilized to conduct the segmenting piece of the market analysis: household questionnaires and observations, key informant interviews, and focus groups.

Household questionnaires

Questionnaires were conducted over a one-week period in August, 2010, in collaboration with Water For People, University of Colorado-Boulder, University Católica San Pablo, and representatives from AguaEcoSanPeru, a small private sector company. Questionnaires focused on household demographic information, current water and sanitation practices, preferences for different water and sanitation products and services (utilizing images from a catalogue), limitations and barriers to obtaining those products and services, communication strategies, community organizations, and spending habits. The household survey process also included observations of the family's current water and sanitation facilities and practices. Sampling strategy balanced available time and resources with obtaining responses and observations from both landowners and worker households in a variety of sub-sectors throughout Majes (Table 1 below).

In general, it was easier to carry out questionnaires with landowners, as interviews were conducted during the day while workers were busy tending to crops. Effort was made to conduct some interviews early in the morning or later in the evening to include the workers' perspectives, and more emphasis was placed on workers for focus group selection, but the sampling imbalance is a limitation of the questionnaire-based data collection process.

Table 1. Household questionnaires carried out (August 2010)

Interviewees per section (L: Landowners W: Workers)																				Totals	
	B1	B2	B3	B4	C1	C2	C3	D1	D2	D3	D4	D5	E1	E2	E3	E4	E5	E6	E7	E8		
L	3	1	3	6	3	1	0	0	7	1	1	6	2	2	1	2	5	0	1	1	Number of Landowners (L) Interviewed	46
W	1	1	6	3	0	2	2	0	0	1	1	2	1	0	0	1	0	0	2	0	Number of Workers (W) Interviewed	23
Total	4	2	9	9	3	3	2	0	7	2	2	8	3	2	1	3	5	0	3	1	Total number of people Interviewed	69

Key informant interviews and focus groups

To complement information obtained in questionnaires, interviews were carried out with key informants from August-November 2010 including: health center personnel, municipal representatives, engineers from AUTODEMA (the government agency responsible for dividing land parcels and distributing irrigation water), and leaders from the Majes Irrigation Board (comprised of elected leaders from each sub-sector).

Additionally, information collected in the interviews (both household and key informant) was complemented with information collected in nine different focus groups, conducted August 2010. Each focus group consisted of between four and ten participants (totalling approximately 60 people), and were held with the following different demographics:

- Single gender: women only from working demographic (one group)
- Mixed gender: women and men from landowning (three groups) and working (four groups) demographics
- Migrant workers with no land tenure (one group).

Focus group and key informant interviews were recorded and subsequently reviewed, compared and triangulated with data obtained through household questionnaires and observations. Conclusions on market segmentation involve an analysis of both qualitative and quantitative information obtained through all three sources.

Results

Broad segments: land-owners and workers

The population of Majes was initially segmented into two broad segments, land-owners and workers, based primarily on socio-economic status. Figure 2 below illustrates the different characteristics of each of these segments in regards to their current sanitation systems.

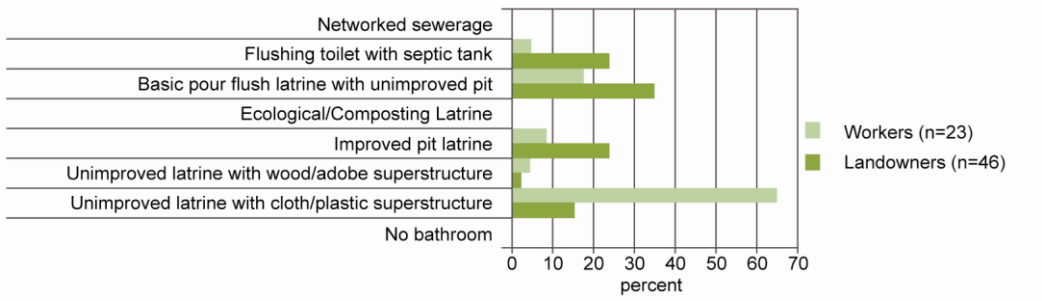


Figure 2. Current sanitation system by broad segment

As shown above, respondents not only had diverse sanitation systems, but worker respondents had the majority of unimproved dry latrines while the majority of landowners had some type of water-based system. This illustrates that in initial, broader segmentation, the population can be grouped based on current sanitation system. Figures 3-4 illustrate further distinctions between workers and landowners in regards to the type of sanitation system that each segment aspires to attain in the absence of constraints; and the constraints encountered by each segment in regards to upgrading their sanitation system.

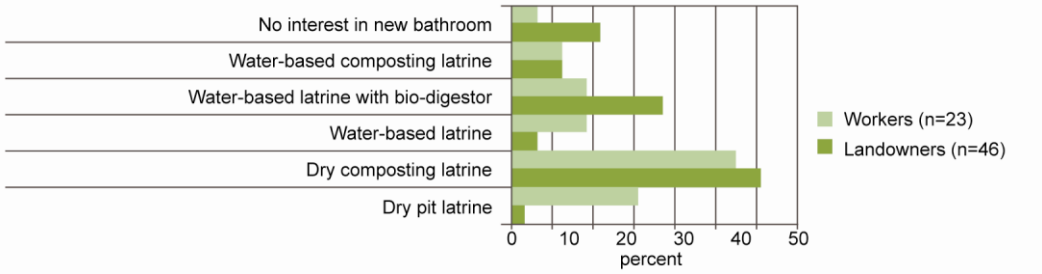


Figure 3. Sanitation system motivations by broad segment

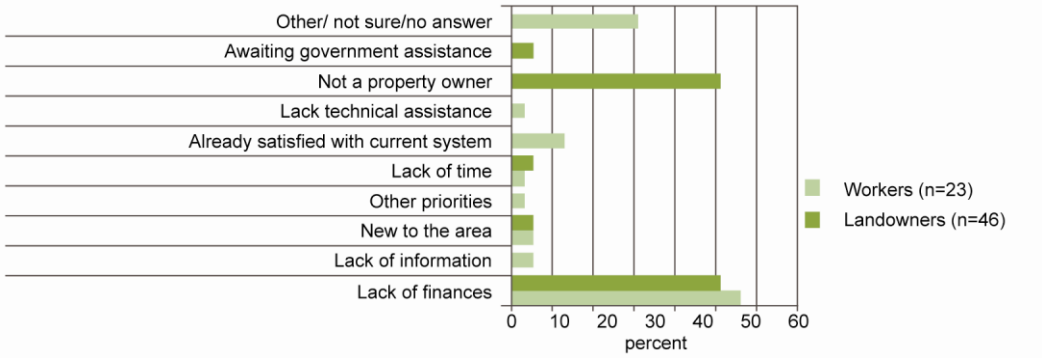


Figure 4. Constraints/barriers to sanitation upgrades by broad segment

Each broad market segment has many different and some similar characteristics. Generally, landowners have and predominantly aspire towards water-based sanitation systems, while workers have more basic, inexpensive sanitation systems such as pit latrines, and product selection is less dependent on technology and more on affordability. Both segments report being constrained by finances, while workers also report lack of land tenure as a barrier to purchasing an upgraded sanitation system. While still ongoing, initial conclusions from willingness to pay queries involving theoretical sanitation systems (flushing toilet, composting latrine, pit latrine, etc.) highlighted a significant difference between landowners and workers in regards to their capacity to pay. On average, survey responses indicated that landowners could pay up to roughly $750 for a sanitation system that met their aspirations; while workers could only invest up to $150, and would likely need some type of micro-credit support.

Sub-segmentation: targeting specific motivations and constraints

To further comprehend demand complexities, each broad segment was then further divided into sub-segments that share similar characteristics regarding motivations and constraints to purchasing sanitation products and services. Conclusive information on sub-segments was unattainable from the questionnaires alone given the sample size, so focus groups and key informant interviews were carried out to further inform conclusions. Tables 2 and 3 illustrate the division into sub-segments of each broad segment.

Table 2. Landowner sub-segments

Sub-Segment	Motivations and aspirations	Constraints and barriers	Likely product purchases
Content Landowners	• Modern system for their children • Cleanliness/hygiene • Water-based system to emulate what is found in cities • Status	• Already content with current sanitation system, unlikely to invest in something new unless it is extremely novel	Unlikely to purchase a completely new system; potential interest in tank emptying services or bathroom components
Upgrading Landowners	Same as content landowners; some interest in compost acquisition from composting toilets	• Lack of options, particularly composting toilets, in the local marketplace • Limited finances	• Water-based, flushing systems (septic tanks, etc.) • Emptying services (long term) • Composting toilets

Table 3. Worker sub-segments

Sub-Segment	Motivations and aspirations	Constraints and barriers	Likely product purchases
Property-Owning Workers	• Hygienic system for their children • Permanence • Safety • Convenience	• Very limited finances • Lack of affordable alternatives in the marketplace	• Simple water-based systems • Improved pit latrines • Composting toilets
Renting Workers	Same as property-owning workers except not as interested in permanence	Same as property-owning workers, but also constrained by lack of land tenure	• Economic, portable system
Migrant Workers without Title	Chiefly motivated by privacy and convenience	Significant financial constraints and lack of land tenure	Unlikely to purchase products or services; some potential for shared systems

Sub-segmentation was a necessary step to better clarify demand characteristics within each broad segment and to better inform eventual product prototype piloting. It is anticipated that these sub-segments are dynamic and will need to be re-evaluated continuously as latent demand is stimulated (or throttled) following interventions (product testing, government projects, etc.) in the sanitation marketplace.

Lessons learned

Methodological process

While market segment definitions and demand traits will change over time, particularly following product placements and targeted promotional strategies, the tools utilized (questionnaires, focus groups, and key informant interviews) each had their own advantages, limitations and unique contributions to the overall process:

- **Questionnaires**: Allow for observations, individualized conversations and for households to respond anonymously; answers are occasionally biased based on expectations and require resources to obtain larger sample sizes.
- **Focus Groups**: Efficient means of acquiring information from numerous households utilizing semi-structured conversations that allow for unanticipated information to emerge; are limited by occasionally not including all participants' true opinions given peer influences to respond a certain way.

- **Interviews with Key Informants**: Allow for efficient overview of an area but answers can occasionally be biased (politically or otherwise).

Market segmentation and the way forward

It is hoped that this experience with market segmentation carried out by Water for People will not only provide insights to better understanding an overall population's demand characteristics and complexities, but eventually allow for more sustainable sanitation program/process methodologies. These insights will illustrate what many successful businesses already know: to be successful you must know your customer. Lessons learned from this experience will be transferable to other sanitation programs striving to achieve sustainable sanitation coverage through demand-responsive and market-facilitation based approaches.

People's perceptions to the changing role of NGOs were revealing. While many interviewees or focus group participants initially wanted to know what type of donation the NGO was going to give away, upon discussion of the "new" role of this NGO, the response was not hostile or uninterested, but rather positive and forward-thinking. Around the world, the word "NGO" is often synonymous with donation, gift, or help, and while breaking the cycle of perceived dependency will not change overnight, and will vary from community to community, region to region, and country to country, it is one step towards sustainable sanitation provision.

Next Steps and research questions

- **Public Sector**: One segment not discussed in depth in this paper is the public segment. Sanitation is very much both a public and private good, and this early research has focused primarily on private demand for sanitation. However, it does not exclude the role of government in promoting, regulating, and especially ensuring safe final disposal of feces from the environment. Any sustainable sanitation program must take the regulatory environment into consideration and maximize public and private investments, and more research is needed to better understand different stakeholder roles.
- **Quantifying Demand and Market Segment Dynamics:** Quantifying demand through willingness to pay studies is difficult to do accurately without allowing households to make an informed decision based on actual available products and services. The next steps will test hypothesized market segments and their respective demand characteristics via product prototype testing, where consumers from different segments will provide feedback on a particular product and price, and segments will be refined as needed.
- **Supply Side**: Understanding demand through market segmentation is only one step in addressing sanitation market inefficiencies; research will be carried out to better understand factors on the supply side that prevent consumers from acquiring sanitation products and services that meet their needs.
- **Sustainable Sanitation**: Do market-based, business oriented approaches, and market segmentation as one component of these approaches, lead to more sustainable sanitation coverage in the long term? How does the sector move from a one-off *project* approach to that of facilitating a sustainable sanitation *process*?

Conclusions

Fieldwork conducted in Majes has demonstrated that a diverse group of people, not surprisingly, have diverse sanitation motivations, aspirations, and barriers. In Majes (and other developing areas), demand is not uniform across the entire population; it will vary based on socio-economic and other characteristics, and households have different motivations and differing constraints to be considered. To promote a market-based, sustainable process in Majes, sanitation products and services will need to be designed and positioned in the marketplace so that different segments are targeted with a variety of options, their unique motivations and constraints are considered, the price is right, and promotion and education of a particular technology utilizes communication strategies they are accustomed to. For the process to be sustainable, local sanitation businesses will need to be catalyzed and recognize the profit incentives by responding to the diverse sanitation demand in a given area.

As with many other methodologies tried in the sanitation sector, market segmentation will not be the silver bullet to the sanitation crisis, but it does truly put people at the center of their sanitation decisions and seeks to respond to their cultural and technical desires and financial and other constraints. It is a strategy that has been used throughout the commercial sector, and can be applied in developing sanitation markets to better assess varying demand characteristics and assist organizations improve strategies to better respond.

Segmentation is merely one of the first steps in promoting sanitation businesses, but does shift the role from an NGO, in this case, from direct toilet provision to a more demand-responsive and indirect market promotion and facilitation role.

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Notes

This is starting to change with methodologies like community-led total sanitation in certain parts of the world.

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