

Identifying Constraints to Increasing Sanitation Coverage

Sanitation Demand and Supply in Cambodia

Analysis of the sanitation supply chain and household sanitation demand shows that growth in coverage can be stimulated by making sanitation products and services more available, attractive and affordable while at the same time overcoming the prevalent high-end facility preference.



Developing market strategies that supply the required information, products and service and that focus on demand creation among consumers may contribute to increased sanitation coverage in Cambodia.

Executive Summary

This field note summarizes research from two studies undertaken in rural and peri-urban areas of Cambodia; one on the demand for latrines among consumers, and the other on the supply of latrines by the private sector. It provides discussion on the opportunity to increase latrine purchase and installation via market forces, and outlines the recommended interventions on both the demand and supply dimensions of the market to achieve this.

There is a strong demand for latrines among the Cambodian population, yet this demand remains mostly unrealized. While there is a functioning market for latrines, it is constrained by a strong preference for unaffordable top-end designs on the consumer side, and a limited ability to supply lower cost or upgradable latrines on the supply side.

These weaknesses can be addressed. It has been demonstrated through Community Led Total Sanitation (CLTS) efforts that the high-end design preference can be overcome and consumers will construct cheaper latrines if adequately motivated to do so.

The supply side needs to be strengthened to provide for the cheapest and mid-range end of the market. The components of cheaper designs are available. However, cheaper design options are not 'packaged' in a way that is obvious or easily accessible to consumers, nor with clear pricing information, nor in a way that maps out an upgrade path starting with a lower cost initial investment.

Developing market strategies that supply the required packaged information, products and services and that equally focus on demand creation to persuade consumers to consider alternate and more affordable options, may help turn stated demand into an actual acquisition and contribute to increased sanitation coverage in the country.

Background and Rationale

Only about 17% of Cambodian rural poor households have access to improved sanitation facilities - latrines which effectively separate human excreta from human contact (see box 1 for the definition of improved sanitation). At current rates of latrine construction and population growth, Cambodia's sanitation sector Millennium Development Goal for 2015 (30% coverage) will not be reached for more than 30 years, and full coverage not reached for more than 100 years. This shortfall will have serious consequences in terms of health, environment, water resources, economic opportunity, and human dignity—consequences that will be felt by women. The recent Economics of Sanitation Initiative (ESI) report¹ by the Water and Sanitation Program (WSP) highlights that the economic loss due to poor sanitation in Cambodia totals \$448 million per year: \$187 million in health costs, \$149 million in water access costs, \$38.2 million in time loss, and \$73.7 million in tourism loss.



¹ Economic impacts of sanitation in Cambodia. Kov P, Sok H, Roth S, Chhoeun K, Hutton G. World Bank, Water and Sanitation Program. 2008. Download from: <http://www.wsp.org/pubs/index.asp>

The private sector continues to provide the majority of latrines installed in the country. This private sector is characterized by a fragmented network of businesses including importers of latrine components and construction materials; local manufacturers, wholesalers, and retailers of latrine components/construction materials; and masons that provide construction services. In most cases, latrines or latrine components form only a small part of the total product or service offering from these suppliers. Latrines are not an off-the-shelf product, rather they are made from a range of components and materials brought together at the installation site, and either constructed into a latrine by a local mason, or self-built by the purchasing family.

There is much hope for a demand-driven approach to increasing sanitation coverage in Cambodia. Such an approach requires interventions that address both the supply and demand for latrines. On the demand side, social marketing strategies that increase the demand for latrines. On the supply side,

Box 1. IMPROVED AND UNIMPROVED SANITATION OPTIONS

This field note utilizes the Cambodian definitions of improved and unimproved sanitation options, which are based on those used by the JMP (Joint Monitoring Programme of UNICEF/WHO):

■ Improved sanitation options:

- Flush or pour flush to sewerage
- Flush or pour flush to septic tank or pit
- Pit latrine with slab
- Ventilated Improved Pit latrine

■ Unimproved sanitation options:

- Any public or shared latrine
- Flush or pour flush to elsewhere
- Open pit latrine without slab
- Latrine overhanging water
- Other options

product and service offerings that are more tailored to the consumers needs, thereby making latrine purchase more attractive and affordable.

This two-pronged strategy – facilitating supply and stimulating market demand – needs to be designed with a clear and in-depth understanding of both the supply and demand sides of the market. For this purpose, two reports commissioned by the World Bank's Water and Sanitation Program (WSP) in Cambodia – one on the demand for latrines, and the other on the supply of

latrines in rural and peri-urban areas of Cambodia – provide the necessary insights and information to (a) verify whether there is opportunity to increase latrine purchase and installation via market forces, and (b) to outline the required interventions on both the demand and supply dimensions of the market to achieve this.

This field note summarizes the research from these two field studies, and provides discussion and analysis specifically to inform the design of, and priority focus areas for, downstream market facilitation.



The private sector is responding to an unsubsidized demand for latrines and providing by far the majority of latrine installations in Cambodia.

Survey Methodology

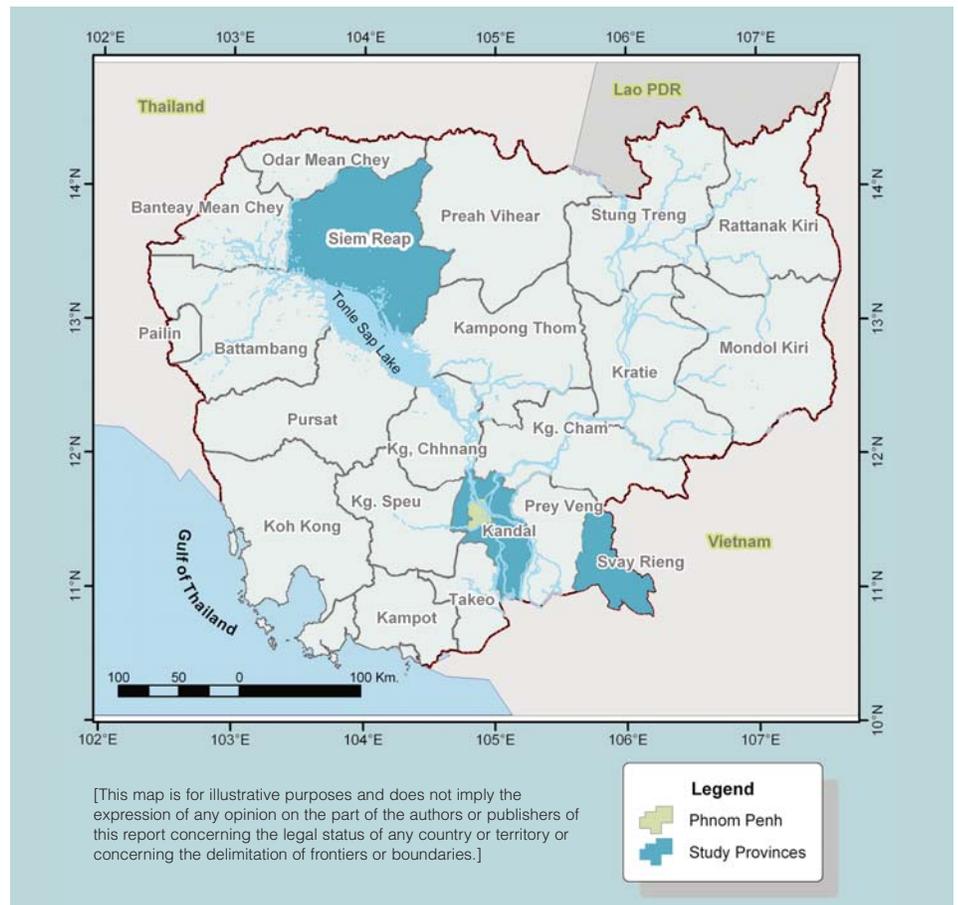
The demand and supply surveys were undertaken in both rural and urban settings. The rural areas surveyed were in Kandal, Siem Reap, and Svay Rieng provinces, and the urban locations were Phnom Penh, Siem Reap and Svay Rieng towns (see Figure 1 for a map of the project areas). This survey area encompassed a range of socio-economic and environmental conditions that are broadly representative of rural and urban areas in Cambodia. In addition they include areas with high, medium, and low access to sanitation. Two villages which had been involved in Community Led Total Sanitation (CLTS) programs were purposefully included because of the interest in complementarities between CLTS programs and market strategies.

The demand survey covered a total of 41 villages and 939 households which included both latrine owners and non-owners. In addition, six focus group discussions were conducted with a total of 44 participants including women and men, latrine owners and non-owners.

The supply study consisted of 131 interviews and four focus groups, with representation from the entire latrine supply chain - masons, concrete ring and slab producers, hardware retailers, and construction material importers/wholesalers. In addition to these private sector interviews, international and national organizations active in Cambodia's sanitation sector were also interviewed.

The research techniques were designed to yield both qualitative and quantitative assessments of the supply and demand of latrines in order to ascertain whether and how the market can be stimulated to encourage increased latrine purchases.

Figure 1. Map of the project area



Discussion of Findings

Supply Side: The Private Sector Latrine Supply Chain

The private sector is responding to an unsubsidized demand for latrines and providing by far the majority of latrine installations in Cambodia. This private sector is characterized by a fragmented set of independent businesses, each supplying one or other of the 'ingredients' of a latrine construction, or the on-site construction service itself.

Latrine construction requires a range of construction materials which, depending on design, could include cement, bricks, sand, gravel, plastic pipes, wood, tin roofing, etc. These materials are not unique to latrines, and their availability is driven by a much larger demand for non-latrine construction activities. Separate converging supply chains – connecting manufacturers, importers, wholesalers, and retailers – for each of the construction materials bring them together at the consumer level. The various actors in these supply chains do not consider themselves as suppliers of latrine components, but rather suppliers to the general construction trade.

In addition to construction material producers and suppliers, and closer to the consumer, exist two other businesses that provide services for latrine construction. These are (1) masons, who provide construction services, and (2) prefabricated concrete producers, who make concrete components for the construction trade – concrete rings that are used for well linings, water tanks, or soakaway pits, reinforced concrete slabs, etc. These two business types – masons and prefabricated concrete producers – derive proportionally more of their income specifically from latrine construction than any other businesses – in rural areas approximately 30% and 40% respectively.

However, neither of these business services are essential to a latrine construction nor are prefabricated concrete components required for simpler latrine designs. Additionally, when consumers do contract mason services, they do not necessarily outsource the entire job, but employ a mix of skilled and unskilled masonry combined with their own labor.

The schematic of the supply chain depicted in Figure 2 outlines the supply structure for latrines in Cambodia, and for the material supply considers in particular the flow of latrine pans/bowls since this is the one component that is unique to latrine construction.

It is easy to see from this schematic that the latrine supply is structured across a number of businesses and service providers, all or none of whom could be involved in a particular latrine construction project.

This fragmentation arises due to the fact that the construction of a latrine requires a variety of hardware and human inputs. This characteristic, and the fact that latrines only account for a relatively small

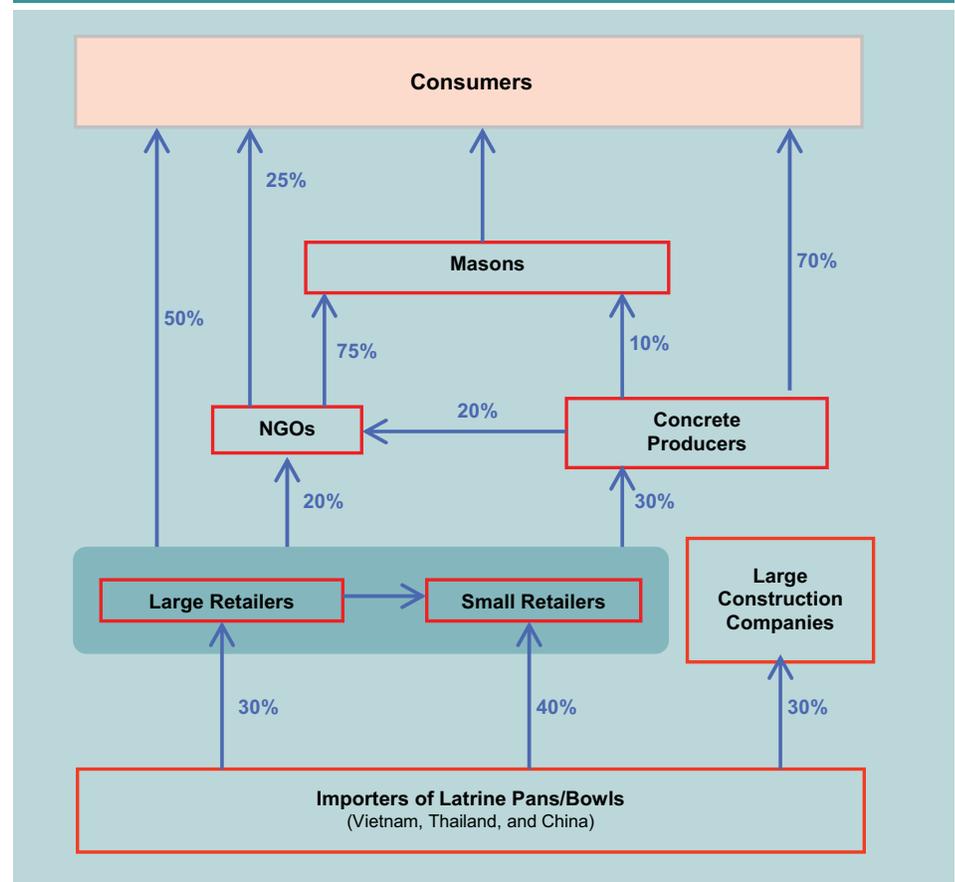
amount of each of the businesses' activity, results in a supply system that has limited ability to innovate, package, or price products/services that could yield more attractive, simpler, and clearer purchase options for consumers.

There is little evidence of any kind of promotional activities on the part of any of the supply chain actors. Rather than reach out to find and attract new customers, the supply system remains passive, simply reacting to consumer decisions to build a latrine. This is not surprising: The naturally competitive supply chains for construction commodities result in tight profit margins and proactive marketing is expensive either in cash

terms or time-input. Masons, who would possibly be best placed to market their services verbally and therefore at relatively low cost, suffer from a lack of trust among consumers that discredits them as providers of reliable or credible information.

In addition to this lack of trust in masons there is a problem of quality. By definition, an improved latrine can be a simple construction. However, factors such as the latrine design and construction quality, and the latrine placement in relationship to water sources or food storage and preparation areas can seriously affect consumer benefits in terms of health and environment, or simply value for money.

Figure 2. Schematic latrine supply chain in Cambodia



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Whilst the supply chains for latrines have the aforementioned limitations, it is clear that there is a self-sustaining private supply network that is making all latrine components and construction services available to willing consumers.

In addition to the commercial enterprises, projects promoting sanitation through construction also play a role in the latrine supply market. The approach is project specific, and ranges from assistance with financing to complete and fully subsidized latrine installations. The chosen approach may or may not be supportive of the local suppliers depending on whether the organization contracts local services, or provides centrally contracted latrine construction bypassing local suppliers and service providers. The latter practice

– ordinarily driven and justified by cost savings and control over procurement and construction quality – can be detrimental to, rather than supportive of, the business of local suppliers and contractors.

More detail of each of the types of supply enterprises is provided below, and assistance that could help them play their role and reap the benefits of increased latrine installations via market interventions are discussed at the end of this field note.



Importers and wholesalers:

Importers and wholesalers are enterprises that import construction materials (e.g. cement, ceramic pans, PVC tubing, galvanized steel sheet, tiles, etc.) from outside Cambodia for wholesale in the country. They sell to retailers, construction projects, and may also sell small amounts directly to consumers. Latrine components are generally a minor part of their product range.

Nearly all construction materials used in Cambodia currently come from China, Thailand and Vietnam: cement, steel, ceramic floor and wall tiles, roof tiles, latrine accessories, insulation products, paint, gypsum board, PVC pipe, etc.

The importers and wholesalers are far removed from the end-consumers, and trade their products – essentially construction commodities – with limited understanding or interest in their end use. The supply study concluded a range of constraints impeding these businesses: limited market information, their characteristically passive sales approach, limited coordination in downstream supply chains, working-capital limitations, etc. However, interventions that would address these issues would have minimal trickle-down effect to reduce the cost of latrines, otherwise benefit latrine purchasers, or stimulate greater latrine sales.

Retailers

Retailers are typically family-owned shops in urban or rural markets that sell construction materials including latrine components. There is usually more than one in each local market, creating a competitive retail environment, especially in the provincial town markets. About 60% of the rural retailers' latrine-pan sales occur in the dry season, coinciding

How can we use importer and wholesaler information for marketing purposes?

The importers/wholesalers are critical to the overall availability of construction materials in Cambodia, and they do provide (1) a conduit to making available cheaper latrine components such as PVC latrine pans that are not presently available in the country and which may be marketable, and (2) a 'wholesale' information channel to access large numbers of retailers throughout the country should downstream interventions need to achieve this.

with the post-harvest cash and labor availability among the local population.

Sales figures for latrine pans average about seven units per month for rural retailers and some 30 units per month for urban retailers. Latrines only account for a small part of these retailers total sales activity - latrine-pan sales represent only 3-5% of their total sales, though they also sell other construction materials required for a latrine. About 50% of their latrine-pan sales are direct to households, about 30% to concrete ring and slab producers who embed them in concrete and re-retail them, and about 20% to NGO sanitation programs. Retailers reported that ceramic latrine pans are heavy to transport and

are easily broken during transportation or storage.

No examples were found of retailers having service contracts with masons to install latrines for retail customers. However, when retailers acted as suppliers on contracts tendered by Commune Councils, NGOs, or government and private contractors, some of them subcontracted or partnered with masons to execute the contract services. It may be possible to extend this 'bundling' of services – retailer and mason roles - to retail customers, especially if these customers could themselves group to derive multiple latrine constructions under a single contract.



The prices of concrete latrine components varied significantly from area to area – some areas retailing at double the price of other areas.



How can we use retailer information for marketing purposes?

Whilst latrines make up only a small part of the retailers total trade, they are a key point in the supply chain due to the fact that most people that construct a latrine (except perhaps for the simplest pit latrines) will procure materials from one of these shops. They are therefore perfectly placed as a point-of-sale source of information for consumers, which could include technical advice, distribution of non-technical promotional information, or contact with qualified installers. Bundling retail services with construction services could offer cost savings and better quality management, but would probably require consumer grouping to make the proposition attractive to suppliers and contractors.

Prefabricated concrete producers

Prefabricated concrete producers manufacture and sell such products as concrete rings for wells, water tanks and latrines, and slabs for use in latrine construction. Some of the larger producers situated closer to urban areas also sell tiled concrete slabs with embedded ceramic pans. Producers' latrine related sales are proportionately the highest among all supply chain members, with about 40% of product used for latrines in rural locations and 65% in urban locations.

A relatively low capital requirement for entry (about \$300) and simple skill requirements has permitted many micro-enterprises to set up concrete production. As many as 6-8 concrete producers may be located in a provincial town and 2-3 in a rural district center.

The prices of concrete latrine components varied significantly from area to area – some areas retailing at double the price of other areas, due mainly to the regional variation in the costs of inputs – well-graded sand and gravel varies in cost proportionally to its accessibility.

Concrete producers in urban areas are typically full-time businesses with less pronounced seasonality of demand (about 60% dry season versus 40% wet season). In rural areas, sales are more seasonally variable, with the dry season accounting for about 80% of annual sales. This leads to a seasonal turnover of labor and a less experienced workforce, which may also affect quality.

How can we use concrete producer information for marketing purposes?

Producers' income is highly dependent on latrine sales, giving them a strong incentive to develop increased demand, and positioning them as a good source of information for consumers.

Concrete rings and slabs made by producers are all of the same basic type, and there have been limited attempts to innovate simpler and cheaper approaches (ferrocement, bamboo-reinforced concrete, etc.) under Cambodian conditions. Design innovations could be introduced via these producers, hence increasing the range of design choices available to consumers.

Masons

Masons are construction workers who build latrines as a part of their general construction services. They range from: (1) skilled masons with advanced masonry and construction skills, and who typically lead a construction team, earning \$5 - \$10 per day, (2) Simple masons that have basic skills and would typically work under the supervision of a skilled mason, earning \$3 - \$4 per day, and (3) laborers who are unskilled workers providing simple manual tasks like digging, mixing, carrying materials etc., earning \$1.50 - \$2 per day.

The cost of hired labor for latrine construction can be divided into two parts: for the substructure which includes digging the pit and installing the concrete rings, slab, and pan – ranging from \$25 to \$50; and for the superstructure including the shelter walls, roof, and door – ranging from \$50 to \$150. These rates are prohibitively expensive for much of Cambodia's population, and many households therefore opt to construct latrines on their own, or with only partially hired assistance. Thus households tend to manage the construction themselves, and also procure their own construction materials – in only 20% of the surveyed households did the masons purchase materials on their behalf.

There is a large demand for masons in urban areas, enticing rural masons to



urban centers to earn more. Rural demand for masons' latrine-building services is mostly in the dry season (about 75%), whereas demand for the services in urban areas is less seasonally dependent with the dry season accounting for about 60% of latrine constructions.

Similar to the prefabricated concrete producers, the percentage of income that masons derive specifically from latrine constructions is relatively high, accounting for about 30% of the annual income in rural areas. This fact could motivate masons to actively participate in promotional activities. However, the demand survey revealed a significant lack of trust in masons among consumers and within the supply chain, with retailers citing masons as a common source of bad debt.

At present, masons' knowledge of latrine design is very low due to a lack

How can we use mason information for marketing purposes?

Whilst masons are impeded by a lack of trust among their consumers, and many consumers do not employ masons for their latrine installations, they are nevertheless a significant player in the supply of latrines, and therefore well positioned to provide information on design and construction options to consumers. This would require training of masons to improve their design/construction skills and knowledge, whilst simultaneously easing their low credibility through co-branding with, or endorsement by, more trusted information providers.

of any formal training, and hence their ability to communicate latrine design information and choices to consumers is limited. Even with the right design information, the quality of construction is generally poor, due to both cost-cutting as well as the level of technical ability.



By far the majority of latrines were of a near identical high-end, high-cost design, and interestingly this was the case across all income groupings.



Demand Side: Latrine Consumers

The demand study provides valuable information about latrine owners and non-owners from a variety of angles: their attitudes toward latrine construction – current and desired latrine types, designs, and pricing; perceived advantages and disadvantages of ownership; perceptions of and interaction with the supply businesses; the purchase decision-making process; health awareness with regard to latrines; the ranking of latrines as a purchase priority; common sources of health information, etc.

This information – both qualitative and quantitative in nature - is interesting in itself, but also critical for the design of social marketing strategies that seek to increase unsubsidized demand for latrines. The major findings of the research are presented below, and alongside this, comments and considerations as to its relevance toward downstream marketing strategies.

Income and latrine ownership

The demand survey categorized consumers into five categories (quintiles) of income. Not surprisingly, there is a correlation between increased latrine ownership and increased income. That said, there are poor families who own a latrine, and wealthy families that do not. Latrine ownership ranged from 8% to 33% from the poorest to wealthiest quintiles in rural areas, and from 28% to 84% in urban areas.

The majority (83%) of these households had managed to pay for their latrines without any external project assistance: however the 17% that received subsidized latrines (with varying degrees of subsidy) are a significant part of the market. Subsidies, depending on their scale and how they are delivered, can generate a wait-for-the-free-latrine mentality that competes with market initiatives targeting lower-cost unsubsidized installations. Furthermore, there seemed to be little correlation between the income groupings

and those that had received subsidized latrines. Seventeen percent of the wealthiest families had accessed a subsidized latrine, indicating that sanitation projects were not successfully prioritizing the poorest families when awarding subsidies.

The demand survey sought to ascertain the reasons why non-owners did not own a latrine - respondents were not prompted with any pre-formatted responses and they could cite as many reasons as they liked. Ninety-five percent of them gave “too expensive/don’t have enough money” as one of the reasons for not owning a latrine. In a separate survey question, only 4% of these households reported being satisfied living without a latrine. Furthermore, 77% of rural non-latrine owners said that they had considered or were currently considering purchasing or constructing a latrine.

These figures indicate a strong demand – beyond a mere interest in the idea of ownership to the extent of actually considering purchase – however a demand that is suppressed from materializing into purchases by the actual or perceived price of latrine construction.

How can we use income and ownership information for marketing purposes?

Whilst demand is strong, there is a need for cheaper latrine options due to a lack of affordability. Emphasis needs to be placed on the word ‘options’ because many wealthier families who might not be interested in lowest-cost technologies also do not own a latrine. Marketing activities would need to target wealthy as well as poorer consumers. Policy influence and outreach to NGOs and other development organizations may be an important component of marketing activities as subsidized installations may compete with market initiatives.

Latrine preferences

Among households interviewed during the field studies that already had a latrine, the most popular design in both rural and urban areas comprises of: an offset tank - most commonly constructed as a soakaway pit with concrete rings – (80% of rural and 72% of urban latrines surveyed); a pour-flush slab (87% of rural and 97% urban latrines); concrete/brick walls (66% of rural and 67% of urban latrines), and a galvanized steel roof (76% of rural and 74 % of urban latrines).

Thus, by far the majority of latrines surveyed were of a near identical high-end, high-cost design, and interestingly this was the case across all income groupings. This is surprising given that cost was cited as the most prohibitive factor for latrine ownership, and the cost of this type of latrine (\$150 upward) is more than ten times the cost of the simplest designs (\$5 - \$10 using un-costed family labor and locally harvested materials).

So there exists a strong consumer preference for expensive designs consisting of an offset tank, a pour flush pan, and solid walls and roof. This preference undoubtedly has a strong bearing on the uptake of latrine constructions. There was no mention of upgrading latrines to more robust constructions over time as a way of easing the financial burden of latrine construction, even though this is relatively easy for the latrine pan, and extremely easy for the above-ground structure.

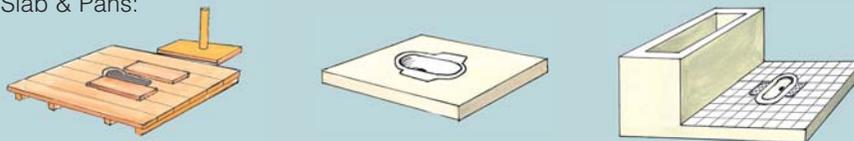
The focus group discussions confirmed these survey findings, and yielded some consumer reasoning; designs that are short of the perceived 'ideal latrine' are considered unattractive, not likely to last a long time/would have to be re-built.

Figure 3. Sample latrine design options

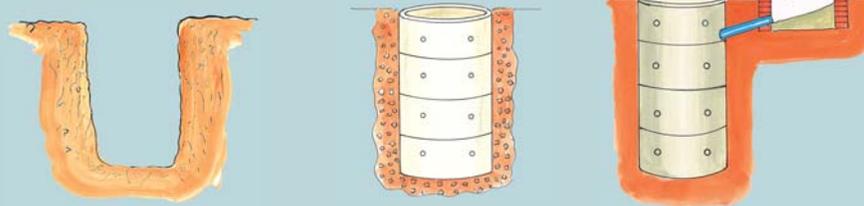
Shelters:



Slab & Pans:



Pits/Tanks:



Latrines have essentially three components and can be constructed with any combination of the options for: (1) an above-the-ground shelter mainly for privacy, (2) a latrine slab which incorporates the latrine pan or hole, and (3) the below-the-ground structure into which the waste is passed.

The design, materials, and cost of each of these components ranges from very simple and cheap (using local materials such as bamboo and wood for the above-ground shelter and latrine slab and a simple dug hole for the below-the-ground structure), to robust and expensive (using materials such as steel reinforced concrete, ceramic latrine pans, ceramic tiles, and steel or concrete roof).

The stark exception was in the two villages that had been a part of CLTS programs. In these villages – where a strong and urgent 'call-to-action' toward latrine ownership was generated through community peer pressure, and in the absence of any financial subsidies – villagers abandoned their preference for high-end designs, and constructed simple latrines that satisfied their

immediate commitments toward latrine ownership. In these villages more than 80% of families opted for a simple unlined dug pit and an open-hole wooden slab, and more than 70% of families opted for a thatch or salvaged material shelter. Only 20% of those surveyed constructed the high-end design that was found to be the preference in all other (non-CLTS) areas – both rural and urban.

If a household at national poverty line were able to save the cash equivalent of 5% of its annual income (\$45) toward latrine purchase, there would be enough to pay for a basic yet upgradable latrine in only one year.

The study results across all surveyed locations depict a near all-or-nothing scenario – either latrines are of the preferred expensive ‘ideal’ design, or they are the cheapest possible design. There is not much in between these two extremes – well-constructed underground structures with simple but upgradable above-ground structures and latrine slabs – yet such designs would cost about half as much as the ‘ideal’ latrines, and could be upgraded to the ‘ideal’ design as and when resources became available.

How can we use latrine preferences information for marketing purposes?

To accelerate latrine adoption among a price-sensitive consumer base will require overcoming the prevalent demand for high-cost latrines. Community marketing initiatives as pioneered by CLTS approaches have achieved this, and these methods can play a role in consumer marketing tactics at the community level. The ‘all-or-nothing’ designs that are prevalent indicate limited, or poorly communicated design information with regard to mid-priced upgradable design options which needs to be overcome.

Cost perceptions and affordability

The research questioned latrine owners and non-owners about the latrine costs for various designs. Latrine owners, with the benefit of experience, were able to accurately estimate the installed costs of latrines. Non-owners underestimated costs, indicating that the real cost to them – if they decided to purchase – would be higher than their expectations, thus increasing the challenge of encouraging latrine purchase. This is contrary to experiences in neighboring Vietnam where market research found non-owners typically over-estimated costs, in some cases significantly, laying the foundation for consumer marketing strategies that focused on actual price communication.

As noted earlier, the vast majority of people who do not own a latrine have considered construction in the past, though they have a strong preference for a robust and expensive design (\$150 upward). When asked at what price they would be motivated to purchase, 10% of them said they could afford \$100, and 50% said they could afford a \$20 latrine. These percentages were similar for both rural and urban non-latrine owners, which supports another research observation



that cash income distribution is similar for both rural and urban non-latrine owners.

Table 1 shows the wide variation in the actual cost of a latrine installed in Cambodia. It considers the below-ground component and slab/pan only, detailing the costs for various configurations, and whether family labor, hired unskilled labor, or hired skilled labor is used to construct the latrine. The commonly perceived ‘ideal’ latrine is highlighted.

Table 1. The cost of various latrine configurations (slab/pan and below-ground component only)

	Family labor	Hired unskilled labor (\$2.50/day)	Hired skilled labor (\$7.50/day)
Simple dug pit with wooden platform	\$3.50	\$6.00	\$11.00
Two ring lined pit and concrete slab	\$15.50	\$23.00	\$43.00
Four ring lined pit with concrete slab and ceramic pan *	\$29.00	\$41.50	\$76.50
Double lined pits and concrete slab, ceramic pan, and water tank	\$42.00	\$59.50	\$109.50

* Commonly perceived ‘ideal’ latrine configuration.



A latrine design that consisted of an offset tank and a very simple thatched above-ground shelter could cost as little as \$35, assuming that un-costed family labor is used to do the construction. Such a design would be 'half' of the ideal latrine; everything below ground would be the perceived 'ideal', whilst the cheaper above-ground portion would be perceived as less durable (yet would offer the same privacy and hygiene benefits and could be upgraded over time). The challenge in promoting such a design lies in persuading consumers to put the bulk of their investment below ground where it cannot be seen, whilst utilizing a cheap above-ground structure which can be seen.

A five-person household at the national poverty line (NPL) earns about \$900 per year, some of which is cash income. If such an NPL household were able to save the cash equivalent of 5% of its annual income (\$45) toward latrine purchase, there would be enough to pay for this type of basic yet upgradeable unit in only one year. This simple illustrative analysis suggests that, even with current technology at current prices, a good quality latrine substructure may not be beyond the financial means of poorer households, even without subsidy. It is recognized that this is a very simplistic calculation, and does not include such challenges as savings and cash-flow that would hamper their ability to readily make such investments.

How can we use cost perceptions and affordability information for marketing purposes?

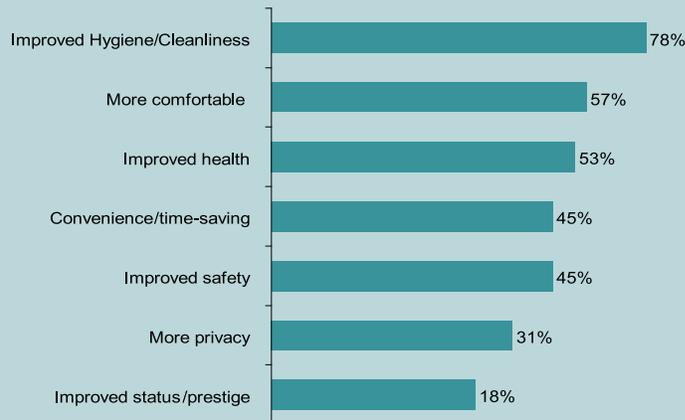
The price sensitivity of consumers and their need for time to save for a latrine indicates that, at least for a portion of the market, the latrine acquisition process will have to be nurtured over a longer time frame – perhaps six months, and/or in conjunction with credit availability. In the absence of credit, upgradeable and/or simpler designs that utilize local materials and family labor can ease the savings requirements, and encourage consumers to invest earlier than they would have otherwise. With the right technologies families on or close to the National Poverty Line are a relevant target market for unsubsidized latrine constructions.

Perceptions of consumers toward latrines - Advantages and disadvantages

The research delved into the perceived advantages and disadvantages of latrines among owners and non-owners, of both rural and peri-urban families. Respondents were not prompted, and could name several advantages/disadvantages of latrine ownership. The findings, averaged across the whole of the surveyed population are depicted in Figure 4. This shows a range of perceived benefits with improved hygiene/cleanliness, comfort, and health cited by more than 50% of respondents, and convenience, safety, privacy and prestige cited by a minority.

Only 17% of the surveyed respondents identified any disadvantages to latrine ownership.

Figure 4. Perceived advantages of latrine ownership



Only 17% of the surveyed respondents identified any disadvantages to latrine ownership. These were: bad smells (7%), maintenance and cost of maintenance (less than 5%), and attracts flies (2%):

The findings were almost identical between rural and urban respondents; however latrine owners – perhaps not surprisingly – rated both the advantages and disadvantages of latrine ownership slightly higher than non-owners. Latrine owners are more aware of the benefits of ownership (probably why they were more motivated to purchase), but are also more attuned to the disadvantages (from their experiences). Encouragingly, the research confirmed a broad satisfaction among latrine owners with their latrines.

Respondents in the two CLTS villages also voiced satisfaction with their latrines. However, they ranked latrine disadvantages slightly higher than the total sample average, almost certainly due to the prevalence of cheaper and less sophisticated designs adopted in these villages.

Stated reasons for purchasing or not purchasing a latrine

Not surprisingly, the reasons given by latrine owners for purchasing their latrines mirrored almost exactly the perceived advantages of ownership. Reasons for not having purchased a latrine among non-owners were as follows:

How can we use information about reasons not to purchase for marketing purposes?

By far the most critical constraint to purchase that needs to be targeted is cost. However, even with the cash in hand, a high proportion of the market (especially urban) has alternate purchase priorities. The ranking of latrines as a purchase priority should therefore be directly addressed through communications efforts.

1. Too expensive/don't have enough money (95% of all respondents);
2. Other priorities come first (19% of rural and 30% of peri-urban);
3. Satisfied with current practice/ don't see the need (4% of all respondents);
4. Have access to someone else's latrine already (1% of all respondents);
5. Lack information on where to purchase (1% of all respondents).

These figures inform of two clear and concise reasons for not purchasing: cost (as given by almost all respondents), and a low prioritization of latrine purchase (given by a minority of respondents, though more prevalent among peri-urban households). These findings reinforce the current strength of demand for latrines, a demand that remains predominantly untapped due to the prohibitive cost of purchase and expenditure priority.

How can we use consumer perceptions information for marketing purposes?

Promotion of latrines can be undertaken in the knowledge that there is a great deal of satisfaction in latrines among existing consumers. There are no significant disadvantages against which a consumer marketing initiative may be constrained, or would need to overcome. The perceived advantages of latrine ownership are broad and due to their nature – health, comfort, safety, convenience – will be relatively easy to link to the dreams and aspirations of a wide-ranging target demographic for the purpose of marketing materials development.



Opportunities for Market Facilitation

Overview

The studies verify that there is a strong demand for latrine ownership – 77% of respondents indicated that they had considered or were considering constructing a latrine. Yet there are challenges to be overcome to translate this demand into increased ownership.

On the demand side, the major issues are:

1. A prevalent perception of an 'ideal' yet prohibitively expensive latrine design.

2. A lack of urgency toward investment in latrines even though consumers readily recognize a wide range of advantages, and almost no disadvantages of latrine ownership.

On the supply side:

1. No readily available or clear information on design options, or pricing that would help consumers make decisions.
2. A lack of trust among potential consumers toward the very businesses which supply latrine components or construction services, and who are most

optimally placed to interact with customers concerning latrine purchase decisions.

3. A lack of affordable designs that are accepted by discerning customers as durable and investment-worthy.
4. Poor quality construction and latrine placement in relation to water points that compromises the hygienic benefits of new latrine constructions.

These challenges need to be addressed, and solutions delivered into the market. Whilst it may not be possible to overcome such issues completely, progress on each of them can be made that will result in increased latrine construction and use in Cambodia.

The two-pronged strategies of consumer marketing initiative should be overcoming the perception of an 'ideal' design, and encouraging latrine purchases that can be upgraded over time.

Demand-side Initiatives: Consumer Marketing

The objectives of consumer marketing initiatives should be to:

- Overcome the perception of an 'ideal' design, and encourage users to choose options that can be upgraded toward the 'ideal' designs, but with lower entry-level costs.
- Encourage latrine purchases that can be upgraded over time.

1. Overcoming the perception of an 'ideal' design

The perception of an ideal design seems to be deep-rooted, and whilst it is challenging to overcome, it is perhaps the most critical block to increased latrine purchase. Further qualitative consumer research into this perception should be undertaken prior to designing strategies to address it. For the moment, we can consider what we already know or can speculate from the existing research, which would feed the design and direction of that future research.

The focus group discussions indicated a perception that local materials such as thatch or bamboo are considered unattractive, and would not last a long time/would have to be re-built periodically. Whilst these things are true, it has been shown in the CLTS villages that consumers will put these concerns aside when there is adequate urgency for them to invest.

In order to ascertain consumer ability to pay, the focus group participants were asked at what price they would purchase their 'ideal' latrine (actual cost of \$150 upward). The majority said they would do so at \$100 but not immediately - they



would need time to save and most of them thought a year of saving would be required. Almost all respondents said they would purchase at \$50, some of them still require time to save but just three or four months. All respondents would purchase at \$25.

Thus real life experiences show that this perception whilst very prevalent is not insurmountable if (1) there is adequate pressure/urgency on the families to install a latrine, and (2) if the cost can be lowered. Lowering the cost is most readily achieved via upgradeability - to align with the perception of better designs, yet to map out a path for construction and upgrade toward that ideal over a longer period that eases the financial requirements to achieve this.

Lower entry-cost upgradeable designs should be promoted as the 'wiser/smarter' investment option. All communications materials, no matter what their underlying message is (for example health benefits) should depict latrine designs that are constructed from simple and cheap materials to ensure that these communications efforts do not leave the idea in consumer minds that these benefits are only achievable with 'top-end' high-cost options.

It should be noted that all the perceived benefits of latrine ownership – improved hygiene cleanliness, comfort, health, safety, convenience, privacy, with the possible exception of 'prestige' which was ranked the lowest, can be realized from the most basic latrine constructions.

2. Encouraging latrine purchase

The majority of consumers are already interested in latrine ownership. However, they need to be persuaded toward actually taking the decision to invest – an investment that could be in the form of cash in the case of top-end designs, or predominantly labor and reclaimed materials for the simplest designs. Stimulating this investment can be achieved in several ways, and future experiences will inform as to what the most effective mix of media and activities is that yields the best results.

It has been shown, and perhaps not surprisingly, that community peer pressure – as provided through CLTS approaches – is a very powerful motivator

toward latrine construction. Stopping open defecation is beneficial to the whole community, but it takes the collective action of all individuals to achieve it. From the outset, this methodology can be employed as a proven demand-side marketing strategy within broader and more holistic market facilitation initiatives.

In addition, and to support such community-based strategies, there are other communication initiatives that would help persuade consumers toward latrine investment. These should be assessed from experience for cost vs. impact in a continual process of refinement as to what marketing efforts result in the greatest return on institutional expenditure.

What is being communicated, and to whom?

Effective communications materials need to provide the most motivating messages for their audiences. These will encompass the most prevalent concerns and perceived benefits of latrine ownership, and tie these to the most powerful motivators for the target population. These motivators are beyond the scope of the existing research, but will likely be things such as increased wealth, health, pride, school success, etc.

Different target audiences – men, women, children, the elderly etc. – will respond to different motivators, and these will need to be ascertained for the target for a particular campaign or communication



Promotional materials should speak directly to the ranking of latrines with respect to other priorities, and attempt to reposition the latrine acquisition in the consumers' minds.

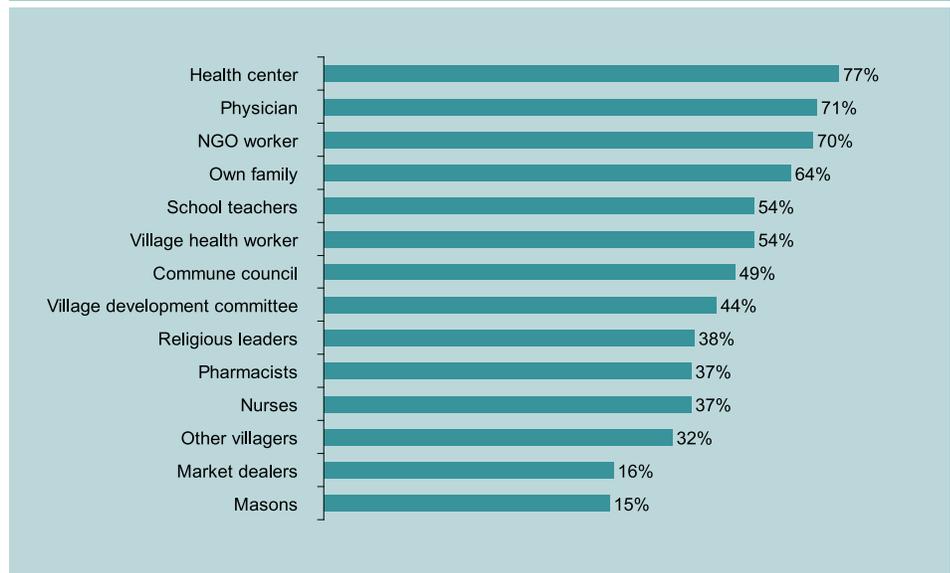
material. It is noted from the research that a latrine purchase decision involves both men and women, in slightly different roles, and with different interests. Whilst men and women could therefore be targeted separately, it is also important to encourage household discussion between men and women on the subject of latrine ownership.

Communication materials should seek to reposition latrines higher up the ranking of desired purchases to instill a greater urgency toward latrine construction. Whilst almost all non-owners would like a latrine, they would also like to own other things – 10% of rural households own a DVD player and 63% a television - hence the latrine acquisition is competing for savings against other expenditures: 19% of rural and 30% of peri-urban families stated that other purchase priorities would come first. Promotional materials should therefore speak directly to the ranking of latrines with respect to other researched priorities, and attempt to reposition the latrine acquisition in the consumer's minds.

Getting the messages to the consumers

There are a plethora of potential channels to deliver marketing information, and that information can be conveyed through these channels via printed communications materials, verbal messages and advice, or a combination of these. The survey assessed which information sources were considered most trustworthy or reliable for sanitation advice. The responses, ordered by percentage ranking of 'very good information resource' are detailed in Figure 5. Health professionals ranked the highest, whilst profit driven private businesses – market traders and masons ranked the lowest.

Figure 5. Consumer perceptions of the quality of various information sources



All of these are possible channels for communications messages, and naturally reach out to either men, or women, or children, or a combination of them. The delivery of communication materials or messages to consumers via these channels, along with their own endorsement and additional advice, will provide credibility to the messages.

On the surface it may seem futile to target children who are obviously not decision makers for latrine purchases. However, teachers' advice is held in relatively high regard, and visiting health professionals can add further credibility to their messages. Schoolchildren could for example be encouraged to take home materials and do 'homework' that is specifically designed to stimulate discussion and reflection on latrine ownership and usage with and between their parents.

Health stations and physicians are ranked the highest of all credible

information resources. Health professionals can provide assistance by proactively taking messages into the community, or at minimum simply distributing leaflets and giving advice to people who visit the health station with sanitation related health issues.

This is an opportune moment to get someone to reflect upon the fact that there could be a relationship between their health problem and their domestic hygiene and sanitation, and to promote preventive health measures such as latrine ownership and sanitary behavior.



Supply-side Initiatives

The objectives of supply-side initiatives should be to strengthen capacity to ensure that:

- The private sector optimally plays a role in information exchange, demand creation, and sales closure.
- Affordable, hygienic, and upgradeable latrines are available through the market in order that all consumers, no matter how poor become potential beneficiaries of the services.

1. The private sector role in information provision, demand creation, and sales closure

Almost all consumers that construct a latrine will interact with hardware suppliers, prefabricated concrete ring producers, and/or masons. Even when

masons are hired, by far the majority of consumers purchase their own materials. Whilst interaction between these suppliers and customers will be far greater once a decision to build a latrine has been made, interested customers will also interact with them to understand prices, and options prior to taking a purchase decision.

In addition to consumer marketing materials (which appeal mostly to women), these suppliers can be an outlet for more technical information on design and pricing options. Clear pricing, even clear estimates of pricing, along with visual materials to support design discussions will play a role in helping these suppliers to retain interest among their potential consumers.

Design information also needs to be provided to customers to support their own construction efforts. Many consumers construct their own latrines, but very few of them will have any design

information on which to base their constructions. Thus, for hardware shops and prefabricated concrete suppliers, in addition to providing their products, they can provide guidelines for self-built and mid-cost upgradeable latrine projects.

A limitation of the private sector in supplying this information for the simplest self-built designs is that it conflicts with their interest in selling products to end consumers. Hence whilst the cheapest, or 'zero cash-cost' latrines may not realistically be communicated through these channels, there is still a large market gap of middle-range options that suppliers would be prepared to provide through their self interest in sales of components.

Another limitation of these suppliers as information sources is their lack of credibility among consumers. Pre-printed information made available through them – posters or take-away leaflets – should therefore be endorsed by a credible third party. It may also be possible to co-brand trained suppliers in allegiance with a credible institutional marketing effort, essentially 'certifying' them as suppliers of quality technical information.

At the other end of the supply networks are the importers and wholesalers of materials. Positioned at the apex of the supply chains, these businesses could assist in broader and less targeted dissemination of design information or other materials used at the retail point-of-sale for their products. In addition to their potential as an information channel, they also offer the perfect avenue for the broad dissemination of imported or locally fabricated technology innovations that provide better cheaper or higher quality latrine components.



Cost reductions of a latrine can be made by material compromise, and via the concept of upgradeability.



2. Affordable, hygienic, and upgradeable latrines are available through the market.

In the absence of any major technical advance in creative low-cost design, the price of latrines is not going to change much – it is linked to the commodity costs of construction materials and labor. However, as previously noted, cost reductions can be made by material compromises, and via the concept of upgradeability. The suppliers need to be armed with materials to communicate these things in a simple, clear, and motivating way.

Such materials will provide the information that will enable and encourage consumers to progress up the sanitation ladder through successive

upgrades, and via the provision of middle cost-designs that fill the gap between the simplest home-built lowest-cost designs and the perceived ideal designs, provide alternate entry level designs.

Whilst the greatest cost reductions will undoubtedly be made by consumer compromises in material selection and below-ground design, there may also be other cost reductions made through technical innovation that would be acceptable to consumers. For example, using plastic latrine pans, bamboo reinforced ferrocement, or on-site fabrication of latrine slabs. Research and development toward consumer-acceptable lower-cost designs should be encouraged, and if any of these are marketable, the suppliers are there to make them available.

Such research could extend to tackling the retailer-identified problems of latrine pan damage during transportation and storage (which adds to the cost of latrines) by for example, the market testing in Cambodia of plastic latrine pans that have been successfully marketed in some other Asian countries.

Whilst cost reduction is an important strategy, it must be achieved without compromising the health/hygiene benefits of latrine ownership. There is a need for mason training (and indeed direct consumer training given that many consumers will self-construct) to bring to the marketplace acceptable minimum standards and design information, either for current latrine designs, or for new innovations that are introduced into the market.

Encouraging interaction between suppliers and consumers

As previously mentioned, most consumers will interact with hardware suppliers, prefabricated concrete producers, and masons. However this interaction is mainly at the last stage of making a purchase decision, or once the decision has already been made. Yet interaction with suppliers, especially if they can additionally convey good design and pricing information will provide encouragement earlier in the decision-making process.

Hence it is important that any marketing initiative that delivers on consumer and supplier fronts also focuses on getting these two parties to talk to each other. This can be achieved via endorsement of trained suppliers within consumer marketing efforts, and encouraging women (who are more responsive to the consumer messages) to get their husbands (who are more interested in the technical aspects) to go to meet suppliers. They will be especially interested in doing so if they know that

design information to support self-build constructions is available through them.

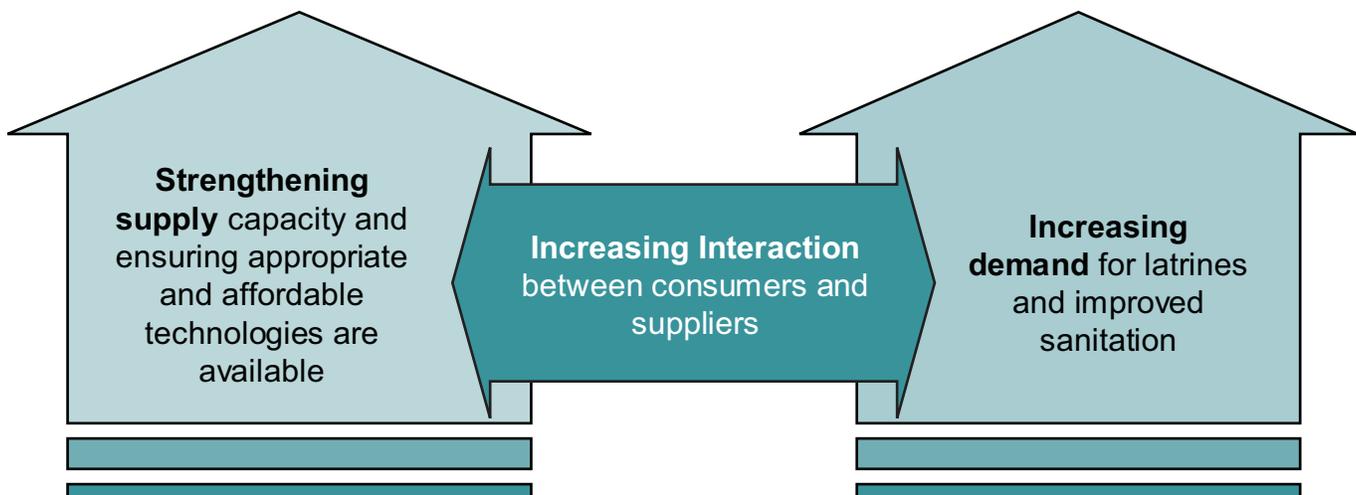
Consumer-supplier interaction will inevitably be instigated by a third party: a market development facilitator. This facilitator could achieve this interaction by various means, ranging from marketing communications, or via personal interaction at the community level. No matter how this is achieved, this facilitation role should extend to directly providing design information to consumers for the very simplest 'no-cost, self-built' latrine designs, to complement the mid and high-cost design information that they should be able to receive from private sector suppliers.

Dissemination of market interventions

To derive the greatest and most cost-efficient impact, solutions to these issues would be provided into the market in a parallel and coordinated fashion. It is important to also note however, that any of them, even in total isolation of the others, would still have a beneficial

impact. This fact opens up the options for delivery of these solutions into the market from village-wide high-intensity holistic efforts, to partial delivery of suitable solutions in support of and via on-going or planned large-scale sanitation initiatives, to nationwide multimedia delivery of key messages that are critical and relevant to broad audiences.

Thus market initiatives do not have to be limited to isolated self-contained activities, but additionally offer complementarities to other programs that are focused on one or other aspect of the market, but which could benefit from extended market influence. Likewise, there are other initiatives that have found ways to achieve the same goals as marketing strategies, and market-based initiatives can learn from these. CLTS is one obvious example, whereby demand creation is achieved through community motivation, and these may prove to be the most cost-effective supply-side initiatives possible. Likewise, the CLTS approach may benefit from extension to supply-side techniques that would ensure that consumers who decided to invest



A high level of subsidy for latrine construction has the effect of depressing the market for privately purchased latrines.

were indeed armed with useful design information, and quality local services to provide the constructions.

Another example would be the publication of a booklet on latrine upgrading by the Ministry of Rural Development (MRD) to support the previously published 'Informed Choice Manual on Rural Household Latrine Selection'. The booklet gives details on cost, quantities, and techniques for latrine construction. The objective is to use the manual to support construction by trained masons or by community members, and could readily plug into supply-side marketing interventions. It would therefore be wise to design market interventions that can capitalize

on existing available materials, and also recognize other initiatives as potential avenues for implementation, or channels to move information. This vastly increases the potential outlets for market solutions, be they on the demand or supply side of the equation.

Perhaps one of the most important contributions of a marketing effort would be to persuade – to the extent possible – all other programs that produce visual materials depicting latrines, whether televised, on brochures, on posters, or leaflets, to utilize images of simple and affordable designs such that consumers can associate these designs with the same benefits – health for example – as higher-priced yet unaffordable designs.

Likewise efforts could be channeled toward the influence of policies of government and aid agencies, as these can have a significant impact—positive or negative—on latrine demand. A high level of subsidy for latrine construction has the effect of depressing the market for privately purchased latrines.

Minimum design standards for sanitary latrines could improve the quality of latrines but, if rigorously enforced, could reduce overall demand by discouraging households from starting with simple designs and upgrading over time.



Conclusions

The private sector continues to provide the majority of latrines installed in Cambodia. It is a self-sustaining network responding to an unsubsidized demand for latrines. However, the fragmentation of this network and the fact that latrines only account for a relatively small amount of each of the businesses' activity, results in a supply system that has limited ability to innovate, package, or price products/services that could yield more attractive purchase options for consumers.

There is a strong existing demand for latrines: 77% of rural non-latrine owners said that they had considered or were currently considering constructing a latrine. However, this demand is not being realized due to cost: 95% of respondents who did not own latrines gave "too expensive/don't have enough money" as the reason for not having purchased a latrine.

Whilst cost is prohibitive, this statement is made by consumers that have a strong preference for the most expensive possible latrine designs, costing in the

region of \$150. Indeed, by far the majority of existing latrines that were surveyed (across all income groupings) were of a similar high-end, high-cost design. However, simple self-built latrines using locally fabricated materials can cost as little as \$5 - \$10, easily within the range of affordability of even the poorest households.

Whilst the preference for the most expensive designs is strong, the researched CLTS program villages demonstrated that this preference is not insurmountable. In these villages, more than 80% of families opted for a simple unlined dug pit and an open-hole wooden slab, and more than 70% of families opted for a thatch or salvaged material shelter, satisfying their immediate commitments toward latrine ownership at a very much lower cost.

Hence on the one hand there are existing demand-creation methodologies able to encourage the cheapest latrine installations, yet a supply market that is skewed toward providing for the prevailing market preference for higher-end designs. The supply market needs to be strengthened in between these two

extremes. Whilst all the components of cheaper latrine configurations are available, such configurations – lower-entry cost and upgradeable – are not packaged and presented in a way that is obvious, accessible, or attractive to consumers.

The suppliers and constructors can be useful conduits for design information and associated products. However, there are two limitations to their use as information providers: (1) for the very simplest self-built designs, this information competes with their own profit-motivated interests, and (2) the research identified a prevalent lack of trust in these businesses among potential consumers. The lack of trust can (at least partially) be overcome through consumer marketing initiatives that endorse and raise the credibility of the suppliers, either co-branding/associating them with trustworthy campaigns or by endorsement of the suppliers by credible information providers; the research found health stations and physicians to be the most credible information sources.

The very cheap self-built designs that were prevalent in the CLTS villages are not likely to be proactively promoted by the suppliers. In fact, it may be the case that the suppliers advise the market against these designs. Hence this information – for the very cheapest designs in support of consumers' own construction efforts – needs to be provided by a third-party market facilitator via consumer marketing initiatives.

In addition to technical information provision, the facilitator's marketing/communication strategies will need to address prevalent consumer-side constraints: The strong perception of an 'ideal' yet prohibitively expensive latrine



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design; and a lack of urgency toward investment in latrines by consumers even though the demand is strong. It is not enough to make lower cost or upgradeable designs available through latrine suppliers, consumers need to have the knowledge of this availability brought directly to them, and in a attractive and motivating way.

The perceived advantages of latrine ownership are broad and due to their nature – health, comfort, safety, and convenience – are relatively easy to link to the dreams and aspirations of a wide-ranging target demographic for the purpose of motivational marketing materials development.

Lower entry-cost upgradeable designs should be promoted as the ‘wiser/smarter’ investment option, and all communications

materials, no matter what their underlying message (for example health benefits) should depict latrine designs that are constructed from simple and cheap materials to ensure that they do not leave in the minds of their target audience that these benefits are only achievable with ‘top-end’ high-cost options. It should be noted that all the perceived benefits of latrine ownership – improved hygiene cleanliness, comfort, health, safety, convenience, privacy, with the possible exception of ‘prestige’ which was ranked the lowest – can be realized from the most basic latrine constructions.

To derive the greatest and most cost-efficient impact, demand- and supply-side initiatives should be delivered in parallel and in a coordinated fashion. However, any of them, even in total isolation of each other, would still have a beneficial impact on latrine uptake. This fact opens up the options for delivery of market solutions from: village-wide high-intensity holistic efforts, to partial delivery of suitable solutions in support of and via on-going or planned large-scale sanitation initiatives, to nationwide multimedia delivery of key messages that are relevant to broad audiences.

Thus market initiatives do not have to be limited to isolated self-contained activities, but additionally offer complementarities to other programs that are focused on one or other aspect of the market, but which could benefit from extended market influence.

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