



GUIDANCE NOTE 3

UNICEF Sanitation Marketing Learning Series

Sanitation Supply Chains and Business Models: How can we improve market systems?

Jeff Chapin and Danielle Pedi

- How to understand and research sanitation supply chains and businesses
- How to use the Business Model Canvas as a tool to understand, plan and improve sanitation business models.
- How to assess common sanitation business models, including what works and what doesn't work
- Practical tips and steps for UNICEF in planning and managing business model design and testing

1. Harnessing the power of the market

Sanitation Marketing (SanMark) rests on the fundamental premise that private businesses can play a much greater role in providing sustained access to improved sanitation to low-income households. SanMark invests strategic support to help private businesses to sell more affordable, desirable products to traditionally un-served consumers. We do this by designing products that low-income households will actually want, purchase and use (see GN2 and GN5), delivering promotional and marketing messages to convince them to invest (see GN7), and, critically, developing the right business models to enable local businesses to profitably produce and sell the new products and services.

This Guidance Note offers tips for understanding sanitation supply-side conditions (Step 2 in the SanMark 7-Step Framework) and identifying and testing supply chain strategies and sustainable business models for SanMark strategy development (Step 4 in the SanMark 7-Step Framework). It should be read alongside GN4: Private Sector Development.

2. Helping businesses deliver more value

Sanitation businesses – no matter how small or large - need business models that ensure financial viability. Businesses must make a profit to be able to sustainably offer products and services to new (or repeat) customers. A business model defines how a business creates, delivers and captures 'value' – the benefit that customers receive

by using a product or service. SanMark strategies help create value for customers by focusing on improving the product features, reducing its cost and making it easier for consumers to purchase. These three goals must be balanced alongside the need to ensure that the product can be profitably produced and sold.

Designing - or improving - sanitation business models typically involves trade-offs early in your SanMark strategy design. For example, you may find that the cheapest possible product is not something consumers are willing to invest in, and adding features (e.g. tiles, paint) or services (e.g. home delivery) can help businesses to greatly increase consumer value, even though it raises the final retail price. On the other hand, you may find that businesses simply cannot deliver certain features or options that consumers want (for example, due to limitations in access to raw materials, molds or other components). In this case, you will need to work within these market constraints, helping businesses deliver the most desirable and best possible options, even if the final product or service does not meet consumers' vision of a 'gold standard' ideal latrine.

3. Understanding the sanitation supply chain

The sanitation supply chain is the network of businesses involved in the production, delivery and sale of sanitation products and services to the consumer. A supply chain has three key parts: raw materials, manufacturing and distribution (Figure 1). Businesses that sell sanitation products and services work with and depend on other businesses to get final products into the hands of the end consumer.

Figure 1: Key Elements and Actors in the Supply Chain for Latrine Construction

Supply chain element	Raw materials	Manufacturing	Distribution	End Consumers
Typical sanitation actors	<ul style="list-style-type: none"> Sand suppliers Cement factories and suppliers Importers/large scale distributors Equipment/tool producers 	<ul style="list-style-type: none"> Masons Builders Concrete producers Plastics manufacturers 	<ul style="list-style-type: none"> Retailers Transport service providers Sales agents/promoters Masons Microfinance Institutions 	

As part of our market research (Step 2 in the 7-step Framework), we conduct in-depth, qualitative interviews and discussions with all the different types of businesses involved in the sanitation supply chain to answer key questions as listed in Box 1. This process is further described in GN5 and typically done in conjunction with household interviews in study villages.

At this stage we want to understand how a business's sanitation-related sales fit into their broader business portfolio, so it is good to probe beyond just sanitation. In most countries, sanitation products and services are delivered through the housing or construction supply chain, so we will need to understand where sanitation fits within these supply chains.

By talking to different businesses, we can develop a picture (a 'supply chain map') of how the market system works (Figure 2). For example, we might speak to a pour-flush pan importer in the capital city, a pan distributor in a district market center and a pan retailer in a village. By talking to these different actors, we start to understand the costs, prices and profit margins for a particular input or service (e.g. a bag of cement or truck transport) at each step of the supply chain. This helps us identify where the bottlenecks and barriers are, and how to address them. For instance, in their supply chain research, UNICEF Malawi found that it was very difficult and costly to get cement in their target area (a common challenge in rural Africa), so began working with local masons to re-design latrine products using traditional no-cement building techniques. In supply research, we will need to 'follow the supply' of necessary inputs, which will often mean venturing beyond national borders and understanding costs associated with import of key materials and inputs. UNICEF is currently researching regional sanitation supply chains in East Africa to understand cross-border challenges and opportunities.

Tips

Box 1: Key questions for initial supply chain interviews

What types of businesses are involved in sanitation? What are the geographic locations of key markets/businesses and business networks?

For each different type of business, what are their approximate size, product and service offerings (including sanitation- and non-sanitation products), and existing customer base?

What are their typical approaches to business and financial management, human resources, cash flow and credit?

What current approaches to marketing, promotion and sales are used?

What sanitation products, components and material inputs are available, including prices, profit margins and volumes? What construction and related maintenance services and skills are available?

How do input suppliers, manufacturers, transport service providers, and others link together? And how do similar types of businesses compete and/or collaborate?

What is the estimated scale of market activity, including the number and geographic scope of market players and distribution channels?

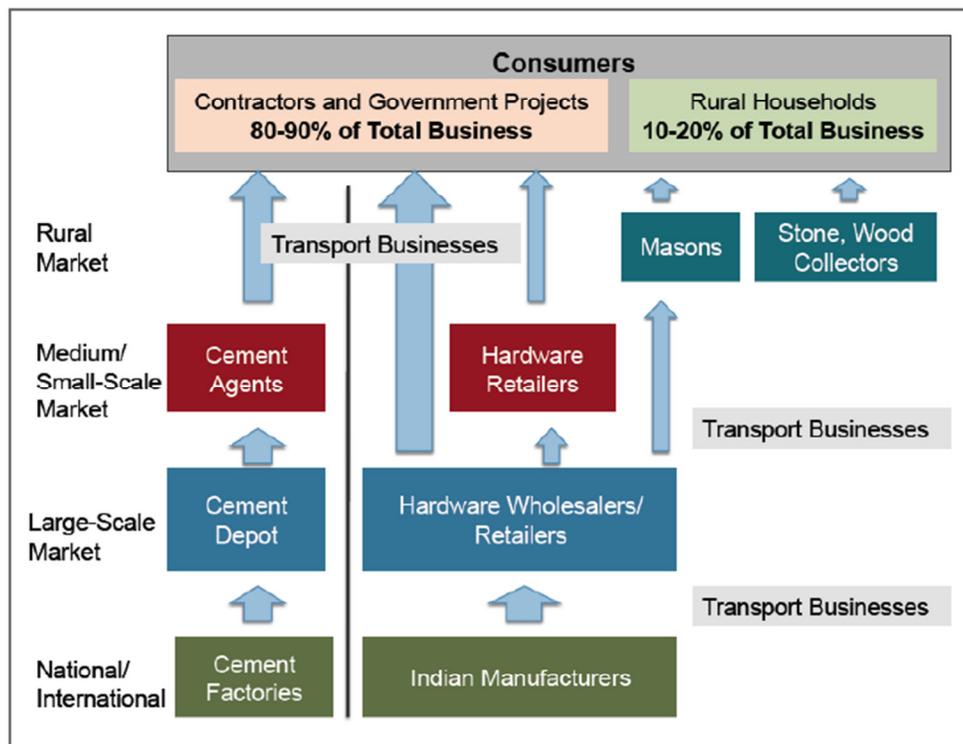


Figure 2: A supply chain map generated from supply chain analysis in SNV's Rural Sanitation and Hygiene Programme in Bhutan

4. Assessing sanitation business models

The insights we collect on existing sanitation businesses and available products help us understand how to get the sanitation market functioning more effectively. We can determine which businesses might be engaged as program partners (GN4), what existing products might be part of the program (GN5) and how these can be improved. In fact, many UNICEF programs already have some experience working with sanitation businesses, including masons and retailers. In countries such as Indonesia and Bangladesh, previous government programs may have already attempted to kick-start rural sanitation markets by offering support to small businesses. Rather than 're-inventing the wheel,' SanMark supply chain research can start by systematically analyzing the businesses that already exist and that UNICEF already support.

To understand these businesses, we need to understand their business models. In *Business Model Generation*, Alex Osterwalder and Yves Pigneur provide a framework and tool for thinking about business models. The framework covers the four main areas of a business:

- 1) Offering:** The products and services that a business offers to meet the needs of its customers. These are the **value proposition** of a business and what distinguishes the business from its competitors.
- 2) Customers:** The different **customer segments** that a business tries to serve with its offering. The **channels** through which the business delivers value to the different customer segments (e.g. retail store front, village events, etc) and the **relationships** that a business creates with its customer segments.

3) **Infrastructure:** The **key activities** that the business performs to execute its value proposition. The **key resources** that are needed to create value (can be human, financial, physical or intellectual) and the **partners** needed to complement a business so it can focus on its core activities (e.g. suppliers, service providers, etc).

4) **Finances:** The **costs** of doing business (including fixed costs, variable costs, economies of scale, etc) and the **income** that comes from each customer segment (which may include asset sales, usage fee, subscription services, etc). Income must be greater than costs for a business to be profitable.

These four areas are captured and defined in the Business Model Canvas, which is a useful tool for working through the details of a business model (see Resources section). By mapping the activities of a sanitation business with this tool, we find out exactly how sanitation businesses work, where they don't work well and how they could be improved and expanded to serve our target markets. Are the masons in our program making enough profit to sustain their operations? Can they access the molds they need at an affordable price? Are the SaniMart/Rural Sanitation Mart (RSM) retailers making it easy enough for consumers to get all the materials and labor they need to install the final product?

Many sanitation program supply-side strategies have not gone to scale because they have made incorrect assumptions about what consumers want, what the main market bottlenecks are and how best to address these. For example, we've learned the hard way that training masons in technical construction alone is usually not enough to catalyze a sanitation market if their opportunity costs of engaging in building latrines is too high. Using the Business Model Canvas, we can map the *infrastructure* required for masons to offer sanitation services and understand the *finances* involved (*costs* and *incomes*). These can be compared to the efforts and profits masons make from their other *offerings*, such as house construction, farming, or sale of labor. By not considering the opportunity cost to the mason, our training efforts may result in many 'trained' masons, but few actively involved in selling sanitation.¹

We've also learned that SaniMarts/RSMs that are 'set up' by external programs to sell only sanitation products are often not viable.² Analyzing these situations with the Business Model Canvas, we often find that RSMs are not viable because the *cost structure* and *resources* required to run a fixed location business cannot be covered by the *revenue* generated by selling only sanitation, and that there is not a large enough *customer* base at the rural level where these shops are being established.

So what IS working when it comes to sanitation business models? The best models will be those that adequately address the four key areas of the business, with enough profit to sustain and grow.

The essential thing to remember is that the right business models and products will be completely determined by the existing market barriers and opportunities: 'transplanting' a model from one context to the next may work some of the time, but only if the market conditions are similar. In Figure 3, we map two fairly common sanitation businesses and highlight conditions where these models might be suitable.

¹ See Water for People (n.d.) for lessons learned from the failure of a mason model in Malawi (see Resources below).

² See Kumar et al. (2011) and Hanchett et al. (2011) for evaluations of RSMs in India and Bangladesh respectively.

Figure 3: Mapping two common sanitation business models

	Masons	One-stop-shop Precast Concrete Business
Offering (Value Proposition)	<ul style="list-style-type: none"> Service model: Usually offer full cast-on-site production and installation service in exchange for cash Best if offering a small range of standardized designs at different price points Builds on existing masonry skills, but usually requires some training in new techniques or designs to lower costs and increase value 	<ul style="list-style-type: none"> Consolidation of all latrine components at a single 'one-stop-shop' location to make purchasing easier Best if offering a small range of standardized designs at different price points Innovative models include home delivery to reduce purchase and transport difficulty Intuitive designs allow for self-installation, or add-on installation services offered for an additional fee
Customers	Segments: <ul style="list-style-type: none"> All households within a mason's village or nearby villages without a latrine or with a poor quality latrine. 	Segments: <ul style="list-style-type: none"> All households without latrines or with poor quality latrines within a feasible transport distance Early evidence (e.g. from Cambodia) shows initial sales to higher income quintile 'early adopters.'
	Relationships: <ul style="list-style-type: none"> Long-term, multiple transaction. Customers and masons typically know each other and have conducted business in past and/or may do so in future 	Relationships: <ul style="list-style-type: none"> Can be a short-term transactional relationship. Sanitation often used as an 'entry point' to expand rural client base for other products and services (concrete grave stones, house posts, rain water tanks)
	Channels: <ul style="list-style-type: none"> Often reach customers with support of social marketing by government or community-based promoters (e.g. Benin) and/or CATS facilitators Word-of-mouth from neighbors and family Some masons trained in door-to-door sales (e.g. Benin, Cambodia) Interpersonal communications are usually most effective: village events, door-to-door sales 	Channels: <ul style="list-style-type: none"> Often reach customers with support of social marketing by government or community-based promoters (e.g. Tanzania) and/or CATS facilitators In some countries (e.g. Cambodia, Indonesia), local promoters are commission-based agents, receiving payment for each latrine sale Interpersonal communications are usually most effective: village events, door-to-door sales

	Masons	One-stop-shop Precast Concrete Business
Infrastructure	Key Partners: <ul style="list-style-type: none"> Village based promoters from government & NGOs Sometimes certified by government 	Key Partners: <ul style="list-style-type: none"> Raw material suppliers. Village based promoters (often commission-based) from government & NGOs Sometimes certified by government (e.g. Vietnam, Indonesia)
	Resources: <ul style="list-style-type: none"> Slab molds Masonry tools In some cases, molds are provided by external programs 	Resources: <ul style="list-style-type: none"> Concrete fabrication equipment (molds, mixer, hand tools). Raw materials Truck and/or motorcycle with trailer Laborers Capital to build stock and buy equipment Adequate space for stock
	Key Activities: <ul style="list-style-type: none"> Slab fabrication Latrine construction Manage basic financial transactions 	Key Activities: <ul style="list-style-type: none"> Production and pre-casting of latrine components Delivery of latrines Financial and human resources management
Financial Viability	Revenue streams: <ul style="list-style-type: none"> Sales of completed latrine (often with some pre-payment and installments) 	Revenue streams: <ul style="list-style-type: none"> Cost-plus model (cost of goods plus a profit margin) Discounts for group bulk purchases Small premiums for add-ons (e.g. installation service)
	Cost structure: <ul style="list-style-type: none"> Variable cost in raw materials 	Cost structure: <ul style="list-style-type: none"> Fixed investment in fabrication equipment Variable investment in raw materials, marketing costs (brochure & banner printing), vehicle fuel and maintenance Per-sale commissions to sales agents
Most suitable for	<ul style="list-style-type: none"> Less developed markets with no existing pre-casting businesses More rural, remote areas where transport and low population density is a major constraint 	<ul style="list-style-type: none"> Where local pre-casting businesses already exist Areas with reasonable transport infrastructure and higher population density

5. Planning and managing the process

The success of any SanMark program will depend heavily upon finding the right products and business models for your country context. As UNICEF country programs look to introduce or improve SanMark initiatives, you will need to understand the business context into which you are entering. UNICEF will be acting as a catalyst for the private sector – so we need to ensure that we are catalyzing sustainable, profitable enterprises.

Here are some key activities to help you in the early stages of your business model design:

Activity 1: Better understand the existing business landscape within the country and region. In most cases, SanMark businesses are evolved from or added to existing businesses. Thus we often inherit a business model that is already working to some degree. We need to fully understand existing models in order to successfully introduce new sanitation offerings to these businesses while mitigating their risk. Supply-side research can be done by UNICEF or contracted to a consulting firm or development partner with the right skills in market and business development.

It is often most useful to conduct demand and supply research together (Step 2 of the SanMark 7-Step Framework). UNICEF Sierra Leone hired a market development firm to do both household consumer and supply chain research and to develop business model and communications recommendations (More market research tips are provided in GN2 and GN5)

Activity 2: Find the right type of business to work with and help them to introduce sanitation products and/or services to their offering (step 4 of the SanMark 7-Step Framework). This will often require some rethinking of their core business and will often result in an improvement of their entire business model. In Malawi, UNICEF is training District-level government partners to use the Business Model Canvas tool so that they can test and experiment with different models in different areas and systematically examine what works best. Start your research and business modeling with an open mind, and do not assume that you must work with a particular business type, such as masons. Begin with one or two businesses during the initial trialing and testing phase, and then expand through replication when you feel you have some workable models (see GN4 for more discussion on phases). If there is no existing business that would be a good partner, then the task is more difficult: building a new business from scratch with entrepreneurs. It can be done, but it is much higher risk.

Activity 3: Work with the businesses over time to iteratively improve their approach. This will involve the design and execution of experiments that affect the relevant aspects of the business model (per the Business Model Canvas). Guidance Note 4: Private Sector Development offers tips and guidance on the types of training and iterative business development strategies you can apply. In the book *The Lean Startup*, Eric Reis talks in great detail about how to approach iterative development of a business.

6. Investing in Business

In your SanMark programs, UNICEF and your partners are essentially acting as investors in the private sector, through financing, training, capacity building and market awareness development. As any good investor, UNICEF should carefully review the research, understand the business models that work, and weigh up the programmatic costs of business support. UNICEF will obtain the greatest return on investment if you choose strong business partners and take an active role in helping them build viable businesses.

Resources for Further Reading

Books

1. Osterwalder, Alex; Pigneur, Yves; and Smith, Alan (2010). *Business Model Generation*, Wiley.
2. Reis, Eric (2011) *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. Crown Publishing.

Tools

1. Business Model Canvas (downloadable): www.businessmodelgeneration.com/canvas
2. Business Model Canvas (App): www.businessmodelgeneration.com/toolbox

Talks

Alex Osterwalder on “Business Models Beyond Profit”: <http://slidesha.re/15BMJ>

Supply Chain Studies and Case Studies

1. UNICEF Malawi (2011) Market Assessment of Rural Sanitation in Malawi: Demand, Supply and the Enabling Environment for Sanitation in Dowa, Mangochi and Nkahta Bay. Prepared by Ben Cole. November 2011.
2. UNICEF Sierra Leone (2011) Sanitation Marketing Study: Demand and Supply Chain Assessment for Sanitary Latrines in Urban and Rural Areas of Sierra Leone. Prepared by NestBuilders International, Sierra Leone.
3. SNV (2012). Sanitation Supply Chain Analysis Pemagetshel Dzongkhag: PHED-SNV Rural Sanitation and Hygiene Programme. Prepared by Danielle Pedi.
<http://www.snvworld.org/en/countries/bhutan/publications/supply-chain-study-in-pemagatshel-district>
4. See WSP Sanitation Marketing Toolkit to download supply chain studies from Cambodia, India, Indonesia and Tanzania: <http://www.wsp.org/toolkit/conducting-formative-research>
5. Water for People, (n.d.) Rural Sanitation Marketing: Is it Possible?
<http://sanitation.tap.waterforpeople.org/documents-library/malawi/rural-sanitation-marketing-is-it-possible>

About the UNICEF Sanitation Marketing Learning Series

This Guidance Note is part of the UNICEF Sanitation Marketing Learning Series, a learning initiative designed by the University of California Davis (UCD) to improve Sanitation Marketing knowledge and practice within UNICEF. The Learning Series is delivered by Mimi Jenkins (UCD and London School of Hygiene and Tropical Medicine), Danielle Pedi (Consultant, WASH Catalyst), Jeff Chapin (Consultant, IDEO), and Mike Rios (17 Triggers Behavior Change Lab).

The ten Guidance Notes in the Series are available for download here: <http://uni.cf/Xo2o2l>

1. *Situation Analysis – How do I know if SanMark will work in my country?*
2. *Consumer Behavior – How can we understand sanitation consumers in target markets?*
3. *Sanitation Supply Chains and Business Models – How can we improve market systems?*
4. *Private Sector development - How do we improve capacity of local sanitation businesses?*
5. *Getting the Product ‘Right’ – How do we design affordable, desirable latrines that businesses can profitably produce and sell?*
6. *Enabling Environment – What roles and functions are needed in the new market?*
7. *Demand Promotion and Marketing – How do we reach rural target markets in san mark?*
8. *Equity in Sanitation Marketing - How can we support the market to reach the poorest?*
9. *Monitoring and Evaluation – How do we measure sanitation marketing progress?*
10. *Sanitation Marketing and CATS – How do we link approaches?*