

**Synthesis Report on Technical Assistance P132201:  
Cambodia Sanitation Marketing**

April 17, 2015

## Contents

List of Figures .....	3
List of Tables .....	3
List of Abbreviations .....	3
Acknowledgements .....	4
Executive Summary .....	5
1. Introduction .....	7
2. Background and Context.....	7
3. Technical Assistance Objectives and Results .....	11
4. Implementation Process and Innovations Introduced.....	12
4.1. Professionalizing sales.....	13
4.2. Implementing sanitation behavior change communications through local government .....	14
4.3. Offering sanitation credit .....	15
4.4. Development of latrine design for application in challenging environments.....	15
5. Key Results .....	16
6. Lessons Learned and Challenges.....	18
6.1. Sanitation marketing contributes to realizing sanitation demand among the majority of rural households but with limited success in reaching the poor .....	18
6.2. Seasonality need not be a major deterrent for sales .....	19
6.3. Incomplete product solution is associated with time lag between latrine purchase and installation .....	20
6.4. Low prices of latrine may not be the best for the consumer as it can undermine the sustainability of enterprise motivation .....	20
6.5. Leveraging existing supply chain actors is important for optimizing customer experience .....	20
6.6. Solution to challenging environments will require more research on products and financing options ....	21
6.7. Local governments play a significant role in facilitating private sector engagement to accelerate access to sanitation .....	21
6.8. Latrine businesses showed low interest in managing sales force and other models of market facilitation were needed to ensure sustained impact.....	22
6.9. Financing could have significant impact on latrine uptake among the poor .....	22
6.10. A poor-inclusive sanitation loan program has a relatively low risk profile and can be financially viable ..	23
6.11. Rolling out sanitation finance requires close coordination with developing sanitation market actors ....	24
6.12. Scaling up sanitation market development requires a local institutional mechanism to carry out critical functions currently performed by NGOs as market facilitators .....	25
7. Recommendations and Way Forward.....	26
7.1. Strengthening of sector collaboration in sanitation market development agenda .....	28
7.2. Establishment of institutional mechanism for long-term support to sanitation market development....	28
7.3. Implementation of large-scale behavior change communication campaign to complement the private sector effort .....	29
7.4. Strategic engagement with microfinance institutions in providing microcredit for sanitation .....	30
8. Resource pack and deliverables under this TA .....	30
8.1. Documentations produced under the TA .....	30
8.2. Materials developed under the TA .....	30

Annexes .....	32
Annex 1: Sales tools used by sales agents.....	32
Annex 2: Tools used by local government for behavior change communications .....	33
Annex 3: Estimating sanitation coverage .....	36
References .....	39

## List of Figures

Figure 1: Access to rural sanitation by consumption quintile in 2011 (CSES).....	8
Figure 2: Easy Latrine.....	9
Figure 3: Latrine purchase process and supply chain .....	10
Figure 4: Cost and margin distribution across the supply chain .....	11
Figure 5: Prototype designs for moderate flood and severe flood .....	16
Figure 6: Theory of Change for building sanitation market.....	18
Figure 7: Average sales of 2012 and 2013 .....	19
Figure 8: Cost of Easy Latrine in relative to monthly household consumption with and without financing (assumed USD 50 costs spread through six monthly installments) .....	23
Figure 9: Average Weighted Loan Self Sufficiency Ratio for two MFIs.....	24
Figure 10: Average Acquisition Cost per Loan for two MFIs.....	24
Figure 11: Current landscape of sanitation marketing engagement in Cambodia .....	26
Figure 12: Proposed long-term institutional set up for sanitation market development .....	29
Figure 17: District-wide change in coverage between Jan 2012 and Aug 2013, showing 95% confidence intervals ..	38

## List of Tables

Table 1: Results Achieved versus Intermediate Outcomes .....	11
Table 2: Key information of Svay Rieng and Kandal .....	12
Table 3: Summary of project results.....	16
Table 4: Key findings from the review and proposed potential activities to address the issues identified .....	27

## List of Abbreviations

BCC	Behavior Change Communications
CCWC	Commune Council for Women and Children
CLTS	Community-led Total Sanitation
DORD	District office for Rural Development
DRHC	Department of Rural Health Care
IDE	International Development Enterprise
MFI	Micro Finance Institution
MRD	Ministry of Rural Development
NGO	Non-Governmental Organization
NSP-RWSSH	National Strategic Plan – Rural Water Supply, Sanitation and Hygiene 2014-2025
ODF	Open Defecation Free
PDRD	Provincial Department of Rural Development
SNV	Dutch Development Organization
TA	Technical Assistance
WSP	Water and Sanitation Program
WTO	World Toilet Organization

## Acknowledgements

This report is a synthesis of the technical assistance (TA) 'Cambodia Sanitation Marketing' (P132201) carried out by the World Bank's Water and Sanitation Program (WSP). The synthesis including lessons and recommendations has been developed based on the various documentations throughout the TA implementation, consultations and meeting with Ministry of Rural Development and key stakeholders. The Task Team Leader for this TA is Phyrum Kov. The following World Bank staff have provided valuable contributions: Susanna Smets, Jemima Sy, Virak Chan and Almud Weitz. The peer reviewers are Lixin Gu (Sr. Infrastructure Specialist, GWADR), Claire Grisaffi (Water and Sanitation Specialist, GWADR) and Belinda Abraham (recent UNICEF Cambodia WASH Chief).

## Executive Summary

### **Government strategy on rural sanitation and market development**

Cambodia has the lowest access to rural sanitation in the South East Asia region which was only 25% by 2012. The majority of the rural population, more than 65%, still practice open defecation in the field. Against this backdrop, the Government of Cambodia has set an ambitious target for universal access to sanitation in rural areas by 2025 and has laid out key strategies and principles in the National Strategic Plan for Rural Water Supply, Sanitation and Hygiene 2014-25 to reach the target. One of the key pillars to achieve the rural sanitation outcomes in the NSP-RWSSH, is the at-scale engagement and capacity building of local private enterprises in the delivery of affordable sanitation products and services to rural households. This reflects the Government's theory of change that requires the private sector to play a critical role in responding to the demand of rural households. Hence, capacity building of domestic private sector for the delivery and marketing of affordable and aspirational toilets is an integral part of the NSP-RWSSH. The NSP-RWSSH also articulates the role of local government supported by development partners and NGOs in demand creation, such as through Behavior Change Communications (BCC), and/or Community-Led Total Sanitation approaches (CLTS), as well as the need for an enabling environment for service delivery, including adequate planning, budgeting, implementation and monitoring capacities and arrangements.

### **What was the TA trying to achieve?**

To support the government in this endeavor, a Technical Assistance (TA) carried out by the World Bank's Water and Sanitation Program (WSP) was initiated for the period of July 2011 to February 2015 building on the early pilot of sanitation market development in the Cambodia and global experiences. The TA aimed at strengthening poor-inclusive markets for sanitation services to rural households by focusing on more effective sales and marketing strategies for the local private latrine businesses, complementary finance options for poorer households and diversification of products. More importantly, the TA also explored the role of local government in creating a supportive environment for the market to flourish and to systematically facilitate the role of the private sector.

### **What did the TA cover and what was achieved?**

Three out of Cambodia's 24 provinces, Svay Rieng, Kandal, and Prey Veng, with a total population of around 650,000 people, were selected for the implementation of the TA, between July 2011 and December 2013, to generate in-depth focused learning to inform the sanitation market development at scale and the private sector delivery to the poor. Four main components were covered in the TA: i) sales professionalization, ii) implementation of behavior change communications, iii) provision of access to finance for sanitation and iv) development of latrine design suitable for challenging environments. The lessons from this TA also directly informed a larger sanitation marketing support program, covering seven provinces. In 2014, a sector-wide review of sanitation marketing approaches in Cambodia was also conducted to understand key bottlenecks and identify potential solutions for sustainable sanitation market development in Cambodia.

After 30 months of implementation (July 2011 – December 2013), results achieved are substantial:

- The local private sector has catered more than 50,000 latrines to rural households
- The provinces where the TA was taking place experienced an average 10 percentage point increase in overall sanitation access, more than three times the national average increase within the same time period.
- The increase in sanitation access among the poor was eight percentage point indicating the challenges that the private sector has in reaching the poorer segment of the population.
- The private sector's revenue was estimated to amount to nearly USD 2.6 million from the sales of the underground latrine core.
- More than USD 600,000 was disbursed by two microfinance institutions (MFIs) to nearly 10,000 cash-constrained households, enabling them to gain access to improved sanitation.

### **What have we learnt?**

A number of lessons have been learnt from this TA which are being used to inform future support to the Cambodian government in the implementation of the NSP-WRSSH. Lessons can be summarized as follows, with a more comprehensive description in Section 6:

### *Business model*

- The existing product solution, which only covers the underground part, is associated with a time lag between purchase and installation, with households “saving-up” for the ideal shelter. Offering a complete low-cost solution, and improving behavior change communications will be required to accelerate installation rates
- Low prices of latrine may not be the best for the consumer as it can undermine the sustainability of enterprise motivation. As in other businesses, latrine businesses need to make profit to continue producing and selling latrines.
- Solution to challenging environments, in particular flood-prone areas, will require more research on products and financing options. An incremental “adaptation” of existing design and business model was not sufficient to address the particular challenging environments through a market-based solution.

#### *Sanitation financing and reaching the poor*

- Sanitation marketing contributes to realizing sanitation demand among the majority of rural households but with limited success in reaching the poor.
- Providing micro-financing for cash-constrained households can make a significant contribution to latrine uptake among the poor.
- A sanitation finance program through Micro Finance Institutions (MFIs) has demonstrated a low risk profile and can be financially viable, and requires close operational collaboration between all actors at local level.

#### *Building industry-level capacities and public support*

- Latrine businesses showed low interest in managing sales force and other models of market facilitation were needed to ensure sustained impact.
- Scaling up sanitation market development requires a local institutional mechanism to carry out critical functions currently performed by NGOs as market facilitators.
- Local governments play a significant role in facilitating private sector engagement to accelerate access to sanitation. They can play a key role in on-the-ground demand creation, as well as in coordination and facilitation of market development.

### **Recommendations and way forward**

Based on the learning from the implementation and the sector-wide review of sanitation marketing, the following recommendations were identified for taking sanitation market development further:

- Sector collaboration in sanitation market development should be strengthened on knowledge agenda and joint activities.
- An industry association for sanitation private sector could be established to provide sustainable support to the sanitation market in Cambodia.
- Government-led, large-scale branded behavior change communication campaign should be conducted to complement the private sector effort.
- Strategic engagement with MFIs in providing microcredit for sanitation should be pursued by working closely with the Cambodia Microfinance Association

In addition to these recommendations, further research and implementation is needed to understand how partial subsidies and/or other incentives can best be delivered to accelerate access among the poorest, especially for those who might have difficulties in accessing sanitation finance loans.

## 1. Introduction

This report synthesizes the Technical Assistance (TA) “Cambodia Sanitation Marketing” carried out by the World Bank’s Water and Sanitation Program (WSP) from July 2011 to February 2015 in support of developing the rural sanitation market in Cambodia. It documents the results and lessons learned and makes recommendations to government on how - with support of development partners – the effectiveness and scale of the sanitation market can be increased to achieve sustainable sanitation outcomes for rural Cambodians.

This TA is part of a larger support program to assist the Government of Cambodia, notably the Ministry of Rural Development, to increase access and use of improved sanitation in rural areas of Cambodia. Technical Assistance P132212 is a complementary effort that focusses on strengthening the policy and enabling environment for rural sanitation service delivery at national and sub-national level (implemented from January 2015 to April 2016).

## 2. Background and Context

### ***Government strategy on rural sanitation and market development***

Over the past decade, Cambodia has made significant progress on rural sanitation and access to improved sanitation has increased from 10% in 2000 to 25% in 2012<sup>1</sup>. Despite this progress, the country’s sanitation coverage remains the lowest in the South East Asian region, and 66% of the rural population, or around 7.8 million people still practice open defecation in 2012<sup>2</sup> in rural areas. Informed by the detrimental economic cost of poor sanitation (Kov, Sok, Roth, Chhoeun, & Guy, 2008) and the link between open defecation and child stunting (Vyas, Spears, Kov, & Smets, 2013), the Royal Government of Cambodia has formally committed to accelerate progress and achieve universal access to sanitation in rural areas by 2025. To fulfill this commitment, the Government has laid out the National Strategic Plan for Rural Water Supply, Sanitation and Hygiene 2014-25 (NSP-RWSSH). Under the National Strategic Development Plan (NSDP) 2014-2018, the government has set out an ambitious target for rural sanitation of 60% access by 2018. Achieving this accelerated increase in sanitation coverage requires multi-faceted approaches namely demand side interventions, supply side interventions, and improving the enabling environment. In this regard, one of the key pillars to achieve the rural sanitation outcomes in the NSP-RWSSH is the at-scale engagement and capacity building of local private enterprises in the delivery of affordable sanitation products and services to rural households. Such recognition of the role of the local private sector in sanitation service delivery provides a ‘non-impediment’ environment for the private sector to engage actively in the sanitation market. Yet, a clear mechanism for systematically supporting the private sector in sanitation has not been established.

### ***The untapped market potential for sanitation***

The majority of people in the rural areas still practice open defecation, including those who are better off. According to Cambodia’s Socio Economic Survey (2011), up to 40% and 60% of the population in the richest and second richest consumption quintiles in rural areas still practice open defecation (see Figure 1). Among the poorest quintile access to improved sanitation is as low as 12%. The World Bank Poverty Assessment 2013 (World Bank, 2013) indicates that those in the poorest quintiles increasingly own other durable assets, such as television (63% in 2011), motorbikes (56.5% in 2011), and mobile phones (63% in 2011) indicating affordability of poor households to invest in products with high value or perceived benefits to them.

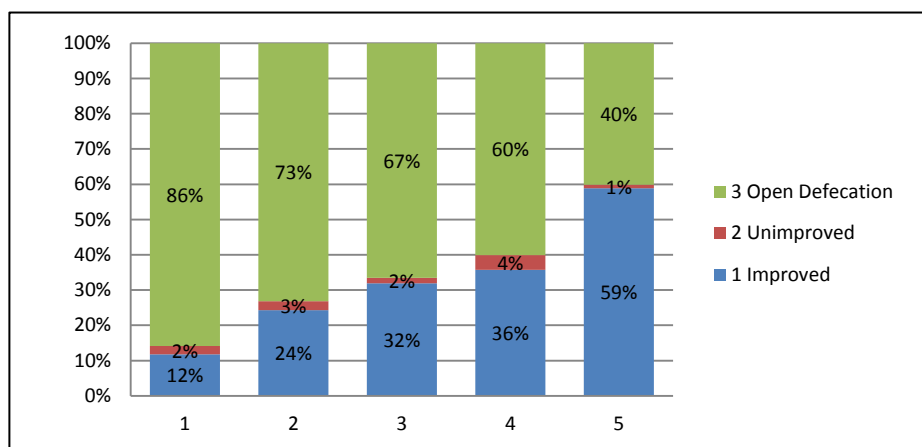
A demand and supply assessment (Salter, 2008) carried out for rural sanitation in Cambodia showed that four out of five rural households with toilets have directly purchased those from local private enterprises and have self-invested in these assets. The historical role of the local private sector in providing sanitation services to rural households, combined with a still untapped better-off segment of the rural population, presents a great opportunity for the sanitation market to expand and realize its potential.

---

<sup>1</sup> Joint Monitoring Programme (JMP) of UNICEF and WHO (2014) Progress on Drinking Water and Sanitation – Update 2012

<sup>2</sup> Latest data from the Cambodia Inter-Censal Population Survey (CIPS, 2013) indicate that access to improved sanitation has increased to 38%.

Figure 1: Access to rural sanitation by consumption quintile in 2011 (CSES)



Thus, tapping the sanitation market to serve the majority of the rural population is a relevant strategy to accelerate sanitation access in rural Cambodia. However, the supply and demand assessment showed that the supply chain for rural sanitation services was highly fragmented. Latrines comprised only a small percentage of any enterprise's total activity. Private enterprises had a very passive sales approach and were not involved in promotional activities. Households did not have access to information on available options and costs. The latrine construction process was complex and involved the purchase of a variety of construction materials from different shops, which were brought together and assembled into a latrine by a hired mason and/or the household itself. Masons often provided poor quality construction and were not a particularly trusted source of information on sanitation. Considering the low access of sanitation in rural Cambodia, the potential market volume for the private sector for one-time sales of an underground latrine product alone could be worth up to around USD 60 million<sup>3</sup>. More value could be generated if complementary products and services are to be provided by the private sector such as providing latrine shelter, upgrading or replacing the latrines, and potentially providing emptying services.

Further developing the sanitation market in rural Cambodia requires the Government to stimulate overall demand for sanitation among rural households, while addressing barriers that consumers and the private sector are facing. In this way, Government can facilitate the private sector to continue to play its critical role in sanitation service provision at scale. The Government's policy and strategy are encouraging the role of the private sector in sanitation. Market barriers are largely contained within the value chain such as lack of capacity in generating sales, fragmented supply chain, passive sales approach, and a lack of financing for businesses as well as households. Moreover, the capabilities and resources available for Government to stimulate demand and perform other functions related to sanitation service delivery are limited.<sup>4</sup>

### ***Sanitation marketing background in Cambodia***

Sanitation Marketing is an approach that aims to increase access to sanitation by applying commercial marketing techniques to stimulate demand and to strengthen private sector capacity to offer sanitation products and services. The approach focuses on engaging the private sector in service delivery and views households as consumers rather than beneficiaries. This is what sets sanitation marketing apart from conventional approaches to sanitation service provision.<sup>5</sup>

<sup>3</sup> The estimate is based on market price of USD 50 per underground latrine core product, consisting of pan, slab, piping, chamber box and rings for soak pit, and excludes the shelter. The coverage rate used for calculation is based on JMP (2014), i.e. 25% in 2012, and market potential is based on assumptions where 80% of households latrines built are sourced from private sector.

<sup>4</sup> TA P132212 addresses the bottlenecks in service delivery through government, while this TA focusses on the elements that relate to facilitating private sector involvement.

<sup>5</sup> Such traditional approaches typically supply latrines to a selected number of households through project-procurement chains, which often cannot be easily accessed by household themselves. Limited funds for full-subsidy approaches put limits to the scalability of these interventions. If delivered without adequate behavior change or demand creation project supply of latrines could put the sustainable use at risk. Scaling-up rural sanitation will require sanitation market development, delivery of effective behavior change communication, as well as a strong enabling environment with a focus on equity. For more information refer to "What Does it Take to Scale up Rural Sanitation? (Perez, et al., 2012)

Although sanitation marketing has been formally embedded in the NSP-RWSSH only recently, the journey started in 2008 with WSP assisting the Government with an in-depth demand and supply analysis to better understand the reasons behind slow progress in rural sanitation. Based on the analysis, a number of potential supply-side interventions were identified including i) developing low-cost latrine designs, ii) improving supply chain coordination, and iii) building capacity of enterprises in effectively delivering sanitation products and services to rural customers. In 2009, with the support of WSP, a sanitation marketing pilot was launched that focused on developing an affordable and aspirational latrine product, strengthening of the supply chain, and delivering communication and promotional activities through the private sector. The pilot introduced a newly designed latrine –known as the “Easy Latrine” – that meets the needs and desires of rural consumers. The marketing of the Easy Latrine contributed to the acceleration of sanitation access in the pilot areas of Kandal and Svay Rieng to 6% annually, which represented a rate six times the national rural average rate of increase of 1% over the pilot period from January 2009 up to April 2011 (Pedi, Kov, & Smets, 2012).

During the same period, a number of non-governmental organizations (NGOs) such as iDE, WaterSHED, World Toilet Organization (WTO) and others have also been implementing market-based approaches to sanitation. As of 2012, sanitation marketing activities have taken place in 130 districts<sup>6</sup> (70% of districts in Cambodia). Although this indicates the wide-scale application of the sanitation marketing approach in Cambodia, those districts are largely around the densely populated corridor of the country. Its applicability could be more challenging in poorer or more remote areas of the country, and more learning needs to be conducted in this area.

It is important to note that the latrine product, the Easy Latrine, only refers to the substructure part of the latrine (see Figure 2). Households then choose to build a shelter at their own additional cost, pace and according to their preference, which could be made of local organic materials, bricks or other materials.

Figure 2: Easy Latrine



#### **How sanitation products and services are offered in sanitation marketing**

Traditionally, although the local private sector has played an important role in delivering sanitation products and services, the latrine purchase process has been complex requiring households to identify a mason, source the materials from different shops, and arrange for transport. Moreover, the latrine producers’ sales approach was often rather passive without conducting any outreach activity to generate demand for latrine products. One of the key interventions introduced in sanitation marketing is to simplify the purchase process of sanitation products and services for rural households by improving the effectiveness and efficiency of the supply chain. The new supply chain model targets existing local producers of prefabricated concrete products as focal enterprises. Prefabricated concrete producers were already producing most of the concrete components for toilet construction, and could be found in good numbers at provincial and district level.

In the new model, these enterprises would act as a kind of ‘one-stop shop,’ procuring material inputs, manufacturing finished products, and coordinating sales and distribution of the new product package to households including home delivery, bringing the product directly to the consumer’s doorstep. An analysis of the

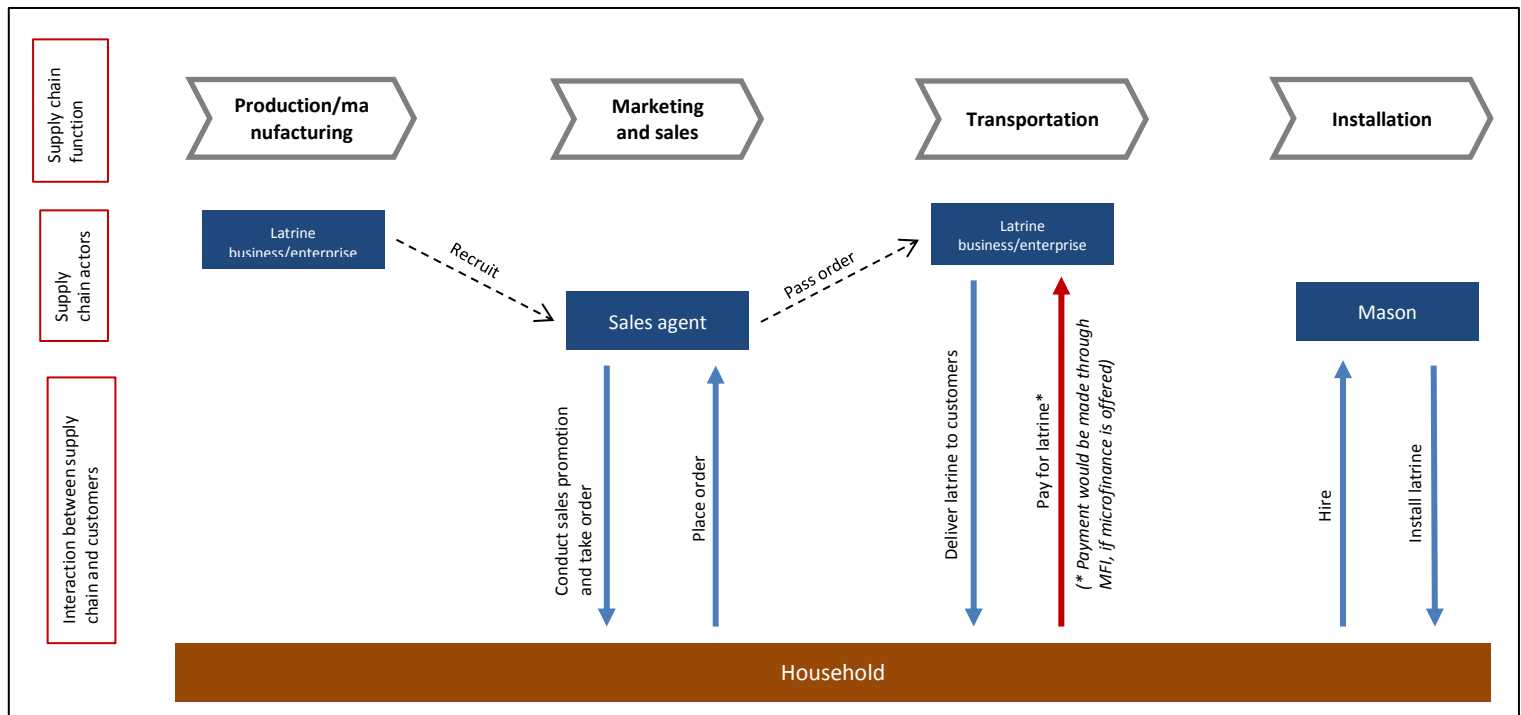
---

<sup>6</sup> Survey among sanitation marketing implementing partners conducted in August 2012

Geographical Information System (GIS) data across a number of enterprises showed that on average an enterprise could deliver sanitation products to a community located 8.8km away from their location.<sup>7</sup> The distance indicates the local nature of the enterprises with good presence at district level allowing more interaction with customers. With the one-stop shop model and the proximity to the customers, the enterprises would be held accountable to the quality of the latrine products offered to households.

Figure 3 below highlights the key steps in latrine purchase and the role of private sector in the supply chain. More information on sanitation marketing in Cambodia is provided in (Pedi, Kov, & Smets, 2012).

Figure 3: Latrine purchase process and supply chain landscape



As can be seen in Figure 3 the household's purchase process for a latrine has been much simplified where orders were placed with sales agents and households expected to get the latrine package (the underground part) delivered to their home within days. Depending on availability of labor, households could either install the latrine themselves or contract installation services with local masons.

With this supply chain model, the final cost for customers remains affordable compared to the traditional model while the suppliers can make a profit to continue the business. An analysis of the cost of the latrine across the supply chain average across the two provinces is provided in Figure 4. The key driver for the cost of the latrine is the raw materials which accounts for around 70% of the total latrine price. The operating profit for the latrine business/enterprise for each latrine sold was estimated to be around USD 4. The final price of a latrine incurred to customers was around USD 47.

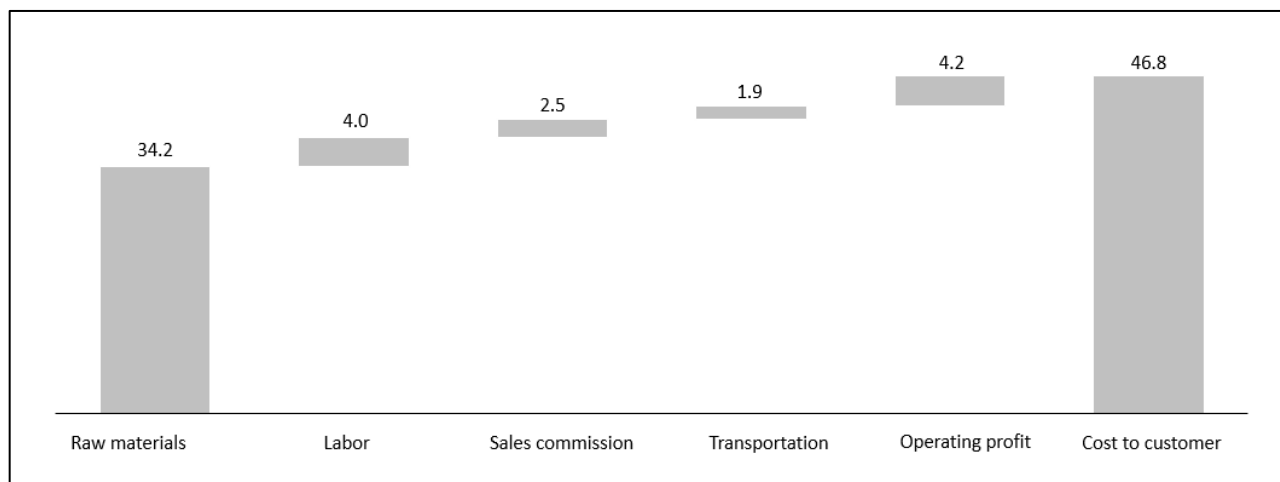
### Rationale of the TA

While the results of the early pilot showed promise, there were also a number of limitations. Enterprises were able to sell the Easy Latrine to a first group of households with latent demand (the 'early adopters'), but showed little evidence of penetration beyond this market segment. This low level of penetration still left the majority of households without latrines, particularly the poor. A comprehensive review of the early pilot highlighted the need for more effective sales and marketing strategies, complementary finance options especially for poorer households, diversification of products, and more attention to the role of local government in creating a supportive environment for the market to flourish and to systematically facilitate the role of the private sector.

<sup>7</sup> A study of drivers for latrine take-up in rural Cambodia: Analysis from two sanitation marketing programs

The current TA has built extensively on the lessons learned in Cambodia as well as globally as reflected in Pedi, et al. (2012), Perez, et al. (2012), and Sy, et al. (2014), available at [www.wsp.org](http://www.wsp.org).

Figure 4: Cost and margin distribution across the supply chain



### 3. Technical Assistance Objectives and Results

The development objective of the TA was to strengthen poor-inclusive markets for sanitation services to rural households, including those living in challenging environments. While improving sanitation at scale requires multi-faceted approaches including creating demand for sanitation, strengthening supply of sanitation products and services and improving the enabling environment, this TA focused on the demand and supply for sanitation through market mechanisms.

A summary of the results achieved under the TA are presented in Table 1.

Table 1: Results Achieved versus Intermediate Outcomes

No	Intermediate Outcomes	Indicators	Results
1	Private sector and local government capacity strengthened to implement and support innovative and differentiated marketing and sales strategies to increase adoption of toilets by poor rural households.	<ul style="list-style-type: none"> <li>Local private latrine producers are trained on the production, sale and marketing of latrine products</li> <li>National and local governments actively involved in sanitation demand creation and facilitating market development</li> </ul>	<b>Achieved</b> <ul style="list-style-type: none"> <li>87 latrine producers trained and 39 have remained active in sanitation business by December 2013</li> <li>5 districts and 27 communes in two provinces have been investing own funds on demand creation from sanitation after receiving start-up training</li> <li>Two Provincial departments coordinating sanitation marketing</li> </ul>
2	Innovative and sustainable financing mechanisms developed for replication at-scale to increase purchase of toilets by poor households through tailored financial products.	<ul style="list-style-type: none"> <li>Financial product for sanitation loan developed and tested</li> <li>Local banks/MFIs actively involved in processing loan for sanitation product and services</li> <li>Banks/MFIs loan profitability assessed</li> </ul>	<b>Achieved</b> <ul style="list-style-type: none"> <li>Sanitation loan product developed and tested by two Microfinance Institutions (MFIs) and delivered 2,000 loans within a nine-month period; replication is ongoing but slow</li> <li>Loan assessment carried out and findings published, i.e. low profitability but attractive to</li> </ul>

			support social mission and as tool for client acquisition for MFIs
3	Innovative design of sanitation options for environments with high groundwater and/or different levels of flooding developed for marketing.	<ul style="list-style-type: none"> <li>Adapted latrine designs for challenging environment developed and tested in the market</li> </ul>	<b>Partially achieved</b> <ul style="list-style-type: none"> <li>Design and proto-type testing conducted; lack of market viability without subsidies; technical and user soundness could not be established; learning documented and shared</li> </ul>
4	Government and development partner strategies and approaches informed through dissemination of real-time learning to wider sector stakeholders.	<ul style="list-style-type: none"> <li>Peer learning events organized within and/or across provinces</li> </ul>	<b>Achieved</b> <ul style="list-style-type: none"> <li>MRD has endorsed market development approach as part of National Strategic Plan</li> <li>2 provinces exposed to peer-learning on scaling up rural sanitation</li> <li>Program of iDE in five provinces influenced; other NGOs are including microfinance in their sanitation program</li> <li>Sector wide review for at-scale market facilitation conducted and recommendations under discussion</li> </ul>

#### 4. Implementation Process and Innovations Introduced

To achieve the objectives in a focused manner and demonstrate results on the ground, technical assistance was targeted at two provinces<sup>8</sup> over a 30-month period (July 2011-December 2013), and implemented through iDE and PATH, two international NGOs, in Svay Rieng, and Kandal, with a population of around 400,000 people (the same provinces of the earlier pilot). The implementation took place province-wide and the two provinces provided ample learning opportunities due to their distinct environmental, political and demographic characteristics:

- Kandal province surrounds the country's capital city of Phnom Penh. The province is relatively urban, characterized by higher population density, good access to markets, good water resources, favorable road conditions, multiple income earners in one household, greater density of economic establishments by household, and baseline latrine coverage of 49.3% in July 2011.<sup>9</sup>
- Svay Rieng is a prominently rural province situated in the southeast of Cambodia along the Vietnamese border. It is one of the poorest provinces with low population density, poor market access and unfavorable road conditions. The large majority of the population are subsistence farmers and there is a high migration rate. The baseline latrine coverage in July 2011 was 27.7%.<sup>10</sup>

Table 2 below provides key information about the provinces.

**Table 2: Key information of Svay Rieng and Kandal**

<sup>8</sup> There is actually a third province, Prey Veng, where the sanitation finance pilot is taking place due to the lack of interest of MFI partners in Svay Rieng. There is also sanitation marketing program going on in Prey Veng, which is not under the support of this TA. For the purpose of this report, the lessons and results are generated from the two provinces, Kandal and Svay Rieng, except the learning and results on sanitation finance which captures results from Kandal and Prey Veng.

<sup>9</sup> Estimated by the project team

<sup>10</sup> Ibid

	<b>Svay Rieng</b>	<b>Kandal</b>
<b>Population</b>	578,461	1,115,959
<b>Number of households</b>	125,752	242,600
<b>Population density (Sqkm)</b>	195	343
<b>Population growth rate</b>	3.61	0.45
<b>Urbanization</b>	3.5%	15.5%
<b>Poverty rate</b>	21%	19.6%
<b>Rural sanitation access in 2013</b>	46.8%	58.7%

*Source: Cambodia Inter-Censal Population Survey, 2013; IDPoor data 2012; Census 2008 for urbanization rate*

For the sanitation finance pilot, two districts in Prey Vieng province were selected, which was driven by the interests of Micro Finance Institution to pilot the sanitation loan program.

As the TA was built on the early pilot of sanitation marketing, the TA continued to support strengthening the supply chain (see Figure 3) by building the capacity of latrine businesses/enterprises in manufacturing of Easy Latrine package, business management, sales and marketing. Based on the lessons from the pilot, an enhanced intervention package was introduced in the TA to improve sales techniques, increase overall sanitation demand, improve access to finance for cash-constraint households, and diversify products responsive to specific environments. In this regard, the TA was designed around four main components that were believed to help achieve deeper market penetration among the poor. These components were: i) sales professionalization, ii) implementation of behavior change communications, iii) provision of access to finance for sanitation, and iv) development of latrine design suitable for challenging environments. Each component is described below.

After gaining further experiences within the above two provinces, the Department of Rural Health Care (DRHC) of Ministry of Rural Development (MRD), requested a stock-taking exercise on sanitation marketing as part of their preparation for the National Action Plan that would put forward actions to implement the National Strategic Plan. Hence, a comprehensive and consultative review of all sanitation marketing experiences in Cambodia was commissioned, aiming to draw sector-wide lessons, articulate most pressing gaps and formulate recommendations for increasing the effectiveness and efficiency of market development at-scale through appropriate mechanism(s). The recommendations of this review are detailed in Section 7.

#### **4.1. Professionalizing sales**

In January 2012, a deliberate effort was undertaken to professionalize sales, sales training, and sales management. A sales training approach was developed that included systematic sales training and sales management processes along with a package of supporting tools to be used by latrine sales agents. One of the key improvements made in the sales approach was the shift from selling the latrine product specifications to “selling to the problem”. This approach aimed to get the customers to recognize their problems associated with not having a latrine and to realize that purchasing a latrine would help them solve those problems (as opposed to selling technical specifications of a product, that consumers did not yet see as essential to responding to a problem in their life). The sales tool package used in the TA is provided in an accompanying set of resource materials to this note, and forms part of a wider package of training materials for enterprises and sales agents, which are accompanying this synthesis report as a resource pack. Annex 1 also shows the tools used by sales agents during the sales event.

In addition, profiles of ideal sales agents were developed to identify committed and dedicated individuals who can deliver better latrine sales. In the past, sales agents were largely local government officials who often conduct sales events only in their respective administrative areas. The profile helped identify a new cadre of sales agents who could cover a larger area where there is market potential. Recruitment of sales agents focused on those who demonstrate persuasive public speaking skills, ability to work at least half time and beyond their own village, possessed the ability to have empathic ways of relating to customers and an ability to stay motivated despite the fluctuating nature of sales. As a result, the sales agents recruited were often young, college-aged women who are energetic and flexible. They are compensated through commission-based sales by the latrine business they were selling for.

As part of sales professionalization, the sales strategy was altered and sales agents were trained and coached to conduct door-to-door sales to individual households in addition to holding group sales events in the village, which

was the main sales strategy in the past. The new strategy allowed sales agents to reach the maximum number of households in the village by increasing households' exposure to the message, especially those who did not decide to buy the latrine at the sales events and those who did not attend the events. More importantly, in the door-to-door sales strategy, the sales pitch could be customized to address the actual problem facing the particular customers, increasing the chance of latrine purchase.

#### 4.2. Implementing sanitation behavior change communications through local government

To create stronger demand for sanitation among rural households and complement the market activities, a year-long, evidence-based Behavior Change Communications (BCC) campaign was conducted in 20 communes in Kandal and Svay Rieng provinces implemented by the Commune Committee for Women and Children (CCWC)<sup>11</sup> and under the supervision and support of the District Administration. Informed by formative research (Nguyen, Kov, Smets, & Chan, Forthcoming), the key communication objectives that the BCC campaign was trying to address are:

- Provide knowledge of the true price of low-cost latrine options;
- Highlight the shame and loss of face associated with not having a toilet; and
- Stress the inconvenience of having to defecate in the open.

The campaign was carried out in two phases to ensure multiple touch points with villagers, which has been shown to be contributing in achieving behavior change. Both phases comprised of an hour-long CCWC-led interpersonal communications (IPC) group sessions, in which a CCWC member facilitates an interactive and lively meeting that triggers people to move along the behavior change path. During the first phase, CCWCs encouraged participants to discuss the shame of being unable to provide a toilet for out-of-town guests and embarrassment of having their adolescent daughters be seen defecating in the open. Participants were then invited to play a pricing game to help them understand the actual cost of dry-pit and pour-flush latrine models and position low-cost, natural shelters as a better alternative than continuing to defecate in the open.

The second phase targeted households who attended the first session but had yet to build or buy latrines. As a means of persuasion, posters depicting situations where it is inconvenient or shameful to defecate in the open were used. Participants were also asked why they had yet to build or buy a latrine—the CCWC members being equipped with visuals to respond to the most common participant rebuttals such as “not having enough money, saving for a toilet with a concrete shelter, waiting for an NGO,” etc. The second session concluded with the same call to action as the first: households interested in pit latrines were provided instructions on how to build one; and those interested in pour-flush latrines were given referral cards with contact information of local sales agents or latrine businesses. A quasi-experimental<sup>12</sup> evaluation of the impact of the BCC on latrines sales was also conducted using the sales data collected during the implementation of the BCC and the government's administrative data. The results show that BCC activities resulted in an 11 percentage point difference in latrine uptake between BCC and non-BCC communes. A closer examination of the data showed that the majority of latrine purchases took place around the time that BCC activities took place, while the non-BCC communes have most sales happen around the agricultural harvest period. Although this difference found was not statistically significant<sup>13</sup>, the analysis suggests the BCC intervention was able to generate latrine sales outside of the agricultural harvest period.

The BCC materials used by the CCWCs, a draft learning note documenting the results and lessons from the BCC activities, and a draft research brief on the BCC evaluation are available as accompanying deliverables to this note. The BCC materials are already being used through scale-up interventions supported by other development partners and NGOs. Annex 2 also shows some example of BCC tools used by local government during the sessions.

---

<sup>11</sup> This is a committee established within the commune council that is tasked to be responsible for social affairs and health in the commune, and which is already mandated to carry out hygiene promotion activities

<sup>12</sup> A quasi-experimental design was used by matching communes on as many observable characteristics as possible comparing those with BCC activities by CCWs with communes without such activities taking place. The detailed results are currently in drafting stage for submission to Waterlines, a peer-reviewed journal.

<sup>13</sup> This might have been due to limitations of the sample size of the study, which was powered to detect a difference in sales of 20% with a confidence interval of 95%.

### 4.3. Offering sanitation credit

While, especially after sales events and BCC activities, there is increased household demand for sanitation and local market actors are capable of meeting it, challenges remain in reaching low-income households that do not have the cash to meet upfront payments to purchase sanitation products. A partnership with two microfinance institutions (MFI), KREDIT and VisionFund Cambodia was established to offer credit to households to ease the cash flow among cash-constrained households in purchasing a latrine in Kandal and Prey Veng.<sup>14</sup> The formal partnership covered a 13-month pilot with VisionFund Cambodia in Kandal province (Jul 2012 – Mar 2013) and KREDIT in Prey Veng province (Nov 2012 – Jul 2013). Both MFI partners continue to offer a dedicated sanitation micro-loan to customers beyond this formal partnership period.

The general model of sanitation credit developed under this scope was designed to integrate with the existing sanitation marketing operations, whereby:

- Latrine products were sourced from latrine businesses, who are engaged and supported through sanitation marketing program.
- Sales agents, under a commission-based arrangement of the businesses, collected households in each community and sold latrines through a group sales method.
- Field loan officers from each MFI attended the group sales meetings to offer the households the option to purchase latrines on credit.
- Sales orders and loan applications were completed at the end of group sales meetings.
- MFIs performed normal loan review and approval process.
- Once approved, loan funds were disbursed directly to the latrine businesses, who then delivered latrines to households within a few days.

The lessons on sanitation credit captured during the partnership period with MFIs are documented in the learning note “Making toilets more affordable for the poor through microfinance (Newman, Kov, & Smets, 2014)” provided in Section 8.1.

### 4.4. Development of latrine design for application in challenging environments

While the Easy Latrine design helped to ignite the sanitation market and enable more poor rural households to access sanitation, it is not suitable for some of Cambodia’s challenging environments such as seasonal flood-prone areas where more than 5.5 million, or almost 40% of the people are living (WSP, 2010). The TA also attempted to explore the feasible latrine options that could be applicable in flood-prone areas. The Human-Centered Design (HCD)<sup>15</sup> approach was used to set out the design for sanitation solutions for challenging environments that are accessible, affordable, and desirable for the target population, given the local context and supply chain. This approach followed a thorough process whereby users’ preference and experience are fully built in the latrine design:

- The research was conducted to gain in-depth understanding of key user insights which are then transformed into a set of core design principles which are the foundation for generating ideas and building solutions. The research showed that current sanitation solutions are not hygienic for use in flood prone areas as they may contaminate water sources used by households.
- Based on the user insights, the product development was initiated. A desirable, sanitary and sustainable solution requires a technical design that works year-round. The solution must function properly during the flood periods (not overflow or contaminate the water) while in the long term allowing for infiltration during the dry periods.
- Prototyping designs for moderate flood and severe flood (Figure 5) were then built and analyzed through the HCD lenses of desirability, feasibility, and viability. While potentially technically feasible, the research and insights indicated that the designs showed very low desirability and thus low viability.

---

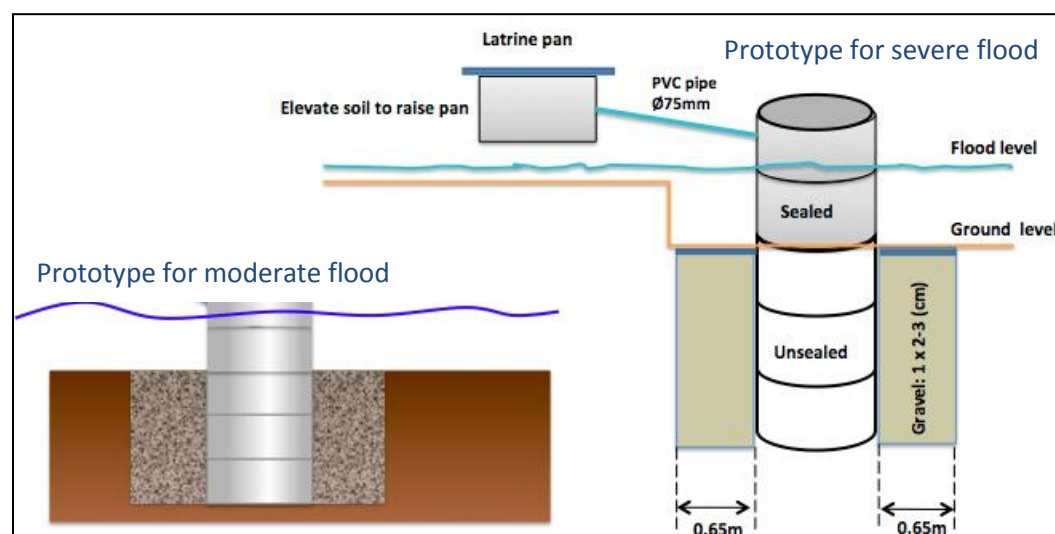
<sup>14</sup> Prey Veng province was chosen due to the absence of the two partner organizations in Svay Rieng province. This province also had ongoing sanitation marketing activities implemented by iDE and funded by BMGF and Stone Family Foundation.

<sup>15</sup> For more resources on Human Centered Design see <http://www.designkit.org/>

- After the prototyping process, four prototypes were built in September 2012 in Svay Rieng province —two for moderate flood design, and two for severe flood design. Results of the field tests encountered challenges with basic functionality, inhibiting the extent to which the filtration functionality could be tested, as the PVC pipes were clogged. Ultimately, users testing the prototypes express that it is too expensive for them to ever consider actually paying for such a system. The extra construction and associated costs are not perceived as necessary and hold little value for households.

A detailed report on the development of latrine design for challenging environments is available in the accompanying resource pack to this note.

**Figure 5: Prototype designs for moderate flood and severe flood**



## 5. Key Results

After 30 months of implementation, significant results were achieved as summarized in Table 3 (intermediate outcome indicators have been reported in Section 3). The estimation of provincial sanitation coverage is provided in details in Annex 3.

**Table 3: Summary of project results**

Indicators	Results at end of project (December 2013)
Increase in sanitation coverage in Kandal and Svay Rieng compared to baseline <sup>a</sup>	10.2% (baseline coverage 43%)
Increase in sanitation coverage among the poor compared to baseline <sup>b</sup>	8.3% (baseline coverage 20%)
Number of districts with increase in coverage more than 16% compared to baseline	3 out of 16 districts
Usage of latrine among adults	99.5%
Average installation rate	54% of purchased latrines are installed within 6-9 months of purchase
Total number of latrine sales from enterprises receiving direct capacity building support through the TA	27,659
Estimated number of latrine sales from other enterprises not receiving direct capacity building support through the TA (but who might have benefited from the overall sanitation marketing program)	24,156

Estimated number of latrine sales to the poor <sup>c</sup> (both through directly supported enterprises and those who did not receive direct TA support)	2,329
Number of households supported with sanitation credit <sup>d</sup>	9,626
Estimated latrine sales volume by private sector enterprises	USD 2.6 million
Estimated loan volume by MFIs for sanitation <sup>e</sup>	USD 609,000
Number of enterprises active after receiving core training <sup>f</sup>	39
Number of sales agents who remain active after training <sup>g</sup>	57
% of enterprises with operating ratio <1	99%
% of enterprises with gross margin <sup>h</sup> > 14%	22%
Number of villages having sanitation BCC sessions conducted	174
Number of BCC session conducted	814
Number of people attending BCC sessions	20,411 (70% women)

<sup>a</sup> This is the average of two provinces and based on installed pour-flush latrines, which have a 99.5% usage rate. The sanitation coverage at province level was estimated with 95% confidence interval of +/- 5%.

<sup>b</sup> This is the average of two provinces and based on installed pour-flush latrines among ID-poor 1 and ID-poor 2 category following the Ministry of Planning poor-identification system

<sup>c</sup> This includes sales to ID-poor 1 and ID-poor 2 categories

<sup>d</sup> This accounts for latrine sales with credit made through December 2013, including sales after the formal partnership period ended in March 2013 for VisionFund Cambodia and July 2013 for KREDIT (sales during partnership period accounted for 2,000)

<sup>e</sup> Calculated based on loan size (USD63.25) estimated from the data available during the formal partnership period with MFIs

<sup>f</sup> This represents an attrition of 45% as in total 87 enterprises have received training and coaching support

<sup>g</sup> As compared to a total 93 sales agents trained

<sup>h</sup> As it was not possible to determine the fixed costs not used solely for the sanitation business (such as overhead and capital costs such as trucks used for other lines of business), a gross margin was calculated

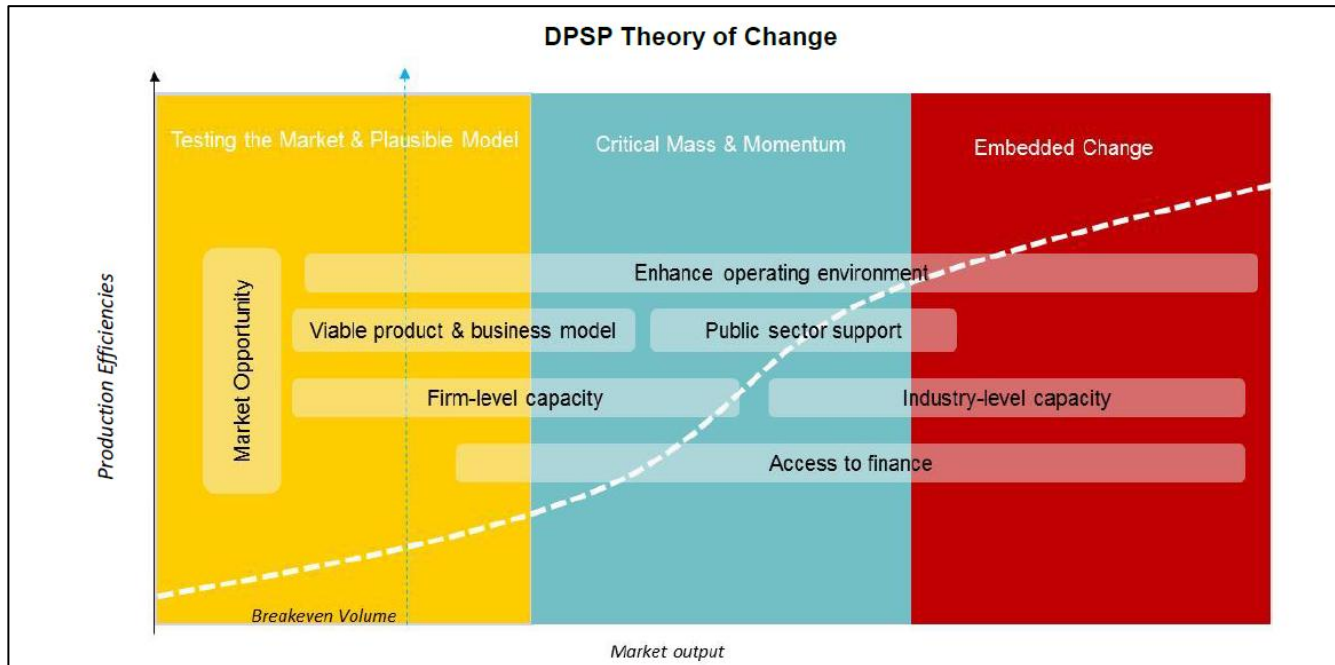
In addition to the results above, relevant tools and materials have been developed for usage by the Ministry of Rural Development (MRD) and its development partners and NGOs for scaling up rural sanitation under the National Action Plan. The tools and materials that were developed under the TA are as follows and are included as an accompanying resource pack:

- Training tools for latrine businesses which include the following modules:
  - Latrine Manufacturing and Quality Control
  - Sanitation Knowledge
  - Latrine Installation and Maintenance
  - Order Management
  - Sales and Sales Agent Management
  - Business Planning
  - How to work with government and NGOs
  - Financial training for latrine businesses
- Sales training tools for sales agents which include the following:
  - Sales training manual that covers the sales process (how to do a group presentation and how to do individual sales)
  - Sales support tools that cover village maps that can be used to draw and map the village, group meeting invitations, sales order form, and “site seller”, a canvas used during sales presentations
  - Goal setting and review of results
  - Training completion certificate
  - Sales record book to help businesses and sales agents keep track of orders and deliveries
- Mason training materials
- BCC materials and facilitator manuals, including visuals used in sessions, trainer manual, facilitator guide and “cheat sheet” to be used in session.

## 6. Lessons Learned and Challenges

The approach to developing the sanitation market is built on a well-developed theory of change which WSP developed whereby barriers need to be identified and addressed in order for the market to achieve scale<sup>16</sup> (see Figure 6).

Figure 6: Theory of Change for building sanitation market



The Theory of Change suggests seven barriers that could be the impediments for sanitation market, and assumes a gradual adaptation of the private sector approach while these barriers are being address. This would lead to more market output, while production efficiencies are gained. The lessons learned below capture all the relevant barriers that are addressed during the TA implementation, and are grouped to reflect the market barriers that the TA was aiming to address. Although the lessons learned are largely relevant for Cambodia, they add to the global learning agenda on building sanitation markets and can serve as useful reflections for similar work in other countries, contextualized for the country context. Where relevant some of the key learning provided below will also discuss the applicability beyond Cambodia.

### Market opportunity

#### 6.1. Sanitation marketing contributes to realizing sanitation demand among the majority of rural households but with limited success in reaching the poor

The low rate of rural sanitation coverage in Cambodia presents an opportunity for the market to generate value in delivering sanitation services to the currently unserved population of up to 1.3 million rural households. The Cambodia Socio-Economic Survey (2011) suggests that there is still a large proportion of population within the better-off quintiles, who do not face a problem of affordability, but who do not own a latrine at home (see Figure 1).

In the TA provinces, Kandal and Svay Rieng, the average sanitation coverage has increased by 10.2% or 4% annually, which is more than three times the rate of national coverage increase over the same period of time. This coverage increase was lower than the increase that had happened during the earlier pilot indicating market saturation has been taking place. The total increase in sanitation access in the two provinces has exceeded the rate of increase among the poor population, which was a modest 8.3%. This indicates that despite intensive efforts

<sup>16</sup> Scale being defined as the fall of marginal costs of providing additional goods and services through the market over time.

on interpersonal communications (IPC), professional sales and capacity building of key supply chain actors including masons in order to penetrate deeper in the market, the private sector has predominantly helped realize the sanitation demand among the non-poor households. Despite the effort in bringing the cost of a latrine down through innovation in product and business model, the cost of an Easy Latrine package could still be prohibitive to poor households. An analysis of the cost of latrine showed that the cost of Easy Latrine is worth up to more than 20% of the average monthly consumption of a poor household (Figure 8). In this regard, additional interventions are needed in order to increase affordability among the poor and thus accelerate the increase in sanitation access among poor households contributing to achieving universal coverage at village and commune level.

A pro-poor support mechanism being currently explored by the government and sector stakeholders is the public sector provision of toilet hardware subsidy to poor households. Such development of pro-poor mechanism needs to be based on a review of the effectiveness of the previous subsidy approaches in the Cambodia and elsewhere. WSP could play a key role in bringing the knowledge and experience to inform the design of such mechanism.

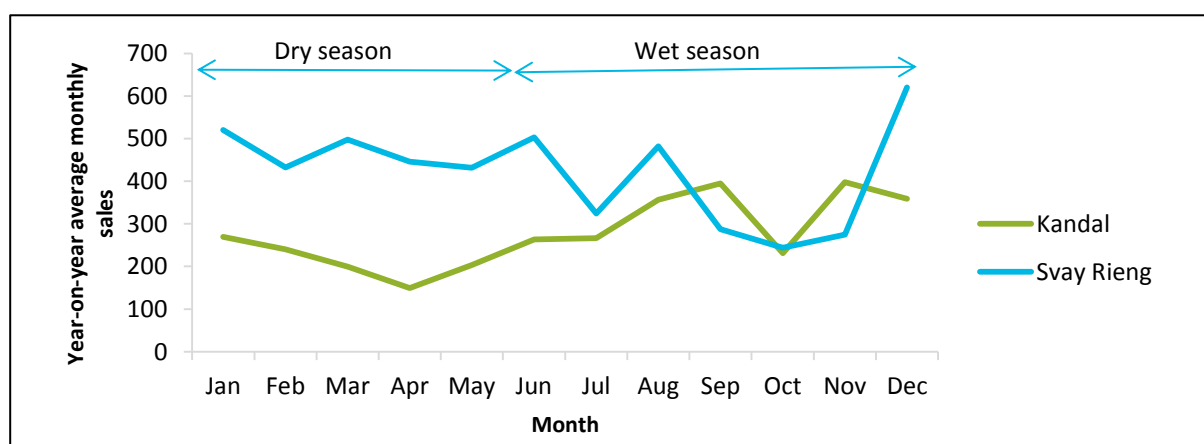
### **Enhance operating environment**

## **6.2. Seasonality need not be a major deterrent for sales**

It was initially assumed that latrine sales would be seasonal in Cambodia, with sales highest during the dry season (approximately December-May), and lower during the wet season (approximately June-November) due to greater availability of disposable income from agriculture in the dry season and the difficulty of delivering and installing a latrine in the wet season. The onset of rainy season usually means that the roads, many of which are in poor condition, render transportation challenging both for latrines and for travel of businesses and sales agents to hold sales meetings. Moreover, villagers start planting and thus save up for agricultural inputs, resulting in less disposable income, and are likely less available to attend sales events.

Throughout the TA implementation, a decrease in sales during rainy season was not necessarily observed, as can be seen in Figure 7. Two likely reasons include 1) villagers actually feel a stronger need for a latrine during the rainy season due to desire for convenience, and 2) the improvements in training and coaching for latrine businesses and sales agents resulted in improved capacity and sustained motivation to overcome the challenges of seasonality. Therefore, rainy/planting season need not be regarded as a period doomed to low sales. Proper coaching and support for more precise order management to the latrine businesses as well as continuous behavior change communication efforts by local government can mitigate the challenges of seasonality and support businesses to stabilize their income from sanitation throughout the year.

**Figure 7: Average sales of 2012 and 2013<sup>17</sup>**



<sup>17</sup> 2011 sales data is not included as it includes data for only half a year, of which the majority was in start-up phase preparing for scale-up efforts.

### **6.3. Incomplete product solution is associated with time lag between latrine purchase and installation**

A household survey conducted in the two project provinces shows that within a 6-9 month window after purchase, an average of 54% of customers had installed their latrines (52% and 55% in Svay Rieng and Kandal respectively). While the sales efforts have resulted in many households making the first step towards latrine usage, i.e. purchase, it is falling short of instilling a sense of urgency to immediately install and use the latrine. Some barriers continue to prevent the household to immediately carry out installation and use. Noteworthy is the strong preference of Cambodian households to build a concrete shelter. Households will wait to install the latrine until they have all the materials and labor ready to install the entire concrete shelter. From a health perspective, it is the underground components that are important for public health, but from the household perspective, it is the superstructure that meets their needs for status and convenience.

The data from the pilot indicated that even beyond 9 months households continue to install their purchased latrines, showing an installation rate to 95% by 15 months. Despite this continued installation even one year after purchase, reducing the time gap between the household purchase and installation needs to be addressed to achieve results faster, possibly with a two-pronged approach:

- Improving behavior change communication interventions, including Community-Led Total Sanitation (CLTS)<sup>18</sup> at scale to stimulate a greater sense of urgency for the households to install and use a purchased toilet even with natural shelter; and
- Developing a packaged shelter product along with offering installation service and credit to ease cash-flow for cash-constrained households.

### **6.4. Low prices of latrine may not be the best for the consumer as it can undermine the sustainability of enterprise motivation**

The success of a sanitation marketing program depends on the interest and participation of the private sector in delivering sanitation products and services. The latrine businesses need to always balance the profitability and opportunity cost of the latrine sales with other business lines they have. The experience shows that a low profit margin— around USD 5/latrine for the latrine business and USD 2/sales agent per latrine—is not sufficient for maintaining sustained engagement. The latrine businesses and sales agents might continue to sell if they are experiencing a period of high sales. However, any period of low sales could deter them from re-engaging due to the low margins.

Latrine businesses and sales agents, like most rural Cambodian households and small businesses, have multiple streams of income, which they consider as part of their opportunity cost calculation. Latrine businesses are ultimately just concrete producers who happen to make concrete components of a latrine and deliver the parts as a package. The sector-wide review of sanitation marketing in Cambodia (Dalberg, 2015) found that revenue of latrine businesses is highly seasonal. In the high sales season, latrines represented over 50% of the revenue for 60% (N=32) of the latrine businesses, while in the low sales season, latrines represented less than 50% of the revenue for 80% (N=32) of the latrine businesses. Thus, too low of a margin will not be sufficient to maintain their engagement to actively produce stock and promote latrine sales.

### **6.5. Leveraging existing supply chain actors is important for optimizing customer experience**

The invention of the concrete-cast chamber box as part of the Easy Latrine design (Figure 2) intended to remove the need for a household to hire a mason (since the mason's specialized skills were no longer needed to construct a chamber box of brick and mortar). This was thought to benefit the end-user by allowing them to install the underground and slab portion of the latrine themselves for less cost, and that masons would ultimately benefit through increased demand for brick shelters. However, it was found that many households still prefer to hire the

---

<sup>18</sup> Community-Led Total Sanitation (CLTS) is an approach that empowers communities to take action and collectively stop open defecation inspired by disgust and shame. Village action plan and resolutions are agreed and implemented resulting in strong social support and peer pressure to start using improved latrines.

masons for the installation of the whole latrine since installation of the underground and slab is often done at the same time as installation of a brick shelter, which still requires a mason.

Moreover, bypassing the masons in the supply chain also led to some misconceptions about the chamber box quality. As the masons were unfamiliar with the new product innovation, either they would install it incorrectly, or tell the households to return it in exchange for the traditional bricks. As masons continue to be involved in the user experience, it turned out not to be in the customer's best interest to bypass seemingly "unnecessary" supply chain actors. A closer analysis of their value added revealed a need to engage and leverage their presence as part of a sanitation marketing program. This lesson could also apply to other countries working on building sanitation markets where successfully tapping the existing supply chain is key to success.

## **6.6. Solution to challenging environments will require more research on products and financing options**

The effort to design a latrine suitable for challenging environments, i.e. areas with frequent flooding, produced two prototypes using the infiltration method. However, introducing the infiltration-based prototypes to market was not recommended as the research showed that infiltration is not realistically feasible, desirable, nor viable in the Cambodian context. Potential directions for future development were identified, including on-site waste treatment or sealed systems coupled with waste management.

An incremental "adaptation" of existing latrine designs was not sufficient to address the particular challenging environments. Rather, in order to develop a product and/or service that is hygienic, in light of known user behavior and preferences, investment into transformational research and development for a new system is necessary. In addition, the prototyping revealed that modification of existing designs were not well placed as market-based solutions due to the high costs. Financing options and subsidies that support households to make investment in a high-cost latrine that could be used in challenging environment are needed as well.

### ***Public sector support***

## **6.7. Local governments play a significant role in facilitating private sector engagement to accelerate access to sanitation**

During implementation, local governments and village authorities played an important role in supporting the private sector to deliver sanitation products and services to customers. Firstly, they supported the latrine businesses and their sales agents to organize sales events and the village follow-up. Unlike other commercial products, the promotion of latrine in the villages requires strong coordination with local governments as they can provide market information about the village such as the households with and without a latrine and their convening power in getting people to the same place at the same time for the sales events.

Secondly, local governments played a critical role in conducting community behavior change communication (BCC) sessions on sanitation in the villages that would increase the chance of latrine sales by latrine businesses. As part of the implementation, some communes were selected for piloting the BCC activities by the local government. The result of the pilot is promising where the sales uptake in the communes with BCC activities was 11 percentage point higher compared to communes without BCC activities (see Section 4.2). What is more important is the uptake of the BCC responsibility by the local government throughout the process and beyond. During the TA, local governments were empowered to plan, budget and implement BCC sessions. In 2014, following the successful completion of the BCC activities in the 20 communes, the communes in five districts in Kandal and Svay Rieng provinces agreed to scale up the BCC activities to more communes within these provinces using their own commune funds. Once the sanitation BCC is integrated in the commune development plan, communes tended to continue BCC activities in the following years without external support. It has been observed that with enhanced responsibility, capacity, confidence, and simplicity of the tools and messages, the quality of the BCC implementation by local governments remains strong. As part of the testing of decentralized sanitation service delivery under TA P132212, this approach will be further deepened and scaled. Currently, with facilitation by MRD, other NGOs, such as SNV Netherland Development Organization, are already using the BCC toolkits in government-led implementation.

In addition to providing on-the-ground support to facilitate private sector activities on the ground, the sector-wide sanitation marketing review (Dalberg, 2015) also identified potential roles that local government could have in facilitating sanitation market development. These roles would relate to i) promoting local private sector to increase their interest in sanitation services, ii) coordination of demand creation activities with private sector sales activities, iii) facilitating relationships among MFIs and private sector, iv) ensuring quality of products/services delivered through developing standard operating procedures for businesses, as part of their business training. While government agencies, such as Provincial Department of Rural Development (PDRD) or district administration would most likely not have a comparative advantage to training and coaching private sector actors, they could play a facilitating role in co-organizing, and if resources are available to finance these trainings, as a means to achieve their public policy objectives.

### ***Firm-level capacity***

## **6.8. Latrine businesses showed low interest in managing sales force and other models of market facilitation were needed to ensure sustained impact**

The early pilot demonstrated that local markets can be catalyzed to meet the sanitation needs and desires of the rural households. Households are willing to buy, and suppliers are willing to sell an aspirational, accessible, and affordable latrine. With facilitation support, enterprises learned the know-how of making a profit from selling latrines. The TA continued where the pilot left off—focusing on the latrine business as the main actor driving latrines sales in order to reach more market segments in the communities. The hypothesis was that the latrine businesses, driven by a profit motive, would be interested and motivated to support active and direct sales. However, it was observed that, for a variety of reasons, the latrine businesses have limited capacity and/or motivation to manage their commission-based sales agents in actively promoting latrines in the communities.

The businesses often possess multiple lines of business and are usually concrete manufacturers who make concrete rings that are used for the latrine product. Undoubtedly, they are sustainable businesses in their own right, but whether or not latrines will remain a significant line of business for them in the medium term is uncertain. Preliminary indications are that 24 months after the initial engagement with businesses, approximately 60% of trained businesses become less active in selling latrines, about 21% have reached breakeven on their sanitation business line and about 19% are still in start-up phase to establish this business line.

In response to this learning, the follow-on iteration of market facilitation focused on the implementing NGO (iDE) directly recruiting and managing sales agents and coordinating with the latrine businesses to match supply and demand. This model of market facilitation challenges the meaning of sustainability—that the business will sustain a high level of demand creation efforts once technical support is removed. Given that these enterprises show reluctance for active sales management, the level of latrine sales by latrine businesses would likely decrease if sales support was to be removed immediately. However, data from the household surveys suggests that sales rates without market facilitation support might depend on market maturity. In Kandal, for every one latrine sold through enterprises that received technical assistance, 3.6 are sold through other enterprises without such support. This means the overall rate of sales in the province is high and likely to remain high if the technical assistance is phasing out.

This ripple effect suggests an acceleration of market maturation to a point where there may no longer be the same severity of market failure. The ultimate goal is to strive for sustainable impact, which may or may not be the same as a sustainable market. As further assessed under the comprehensive sanitation marketing review (Dalberg, 2015), other market facilitation models need exploration, such as a social enterprise model or a model where market support functions are delivered through a local association. To drive sanitation demand, sustainable social enterprise or association, which could benefit from efficiencies of scope and scale and could attract grant funding, might be a suitable option to address market failures at the pace that would better meet public health priorities.

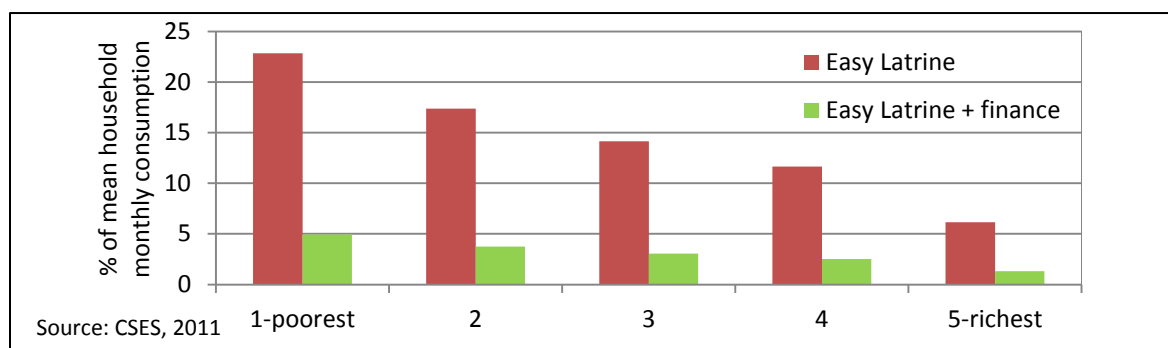
### ***Access to finance***

## **6.9. Financing could have significant impact on latrine uptake among the poor**

An analysis of household consumption by quintile shows that the introduction of the Easy Latrine has helped in reducing the cost of latrine significantly. However, it is still prohibitive to households in the poorest quintiles, with the cost of latrine being more than 20% of poor households' monthly consumption. Many households, especially the poor, cite an inability to pay the up-front costs of a latrine as a major barrier to accessing improved sanitation. Thus, purchasing a latrine on credit may help increase sanitation uptake rates. As shown in Figure 8, purchasing a latrine using microfinance could reduce the monthly burden of households in their purchase.

Introducing a sanitation loan of around USD 60 on average, with a repayment period of 4-12 months, helped both non-poor and poor households gain access to sanitation. For VisionFund Cambodia, the sanitation loans reached three times more poor households than their normal loans.<sup>19</sup> For KREDIT, the proportion of the sanitation loan taken up by poor households has been proportionate to poor population in the province<sup>20</sup>. In other words, the loan pilot programs were poor inclusive and better able to serve the poorer segments of the communities than their traditional loans. As most of the loans issued were group loans and not requiring collateral, this mechanism proved to be generally poor-inclusive.

**Figure 8: Cost of Easy Latrine in relative to monthly household consumption with and without financing (assumed USD 50 costs spread through six monthly installments)**



The findings of the pilot are consistent with research showing that latrine uptake rates increased fourfold among poor households comparing cash on delivery and six-month spread payments (Shah, et al., 2013).

#### **6.10. A poor-inclusive sanitation loan program has a relatively low risk profile and can be financially viable**

During the MFI partnership period and until December 2014 neither MFI experienced loan defaults nor delinquent payments over 30 days. This could be because of the relatively low risk profile of small sanitation loans, and maybe also due to the methods used by MFIs to manage the loans. Both MFIs followed up promptly with households who were late on their payments. This may have reduced the rate of portfolio at risk.

It was also learnt that both MFIs achieved loan self-sufficiency ratios greater than 100%, indicating that costs of offering sanitation loans can be covered by the loan interest revenue. Loan performance data indicate MFIs go through a learning curve in which loan self-sufficiency rates improve over time (Figure 9). Similarly, average acquisition cost per loan, or the direct costs of sales meetings and the loan application and approval process, decreased and stabilized after peaking in the third month of the pilot. This indicates MFIs learned how to acquire loans more efficiently during the project (see Figure 10).

<sup>19</sup> This is based on PPI USAID poverty tool which is used by VisionFund Cambodia to assess its borrowers. From all VF sanitation loans, 53% were disbursed to households living on PPI USAID Poverty Line, and 21% to those living under the PPI USAID Extreme Poverty Line. See also <http://www.progressoutofpoverty.org>.

<sup>20</sup> For KREDIT, 32% of all sanitation loans were disbursed to poor households, as compared to an overall average of 27% poor households in the province. Poor households are defined as ID-poor category 1 and category 2 as per the official poverty identification system of the Cambodian government. See also <http://www.mop.gov.kh>.

Figure 9: Average Weighted Loan Self Sufficiency Ratio for two MFIs

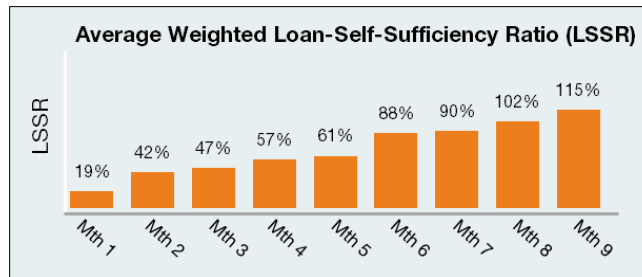
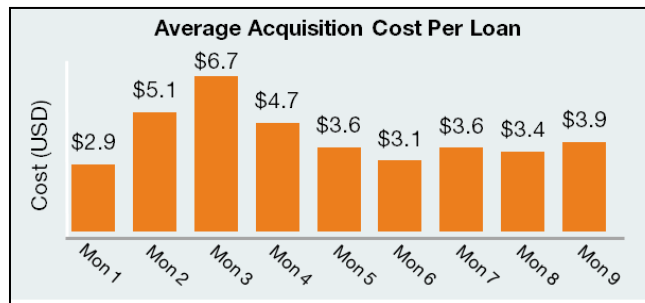


Figure 10: Average Acquisition Cost per Loan for two MFIs



Despite the numerous MFI benefits demonstrated above, sanitation loans are still far from becoming a core part of the MFI's business models, and likely will not be in the near future. The challenge, then, is to continue developing models of partnership with MFIs that will optimize their available resources and work within their business constraints, but continue to demonstrate the value of growing the sanitation loans in their portfolio.

In a country where the microfinance industry is less developed, such challenges could grow exponentially. In this regard, understanding MFIs' constraints in taking up sanitation loans and working with them in addressing those constraints could increase their buy-in and thus chance of success of the sanitation loan program.

#### 6.11. Rolling out sanitation finance requires close coordination with developing sanitation market actors

Although promising, sanitation financing cannot roll out or work on its own without developing sanitation market actors. The experience from the TA suggests that providing sanitation finance to rural customers needs to go hand-in-hand with the development of the sanitation private sector. Given the experiences today, the microfinance sector in Cambodia is not interested in conducting latrine sales events in the villages, incorporating the promotion of latrines within their business model. What they can best do is to provide financial product information and loan processing during the sales events. Thus, strategic partnership and strong field level coordination, with the associated transaction costs, is required for the sanitation financing to be successful.

Since having a well-developed private sector is key for sanitation financing, selecting business partners with the desire and capability to deliver latrine products effectively is an important part of setting up a successful sanitation loan program. Ineffective business practices can be a risk to a loan program. For example, during implementation, some sales agents offered latrines on credit to households that had not been approved as creditworthy by credit officers, leading to processing delays, lost or canceled orders, and general household frustration with the process. Additionally, because delivery is largely a fixed cost, a latrine business may wait to deliver latrines until volume has increased, maximizing the use of a single delivery trip. However, late delivery of latrines by a latrine business may cause households that have decided to purchase a latrine through cash to abandon the purchase decision. This is especially true during the initial months of a sanitation loan program, when latrines were ordered and delivery volume was low.

From experience, it is advised that the selection of the latrine businesses for working on sanitation finance is best guided by i) the frequency of interaction between businesses and sales agents, ii) the level of investment in production equipment, and iii) the training/coaching that businesses have received.

### ***Industry level capacity***

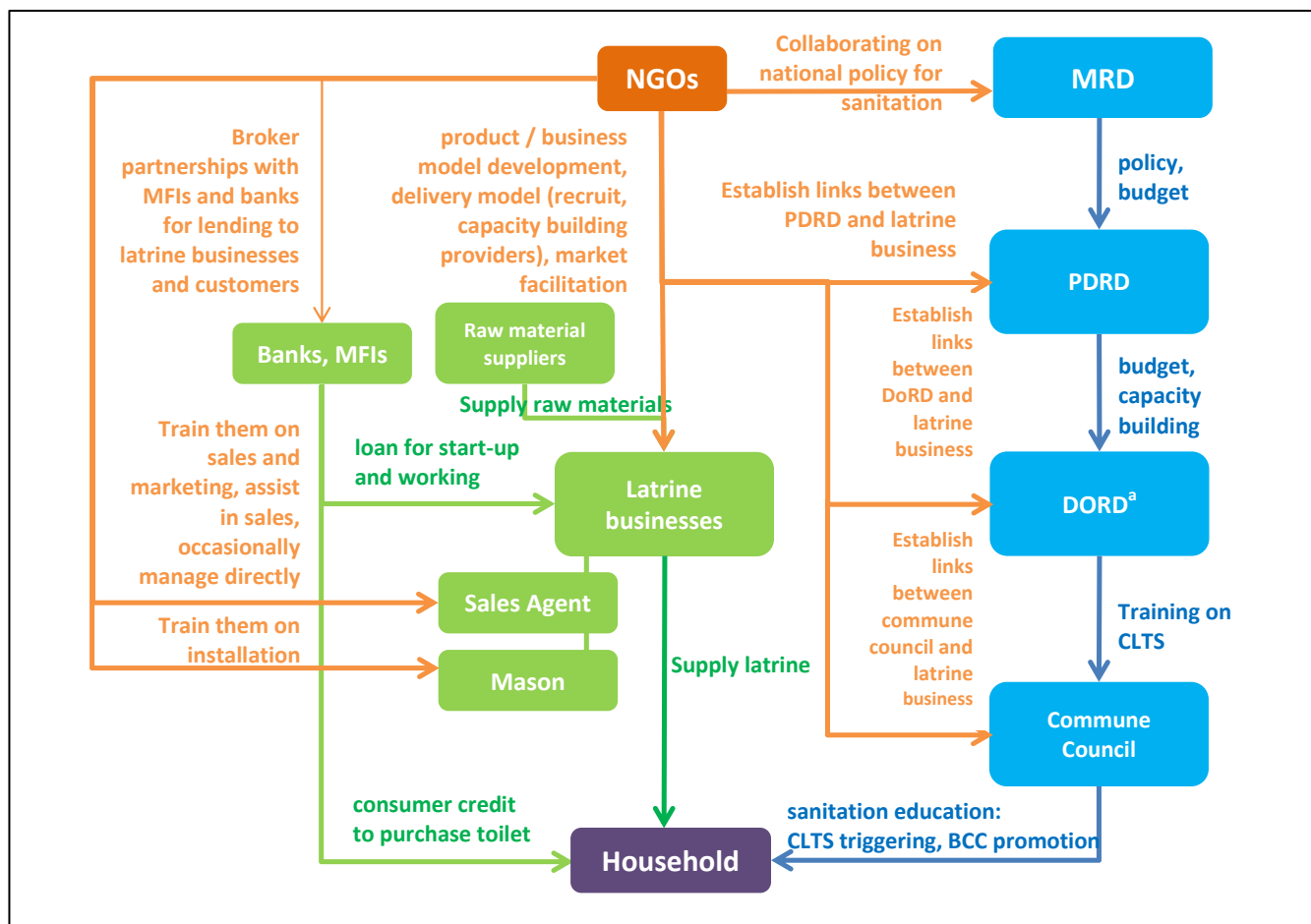
#### **6.12. Scaling up sanitation market development requires a local institutional mechanism to carry out critical functions currently performed by NGOs as market facilitators**

One of the key lessons from the TA and from the sector-wide review (Dalberg, 2015) was that continuous handholding support to the latrine businesses in engaging in sanitation business is needed. The businesses could not recruit, train, manage and retain sales agents as anticipated. This responsibility thus fell to the implementing NGO who then provided direct support on sales management, and took responsibility for recruiting new sales agents (due to high turnover which is not uncommon in sales sector), training sales force (or retraining if needed), and coordinating their targets, schedules and relationships with the businesses.

Also, the implementing NGO iDE needed to continue to provide coaching support to businesses, as well as keep engaging new businesses when some did no longer actively engage in latrine sales. Moreover, the relationship with MFIs and their loan officers required a lot of facilitation support that businesses are not able or interested to provide. Without NGOs as market facilitators present, these roles would have to be subsumed through another institutional mechanism.

Figure 11 below highlights the current sanitation marketing landscape and the functions that multiple NGOs have provided in facilitating the sanitation market. With declining grants available for fast growing countries like Cambodia, and a rationale to achieve efficiencies in scope and scale of market facilitation functions, a proper institutional mechanism would need to be developed. Such institutional mechanism would take on critical support functions which are now delivered through multiple NGOs throughout the country, and allow sanitation market development to go to scale sustainably.

Figure 11: Current landscape of sanitation marketing engagement in Cambodia



<sup>a</sup> DORD: District Office of Rural Development

## 7. Recommendations and Way Forward

In 2014 a sector-wide review on sanitation marketing experiences has been conducted to support MRD in understanding how Cambodia's rich experience with sanitation marketing could be replicated and further enhanced through a systematic, scalable and efficient way under the NAP-RWSSH. Through an at times challenging process of collaboration, the review provided a broad evidence-base for the existing challenges and opportunities in bringing sanitation marketing programs to scale (Dalberg, 2015). It draw on rich experiences in rural sanitation delivery from NGOs, such as SNV, WTO, IDE, and WaterSHED, the latter three having more narrowly-focused sanitation marketing programs, while SNV is supporting the government of Cambodia through a comprehensive approach to rural sanitations service delivery<sup>21</sup>. It also drew on international experiences in developing platforms for private sector development, both within and outside the sanitation sector<sup>22</sup>.

The review and related consultations provided important insights in the key areas where an institutional mechanisms or partnerships between government and the private sector, as well as among NGOs involved in sanitation marketing could bring most value. It provided strategic direction on what facilitative role government

<sup>21</sup> Initially, ADB 2<sup>nd</sup> Rural Water Supply and Sanitation project was also considered, but since this approach follows a procurement based delivery model, and not a market development approach, analysis was limited.

<sup>22</sup> On sanitation, the review looked at the successful industry association model in Indonesia (APPSANI), as well as at sector platforms in Bangladesh and in Peru. Outside of sanitations sector, platforms such as Lighting Global, GACC, FSD Kenya, PSP4H and NSDC were assessed and learning drawn to see how features of such models could be applicable to the sanitation market development in Cambodia.

could best take on and how private sector actors could best be supported in a scalable manner. Table 4 lists the key findings from the sector-wide review of sanitation in Cambodia and potential activities to address the challenges. Full report is also available as part of the resource pack.

**Table 4: Key findings from the review and proposed potential activities to address the issues identified**

<b>Key findings</b>		<b>Potential activities to address the issues identified</b>
Business support and capacity building	<ul style="list-style-type: none"> <li>• There is delay in latrine purchase or installation due to lack of affordable latrine shelter in the market</li> <li>• Capacity of latrine businesses in managing labor, sales agents and cash flow remain a challenge, and continuous support in this area is needed.</li> <li>• Sales agents directly managed by implementing NGO performed better and continuous training support on sales process is seen as necessary</li> </ul>	<ul style="list-style-type: none"> <li>• Training and coaching could be provided to latrine businesses on production of affordable shelter, management of labor and cash flow management</li> <li>• Technical training to labor hired by latrine businesses could be provided</li> <li>• Training and coaching could be provided to sales agents on sales process, which includes community outreach, and door to door sales pitches</li> </ul>
Access to finance	<ul style="list-style-type: none"> <li>• Access to capital for latrine businesses remains important for growing sanitation business</li> <li>• Engaging MFIs that are new to social product loans is challenging, especially without the availability of grant funding to offset the risks</li> </ul>	<ul style="list-style-type: none"> <li>• Loans to latrine businesses for their various capital needs (initial investment and operating capital) could be piloted</li> <li>• Partnerships with other sources of financing (e.g. Water.org) could be explored</li> <li>• In collaboration with MFI association, advocacy could be conducted with the National Bank of Cambodia to relax some terms and conditions for MFI to deliver sanitation loan to households</li> </ul>
Government collaboration	<ul style="list-style-type: none"> <li>• Government budget allocation for sanitation goes completely towards capacity building on CLTS and BCC as well as subsidy disbursement</li> <li>• MFIs do not have an appetite for working with Latrine businesses directly</li> </ul>	<ul style="list-style-type: none"> <li>• Complementarity between CLTS, BCC and sanitation marketing could be built up more strongly</li> <li>• When sanitation marketing initiatives exit certain geographies then government structures could be enhanced to continue to support players such as MFIs in latrine businesses in those areas.</li> </ul>
Market information	<ul style="list-style-type: none"> <li>• Sanitation marketing program plays important role in attracting local latrine businesses</li> <li>• Subsidies could either increase uptake due to increased affordability or dampen the demand</li> <li>• Credit provision and proximity are key consideration for latrine businesses when choosing suppliers</li> <li>• A significant share of latrine businesses have had sales agents quit</li> <li>• Profile of sales agents impacts their performance</li> </ul>	<ul style="list-style-type: none"> <li>• Market information at province and district level regarding sanitation market attractiveness could be developed and disseminated</li> <li>• Market segmentation could be conducted to more effectively target partial and full subsidies</li> <li>• Raw material suppliers, along with information on their pricing, and provision of credit could be mapped</li> <li>• Refine understanding of drivers of sales agent turnover and performance (e.g. profiles, additional incentives)</li> <li>• Set up peer learning groups at the commune level for latrine businesses and sales agents</li> </ul>

In light of the findings above, the following recommendations are provided.

## **7.1. Strengthening of sector collaboration in sanitation market development agenda**

The review suggests a comprehensive menu of potential interventions to support the further development of sanitation marketing in Cambodia (Table 4) and articulates specific short-term and long term implications (Dalberg, 2015).

In the short term, the focus is best placed on further strengthening the collaboration among the different partners implementing sanitation marketing in Cambodia to strengthen the knowledge agenda around sanitation marketing. Areas that government and NGO partners have identified for further joint activities and learning are: refinement of sanitation microfinance for rolling out at scale, delivery of targeted smart subsidies that is complementary to private sector development, introduction of latrine shelter packages in the market and continual work on challenging environment. These topics are already taken forward in various sector working groups (e.g. the collaborative group that works on challenging environments, led by NGO Rain Water Cambodia). Another sector-wide initiative led by WSP is currently ongoing to understand the output-based aid delivery model of sanitation through private sector and the extent that it has on uptake by the poor and the overall community.

## **7.2. Establishment of institutional mechanism for long-term support to sanitation market development**

In the long term, sanitation marketing implementing organizations are likely to be supplemented by a coordinating mechanism at the national level, either private sector-led such as through an industry association or public sector-led through a deeper engagement of the government. The important leadership role played by the private sector in the development of rural sanitation in Cambodia and the numerous benefits of an industry association models suggest the former (an industry association) as the avenue most likely to successfully fulfill a coordination and market development role over the long run. Figure 12 shows the landscape with a strengthened role of an industry association facilitating the sanitation market. As Table 4 illustrates, the gaps that are now filled by a multitude of NGOs could be taken as the critical role of the industry association, supplemented with other value-adding services to its members. The role of the industry association will be critical in:

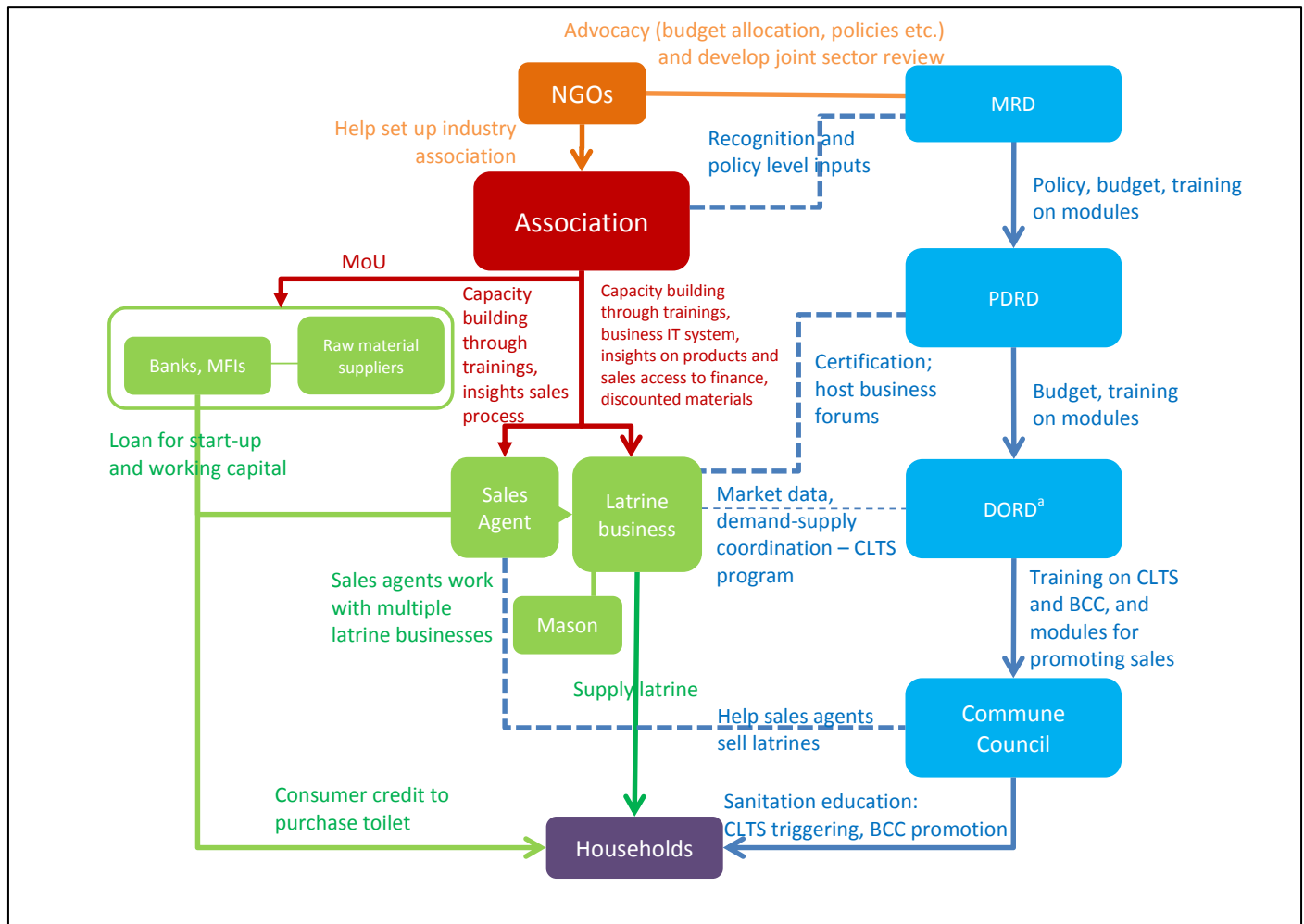
- Acting as liaison for members at national level, as well as help liaison through representation at district level
- Developing and providing product insights to enterprises (including aspirational low-cost options and shelter options under development to capture more value)
- Developing and providing insights on sales campaigns and national BCC interventions
- Recruiting and training enterprises and sales agents on pre-determined modules (such as the package already developed under this TA), including follow-up sales management and coaching support
- Aligning government demand side activities with supply side, such as through district-level coordination
- Facilitating access to loans for enterprise development (e.g. help with preparation for loan application, provide guarantees for loans)
- Facilitating access to consumer loans for latrines such as through brokering partnerships between MFIs and latrine businesses through Memorandum of Understanding (MoU) with MFIs)
- Exploring accreditation of members through standard operating procedures for delivery of sanitation products and services
- Providing members discounts for inputs such as raw materials

A further analysis of the feasibility for establishing industry association is being conducted. Although there is general appetite for an association given its potential value, identifying latrine business that could lead the establishment of the association could be a challenge. In addition, the association size, organizational structure and financing options for sustainability of the association are being looked at in the analysis. Preliminary findings of the study suggest that financing and development of such association will require grant funding, as membership fees would not be able to cover the operating costs and services delivered by the association. While dependency of grant funding would remain beyond the initial stage, the association mechanism would allow different NGOs to support sanitation market development through building the capabilities of a local entity, reducing transaction costs, enhancing sustainability and fostering collaboration. In this context, the role of the government remains important in facilitating the activities of the association including jointly conducting business forums to provide

sanitation market information to the members and facilitating coordination with the demand creation activities in the field.

While it is still at early stage, development of such an association requires a clear roadmap agreeable between government and sector stakeholders. In addition, the modalities, functions and governance of the association needs to be jointly developed by sector stakeholders with close collaboration with the government, and WSP could play facilitating role for this joint effort. It is important to also note that the need for establishment of such an association is currently recognized in the government's sector National Action Plan.

Figure 12: Proposed long-term institutional set up for sanitation market development



<sup>a</sup> DORD: District Office of Rural Development

### 7.3. Implementation of large-scale behavior change communication campaign to complement the private sector effort

One of the key constraints in sanitation marketing is the latent nature of demand in the community. To help stimulate the sanitation market, government-led large-scale effort to behavior change campaign is needed. In order for the private sector to support its delivery, portions of the campaign could be branded. This would allow private sector actors to be associated with the campaign, e.g. those businesses in compliance with standard operating procedures would be operating under the same branded umbrella. Delivery of the campaign would ideally include both mass-media, as well as strong delivery of events and group sessions on the ground, with support of local governments. While WSP is currently supporting the government in developing the national Behavior Change Communications Strategy for sanitation and hygiene, supporting rolling out the campaign could be a potential area of support in the future as well.

#### 7.4. Strategic engagement with microfinance institutions in providing microcredit for sanitation

While initial sanitation finance proves promising, strategic engagement with microfinance institutions through Cambodia Microfinance Association is needed. Sharing results, experiences, and opportunity for collaboration with MFIs are key to attract more MFIs with a wide outreach in rural areas and a social mission to offer sanitation microcredit in order to achieve scale<sup>23</sup>. The industry association could in the long-term become an important partner in helping to facilitate relationships between MFIs and latrine businesses, further standardizing approaches and achieving efficiencies in the process.

In addition to scaling-up sanitation financing through MFIs to reach the poor, future research and implementation is proposed to better understand how smart subsidies could best be delivered to the poor to accelerate their access to sanitation, and how public funds can best be used to incentivize collective outcomes at village level (Open Defecation Free).

### 8. Resource pack and deliverables under this TA

#### 8.1. Documentations produced under the TA

Document title	Type of document	Status	Completion date
1. <a href="#">Sanitation Marketing Lessons from Cambodia: A Market-Based Approach to Delivering Sanitation</a>	WSP Field Note	Complete	October 2012
2. <a href="#">Latrine Design for Challenging Environments</a>	Consultant report	Final draft	November 2013
3. <a href="#">Making toilets more affordable for the poor through microfinance</a>	WSP Learning Note	Complete	August 2014
4. <a href="#">Beyond the Success: Approaches to Rural Sanitation</a>	Video	Complete	September 2014
5. <a href="#">Integrated Approaches to Tackling Sanitation Challenges in Rural Cambodia</a>	Video	Complete	September 2014
6. <a href="#">A study of drivers for latrine take-up in rural Cambodia: Analysis from two sanitation marketing programs</a>	Power Point presented at Water and Health Conference, University of North Carolina	Final draft	October 2014
7. <a href="#">Going Deep End of Project Report</a>	Consultant report	Final draft	December 2014
8. <a href="#">Review of sanitation marketing approaches in Cambodia</a>	Consultant report	Final draft	January 2015
9. Expanding Reach into Cambodia's Rural Sanitation Market through Behavior Change Communication and Local Government Channels	WSP Learning Note	Draft	April 2015 (est.)
10. Impact of behavior change communication on sanitation uptake	Research paper for submission to the peer reviewed journal – Waterlines	Draft	May 2015 (est.)

#### 8.2. Materials developed under the TA

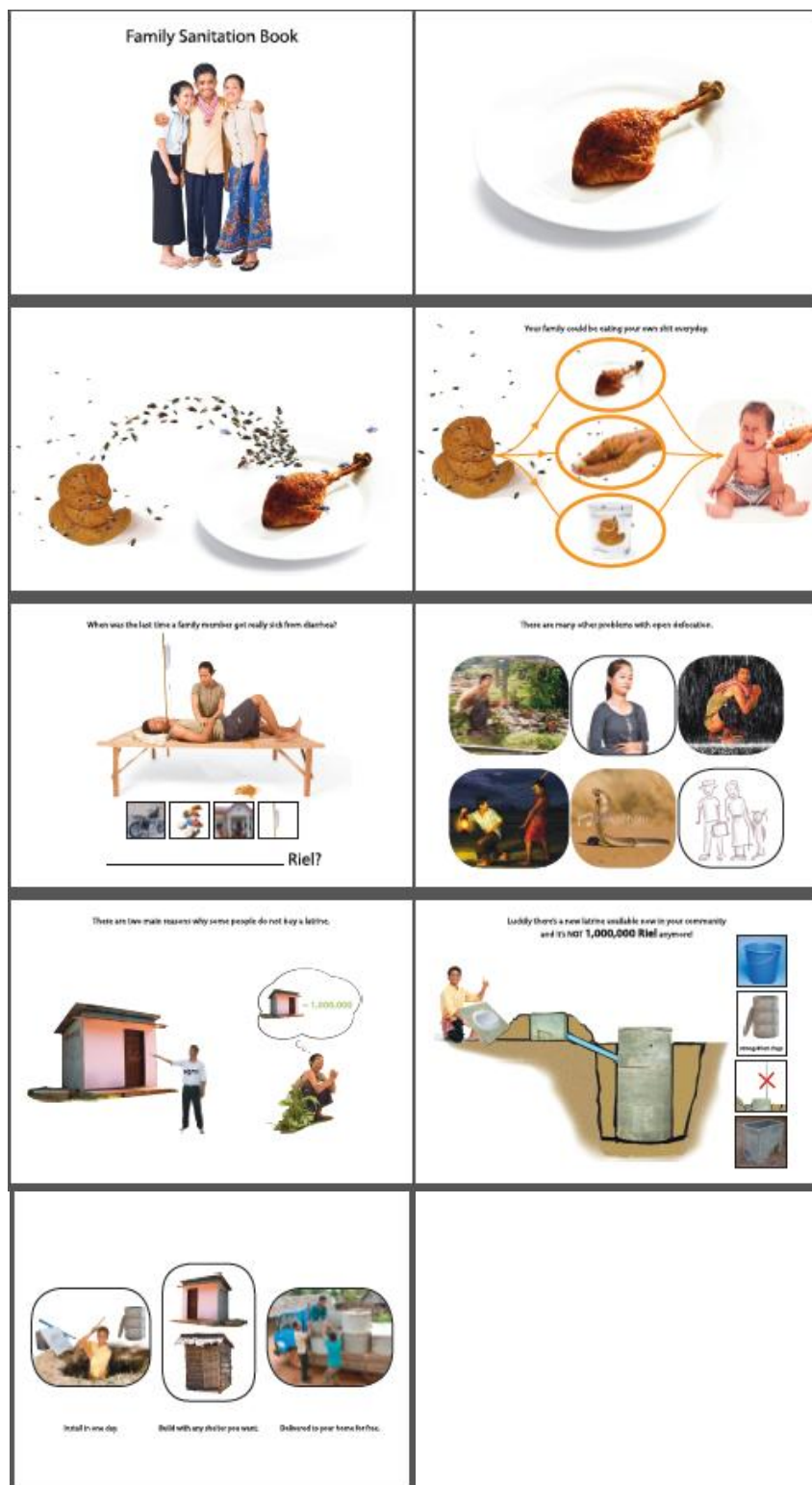
- [Latrine sales materials for sales agents](#)

<sup>23</sup> In this context, it should be noted that organizations as Water.Org have comparative advantage in working together with MFIs in development and at-scale introduction of such new products. They are currently exploring partnership with a number of MFIs in Cambodia on WASH products.

- [Training materials for latrine business](#)
- [Training materials for masons](#)
- [BCC materials and BCC training manuals for CCWCs](#)

## Annexes

### Annex 1: Sales tools used by sales agents



Annex 2: Tools used by local government for behavior change communications

City visitor story



# Shameful daughter story



## Wedding guest story



### Annex 3: Estimating sanitation coverage

Changes in coverage were measured through annual coverage surveys. NGO iDE who was the implementer of this TA has developed a detailed monitoring plan across all their program areas<sup>24</sup>. The plan contains the description of survey methodology, sampling methods etc. Latrine coverage was estimated using latrine count technique where 15 villages<sup>25</sup> were randomly selected from each intervention district and latrine census was conducted for each selected village. The follow-up latrine count were conducted for same selected villages resulting in longitudinal dataset. With this method, the provincial latrine coverage was estimated with a 95% confidence interval of +/- 5%.

Three latrine counts were conducted over the course of the TA implementation:

#### **Baseline (December 2011 - March 2012)**

The baseline latrine count collected comprehensive latrine coverage data for 10 randomly selected villages from each rural district in each operational province, including Kandal and Svay Rieng. Enumerators collected data on type of latrine (wet/dry), IDPoor<sup>26</sup> status, installation (y/n), subsidy (y/n) and whether the latrine was purchased in the past 12 months (to establish a baseline rate of installation). For the purposes of estimating coverage changes, February 2012 (the middle of the latrine count time frame) was used as the month to which coverage estimates apply.

#### **Year 1 Follow-up (July – September 2012)**

The first follow-up latrine count took place within six months of the baseline. The first follow-up survey used a fresh random sample of 10 villages per district. The logic behind using a fresh random sample was to minimize any observation biases that might arise from returning to the same villages throughout the project. The team noted some anomalous results from the first follow-up count – most notably that some provinces showed a decrease in coverage (not statistically significant). In the analysis of the first follow-up, it was noted that the original decision to use a longitudinal cross-sectional design, rather than following the same cohort of villages through the project, may have introduced additional sampling error, which would add to the already sizeable variance in the estimates. Additionally, seasonal differences (with the Y1 count taking place during the rains) may have contributed to observed changes between baseline and Y1 coverage estimates. For the purposes of estimating coverage changes, August 2012 (the middle of the latrine count time frame) is used as the month to which coverage estimates apply.

#### **Year 2 Follow-up (July – October 2013)**

Based on the observations from the Y1 latrine count, iDE proposed a change in strategy for the Y2 follow-up. Instead of selecting a fresh sample of villages, enumerators returned to the baseline villages, to reduce sampling error (i.e. variance introduced due to inter-village variation in addition to changes over time). Because the precision of estimates is heavily influenced by the number of clusters, the number of clusters (villages) per district also increased from 10 to 15 (i.e. the 10 original villages plus 5 additional randomly-selected villages). The Y2 sample thus provides a more precise estimate of coverage compared to the baseline and Y1 exercises. For the purposes of analysis, most calculations of changes over the project period are based on Y2 results compared with baseline (ignoring some of the interim variation in the Y1 estimates). For the purposes of estimating coverage changes, August 2013 (the middle of the latrine count time frame) is used as the month to which coverage estimates apply.

#### **Projections**

The timetable for latrine counts does not align exactly with the timeframe for the project. Thus, it was necessary to project backward from the baseline count (February 2012) to the project start date (July 2011) and forward from the Y2 count (August 2013) to the end of the project (December 2013). In order to do this, latrine sales are used as a proxy for changes in coverage. By comparing the change in latrine coverage in Kandal and Svay Rieng (baseline to Y2) with sales through enterprises receiving direct capacity building support over the same time frame, a relationship between enterprises' sales and overall number of new latrines can be estimated as follows:

---

<sup>24</sup> Their program areas cover five additional provinces, funded by Bill and Melinda Gates Foundation and Stone Family Foundation, outside the two provinces supported by WSP TA.

<sup>25</sup> At baseline, only 10 villages were selected. The decision to expand the sample to 15 villages was done later on in 2013.

<sup>26</sup> IDPoor is a government's identification system for identifying poor households. Households are classified into two categories, IDPoor 1 and IDPoor 2. IDPoor 1 are the poorest group of the population.

Table A: Calculating leverage ratios

VARIABLE	BASELINE	Y2
POPULATION	[N <sub>0</sub> ]	[N <sub>2</sub> ] <sup>27</sup>
COVERAGE (%)	[p <sub>0</sub> ]	[p <sub>2</sub> ]
ESTIMATED TOTAL LATRINES	[X <sub>0</sub> ] = [N <sub>0</sub> ] * [p <sub>0</sub> ]	[X <sub>2</sub> ] = [N <sub>2</sub> ] * [p <sub>2</sub> ]
NEW LATRINES FOR PERIOD	[ΔX] = [X <sub>2</sub> ] - [X <sub>0</sub> ]	
SALES FROM ENTERPRISES RECEIVING DIRECT TA SUPPORT	[A]	
SALES FROM ENTERPRISES NOT RECEIVING DIRECT TA SUPPORT	[B] = [ΔX] - [A]	
LEVERAGE RATIO	[R] = [B]/[A]	

Using the leverage ratio for each province – calculated using Y2 and baseline latrine count results –the estimated latrine coverage at December 31, 2013 was projected based on sales by enterprises receiving direct capacity support recorded between September 1 and December 31, 2013. Likewise, backward projection from the Feb 2012 baseline to the July 2011 start date was conducted using sales by enterprises receiving direct capacity support in the period July 1, 2011 – January 31, 2012. Note that this projection likely overstates the July 2011 coverage, since the systems for sales tracking were not fully operational between July – September 2011. An over-stated baseline coverage estimate is conservative for the measures of change over the project period (i.e. will under-estimate the true magnitude of change between July 2011 and December 2013).

## 1. Changes in sanitation coverage

### Changes in overall coverage

Table B: Overall changes in ALL latrine coverage

	Jul-2011*	Jan-2012	Aug-2013	Dec-2013*
KANDAL	49.3%	49.7%	57.1%	59.4%
SVAY RIENG	31.1%	32.9%	37.7%	39.6%
TOTAL	43.2%	44.0%	50.6%	53.4%
<b>CHANGE</b>	Baseline	0.8%	7.5%	<b>10.2%</b>

\*Projected values

### Changes in sanitation coverage among poor households

Table C: Coverage among IDPoor households

	Feb-12	Aug-12	Aug-13	Dec-13*	Change
Kandal	15.1%	11.7%	27.2%	29.2%	14.10%
Svay Rieng	22.4%	17.1%	19.6%	20.4%	-2%
<b>Total</b>					<b>8.3%</b>

\*Projected value

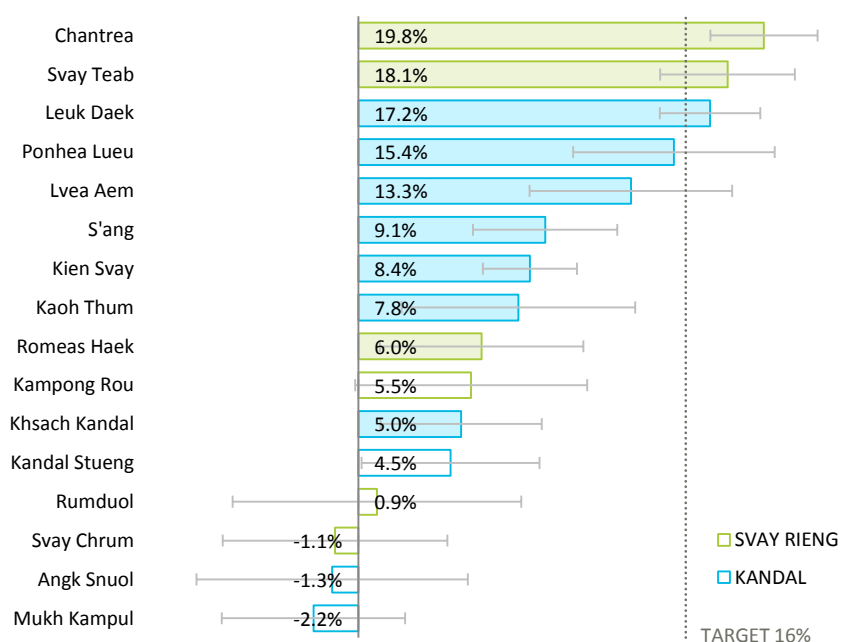
<sup>27</sup> Provincial growth rate estimates from the Cambodian census are used to estimate provincial populations at each point in time.

According to Table C, Svay Rieng's ID Poor coverage seems to have decreased by 2%. However, this apparent change is confounded by the fact that the Cambodian government conducted another round of surveys and reclassified many former IDPoor Households as no-longer ID Poor. The IDPoor list that enumerators were working from showed 33,324 households as IDPoor at the time of the baseline survey in February 2012, but only 24,538 households were classified IDPoor by the time of the Y1 survey in August of that year. Most of the households reclassified as non-poor were likely near the upper end of the IDPoor distribution. Assuming that there is a continuum of likelihood of owning a latrine (probability increasing with wealth) it is reasonable to assume that the households re-classified as non-poor were more likely to have a latrine than the households remaining in the IDPoor group. This is consistent with the estimated coverage falling sharply between baseline and the Y1 follow-up survey, then climbing again by the time of the Y2 follow-up in August 2013. Without following individual ID Poor households from the baseline through the years to know exactly who moved out of ID Poor status, it is not possible to reconstruct a consistent IDPoor population across the latrine counts (i.e. re-create a baseline estimate consisting only of households that continued to be IDPoor after the re-classification).

## 2. Depth of coverage penetration

There was a target of 6 districts to have increased coverage by at least twice the overall target increase in coverage ( $7.8\% * 2 = 15.6\%$ ). The project achieved three districts that increased coverage by at least 16%, with two other districts following close behind – Ponhea Lueu at 15.4% and Lvea Aem at 13.3%. While some districts did appear to have a modest *decrease* in coverage, the change was statistically insignificant at the 95% level. See Figure 13.

Figure 13: District-wide change in coverage between Jan 2012 and Aug 2013, showing 95% confidence intervals



Note: Shaded bars indicate a statistically significant change – Student's t-test  $p < 0.05$

## References

- Dalberg. (2015). *Review of Sanitation Marketing Approaches in Cambodia (draft)*. Water and Sanitation Program.
- Kov, P., Sok, H., Roth, S., Chhoeun, K., & Guy, H. (2008). *Economic impacts of sanitation in Cambodia*. Water and Sanitation Program.
- Newman, A., Kov, P., & Smets, S. (2014). *Making toilets more affordable for the poor through microfinance*. Water and Sanitation Program.
- Nguyen, K., Kov, P., Smets, S., & Chan, V. (Forthcoming). *Expanding Reach into Cambodia's Rural Sanitation Market through Behavior Change Communication and Local Government Channels*. Water and Sanitation Program.
- Pedi, D., Kov, P., & Smets, S. (2012). *Sanitation Marketing Lessons from Cambodia: A Market-Based Approach to Delivering Sanitation*. Washington D.C: Water and Sanitation Program.
- Perez, E., Cardosi, J., Coombes, Y., Devine, J., Grossman, A., Kullmann, C., . . . Wartono, D. (2012). *What Does It Take to Scale Up Rural Sanitation?* Water and Sanitation Program.
- Salter, D. (2008). *Sanitation demand and supply in Cambodia*. Water and Sanitation Program.
- Shah, N. B., Shirrell, S., Fraker, A., Wang, P., & Wang, E. (2013). *Understanding willingness to pay for sanitary latrines in rural Cambodia: Findings from four field experiments of iDE's Cambodia Sanitation Marketing Program*. IDinsight.
- Sy, J., Warner, R., & Jamieson, J. (2014). *Tapping the Markets: Opportunities for domestic investments in water and sanitation for the poor*. The World Bank.
- Vyas, S., Spears, D., Kov, P., & Smets, S. (2013). *Investing in the next generation: Growing tall and smart with toilets*. Water and Sanitation Program.
- World Bank. (2013). *Where Have All The Poor Gone? Cambodia Poverty Assessment 2013*. The World Bank.
- WSP. (2010). *Final Report: Assessment – Affordable Sanitation in Challenging Areas in Cambodia and Lao PDR*. Water and Sanitation Program.