

**Effectiveness of a Sanitation Marketing approach
in rural Papua New Guinea:
The ATProjects Round Loo programme**

by

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List of abbreviations

CHBCC	Community Home Based Care
CHBCC	Community Home Based Care Centre
CLTS	Community Led Total Sanitation
EU	European Union
ICT	Information Communications Technology
IDE	International Development enterprise
INGO	International Non Government Organisation
JMP	Joint Monitoring Program
K	Kina
M&E	Monitoring and Evaluation
MDG	Millennium Development Goal
NDOH	National Department of Health
NGO	Non Government Organisation
PLWHA	People Living With HIV/AIDS
PNG	Papua New Guinea
RWSSP	Rural Water Supply and Sanitation Programme
ToR	Terms of Reference
TSSM	Total Sanitation Sanitation Marketing
WASH	Water supply, Sanitation and Hygiene
WSP	Water and Sanitation Program

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Abstract

This research project identifies core components of a sanitation marketing approach and lessons learnt from international experiences. These are used to assess the effectiveness of the Round Loo sanitation marketing programme implemented by ATPProjects in the Eastern Highlands of Papua New Guinea. The case study employs research workshops, semi-structured interviews and direct observation of the installed products. The research finds that a number of the components of a sanitation marketing programme are in place and those yet to be implemented are formative research, a marketing plan and political engagement. Similarly the Round Loo programme follows some but not all of the international lessons. The main strength of the programme is the diversity of skills within the team, covering product design and promotional material development. Areas for further strengthening include identifying business-oriented sales outlets, removing the hardware subsidy, increasing the number of products and building feedback loops to understand customer's experiences.

Executive Summary

Introduction

Sanitation coverage in Papua New Guinea (PNG) is low and has stagnated. There is no government sanitation programme and limited donor, private sector and NGO sanitation activity. ATProjects is a social enterprise based in the Eastern Highlands Province. ATProjects began a household sanitation programme in 2009, called the Round Loo programme, using a number of elements of a sanitation marketing approach including demand creation and product development. The context of the Eastern Highlands Province with small, remote and culturally diverse communities poses a number of challenges for a sanitation marketing approach.

Objectives

The objective of this research is to synthesise recent international experience of sanitation marketing and identify the main lessons learned for remote rural contexts and use these to examine the effectiveness of the ATProjects Round Loo programme in rural Papua New Guinea. The research set out to find answers to two main questions:

1. What are recent lessons learned from international best practice on sanitation marketing especially in similar contexts to rural Papua New Guinea?
2. Based on these lessons, what is the likely effectiveness of ATProjects Round Loo programme?

Methodology

A literature review was conducted to explore the evolution of sanitation marketing from social marketing, definitions and core components of sanitation marketing, lessons learnt from global experiences and remaining knowledge gaps. The research project comprises a case study of the ATProjects, a local social enterprise, Round Loo programme in Papua New Guinea. The case study employed qualitative methods and a participatory and appreciative approach, using document review, research workshops, semi-structured interviews with key informants in ATProjects, the local Round Loo sales teams and users and direct observations undertaken in communities in Gorokha and Daulo districts in Eastern Highlands province.

Findings

The core components of sanitation marketing and key lessons identified in the literature review are presented in the table below. ATProjects are not currently undertaking activities at the enabling environment level with regards to the Round Loo programme and the government is extremely inactive in the sanitation sector limiting opportunities for engagement. ATProjects is acutely aware of the need for sustainability and the Round Loo programme is being planned with long-timeframes in mind, yet the programme is reliant on donor funding for providing a subsidy for each Round Loo sold. ATProjects have established a strong team with many, but not all, of the varied skills required to design and deliver a sanitation marketing programme.

ATProjects have not conducted systematic research into the motivators and barriers to sanitation uptake. ATProjects has built its capacity to develop a range of promotional materials including radio programmes, songs, TV advertisements, films and person to person promotion. These activities are yet to be evaluated or integrated into a strategic marketing plan based on audience segmentation. ATProjects have used an engineering design process, rather than their regular people-centred-design process, to design a single product, the Round Loo slab. The result is a cleverly engineered and extremely strong slab that can be constructed with a fibre-glass mould and locally available tools at a total cost of K50 (US\$ 25).

ATProjects have not conducted market studies and rather have built sales models based on their existing networks, relying on sales from ATProjects offices; their presence in communities and INGO networks. Round Loos are sold at subsidised prices ranging from K30 (US\$15) to in kind contributions only. Round Loo sales have increased from 175 in 2008 to over 1,050 in 2012. Users reported a number of benefits of using the Round Loos and the main complaint was difficulty in moving the heavy slab. Observations found that many of the Round Loos were installed incorrectly. The current M&E system does not collect information on installation and use of the Round Loo and the programme is not yet responsive to customer's experiences. However ATProjects is trialling various Information Education and Communications technologies to build this feedback loop.

Table 1 Summary of core components of sanitation marketing and key lessons

<p>Enabling environment - Core components: Policy, implementation capacity , financing, monitoring and evaluation</p> <p><i>Key lessons</i></p> <ol style="list-style-type: none"> 1. Importance of political support for scaling up and difficulty of garnering such support. 2. Long timeframes are required for a sanitation marketing approach to flourish. 3. Need to plan for sustainability once direct programme support is withdrawn. 4. Hardware subsidies for toilets undermine sanitation marketing businesses. 5. Achieving equity through a sanitation marketing approach is challenging and detailed poor inclusive strategies are required. 6. Simple monitoring systems in line with national reporting structures are key. 7. There is a human resources capacity gap for implementing a sanitation marketing approach – retraining is needed, as is procuring new skills from outside the sector.
<p>Demand side - Core components: Formative research, marketing strategy</p> <p><i>Key lessons</i></p> <ol style="list-style-type: none"> 8. Insightful formative research to deepen understanding into the drives and blockages to new behaviours is vital. These motivations and barriers differ for various segments of the population and these nuances need to be understood. 9. Tailored promotion strategies are required including promotion by individuals and mass media and building on available opportunities. 10. Successful programmes start by targeting locations and/or segments of the population where sanitation uptake is likely to be most rapid and greatest.
<p>Supply side - Core components: Market studies, capacity building of service providers, providing options, ensuring quality</p> <p><i>Key lessons</i></p> <ol style="list-style-type: none"> 11. Using market studies to find the right size of entrepreneur to involve in sanitation marketing is critical. 12. Building sanitation onto an existing business has proven to improve sustainability. 13. Successful approaches consider aesthetic as well as technical aspect of the product. 14. A range of latrine options at different price points is required. 15. Keep the toilet product and purchase simple for the consumer. 16. Establish processes to facilitate interaction between consumers and service providers. 17. Sequencing is vital to ensure there is a supply of sanitation products in place to meet an increase in demand.

Overall conclusions

The hypothesis of this research is that international lessons of sanitation marketing can be identified and used to determine the likely effectiveness of the ATProjects Round Loo approach. The literature review found that international experiences of sanitation marketing, whilst still not extensive and whilst many programmes are yet to be thoroughly documented and evaluated, has reached the stage where it is possible to discern core components of the approach and identify key lessons. The research showed that the

synthesis of these lessons can be used to assess the likely effectiveness of other sanitation marketing programmes, in this case the ATProjects Round Loo programme.

The research found that the ATProjects Round Loo programme included some, but not all the core components of a sanitation marketing approach. The main components not adequately addressed by the current approach were found to be government engagement, formative research and market studies. The lessons from international experience were used to analyse in more detail the likely effectiveness of these core components of the programme and conclusions and suggested recommendations for ATProjects are presented below.

Conclusions and recommendations on the enabling environment

Whilst the Government, both national and provincial, remains disengaged from rural sanitation promotion the sanitation marketing programme is likely to remain limited to ATProjects working area. Experience shows that sanitation marketing approaches can take at least a decade to reach the point at which demand increases exponentially. Therefore the long-term approach being taken by ATProjects and WaterAid is appropriate. The way donor financing from WaterAid is used in the current Round Loo programme means that the scale up of the programme is limited by the size of the grant provided by WaterAid. The current focus at ATProjects in selling as many Round Loos where there is demand and not focussing explicitly on reaching the poorest is considered prudent for this stage in the development of the programme. ATProjects has taken on the task of performing both the manufacturing and the marketing roles and has been successful at building a skilled and diverse team covering many of the varied skills required for sanitation marketing. However a few key skill sets are not yet within the team and the further expansion of the programme would benefit from this expertise.

- ATProjects and WaterAid engage in the national policy development process to ensure the future sector strategies and plans provide a conducive environment for sanitation marketing approaches.
- Review the way WaterAid funds are used and consider if it is possible to use this funding only for activities that will not hamper the scale up and sustainability of the programme. This would include activities such as research, design and promotion and exclude hardware subsidies to households.

- ATProjects recruit staff with skills in small business development and procure on a short term basis expertise in market research and creative communications.
- Instead of having different prices for the same product and causing confusion for consumers, ATProjects could have different products at different price points.

Conclusions and recommendations on the demand side components

The lack of a comprehensive and detailed understanding of the motivations to adopting use of improved sanitation and of the constraints people face to doing this is holding back the development of optimal sanitation promotion. Greater insights in this area would increase the likelihood that promotional materials are effective. Furthermore the lack of a coherent marketing strategy and a feedback loop from customers to find out which promotion channels are working, mean that current marketing activities are to some extent ad hoc and could likely achieve better results with more strategic planning.

- Undertake research into the drivers for sanitation uptake and use this to develop and test messages and develop a communications strategy and materials.
- Identify geographic areas where people are most likely to be responsive to the drivers for latrines and initially focus the Round Loo programme on these areas.
- Based on the above insights, develop a more detailed marketing strategy taking into consideration seasonality of disposable income, geographical focus, and effectiveness of promotional channels.

Conclusions and recommendations on the supply side

The current model is constricted to supplying products through ATProjects satellite operations in communities, the Community Home Based Care Centres (CHBCC). For the sanitation market to flourish in the Eastern Highlands it may be necessary to look beyond ATProjects' own structures and to see if there are other established businesses that may be well-placed to add sanitation to the services they provide. Presently it appears the Round Loo is not being installed correctly and this may be reducing the effectiveness of the technology in breaking the faecal-oral transmission route. Another constraint customers face is in moving the heavy slab; currently this is an inconvenience that may be dampening sales, at a later stage it may hamper reinstallation once pits are filled. The current monitoring programme provides no formal feedback loops to inform ATProjects whether the Round Loos are installed and used properly and what the customer's think of

the product. However ATPProjects are beginning to experiment with use of ICT technology that could enable such information to be gathered at low cost.

- Undertake market studies to see if there are other potential existing businesses that may be well placed to add sanitation service provision to their enterprises.
- Provide regular mentoring to the CHBCCs through technical advice on sales tactics, incentivise sales through prizes and create opportunities for peer to peer support.
- Look for ways to reduce the weight of the slab, whilst still maintaining safety.
- Put in place systems to monitor installation and use of the Round Loos and gather customer feedback on their experiences of using the Round Loo.

Chapter 1 Introduction

1.1 Context for this research

Sanitation coverage in Papua New Guinea (PNG) is low and has stagnated. Data show no increase in coverage over the last twenty years (UNICEF, 2012). There is no government sanitation programme and limited donor, private sector and NGO sanitation activity. In rural areas, anecdotal evidence suggests a high level of coverage of household ‘bush toilets’ (unimproved pit latrines) and low levels of open defecation.

Globally, the search for successful sanitation approaches is underway with donors and NGOs introducing sanitation models that have proven successful in other countries (Kar and Milward, 2011). WaterAid, Oxfam and the European Union (EU) funded Rural Water Supply and Sanitation Programme (RWSSP) has introduced Community Led Total Sanitation (CLTS) in PNG. Under the EU RWSSP programme CLTS has been used in around 400 communities across the country (Dutton, 2011).

A formal evaluation has not yet taken place. Anecdotal evidence from communities where demand for sanitation has been triggered through CLTS suggests a desire for a better toilet than can be constructed by a household from local bush materials. This is leading to frustration when households are unable to upgrade existing ‘bush toilets’ due to a lack of affordable sanitation products on the local market.

A sanitation marketing approach has potential to address this gap as it promotes both demand for sanitation as well as supply of products and services and the strengthening of the enabling environment. There has been renewed interest in this approach in the South East Asia and Pacific region over the last five years through donor support to a number of sanitation marketing programmes. Many of these programmes are yet to complete their first phase of implementation and only a few evaluations have been conducted. A synthesis of recent key lessons is not yet available.

ATProjects is a social enterprise based in the Eastern Highlands Province of PNG working on sanitation. ATProjects began a household sanitation programme in 2009, called the Round Loo programme, using a number of elements of a sanitation marketing approach including demand creation and product development. The context of the Eastern Highlands Province with small, remote and culturally diverse communities poses a number of challenges for a sanitation marketing approach.

1.2 Problem statement

There is no synthesis of recent international sanitation marketing experiences and key lessons, including for remote rural communities. The sanitation marketing approach is now being piloted in rural PNG and its effectiveness is unknown.

1.3 Project hypothesis

It is possible to identify lessons that lead to the success of a sanitation marketing programme and use these lessons to determine the likely effectiveness of the ongoing ATProjects sanitation marketing programme in PNG.

1.4 Research objective and research questions

The research objective is:

To synthesise recent international experience of sanitation marketing and identify the main lessons learned for remote rural contexts and use these to examine the effectiveness of the ATProjects sanitation marketing programme in rural PNG.

The two research questions are:

3. What are recent lessons learned from international best practice on sanitation marketing especially in similar contexts to rural Papua New Guinea?
4. Based on these lessons, what is the likely effectiveness of ATProjects Round Loo programme?

1.5 Expected impact of the research

This research is expected to lead to reflection within ATProjects and the programme donor, WaterAid Australia, subsequently resulting in changes to the Round Loo programme. The findings are expected to be relevant to the wider sanitation sector in PNG as stakeholders continue to search for appropriate sanitation models for the PNG context. More broadly, this is believed to be the first comprehensive documentation of a sanitation marketing programme in PNG, and possibly the Pacific and therefore is a contribution to the growing knowledge base on sanitation marketing approaches.

1.6 Structure of the report

Following this introductory chapter, Chapter 2 presents a literature review exploring the evolution of sanitation marketing from social marketing, definitions, core components of sanitation marketing programmes and lessons learnt from experiences to date. Chapter 3 presents the methodology used in the research. Chapters 4 and 5 present the findings and discussion respectively, organised under a framework with three sections – enabling environment, demand side and supply side. The final chapter presents conclusions and recommendations for ATProjects and WaterAid as well as identifying possible areas for further research.

1.7 Chapter summary

This chapter presented the context of the research and detailed the research problem. The objectives of the research and the two research questions were presented and finally the expected impact of the research was elaborated.

Chapter 2 Literature review

2.1 Introduction

2.1.1 Literature review methodology

This literature review is based on literature identified through the following process. A literature search was conducted using the following strategies:

Web searches through Google Scholar and the WEDC University Library Catalogue with searches on relevant databases including Aqualine, Web of science and WaterLines. Search words used were “Sanitation Marketing”.

Searching websites of leading WASH sector agencies and especially those known to be producing papers relating to sanitation marketing. The main agency websites searched were the World Bank Water and Sanitation Program; the IRC WASH Library; the WEDC knowledge hub (searching for WEDC conference papers, fact sheets and other knowledge products); WaterAid website.

Reading through lists of references cited in relevant literature and searching for relevant literature.

Personal communication with leading consultants and practitioners working on sanitation marketing to check whether there are any key documents not available through the channels listed above.

When reading the literature a chronology was developed of sanitation marketing programmes, noting the dates of implementation and the geographic spread. This was used to identify stages in the development of sanitation marketing practice.

2.1.2 The global context of the research

The last Joint Monitoring Program (JMP) report (UNICEF and WHO, 2012) found that 2.5 billion people still do not use an improved latrine. 63% of the global population use an improved latrine, an increase of 1.8 billion people since 1990. As the JMP report states

“unless the pace of change in the sanitation sector can be accelerated, the MDG target may not be reached until 2026” (UNICEF and WHO, 2012, p.15). In this context the search is ongoing for ways to significantly increase sanitation usage for large numbers of people.

Since the United Nations International Year of Sanitation in 2008 there has been a greater focus on sanitation in international development and sanitation is no longer neglected (Perez et al., 2012). From 2010 the Sanitation and Water for All partnership has focussed high level political attention from both developing and donor governments on the global sanitation crisis. In spite of this increased attention there is still a shortfall in investment needed to reach international and national sanitation targets (WaterAid, 2011).

Even when financing for sanitation is available questions on how to effectively use these resources to increase sanitation use remain (WELL, 1998). Community Led Total Sanitation has spread dramatically since its introduction in 2001 (Kar and Milward, 2011). In recent years interest has increased in the sanitation marketing approach.

2.1.3 Questions to be answered in the literature review

The literature review was undertaken to find answers to the following questions:

- What is social marketing?
- What is the definition of sanitation marketing?
- What are the core components of sanitation marketing?
- What the main lessons learnt from global experience to date of sanitation marketing?
- What gaps remain in our knowledge regarding sanitation marketing?

2.2 Social marketing

Sanitation marketing emerged from the practice and theory of social marketing. Before looking in detail at sanitation marketing, this section describes the evolution of social

marketing and its definitions and components. American marketing professors Philip Kotler and Gerald Zaltman are generally credited with creating social marketing through their article “Social Marketing: an approach to planned social change” appearing in the *Journal of Marketing* in 1971. In reviewing the literature on the early years and evolution of social marketing, Budds et al. (2002, p.5) identify three distinct periods in its evolution: the first phase in the 1960’s and 1970’s focussed on early theoretical development of social marketing; the second phase in the late 1970’s and 1980’s turned to practical experience, with early adoption in the field of family planning; and the third phase from the late 1980’s saw increasing acceptance of the concept and the beginnings of an academic discipline.

The first comprehensive definition of social marketing was provided by Kotler and Zaltman as “The design, implementation and control of programmes calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution and marketing research. Thus it is the explicit use of marketing skills to help translate present social action efforts into more effectively designed and communicated programmes that elicit desired audience response. In other words, marketing techniques are the bridging mechanisms between the simple possession of knowledge and the socially useful implementation of what knowledge allows” (Kotler and Zaltman, 1971, p.5).

Budds et al. note how the range of alternative definitions produced in subsequent decades emphasise different aspects of social marketing such as “the promotion of social cases and ideas” and “a planned approach to social change” (2002, p.7). A practical definition and one well suited to the subsequent discussion on sanitation marketing is offered by Weinreich as “the use of commercial marketing techniques to promote the adoption of a behaviour that will improve the health or well-being of the target audience or of society as a whole” (2011, p.4). For the purposes of this research the working definition of social marketing used by Budds et al. (2001, p.174) is used, namely “the application of commercial concepts and principles to the whole latrine promotion strategy”.

Kotler and Zaltman (1971) were the first authors to apply marketing theory and the classical marketing mix of the ‘4 P’s’ (Product, Promotion, Place, Price) to the social marketing process. In their adaptation, the 4 Ps translate to social marketing as follows:

- *Product*: Studying the needs and wants of the target audience and attempting to design products and services that meet their desires.
- *Promotion*: Communication-persuasion strategy and tactics that will make the product familiar, acceptable, and even desirable to the audience.
- *Place*: Providing adequate and compatible distribution and response channels and arranging for accessible outlets which permit the translation of motivations into actions.
- *Price*: Costs that the buyer must accept in order to obtain the product.

Kotler and Zaltman also introduce the concept of customer segregation into smaller more homogenous groups to better respond to their needs (Budds et al., 2001, p.175). Linked to this is another key principle from social marketing of making available a range of products or services to meet needs of different groups of customers at different price points.

2.3 Definitions of sanitation marketing

It is important to establish a definition for sanitation marketing as understood in this study. This may not be an easy task, as Devine finds “no standard definition of sanitation marketing yet exists” (Devine, 2010, p.41) and the recent WSP manual remarks that no broad consensus exists on what sanitation marketing is (Devine and Kullmann, 2011, p.3). Nevertheless the following elements appear in the various definitions used.

- *Social marketing* – some definitions include ‘social marketing’ as part of a description of ‘how’ sanitation marketing meets its ends. These definitions use words to the effect of “the use of social and commercial marketing best practices to ...” (Sijbesma, Truong and Devine, 2011, p.1) or “the application of best social marketing practices to.....” (Devine, 2010, p.41; Devine and Kullmann, 2011, p.5).
- *Demand* – all definitions talk about ‘increasing demand’ expressed in some way or other. For example “scale up demand”, (Sijbesma, Truong and Devine, 2011, p.1; Devine, 2010, p.41; Devine and Kullmann, 2011, p.5), “increasing demand” (Pedi et al., 2011, p.1); “stimulating household demand” (Scott, Jenkins and Kpinsoton, 2011, p.2).

- *Supply* – the other omnipresent element of definitions is mention of ‘increasing supply’. Again this is expressed in a number of ways including “scale upsupply” (Sijbesma, Truong and Devine, 2011, p.1; Devine, 2010, p.41); “expanding market-based supply of sanitation” (Pedi et al., 2011, p.1). Scott, Jenkins and Kpinsoton go a step further by including “private sector provisionis developed and enhanced” (Scott, Jenkins and Kpinsoton, 2011, p.2), whereas the other definitions do not explicitly mention it is the ‘private sector’ who will offer the supply, although this may be implied or intended.
- Another common thread of the definitions is that increasing demand and supply must *happen together*, sometimes this is implied, other times this is expressed more explicitly through words such as “simultaneously” (Pedi et al., 2011, p.1) or “acting together (Scott, Jenkins and Kpinsoton, 2011, p.2); “at the same time” (Scott, Jenkins and Kpinsoton, 2011, p.2). It is worth noting that this part of the definition may actually result in some misunderstanding, as experience is showing that the sequencing of demand and supply activities is important to get right (see Lessons section below).
- *Demand and supply of what* – The definitions typically include mention what is being demanded and supplied. This is expressed generally, as “improved sanitation” (Sijbesma, Truong and Devine, 2011, p.1; Devine, 2010, p.41; Devine and Kullmann, 2011, p.5), or more specifically as “sanitation products and services” (Scott, Jenkins and Kpinsoton, 2011, p.2; Pedi et al., 2011, p.1).
- *For the benefit of whom* – Some definitions may include the intended audience of sanitation marketing activities and when this is specified in all cases it is the poor. “Particularly amongst the poor” (Sijbesma, Truong and Devine, 2011, p.1; Devine and Kullmann, 2011, p.5); “among the poor” (Devine, 2010, p.41) or “for low-income households” (Pedi et al., 2011, p.1). Other definitions do not specify this intended audience and imply that all households are the intended audience. Again this is an important aspect of definitions of sanitation marketing – clarity is needed on whether this is an approach aimed at the poor, or more widely, or both. This obviously has implications on principles and approaches.

Based on the above analysis, the following definition is used in this study: The use of social and commercial marketing best practices to scale up demand and supply for improved sanitation.

2.4 The emergence of sanitation marketing programmes

This section tracks the emergence and growth of sanitation marketing programmes in rural areas. This is done by building up a chronology of sanitation marketing programmes as documented in published literature on the topic.

The overall situation is well summed up by when Pediti et al.'s remark that "although early evidence suggests the significant potential of sanitation marketing, practical experience remains limited" (2011, p.1). Devine observes that, with the exception of the Total Sanitation Sanitation Marketing (TSSM) programme, few sanitation marketing initiatives have been undertaken at the scale needed to bridge the sanitation coverage gap (2010, p.41). Godfrey, Hart and Rosenweig (2010, p.28) also note with surprise that "considering the.....benefits, there are few case studies of large scale sanitation marketing programs".

Various authors note that most of the existing examples of sanitation marketing are small scale projects that focus only on some elements of the sanitation marketing approach, normally the supply side such as training for masons (Godfrey, Hart and Rosenweig, 2010, p.28; Budds et al., 2002, p.25). This section does not consider programmes which adopt only certain components of sanitation marketing but rather focuses only on programmes aiming to deliver the whole package systematically.

Three discernible periods in sanitation marketing activities emerge. The first phase from the 1980's to 2000 is characterised by very early development of thinking on sanitation marketing based largely on the work being undertaken on social marketing. Organisations began thinking about how social marketing may be applied to the sanitation sector. The 1989 report by Ronald Parlato for the World Bank entitled *Marketing Low Cost Sanitation*, looks at how the traditional marketing approach could be applied to sanitation

in India. Published in the same year, the 1989 report *Low Cost Sanitation in Bangladesh* by Munch-Petersen contains a detailed and sophisticated chapter on ‘Marketing and Promotion of Health and Hardware’ and concepts of sanitation marketing are embedded throughout the report. Earlier reports and papers have not been identified, however it is unlikely that Munch-Petersen’s work appeared out of the blue and it is more likely the product of an ongoing discussion and trialling of marketing thinking in the sanitation sector in Bangladesh or elsewhere or within the funding agency, DANIDA. After these two early papers, little literature on this topic was discovered from the 1990’s.

The second phase from the late 1990’s to around 2008 is characterised by a renewed interest in sanitation marketing, further detailed research and establishment of the first dedicated sanitation marketing pilot programmes. Jenkins’s research undertaken on sanitation in rural Benin in the 1990’s led to a number of academic papers on aspects of demand for and adoption of sanitation (Jenkins, 2004; Jenkins and Curtis, 2005) which provided insights on how sanitation marketing programmes may be designed. WaterAid in India and WSP published a paper on WaterAid’s programme experiences entitled *Marketing Sanitation in Rural India* (2000) based firmly on the emerging theory of Sanitation Marketing. The Water, Engineering and Development Centre at Loughborough University also began a research project looking at the suitability of sanitation marketing for urban areas and published a number of reports at the start of this work (Budds et al., 2001; Budds et al., 2002; Obika, Jenkins and Howard, 2003; Obika, 2003; Obika, 2004).

Vietnam emerged as one of the main countries for trialling of sanitation marketing programmes at this time. WSP published research into demand for sanitation in 2002 (WSP, 2002) and International Development Enterprises (IDE) began applying the marketing process they had previously used for water supply and treatment products to sanitation (Phan, Frias and Salter, 2004; Frias and Mukherjee, 2005). In this period, there is again renewed interest in Bangladesh (Practical Action, 2006), considering the advances in sanitation that had been made since the early works cited above from 1989. Heierli and Frias’s (2007) review the Bangladesh experience, which comprised sanitation marketing and more latterly since around 2002 the Total Sanitation/ Community Led Total Sanitation approach, and present a manual cum programming guide. In writing the manual Heierli draws on his previous work in Bangladesh with DANIDA (funder of the earlier paper on

Sanitation Marketing in Bangladesh) and Frias draws on his Vietnam experiences. In this period the first publication on sanitation marketing in Latin America appears (Fuertes, 2006), showing the concept has spread to all developing regions, with the exception of the Pacific, which has relevance for this case study on Papua New Guinea.

The third phase, starting around 2008 to the present, is characterised by the first significant Sanitation Marketing programme delivered at scale, the WSP Total Sanitation Sanitation Marketing

in Tanzania, India and Indonesia, a large number of other smaller sanitation marketing programmes and publication of programmatic guidance.

The first full sanitation marketing manual was published in 2010 authored by Jenkins and Scott. The manual is based on the work of the authors over the previous seven years in Africa. The latest addition to the collection of manuals is by Devine and Kullmann (2011) and published by WSP. The manual is available as a document and as an online resource kit. The manual has been produced in the context of WSP's work on scaling up rural sanitation. The stated aims of the manual are to explain and give practical guidance on the steps needed to design, implement and monitor sanitation marketing programmes at scale. The manual is developed on the basis of a description of the ongoing WSP Total Sanitation Sanitation Marketing (TSSM) programmes in three countries and provides a repository for resources developed in these programmes, such as ToRs and consumer survey tools. The majority of content in the manual covers the formative research stage with very little content yet available on implementation and monitoring and evaluation.

Whilst the authors do acknowledge that sanitation marketing is a small and emerging field of practice, it could be argued that manuals are being produced and advice offered to others on how to do sanitation marketing before the programmes on which this advice is based have been evaluated to know if this is the right way to do things. Lessons are offered from the perspective of 'how we did it' as opposed to 'now we have the benefit of looking at results, this is the best advice'.

Indeed the number of evaluations found in the literature review was minimal. Evaluations identified in the literature review are limited to the IDE programme in Vietnam (Sijbesma, Truong and Devine, 2010) and retrospective studies have been conducted on sanitation progress in Bangladesh (Hanchett et al., 2011) and Benin (Scott, Jenkins and Kpinsoton, 2011). Evaluations of the TSSM programme are yet to be finalised and published.

2.5 Core components of Sanitation Marketing

2.5.1 Introduction

This section of the literature review identifies the core components of a sanitation marketing approach. The aim is to identify these core components and later use them to form a framework for use in organising the findings from the case study component of this research.

These components have been identified through reviewing the available literature on sanitation marketing. Some papers set out frameworks for sanitation marketing, listing the various components. Others discuss activities and from these components can be discerned. With the publication of a few recent manuals on sanitation marketing core components and becoming clear. For example, Pedi et al., refer to an “emergent set of ‘best practice’ activities for Sanitation Marketing program development detailed in Jenkins and Scott (2010)” (2011, p.2).

Drawing on Weinreich’s (1999) process for social marketing, Obika (2004) and Scott (2005) present the major ‘stages’ in the development of a sanitation marketing programme as:

Table 2 Process steps for social marketing and sanitation marketing

Social marketing		Sanitation Marketing
Weinreich (1999)	Scott (2005)	Obika (2004)
Planning	Planning	Market research
		Program aims and objectives
		Set up supply mechanism
Message and materials development	Communications message and placement planning	Message and material development
Pre-testing	Pre-testing of materials	
Implementation	Implementation	Implement promotion campaign
Evaluation and feedback	Evaluation and feedback	Monitor and feedback

The most important distinction between these processes is the addition of the ‘set up supply mechanism’ step by Obika, signalling the importance of addressing supply side issues in. These frameworks of ‘steps’ or ‘stages’ are useful as a planning tool for programme managers in terms of thinking through a process.

In the discussion of components below the framework of enabling environment, demand and supply is used, building on the ‘Stool of Stools’ presented by Jenkins and Sugden (2006, p.10).

2.5.2 Enabling environment components

Before discussing further issues of the enabling environment, this term needs to be defined. In their “Stool of Stools” Jenkins and Sugden refer to the ‘institutional and policy environment’ (Jenkins and Sugden, 2006, p.10) which could be equated to an enabling environment. In the same work, the authors also discuss the enabling environment noting that it is “a term that is a lot easier to suggest than it is to achieve and one on which it is hard to generalise” (Jenkins and Sugden, 2006, p.26). The key element of the enabling environment the authors highlight is cross ministry coordination.

The Water and Sanitation Program (WSP) identify the enabling environment as a core element in the framework of their Total Sanitation Sanitation Marketing (TSSM) programme. Here the term is defined as “the policy, institutional and financial environment that promotes mutually self-sustaining growth of demand for, and supply of, improved sanitation” (Mukherjee, 2009, p.14). The TSSM programme undertook start and endline evaluations of the enabling environment in its programme areas and adopted a conceptual framework with eight dimensions of the enabling environment as follows (Rosenweig, 2008, p.vi):

1. Policy, strategy, and direction
2. Institutional arrangements
3. Program methodology
4. Implementation capacity
5. Availability of products and tools
6. Financing
7. Cost-effective implementation
8. Monitoring and evaluation

In each context, programmes may not need to address all eight components of the enabling environment. As Scott, Jenkins and Kpinsoton highlight, what is required depends on the country context and can include changes in regulations and policies to include language supportive of sanitation marketing, encouraging donors and local government to support sanitation marketing approaches, and enacting legislation to provide dedicated financing for sanitation (2011, p.3). Whatever actions are required, there is a consensus in the literature that Sanitation Marketing programmes need to build the enabling environment at different levels of government.

2.5.3 Demand side components

Two main components comprise the ‘demand-side’ of sanitation marketing, formative research and marketing strategy.

Formative research

Formative research is defined as the research activities conducted prior to the implementation of a social marketing strategy in order to obtain the information needed on which to guide the initial development of the programme (Weinreich, 2011.p.29).

There is agreement in the literature that understanding demand is the first step in sanitation marketing programming (Godfrey, Hart and Rosenweig, 2010, p.28). To achieve this, studies are undertaken referred to as ‘formative research’ or ‘demand studies’ (Pedi et al., 2011, p.2). An example of a tool developed for undertaking this type of research too better understand demand is the SaniFOAM framework (Devine, 2009). This is a conceptual framework based around a uses a classification system commonly used in fields such as consumer behaviour, social marketing, and organizational management, namely ‘Opportunity’ (chance to perform the new behaviour); ‘Ability’ (capacity to perform the new behaviour); and ‘Motivation’ (want to perform the new behaviour) (Devine, 2008, p.4).

As well as looking at drivers for demand, formative research also explores any existing constraints that impede demand (Budds et al., 2001, p.175). The formative research looks at competing household demands for investment as this sheds light on what sanitation is competing with in household budgets (Scott, Jenkins and Kpinsoton, 2011, p.5). This echoes the work of McKenzie-Mohr who emphasises “that effective program design begins with barriers people perceive in engaging in an activity (McKenzie-Mohr, 2000, p.546). McKenzie-Mohr stresses the difficulty of changing behaviour and the weaknesses of information campaigns aimed at increasing knowledge and developing supportive attitudes alone and strongly argues for barrier research. Jenkins and Curtis argue that motivation, or drives, alone are not sufficient and that ‘opportunity’ and ‘ability’ too are needed for the desire for a latrine to be translated into purchase and use (2005, p.2447).

Marketing strategy

Based on the results of the market studies (see below) and formative research, a marketing strategy is developed to promote demand for sanitation services. This is where the 4 Ps from the classical marketing mix are introduced (Weinreich, 2011, p.13). Obika names this stage as ‘message and material development’ and includes the following steps (Obika, 2004) - identify partners with expertise for the design and development of marketing concepts; develop marketing concepts and creative design; pre-test and refine creative design; develop promotion strategy.

The marketing strategy should a) appeal to the existing motivators for sanitation in the target population and b) focus attention on the perceived inadequacies of the current situation faced by the target group (Jenkins and Curtis, 2005, p.2457). The first step in this process is to develop and test messages using a variety of communication channels (Scott, Jenkins and Kpinsoton, 2011, p.3). Once messages are finalised the next steps include producing promotion materials; launching a campaign (e.g. road show, launch event); and running a promotion campaign (Obika, 2004).

These marketing strategies use a variety of messages targeted to different audiences, as well as different media - commercial advertising techniques (through a combination of appropriate media such as print, radio, and TV), and more direct promotion to the consumer through NGOs, Department of Health outreach teams, and others—within a consistent framework of well-designed messages to generate demand and change behaviour (Sijbesma, Truong and Devine, 2010, p.16). Examples of these strategies include a communication tools menu, prototypal behaviour change communication products, informed choice catalogues to educate and inform consumers of available technologies and product branding, such as the “WC-ku Sehat” (*my latrine is healthy/hygienic*), a thumbs-up sign branding for facilities that meet the “improved sanitation” criteria (Mukherjee, 2009, p.13; Devine, 2010, p.47).

As Devine explains, the main objectives are to reinforce the new social norm conveyed through community mobilization efforts (that of universal toilet use), correct misconceptions about sanitation and awaken social drivers for improved sanitation” (Devine, 2010, p.48).

2.5.4 Supply side components

The supply-side components identified by the literature are discussed in this section.

Market studies

Market studies, sometimes referred to as supply-chain assessments (Pedi et al., 2011, p.2), are undertaken to learn about the sanitation market, looking at suppliers of sanitation infrastructure and maintenance services, reasons for installation of sanitation solutions and constraints (legal, institutional, knowledge, and financial) that prevent the expansion of the sanitation industry (Sijbesma, Truong and Devine, 2010, p.64).

Capacity building of service providers

This component aims to increase the number of skilled local providers of sanitation products and services. Capacity building of service providers is essential to develop a sustainable market (Devine, 2010, p.47; Sijbesma, Truong and Devine, 2010, p.65). Sijbesma, Truong and Devine highlight the most common weak areas of service providers as commercial skills, access to credit, legal recognition, and associations to build mutual confidence and skills (Sijbesma, Truong and Devine, 2010, p.65).

As an example, in East Java this component takes the form of mason training and an accreditation program delivered by a leading technological training institute to equip every district with masons capable of a) facilitating informed choice-making by consumers and b) promoting and delivering accredited options with quality assurance (Mukherjee, 2009, p.11).

Obika (2004) names this step as ‘identifying potential suppliers of latrines and other related services’ and includes the following steps - assess and develop their capacity to provide desired services; identify and/or set place(s) where consumers can access the sanitation services being marketed (e.g. toilet centres); work with the public sector to establish strategy for disposal of sludge from toilets.

Providing options

The sanitation marketing approach does not promote a single technology but instead focuses on the consumer's choice (Sijbesma, Truong and Devine, 2010, p.65). This range of products and services should respect the various wishes, needs and budgets of households (Groeber, 2010, p.3). Following on from this principle, a core component of sanitation marketing is offering "a broader range of options for construction and maintenance of sanitation solutions, with a variety of installation and operation costs" (Sijbesma, Truong and Devine, 2010, p.65).

This step is referred to as Padi et al. as the 'human-centred design process (2011, p.2). Obika (2004) presents this step in the sanitation marketing process as 'identifying and developing marketable sanitation facilities and services'. Scott, Jenkins and Kpinsoton emphasise the need to identify and standardise a range of low cost and desirable products (2011, p.3).

Ensuring quality

There is agreement in the literature that activities are needed to monitor the quality of the work of service providers through some form of endorsement or certification scheme (Scott, Jenkins and Kpinsoton, 2011, p.9). Devine discusses the "need to devise a long-term strategy to monitor quality of accredited suppliers and appropriate use of the promotional materials" and finds that post sale services and warranties, standard marketing practices in other sectors, are yet to be used in sanitation marketing (Devine, 2010, p.47).

2.6 Lessons

2.6.1 Introduction

It is important to clarify why we are looking at lessons from previous sanitation marketing experiences in this literature review. The lessons identified in the literature are used to discuss the findings of the ATProjects programme.

Lessons have been identified through an extensive review of available published and grey literature on sanitation marketing. In most cases the documents published are by implementing of funding agencies documenting their own work as it is in progress. Due to the limited number of completed sanitation marketing programmes very few evaluations have been completed. A common format in the published material is to include a section on lessons learned. These lessons have been reviewed and synthesised in the section below. These lessons are presented in the framework of Enabling Environment, Demand side and Supply side as discussed above.

2.6.2 Lessons regarding the enabling environment

Political support

Experience shows that government support is vital for scaling up of sanitation marketing programmes. Often this lesson is learnt the hard way through programmes which have not gained the required government support and failed to scale up or sustain. In the Vietnam programme, Sijbesma, Truong and Devine recommend that government support should be secured to allow scaling up of successful programmes, for ensuring replication and scaling up of the approach (Sijbesma, Truong and Devine, 2011, p.3). Working in Indonesia Mukherjee also mentions the need to secure sustainable institutional and political commitment in order to sustain the momentum (Mukherjee, 2009, p.19). Political leadership and drive and the variability of local government buy-in and engagement are mentioned by a number of authors as challenges (Pedi et al., 2011, p.4; Scott, Jenkins and Kpinsoton, 2011, p.15).

Rosenweig emphasises the need for a full suite of tools including a policy, strategy and operational plans at the local level. The author also cautions that whilst a supportive policy framework is essential for establishing an enabling environment, alone it is not sufficient (Rosenweig, 2008, p.26).

Sustainability

A number of lessons have been identified at the enabling environment level which relate to the sustainability of programmes:

The first lesson is the long timeframes involved in a sanitation marketing approach. Mukherjee emphasises the time taken to undertake formative research and message design and testing, up to 18 months in the case of the East Java TSSM programme (Mukherjee, 2009, p.10). Jenkins and Sugden observe the longer term nature of sanitation programmes as opposed to water supply programmes due to the time required for behaviour change and adoption of new products and practices (Jenkins and Sugden, 2006, p.8).

Jenkins and Curtis also talk to this theme of timeframes. They introduce thinking from the theory of adoption and diffusion of innovations which explains how, when and where (geographically) demand spreads for new innovations that replace existing practices and products, in this case latrine use. They also highlight the opportunity cost of this purchase vis a vis purchasing another product (Jenkins and Curtis, 2005, p.2447).

Other experiences too highlight the need for a long term engagement to ensure sustainability. In Vietnam, Sijbesma, Truong and Devine find that many of the start-up activities required a longer term timeframe including advocacy with governmental NGOs, institutionalized capacity building for promoters and providers, regular consumer studies, development of promotional materials and communication channels, and the design and testing of strategies for enabling the poor to install unsubsidized sanitary toilets (Sijbesma, Truong and Devine, 2010, p.vi).

Godfrey, Hart and Rosenweig observe the risk that the longer timeframes involved with sanitation marketing before tangible results are evident, compared to other approaches

such as Community Led Total Sanitation (CLTS), may cause government and NGOs to lose confidence in the approach (Godfrey, Hart and Rosenweig, 2010, p.30).

The lessons highlight the need design programmes to sustain once support is withdrawn. Mukherjee and other authors find that project outcomes often fail the sustainability test once external funding ceases, and project benefits, even if sustained, remain limited to project areas without scaling up to other districts and provinces (Mukherjee, 2009, p.14; Pedi et al., 2011, p.34). The need to secure ongoing programming and funding before the project's conclusion (such as for continued promotion, training of new people, more consumer research, implementation of a pro-poor strategy) is identified in the Vietnam case (Sijbesma, Truong and Devine, 2011, p.3).

The 'Hands Off' approach employed in Cambodia considers sustainability from the start and assesses "roles of the NGO facilitator against post-project parameters of sustainability and replicability, restricting activities to those that can be done after the NGO exits" (Pedi et al., 2011, p.3). This approach entails elements such as recruiting and training members from the local community instead of deploying NGO staff as sales agents; embracing the profit incentive in the supply chain and therefore encouraging profit maximization by producers and sales commissions; and developing simple, low cost, locally reproducible marketing materials (Pedi et al., 2011, p.2).

Financing

Experiences highlight that hardware subsidies for toilets undermine sanitation marketing businesses (Pedi et al., 2011, p.4) and there is general support in the sanitation marketing literature for zero hardware subsidies (Scott, Jenkins and Kpinsoton, 2011, p.15), with the exception of the poorest households (see below).

There is also recognition that differing subsidy practices cause confusion and a national policy position should be established (Sijbesma, Truong and Devine, 2010, p.60).

Mukherjee highlights the benefits of a consistent strategy unequivocally forbidding the use of subsidies for household sanitation facilities in Indonesia (Mukherjee, 2009, p.14).

Financing for poor-households receives attention in the literature. At the start of their work looking at sanitation marketing in an urban context in Africa, Budds et al., recognise that achieving equity is one of the greatest challenges facing this approach (2001, p.175) and raised concerns regarding how to price the product affordably.

The Bangladesh study found that only a small proportion of households knew where to access financing for building a latrine and suggests linking the private sanitation sector to finance institutions so they can offer credit/instalment plans to consumers (Hanchett et al., 2011, p.68). This approach is reported to be working well in Indonesia where sanitation businesses are partnering with informal savings groups and local micro-credit institutions to enable customers to pay by instalments and thus addressing the lack of cash faced by households due to other priorities (Devine, 2010, p.48).

The literature recognises that projects need to do more to include a poor inclusive strategy and go beyond promoting loans and savings (Sijbesma, Truong and Devine, 2010, p.55). Whilst there is limited comment in the sanitation marketing literature on exactly how this can be done, the recent study on the sustainability of sanitation in Bangladesh, looking at both total sanitation and sanitation marketing approaches found that some form of financing or subsidy option is needed for the poorest that still have not achieved basic sanitation. The authors suggest that subsidies that are targeted to the poor through community-based or self-selection methods may be more effective in reaching the poor than means-tested systems (Hanchett et al., 2011, p.84).

There are few discussions in the literature on sanitation marketing questioning whether indeed this approach can work for the poor. One exception is Roberts, Tanner and McNaughton who note that no matter how inexpensive latrines are made, a pure market approach will exclude a certain percentage of the population that cannot afford the full purchase price (2007, p. viii). This same issue has been aired however in social marketing circles for a number of decades. One critique of social marketing is that it may not reach the groups who need benefits most. Ling et al. (1992), as quoted by Budds et al. (2002), observe that social marketing strategies, such as mass media, are not inclusive. Wallack (1990), as quoted by Budds et al. (2002), discusses how the concept of customer segmentation, discussed above, means that people most likely to change behaviour are

targeted first and this therefore disadvantages those most in need and with lesser resources.

Monitoring systems

As Budd et al. (2001, p.176) note when comparing sanitation marketing to a more traditional sanitation approach, the choice of appropriate measures for sanitation marketing will be an important consideration. There is agreement in the literature that a simple sanitation monitoring system is a key element of a sanitation marketing initiative (Sijbesma, Truong and Devine, 2010, p.56). Recommendations on how to do this include falling in line with national reporting structures (Cardosi, Mwambuli and Indodi, 2010, p.2) rather than setting up parallel project or programme systems.

Mukherjee highlights the need to build capacity and develop mechanisms for this integration to take place and cautions that the lack of demand for such data from an existing monitoring system is proving to be an obstacle to institutionalization (Mukherjee, 2009, p.16). Pedit et al. discuss how in Cambodia provincial and district level government staff were trained in data collection and monitoring as well as oversight and promotion of local enterprises (Pedit et al., 2011, p.3).

Rosenweig highlights the importance of systems to track costs and also basic and collective sanitation outcomes so that the most cost effective way to implement programmes can be determined (Rosenweig, 2008, p.29).

The capacity gap

The literature identifies a capacity gap in implementing a new approach such as sanitation marketing, particularly at the local level. Rosenweig finds that countries are not familiar with the sanitation marketing approach (Rosenweig, 2008, p.vii). Rosenweig finds that districts must have both organisational units dedicated to sanitation activities and also access to an adequate number of trained sanitation specialists and that capacity-building plans need to address the systems and resources that the sanitation units require in order to function effectively (Rosenweig, 2008, p.29).

Sustaining these capacity building challenges also receives some attention and Sijbesma, Truong and Devine recommend that this needs to be institutionalised if it is to be maintained (Sijbesma, Truong and Devine, 2010, p.61). Mukherjee remarks that whilst sanitation marketing is proving effective in Indonesia, it is manpower heavy and resource intensive and the author questions whether it is feasible to replicate the approach in other areas through local government budgets (Mukherjee, 2009, p.19).

Godfrey, Hart and Rosenweig (2010, p.30) observe that organisations implementing a social marketing approach are unlikely to have the right human resources. Weinreich recommends using services of a specialised agency for certain tasks, especially the skilled process of message development and communications design (2011, p.140). McKenzie-Mohr also states that the skills in undertaking barrier research lie with psychologists and therefore ways need to found for psychologists to work more closely with programme planners (2000, p.552). However Godfrey, Hart and Rosenweig highlight how even procuring these skills from the commercial sector can be challenging as the commercial sector often lacks a good understanding of the complexities of rural sanitation. The authors also highlight the challenge facing government in coordinating inputs from a wide range of implementers such as research firms, communications specialists and marketing firms (2010, p.30).

2.6.3 Demand side lessons

This section synthesises the main lessons highlighted in the literature relating to the demand side.

Insightful formative research

Many authors identify a number of lessons regarding the need to base programmes on formative research. These lessons are in part based on a realisation that more traditional educational approaches to sanitation have not been successful (Cairncross, 2004, p.2) and that deeper insights are needed to bridge the knowledge-behaviour gap and respond to a consumer's immediate needs and wants (Cardosi, Mwambuli and Indodi, 2010, p.2).

Mukherjee describes how this approach to understanding behaviour “signals an essential departure from the common ‘Information Education, Communication’ approach, which is

often based on sanitation program managers' beliefs of what people need to be educated or informed about in order to change their behaviours, rather than on a researched understanding of why people behave as they do" (Mukherjee, 2009, p.10).

Jenkins and Curtis break down motivation further and propose thinking about motivation in terms of 'drives' as this "captures the notion of internal tension, which propels an individual to seek solutions" (Jenkins and Curtis, 2005, p.2456). This way of thinking makes the programme designer think about the personal benefits and value offered by a new behaviour such as using a latrine, relative to a person's current situation. Jenkins and Curtis explain how these insights can then be used to "alter perceptions of the adequacy of an individual's actual state (e.g., defecating in the open), or highlight the desirability of an ideal state (e.g., having a home latrine)" (Jenkins and Curtis, 2005, p.2456), in short highlighting the gap between the actual and the ideal.

It has repeatedly been shown that the main motivators for sanitation uptake are not about health. Over three decades ago authors clearly knew that "latrines are mainly bought by the public for reasons of convenience and privacy – not for reasons of health...thus design and marketing should centre on these functions" (Munch-Petersen, 1989, p.3). This lesson has been repeated time and time again in the literature, likely a result of it not been heeded by so many programmes (Budds et al., 2001, p.175; Cairncross 2010, p.S125).

However Jenkins and Curtis nuance this rejection of health messages. The authors suggest avoiding scientific explanations of sanitation and health links, such as the faecal-oral transmission routes, and instead recommend that "carefully crafted messages about good health in its widest sense that resonate with traditional cultural beliefs about the links between defecation, feces, and ill health offer a more promising approach for public health campaigns promoting good sanitation behaviours" (Jenkins and Curtis, 2005, p.2457). Such an approach would make use of fear of the dangers of open defecation at night time, attack by wild animals, avoiding supernatural threats etc.

Formative research needs to explore the barriers that impede adoption of new behaviours, as well as the motivators (McKenzie-Mohr, 2000, p.456). The theory is that if the motivators are strong and the constraints can be removed, demand will flourish. For example in Jenkins and Curtis's work in Benin (2005, p.2457) the main constraints to

latrine construction were found to be high actual or perceived cost of latrines; lack of credit; unavailable or complex technical inputs; poor latrine operation and performance; and unsuitable soil.

Experiences show that the barriers and benefits to using a latrine are likely to be different for different groups of consumers, for example for those who continue to defecate in the open and those who share a latrine. The formative research should uncover these differences to assist sanitation managers to better understand consumer's constraints and aspirations (Hanchett et al., 2011, p.84). Mukherjee also emphasises how the message will differ for segments of the population, for example open defecators should adopt improved sanitation; owners of unimproved adopt improved sanitation; sharers of other people's latrines need to acquire their own improved facility (Mukherjee, 2009, p.9).

For slightly different reasons, Jenkins and Curtis too recommend segmentation, in recognition that different 'lifestyles' and 'environments' give rise to different drives and dissatisfactions. Their research in Benin suggests that there were significant differences in motivation between gender, occupation, travel experience, age, and village type (Jenkins and Curtis, 2005, p.2457).

Means of promotion

Experiences show that promotion by individuals, either frontline staff or the local private sector, is an effective way to complement mass media promotion. Scott, Jenkins and Kpinsoton stress the importance of house-to-house promotion (2011, p.15). The frontline staff in Vietnam responsible for sanitation promotion in the sanitation marketing programme were Community Health Workers, Vietnam Women's Union and Village Heads, all existing staff and part of the Government system. These staff promote sanitation and hygiene as part of their regular jobs and the sanitation marketing programme improved their skills and showed them how to use the messages based on formative research rather than their own perceptions (Sijbesma, Truong and Devine, 2010, p.57). In Cambodia Commune Council Women and Children's (CCWC) representatives were identified as particularly persuasive and trust-worthy and these women were trained as sales agents and hired directly by enterprises on a commission basis (Pedi et al., 2011, p.3).

In Vietnam, promotion by the local private sector was also found to be successful. This was done through sharing information during visits from potential customers, giving talks at meetings and making home visits to potential clients (Sijbesma, Truong and Devine, 2010, p.16). In Cambodia, Pedi et al. also note how commission-based sales agents went village-to-village and door-to-door to sell the low-cost latrines (Pedi et al., 2011, p.2). However Devine raises questions about the sustainability of promotion by masons, and found in the Indonesia TSSM programme that relatively limited promotion by suppliers took place despite the capacity building efforts (Devine, 2010, p.45).

Targeting communities where sanitation marketing is likely to succeed

Based on their experiences in Benin, Scott, Jenkins and Kpinsoton find that the impact of sanitation marketing programmes is variable across locations and suggest a strategy for targeting of communities that starts with areas likely to succeed which is where uptake is likely to be most rapid and greatest. This means avoiding in the early stages areas where latrine subsidies have been provided (2011, p.14).

Studies indicate that in certain contexts, for example where house and land rentals occurs on a large scale, there are real constraints to the sanitation marketing approach as renters do not have the authority to construct latrines and lack of enforcement or regulation of landlords hinders progress (Hanchett et al., 2011, p.66; Jenkins and Scott, 2007, p.2439).

2.6.4 Supply side lessons

This section synthesises the main lessons highlighted in the literature relating to the demand side.

The right type of entrepreneurs

Identifying the right size of entrepreneur has been found to be critical. Pedi et al. in Cambodia find that small entrepreneurs struggled to fulfil demand in terms of quality and on-time delivery, often due to inventory constraints and a lack of trade credit. This

programme found medium-size enterprises able to cover larger sales areas as the most capable suppliers (Pedi et al., 2011, p.3).

Building sanitation onto an existing business has proven to improve sustainability. Studies looking back at the sustainability of sanitation businesses in Bangladesh found that the businesses that remained operational since the end of the sanitation campaign period tended to sell a variety of concrete products, and not just latrine parts (Hanchett et al., 2011, p.v). Pedi et al. make similar recommendations in terms of building sanitation products into existing businesses in their work in Cambodia (Pedi et al., 2011, p.3).

Hanchett et al. caution sanitation managers against the default response to set up sanitation centres that exclusively sell latrine parts instead of working with producers of non-latrine parts or helping small businesses think about a diversified product line (Hanchett et al., 2011, p.83).. In Cambodia, the incentive or value to prospective suppliers was not that they develop a stand-alone 'sanitation business'. Rather, latrines were pitched as a complementary offering that would widen the entrepreneur's existing portfolio and expand their reach into new market segments (Pedi et al., 2011, p.3). Over thirty years earlier, when comparing government and private sector sanitation production centres, Munch-Petersen also observes that one of the reasons for the success of the private sector sanitation producers was that they had diversified into other product lines, such as drainage pipes (Munch-Petersen, 1989, p.16).

Sijbesma, Truong and Devine emphasise the need to nurture but not subsidise the private sector. This is done by providing them with market research information and building capacity in areas where enterprises may emerge rather than providing any material support (Sijbesma, Truong and Devine, 2010, p.59).

The above discussion has been limited to sanitation marketing activities leading to toilet construction and use. Pedi et al. highlight the need for business models that offer a broader range of services for hygienic pit emptying and sludge disposal to new latrine owners (2011, p.4).

Product related

Product development is one of the areas that has received relatively limited attention to date from sanitation marketing practitioners (Jenkins, 2012). This may be because as

Devine remarks, “given this level of complexity, opportunities to standardize the product, and price, are not surprisingly limited” (Devine, 2010, p.44).

Successful approaches consider aesthetic as well as technical aspect of the product.

Looking at the success of different products in Bangladesh in the 1980’s Munch-Petersen highlights the aesthetic element in latrine design, such as polished, brightly coloured mosaic latrine pans, sold at a slightly higher price, over grey and rough slabs (Munch-Petersen, 1989, p.28). Munch-Petersen finds that this was what the consumer wanted as it met the technical function while being aesthetic. Similarly in Laos, ceramic tiles have been added to latrine slabs to improve ease of leaning and also increase desirability (Pedi et al., 2012, p.9).

Munch-Petersen identifies the need for the market to provide a broad range of low-cost sanitation options, given the wide range of income levels, reflecting aesthetic qualities and status objectives wanted by the public (Munch-Petersen, 1989, p.3). Over three decades after this observation, Rosenweig (2008, p.20) notes that although the private sector seems to be able to provide sanitation goods and services to rural communities at affordable prices, the options available to consumers remain limited. Rosenweig found that in India, this is often the result of policy barriers on what latrine options can be promoted (Rosenweig, 2008, p.20). The Benin case highlights the need for additional, affordable latrine designs especially to address the challenges of difficult geologic conditions (Scott, Jenkins and Kpinsoton, 2011, p.14).

Strategies are being adopted to standardize products, especially in countries where purchasing power is very limited and consumers are homogenous, such as Tanzania where a SanPlat is being promoted for households to upgrade existing latrines. Training of masons focused on how to make and sell the SanPlat and how to retrofit a latrine and all communication materials reflected this single product (Devine and Kullmann, 2011, p. 19).

Experiences highlight the need to keep the toilet product and purchase simple for the consumer. In Cambodia all components of the latrine are packaged as a single ‘toilet kit’ delivered to the household’s doorstep with simple instructions for self-installation. The toilet producer acts as a ‘one stop shop’, greatly simplifying the consumer’s purchase decision and transactions (Pedi et al., 2011, p.2).

Linking supply and demand

The above sections have discussed lessons regarding supply and demand. The literature also highlights a number of lessons on linking these two areas together. These links are built around facilitating interaction between consumers and service providers, improving the flow of information between consumers and service providers (for example through village health promoters in the case of Benin), quality assurance and product warranties (again through village promoters) and increasing value for money through increased market competition (Scott, Jenkins and Kpinsoton, 2011, p.3).

Cardosi, Mwambuli and Indodi highlight the importance of getting the sequencing right and making sure that there is a supply of sanitation products in pace to meet an increase in demand (Cardosi, Mwambuli and Indodi, 2010, p.3). Based on the Vietnam experience Sijbesma, Truong and Devine also highlight that a sanitation marketing initiative should include a plan for measured growth so that if demand takes off, there are enough providers to meet supply and systems to ensure quality control (Sijbesma, Truong and Devine, 2011, p.3).

2.7 Conclusion and knowledge gaps

In 2001, Budds et al. concluded that with little practical experience and robust evaluation of Sanitation Marketing programmes, it is still too early to tell how social marketing will work for sanitation (2001, p.177). Eleven years on the same statement could be made. The number of completed programmes has increased yet still remains small and the number of robust evaluations of these programmes is very limited. Therefore there are a number of knowledge gaps relating to the effectiveness and cost-effectiveness of the sanitation marketing approach.

Whilst the problem of how to include the poor in sanitation marketing programmes has long been recognised little progress on how to actually do this has been made, despite inclusion of pro-poor wording in Sanitation Marketing definitions (see above). The recent paper by Pedi et al. sums up the status of learning on this issue when the authors once

again simply identify as a challenge understanding how poorer households can participate in the new sanitation marketplace (Pedi et al., 2011, p.4).

The literature recognises that Sanitation Marketing is more likely to work for certain segments of the population than for others. This suggests that a mix of approaches, sanitation marketing and other approaches, may be required for sanitation use to be adopted by the whole population in a country. What this mix of approaches looks like and how different approaches intersect is yet to be explored in detail, with the exception of the Total Sanitation Sanitation Marketing programme which is looking at the combination of CLTS and sanitation marketing.

One particular segment of the population for which the suitability of sanitation marketing remains a question is remote and isolated rural areas (Perez et al., 2012). Many of the current examples of Sanitation Marketing are in areas of higher population density, high accessibility and where there is an entrepreneurial culture. How sanitation marketing functions in remote areas, with a limited road network and where there is no entrepreneurial culture is yet to be examined. This case study will start to address this knowledge gap as these are the conditions characterising most areas of rural Papua New Guinea.

2.8 Chapter summary

The chapter presented the methodology used to undertake the literature review. The literature review first examined social marketing before introducing the concept of sanitation marketing and exploring various definitions. A chronology of the main sanitation marketing programmes undertaken and documented was presented. The review identified the core components of a sanitation marketing programme. The main lessons from evaluations and documentation of sanitation marketing programmes were synthesised and these are presented in the table below. The chapter ended by identifying some of the remaining knowledge gaps regarding sanitation marketing in rural areas.

	17. Sequencing is vital to ensure there is a supply of sanitation products in place to meet an increase in demand.
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3. Methodology

3.1 Study methods

The research project comprises a case study of the ATProjects Round Loo programme in the Eastern Highlands of Papua New Guinea. The case study employed qualitative methods and a participatory and appreciative approach, using document review, research workshops, semi-structured interview with key informants and direct observations.

3.2 Study area

Field work was conducted in the Eastern Highlands in Gorokha district and the neighbouring district of Daulo, see Appendix A for a map of Papua New Guinea and Appendix B for a map of Eastern Highlands province.

Eastern Highlands province is located in the central highlands of PNG and covers an area of 11,000 km². Most of the area is mountainous ranging in elevation from around 300m to 3,500m with most of the population living around an elevation of 1,500 to 2,500 most suited for agriculture. The Northern part of the province is most prosperous with intensive smallholder coffee production and better road access to markets in Lae and Gorokha via the Highlands Highway; the Southern part of the province is more mountainous with limited road access and communities requiring more than a day's travel to reach the nearest service centre. The estimated population of the Eastern Highlands is 293,000, around 7% of the national population. Population densities range from less than 20 persons/km² in the remote districts to around 190 persons/km² in the more densely populated valleys (Hanson et al., 2001, p.154).

The main source of income in the province is agriculture. In the northern part of the province cash crops of coffee, betel nut, cattle, firewood, fresh foods in sweet potatoes results in relatively high incomes. These incomes decline as you move south in the province where there are very few cash-earning activities (Hanson et al., 2001, p.157).

The two communities visited were Kerefa in Gorokha district and Kururumba in Daulo district. Gorokha, population of 18,000, is the most prosperous district in the province due

to its proximity to Gorokha town and extensive road network, economic activity in the town and optimum rainfall and soil conditions for farming. Daulo district, population 30,000, is located in the northwest of the province with good road access for most of the district and travel times to Gorokha ranging from 1 to 4 hours. Incomes range from high in the Asaro Valley where there is a strong coffee and fresh food economy to low in the mountainous areas where there is only limited opportunity to grow cash crops (Hanson et al., 2001, pp.162-163).

3.3 Data collection

3.3.1 Document review

The interview presented in Chapter 2 above identified the main components of a sanitation marketing program and lessons learned from international experience (presented in Table 3, Section 2.8). The literature review included personal communications with leading actors in the field of sanitation marketing. The results of the literature review were used to develop a framework for presentation of the findings and discussion of the case study. The findings, Chapter 4, were organised around the main components identified and the discussion, Chapter 5, was organised around the lessons learned.

Literature relating to the sanitation situation in Papua New Guinea was identified and reviewed to gain an understanding of the operating context and is presented in Section 4. Grey literature, such as programme proposals and monitoring reports and information sheets prepared by ATProjects and WaterAid on the Round Loo project were collected and reviewed and used to gain an understanding of the programme prior to making the field visit.

3.3.2 Research workshops

An initial two-day workshop was held with the ATProjects Round Loo programme staff and the Directors at ATProjects Appropriate Technology Centre in Gorokha. Participatory and appreciative approaches were used in the research workshop. These types of approaches were adopted to build ownership and understanding of the research findings amongst all key ATProjects staff and hence increase the likelihood of ATProjects acting on the findings and recommendations.

The initial workshop was used to map the sanitation market in the Eastern Highlands province and to understand in detail the current ATProjects Round Loo programme and approach and its evolution. A list of areas for discussion was developed prior to the visit and used to guide the focus of the interaction over the two days. Tools used were: seasonality diagrams to map household income patterns and determine times in the year when disposable income is higher; participatory drawings of Round Loo customers to stimulate discussion of people's current practices and attitudes towards sanitation.

Following the community visits and interviews (see below) a further one-day workshop was held with the same ATProjects staff to discuss findings, triangulate information and fill in any final information gaps. This final workshop was also used to discuss an initial set of recommendations based on the findings and amend these in light of ATProjects own ideas for the future of the programme. As such, this process of discussion supported ATProjects in moving from reflection and analysis of the programme into actions.

3.3.3 Interviews

Semi-structured interviews were conducted with key staff at ATProjects including the two Co-Directors, sanitation programme manager, M&E section staff, logistics and procurement staff. The interviews explored the design and implementation of the Round Loo programme (see Appendix C for an example of semi-structured interview with ATProjects Round Loo programme staff).

The interviews were conducted at the ATProjects Technology Centre near to Gorokha and the staff were able to show and demonstrate activities involved in the Round Loo programme during the interviews. For example the logistics and procurement staff provided a tour of the warehouse and the stock and ordering systems and the workshop and production line for products and the vehicle fleet for transportation and the M&E manager demonstrated the various M&E systems on the office computers.

Semi-structured interviews were conducted with three managers of the Round Loo programme at two Community Based Home Care Centres (CHBCCs) in Kerefa and Kururumba (see Appendix C for interview instrument). CHBCCs are established by ATProjects as part of their health programme and provide support to people in the community, especially people living with HIV and AIDS. The centres comprise a building with rooms for consultations and overnight stays and staff who provide health services both in the centres and through home visits to clients. As discussed in Chapter 4, ATProjects has also involved the CHBCCs in the Round Loo programme.

Interviews were conducted with twelve household members and users of the Round Loo product in Kerefa and Kururumba to understand their experiences relating to using the Round Loos and to understand their preferences regarding the product (see Appendix C for interview instrument). A balance of women and men were identified for the interviews. The number of household interviews conducted in these communities was determined by the variability of the information provided; once interviews ceased to reveal new information no further interviews were conducted.

3.3.4 Sequencing of data collection tools

The data collection tools were sequenced in this way to first gain a detailed understanding of the program design and rationale prior to investigating the program performance in the field. Finally the wrap up research workshop was used to triangulate the information collected in the field with discussions in the initial research workshop. Allowing sufficient time for discussions at the start and the end of the field work was also central to the participatory and appreciative approach (see Section 3.3.2 above).

3.3.5 Sampling

For the case study component of this research non-probability sampling was used. Informants for the interviews were selected based on their ability to provide the most informative responses to the research questions. This applied in the case of ATProjects staff, CHBCC managers and also users of the Round Loo in the communities visited.

When identifying users of the Round Loo a snowball sampling was used. Once a user was identified s/he was asked to identify other users. The purpose of these user interviews was

to better understand use and perceptions of the Round Loos and therefore a representative sample was not required.

To ensure the personal safety of the researcher, all sites for community visits were selected based on the advice of the ATProjects Directors and the researcher was accompanied by local ATProjects staff on all visits. As a result the CHBCCs visited were those located closest to Gorokha town and the more remote centres were not visited during the field work.

3.3.6 Validity and reliability

Validity was ensured by following processes for triangulation of research findings. Triangulation was carried out through interviewing key informants individually and subsequently presenting the findings from these discussions with all the informants in a group. Any discrepancies in information were recorded and clarified with other informants individually or in the workshops. A translator accompanied the researcher in interviews therefore introducing a risk to the reliability of information obtained through inaccurate translation or translator bias. This risk to reliability was minimised by undertaking detailed observations at all the households and CHBCCs visited.

3.4 Data analysis

The literature review identified a conceptual framework for sanitation marketing comprising of three pillars – 1) enabling environment; 2) demand side; and 3) and supply side. For each pillar the following areas were identified a) core components of a sanitation marketing approach; and b) key lessons (presented in Table 3 in 2.8). The findings from the field work are presented in Section 4 below in line with this framework.

3.5 Limitations

It is important to note that only two of the five Community Home Based Care (CHBC) centres producing and selling the Round Loos could be visited and these are the two centres located nearest to the ATProjects offices. Information on the functioning of the other three groups could not be obtained during this research. Similarly the research was able to examine in detail the primary sales models used by ATProjects for Round Loos, namely sales through CHBCCs. However the effectiveness of other sales models such as

providing moulds to other INGOs for use in other Provinces were not explored in detail in this study. The other CHBCCs and INGO programmes are located a significant distance from Gorokha and travel to these areas would require use of off-road private vehicles and escorts by ATProjects staff for a period of many days. Poor maintenance of the road network means that it is not always possible to reach these areas in the planned timeframe. These resources were not available to the researcher. Furthermore the security situation in more remote areas is unpredictable and safe travel of the researcher to such areas could not be guaranteed and therefore visits to these areas were ruled out.

Another limitation of the study is the lack of interaction with government. A decision was taken to focus on the effectiveness of the program and as the program does not include government actors, these were not included as key informants. However as the literature review findings and discussion highlight, there are key roles for government to play in the sustainability and scale of sanitation marketing programs and insights of government officials on the ATProjects programme would be valuable.

3.6 Chapter summary

This chapter presented the methodology to be used in the case study. The study methods and processes for collecting and triangulating data collected before and during the field visit were discussed. The framework derived from the literature review for analysing and presenting the case study information was introduced and finally the limitations of the study were presented.

Chapter 4 Findings

4.1 Introduction

This section begins with a brief introduction to the sanitation situation in PNG. It then presents the main findings from the case study organised around the components of enabling environment, demand and supply and their core components, as identified in the literature review. Within these components findings are organised under subheadings based on the key lessons identified in the literature review.

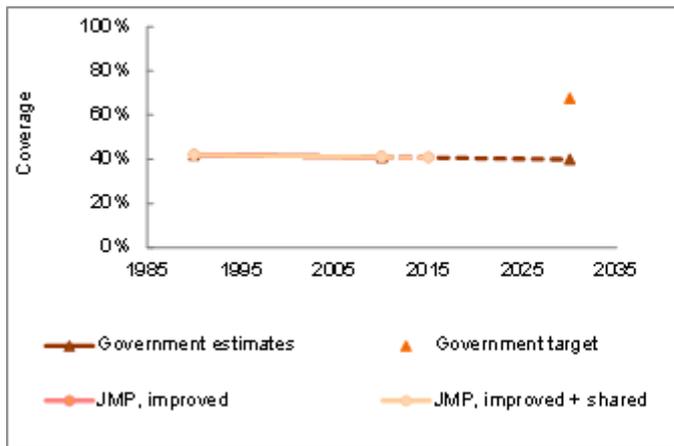
4.2 Background

4.2.1 PNG rural sanitation coverage

Sanitation coverage in rural PNG is estimated at 41% in 2010 a decline of one percentage point since 1990 (UNICEF and WHO, 2012). These estimates must be treated with caution as they are based on only two data points from 1996 and 2006 and these surveys used definitions inconsistent with the Joint Monitoring Program definitions.

The national Household Income and Expenditure Survey (2009/2010) included the standard Joint Monitoring Program questions and should provide the most accurate picture of rural sanitation coverage when the data are released later this year. The Demographic Health Survey, 2006, found the most common improved sanitation facility to be a pit latrine, with pour-flush toilets only accessed by about 2% of the rural population (WSP, unpublished). The Government has set a rural improved sanitation target of 68% access by 2030 (WSP, unpublished).

Figure 1 Rural Sanitation Coverage



Source: WSP, unpublished

Key informants (ATProjects staff) believe most existing coverage is the result of household investment in simple pit latrines with log and dirt floors. ATProjects staff relate this high coverage of pit latrines to the colonial rule of the Kiaps when latrine use was mandated and checked. ATProjects Co-Director (Steve Layton) explained how a study by CARE (unpublished) of latrine coverage in Marawara district found 95% of households had a pit latrine near their houses and no latrines were found in 'gardens', the areas where people grow their food.

4.2.2 Background to ATProjects

ATProjects is a family centred social enterprise based in Gorokha in the Eastern Highlands. ATProjects employs 70 staff, including four carpenters, two saw millers, a full time mechanic and runs nine vehicles. ATProjects has partnered with Water Aid Australia since 2004.

ATProjects staff explained in the research workshop how the organisation began its work in sanitation by establishing a school sanitation programme in the early 2000s. The aim of the programme was to improve the health of children by reducing incidence of hookworm and diarrhoea. ATProjects soon realised that the children were using a hygienic latrine at school but when they returned home they were using unhygienic latrines or practicing open defecation. From here the idea to begin the AT Round Loo programme began around 2008.

4.3 Enabling Environment

4.3.1 Political support

Through the research workshops and key informant interviews it was made evident that ATProjects are not currently undertaking activities at the enabling environment level with regards to the Round Loo programme. ATProjects staff explained how in the past they have interacted with Provincial Government staff, especially the Department of Health, on sanitation issues, however they have been frustrated by the constant lack of inaction by Government over a number of decades.

ATProjects staff explained that they recognise there are roles that local government could play in terms of latrine promotion, monitoring and regulation and may they try to restart communications with government once the Round Loo programme is more established and there is an effective approach to demonstrate.

Discussions in the research workshop showed how the ATProjects partnership with WaterAid in PNG works. In effect WaterAid takes the lead in the activities with the national government and feeds in the experiences and learning from the work of ATProjects. WaterAid in PNG has recruited in 2012 its first Country Representative in PNG to undertake advocacy with the Government of PNG on the need for a national sanitation and water policy and strategy and increased resources for the sector. Stakeholders clarified how WaterAid is taking the lead on Enabling Environment activities in this partnership.

4.3.2 Policy, strategy, plans

The document review revealed that there is no PNG rural sanitation policy, guidelines or distinct sanitation targets in the Medium Term Development Strategy. The National Health Plan 2011-2020 includes water supply and sanitation objectives to reduce the incidence of diarrhoeal disease, but does not identify activities to ensure progress in this area (WSP, unpublished, p.24). Institutional responsibility for rural sanitation is poorly defined and ambiguous and as a result no agency is taking the lead.

The document review showed how in rural areas Water PNG is responsible for promoting sanitation on a self-help basis but the meaning of “promoting” is unclear. Under the 1995 Organic Law on Provincial Governments and Local Level Governments, these bodies are permitted to develop their own sanitation, however this rarely occurs.

This devolution led to a reduced role for the National Department of Health and the Department of Works who had been primarily responsible for the development and management of sanitation services. The National Department of Health (NDOH) is mandated to provide technical assistance and advice to Provincial Environmental Health Officers through its Environmental Health Division. However NDOH’s impact is hampered by a lack of budget and staff resources (WSP, unpublished, p.14). As a result of this vacuum, sanitation in rural areas falls to NGOs, resource companies, and local government (WSP, unpublished, p.14).

The Healthy Islands approach is a broad approach taken to community health, including hygiene and sanitation, and has been adopted as the national community health methodology. The approach encompasses preparation for life activities, such as safe motherhood and child health, protection of life activities, such as immunisation, and quality of life activities, including promoting a good physical and social environment. This approach is seriously under-funded and reaches less than 5% of the country. Environmental Health Officers have the role of sanitation promotion in rural areas however they lack training and funds for mobilization and outreach to rural households (WSP, unpublished, p.24).

4.3.3 Sustainability

Long timeframes

The Round Loo programme is currently designed with a 5 year strategy in mind (ATProjects, 2010) and ATProjects and WaterAid staff both confirmed that they expect to provide support for additional phases. The nature of the partnership between WaterAid and ATProjects is built around an understanding of a long-term relationship.

Designing for the day when support is withdrawn

AT Projects Co-Directors stated that overall ATProjects is careful not to rely on a single donor and maintains a balanced portfolio of donor support, meaning that no one donor funds a large proportion of the organisation's work. This approach is based on past experiences of ATProjects and many other NGOs in PNG of fickle support from donors. The Co-Directors explained how they have recently redefined the organisation to be a social enterprise, rather than an NGO, in part to bolster the income generating aspects of the organisation and improve its sustainability. However in the case of the Round Loo programme, this is exclusively funded by WaterAid and therefore at potential risk, as discussed in Section 5 below.

4.3.4 Financing

Government financing

In PNG it is almost impossible to obtain data on recurrent spending for water and sanitation (WSP, unpublished, p.16). Only the National Department of Health has a budget line item for recurrent spending on water and sanitation and it is not possible to disaggregate spending on sanitation. The document review revealed that it is not possible to obtain information for the provinces and districts because there is no separate line item for water and sanitation

In 2008 the Government introduced the District Services Improvement Programme which includes an allocation of K1 million (US\$ 0.5million) per district per year for the alleviation of water and sanitation disparities in districts and rural communities (WSP, unpublished, p.14). However the effective allocation of this money to sustainable water and sanitation is poorly monitored and it is suspected that none of this funding is used for sanitation.

Hardware subsidies for latrines

Discussions in the research workshop and the document review revealed that as there is no government sanitation programme currently being undertaken there are therefore no subsidies being provided at a large scale in the Province except by the ATProjects Round Loo programme. Workshop participants explained that there are other NGOs implementing small scale sanitation projects and some of these are likely providing hardware subsidies for sanitation.

The ATProjects Round Loo Programme Manager stated that the price for a Round Loo slab is recommended by ATProjects as K20 (US\$10), however the producers have the flexibility to sell at different rates – see below for findings on the different rates being charged. The outcome of these different rates is a hardware subsidy ranging from K40 to K20 (US\$20 to 10).

Pro-poor financing

Key informant interviews with the ATProjects staff showed that ATProjects does not have special financing arrangements for poor households, such as providing credit to households or receiving payment on an instalment basis. However some of the CHBCC's appear to differentiate between customers based on their well-being and ability to contribute to the costs of a Round Loo. For example interview with households and the CHBCC Round Loo Programme Manager in Kururumba found that some households are expected to provide all raw-materials and labour for making the Round Loo whereas for other poorer households or where a family member is sick or old, staff of the CHBCC provide the raw materials and produce the Round Loo for them at no cost.

4.3.5 Monitoring systems

The Department of Implementation and Rural Development is gathering district level information on infrastructure and projects into a District Implementation and Management System (WSP, unpublished, p.18). However this system does not collect information on rural sanitation. There is no mechanism of reporting on rural sanitation established by Government.

The National Department of Health (NDOH) in theory has the responsibility for monitoring sanitation standards (septic tank regulations, and standards for on-site sanitation such as Ventilated Improved Pit (VIP) Latrines) delegated through the Public Health Act (WSP, unpublished, p.14) however this role is not undertaken.

Therefore the ATProjects M&E Manager clarified that the monitoring systems set up by ATProjects (discussed below) are for the organisation only and are not designed to link up with any local government or national systems.

4.3.6 Capacity

Local government

Whilst no information could be obtained during this research on the local government capacity in the Eastern Highlands Province specifically, human resources have recently been identified as a critical constraint in the WASH sector in PNG. A recent study estimated current staffing in the sector to be around 1,100 people. The study estimated that if the MDG targets were to be met an additional 7,600 people would be required including 1,190 engineers, 4,140 technical staff, 1,760 in management and finance and 520 in social development/hygiene promotion (Dwan, 2012).

At ATProjects

Interviews and interaction with ATProjects staff revealed the unusual range of skills in the organisation. As such a number of the diverse skill sets required for a sanitation marketing programme can be found in the organisation including product design, manufacturing, promotion and monitoring and evaluation. The research workshops ATProjects staff confirmed that the key gaps missing from this skills mix from a sanitation marketing perspective are market research, creative design and business development skills.

4.4 Demand side

4.4.1 Formative Research

Key informant interviews with the Round Loo programme staff found that ATProjects has not undertaken any formal formative research into the motivations and barriers to sanitation use. However the staff are local to the area and they believe they have some insights into these factors, without conducting any formal research, through their own life experiences and interaction with their communities.

In the research workshops the ATProjects staff discussed how they have identified traditional beliefs related to sorcery and excreta as having potential. In PNG there is a strong cultural belief that if someone obtains something that was a part of your body or from inside a person, such as nail clippings, hair or excreta, these can be used in black magic against a person. This strong belief could be used therefore to develop messages promoting the safe containment of excreta. For this reason the dried excreta from ATProjects urine diversion toilets is doused in kerosene and burnt, rather than reused.

In the research workshop ATProjects staff discussed how they have become more exposed to CLTS style triggering techniques from other organisations using CLTS in the Eastern Highlands. The trigger of disgust used in CLTS is considered by ATProjects staff to be effective and there was interest in using such techniques as long as this is followed up by making Round Loos available and not leaving communities to make their own bush toilets. ATProjects Sanitation Manager told a story of a case where demand was triggered by CLTS and then the community reacted violently when they realised hardware for sanitation was not being provided by the project.

4.4.2 Marketing Strategy and Promotion

Marketing strategy

Key informant interviews found that ATProjects are yet to produce a detailed marketing strategy. Goals have been set for the number of Round Loo sales per year for the next 5 years (ATProjects, 2010). The research workshops, key informant interviews and community visits found that in place of a strategy a range of promotional activities are undertaken (see below) in an ad hoc manner.

Audience segmentation and targeting communities

The research workshop found that market segmentation has not been undertaken beyond a decision to initially focus efforts on the Eastern Highlands. Within communities, the target audience for the product has not been specifically defined. ATProjects staff commented that as there are so many people without a latrine in the Eastern Highlands specific audience segmentation is not required. Data is not collected by ATProjects on who purchased the latrines. However some information is held at the point of sale. For example the CHBCC keep a record of the name of each customer.

Key informant interviews showed that ATProjects is promoting the Round Loo programme in areas where it has existing CHBCC programmes and areas where other INGOs are operating rather than on the basis of any analysis of where sanitation marketing is most likely to be successful.

Strengthening capacity for promotion

The ATProjects Co-Director (Steve Layton) described how ATProjects have realised the need for promotion and invested in broadening their reach using a range of channels and through strengthening their capacity to develop creative and engaging content in house. This capacity is utilised to promote a range of ATProjects products and services in addition to the Round Loo.

Over the last few years ATProjects have developed in house capacity to: produce songs through employing a leading PNG pop star; films - through employing a qualified documentary film maker and working with other film makers on contract; radio programmes - through constructing a recording studio and recruiting a radio journalist and developing relationships with local FM radio stations across the country. The ATProjects Co-Director estimated that their radio programmes reach an audience of 3 million people, around 42% of PNG's population.

Promotion channels

The research workshops, key informant interviews and community visits revealed that promotion of the Round Loo is undertaken through a number of channels. Each of the products mentioned below was viewed and discussed during the research workshops:

TV advertisements: Television adverts were produced and aired on national TV coinciding with the national election campaign in 2012. The adverts show a politician making promises to the community of meat and beer in return for votes. The community explain that what they really want is toilets. The advert uses humour and has a clear message and at the end includes contact details for ATProjects. The advert features ATProjects staff and local people.

Film: The Poo film promotes latrine use and promoting the Round Loo using local people and staff as actors. The film is based around a health message through making germs visible (as luminous green sludge) and showing various transmission routes, particularly hands and food. The motivator of 'nurture' is used by showing sickness of children in the family.

Radio programmes: These programmes are produced by a radio journalist at the ATProjects recording studio, recorded onto CDs and posted to radio partners across the country to play on local radio stations. The radio programmes are produced as a series and have covered a number of topics such as household sanitation and menstrual hygiene management. The programmes promote ATProjects products and provide ATProjects contact details (mobile numbers) for individuals or groups who wish to purchase products.

Song: The “Poo Song” was written to encourage purchase and use of sanitation and practicing of hygiene behaviours. The Poo Song was composed and performed by a famous local artist, the lead singer of the popular band House Boi. Rap and acoustic versions of the song were also recorded. The Poo Song is played from loud speakers from the Poo Van when selling Round Loos as part of a promotion drive. At the launch of the Poo Film a karaoke competition to sing the best rendition of the Poo Song was held at a large local event.

ATProjects staff explained how the film, songs and radio programmes are distributed for free on CDs widely by ATProjects staff to visitors to their offices and on any other possible occasions and this was evident on visiting the ATProjects office in Gorokha.

Promotion at point of sale

Signboards. Signboards with the ATProjects branding announcing the availability of Round Loos were found at the CHBC in Kerefa and outside the ATProjects Gorokha office.

Poo Van. For sales in the Gorokha area and when delivering Round Loos to customers the Poo Van is used. The Poo Van was examined and found to be a modified version of one of the ATProjects Toyota Land Cruisers with loud speakers playing the Poo Song (see above) attached to the exterior and ATProjects branding and Round Loo messaging painted on the van panels.

A TV and DVD station was found in the reception area of the ATProjects office in Gorokha town centre and all visitors to the office are invited to watch the Poo Film before undertaking any other business with ATProjects.

Promotion by community based staff

ATProjects Co-Director (Miriam Layton) explained how ATProjects employs community members as staff under their Community Home Based Care (CHBCC) programme, which focuses on care for People Living with HIV/AIDS (PLWHA). These staff reside in the community and actively interact with a wide range of community members on a daily basis and are now also encouraged to promote use of the Round Loos.

Future ideas for promotion

In the research workshop it was reported that ATProjects are considering other promotional activities such as:

- Community based promotion and sales events linked to local schools, where AT Loos in Schools have been installed and ATProjects already have a relationship with the school and community. These events would be hosted at the school, last a few hours and comprise showing of the Poo Film and Poo Song, entertainment through local actors promoting sanitation messages, and demonstration of the Round Loo.
- Utilising the highly popular local jesters known as “Kamundi” to develop an act on sanitation, promoting the Round Loo and holding performances in the busy market area of Gorokha.
- Providing hand-held, cheap DVD players to ATProjects community level staff, such as the Community Home Based Care (CHBC) staff to play the Poo Film in communities as part of their promotion activities.

- Providing posters and flyers to CHBCCs to distribute in the community promoting the Round Loo and including contact details on where to purchase a Round Loo.
- Establishing a network of sales agents trained in sales. This could comprise of local teachers, pastors, police, and councillors. They would be provided with a free Round Loo to incentivise them to act as toilet champions.

Linking to CLTS activities in the area

CLTS has been introduced in certain areas of PNG and is being actively promoted by one NGO, Touching the Untouchables, in the Eastern Highlands Province with some minimal support from Local Government (Dutton, 2011). ATProjects Sanitation Manager told how ATProjects are considering promotion of the Round Loo in areas where CLTS triggering is being undertaken. His assumption behind this approach is that after CLTS triggering there is a demand for improved sanitation and yet sanitation products are not available for households wishing to install a product other than a simple home-made bush material latrine; he believed that if the Round Loos can be made available at this point, sales may be high.

4.5 Supply side

4.5.1 Market studies

Key informant interviews found that ATProjects have not undertaken any formal market studies; however the staff are confident that they know the latrine products and services that are available in rural PNG as these are so limited, for example the only product on the market for rural communities is a plastic commode toilet produced by KK Kingston.

4.5.2 Sales models

Based on discussions on this area in the research workshops and key informant interviews, a description of the various sales models used by ATProjects is provided below:

Bulk orders to institutions

ATProjects receives bulk orders for a number of Round Loos and produces the Round Loos itself. This is either done at the ATProjects technology centre in Gorokha or at the final installation point, depending on the location and logistics considerations. The Sanitation Manager provided examples of the type of clients for this model as churches (for example one recent order for 150 Round Loos) and the Salvation Army (for example the Salvation Army put in an order for 300 Rounds Loos). In the Salvation Army case, Round Loos are sold for K10 (US\$ 5) to people living in remote areas and the consumers must carry the slabs for 5km from the road head to the community.

INGO model - Training, moulds and materials

In this model ATProjects has arrangements with three INGOs (Care, Save the Children and Marie Stopes). Staff from these organisations and their local partners are trained by ATProjects on production of Round Loos and provided with a number of Round Loo moulds. ATProjects supplies cement and wire to the INGOs. This is done through a chain of local hardware stores. The ATProjects Co-Director (Steve Layton) explained that the benefit of the system is that ATProjects have a strong relationship with these stores and hence will be provided with cement on a preferential basis and ATProjects can administer these transactions through their central account. Once the Round Loos have been installed the INGO informs ATProjects, and gives ATProjects an order for more cement; ATProjects inform the store to release the cement and the INGO pick up the new supplies from the hardware store.

The INGOs then have various models for distributing or selling the Round Loos. For example Marie Stopes works through youth groups who sell the Round Loos for K20 in their community.

INGO model - Training and moulds

In this model ATProjects simply sells moulds (at K300 per mould) and provides training to INGOs. The INGO then produces Round Loos in their programme area as part of their WASH activities. ATProjects does not provide any other inputs and no information is collected on the Round Loos produced. This model is being used with Oxfam. The ATProjects Co-Director (Steve Layton) assumed that the quality of production is high given ATProjects long term relationship with the Oxfam staff member involved and their strong capacity (she was previously employed by ATProjects).

For anyone buying a mould a training course and manual are provided. The training course covers areas such as servicing the mould, producing the Round Loo slab, how to dig the pit and how to install the vent pipe.

Sales from ATProjects Gorokha office

ATProjects staff produce the Round Loo slabs at the ATProjects Technology Centre and then transport them to their Gorokha office for sale. The Round Loo slabs are stacked outside the office in Gorokha with a sign board promoting their sale. The office is located near to the centre of town, a few streets back from the main commercial area. This sales model has been discontinued in favour of sales through CHBC Centres.

In the research workshop with ATProjects staff explained that the key factor ATProjects considered in deciding location of centres was the transportation costs. The daily cost of a Land Cruiser is K500 (US\$250) (including full depreciation costs) and K800 (US\$400) for a small truck. ATProjects can stack 8 Round Loo slabs in a Land Cruiser or 20 bags of cement. These high transportation costs were the primary reason for deciding to close the Round Loo sales outlet at the ATProjects Gorokha office and opt for sales and production centres located in the community.

Sales from the Community Based Health Care Centres (CHBCC)

The business model

ATProjects provides training on Round Loo production and provides moulds to the CHBCC staff. The CHBCC staff set the price for the Round Loo and sell or provide Round Loos to customers/users. The cement and wire required are provided to the CHBCC by ATProjects. The centre is required to provide sand and labour.

The producers are working as volunteers and profits earned from sale of the Round Loos are accrued by the CHBCC and used for their other activities, such as expanding the size of the Centre.

Location of sales points and production centres

The Kerefa centre was visited and found to be located on the side of a road at a junction which is also a bus stop. The centre is visible and there is a steady flow through of people. The CHBCC Round Loo Manager reported that customers find out about the centre through the signboard and through word of mouth. Customers were reported to have come from as far away as Kainantu (90km) and Chimbu (60km) to purchase a Round Loo.

The Kururumba centre was visited and found to be located in a more remote location 1 hour drive from Gorokha in Daulo district. The production centre is only visible to the community in which it is located.

Training

ATProjects supports CHBCCs in five communities. In each community CHBCC staff, or their families, have been trained as Round Loo producers and sales agents. A training course is provided at the ATProjects Technology Centre on how to produce, transport and install the ATProjects Round Loo slab.

Moulds and materials

CHBCCs are provided with between 2 and 4 moulds. The moulds are returned to ATProjects at the end of each year for servicing of the mould and then returned to the CHBCC. The CHBCC Round Loo Managers explained how cement is dropped off at the CHBCC by ATProjects when they are visiting the Centre for other work. When the cement has been used the CHBCC staff contacts ATProjects and requests another load of cement.

Sand is sourced locally, normally from a nearby river. In Kururumba this was found to be very nearby and was considered a part of the customer's contribution as this is a complex process to obtain the required quality of sand. A part of the river is diverted and sand is collected over two to three days and then dried for a week before using. In Kerefa the ATProjects truck is used to collect sand, at a cost of K50 per load, paid by the production centre to ATProjects.

Storage

In the centre visited at Kerefa 7 Round Loos were found to be stacked. Round Loo slabs are produced and stored by the side of the road, acting as an advertisement. As these slabs are sold, more are produced. These Round Loos are then collected and taken away by customers and installed themselves. In Kururumba Round Loos are produced on demand by the five volunteers and therefore none are stored. The CHBCC Round Loo Managers explained how in certain cases in the community, for example female headed households, the producer will take the materials to a household and produce the slab at the person's home to avoid the need for transportation.

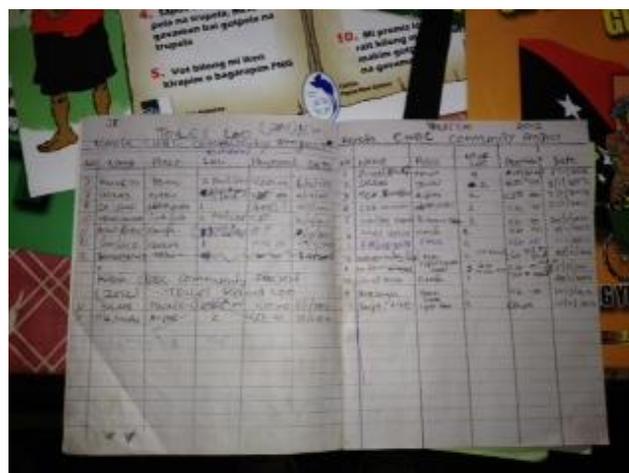
Figure 2 Round Loo slabs stored by the roadside for promotion at Kerefa CHBCC



Record keeping on sales at the CHBCC

The CHBCC Round Loo Manager in Kerefa showed how a simple record book is kept with information on date of sale, name of customer, price and address. A quarterly report of this information is provided to ATProjects.

Figure 3 Example of book recording sales information at Kerefa CHBCC



Pricing

At the research workshop ATProjects staff explained how the pricing of the Round Loo is based on an analysis of the disposable income available to a typical household in the Eastern Highlands. The average cash income for customers is assumed to be K 2,500 (US\$1,250) per year, with half of this coming from the coffee crop and half from sale of vegetables. After essential household expenditures, including education and health, this leaves a family with minimal disposable income. The time of year when disposable income is highest is just after the coffee harvest. Based on this, ATProjects have set the Round Loo price at a level they consider as affordable.

The ATProjects Round Loo Programme Manager stated that the price for a Round Loo slab is recommended by ATProjects as K20 (US\$10), however the producers have the flexibility to sell at different rates. Interviews with the CHBCC Round Loo Programme Managers confirmed this - in Kerefa Round Loos were originally sold for K20 (US\$10) and this was later increased to K30 (US\$15). The Kerefa Round Loo Programme Manager considered that the willingness to pay for the Round Loo is higher and could be as high as K50 (US\$25).

The ATProjects Round Loo Programme Manager explained how the other 4 CHBCCs have a range of payment systems mostly involving in-kind contributions from customers in terms of providing materials (sand) and labour. The CHBCC Round Loo Manager at Kururumba reported either providing the Round Loos for free or negotiating various in kind contributions, such as sand or labour, with each user.

In Kururumba the CHBCC staff running the Round Loo programme felt that this is a community project, similar to the health centre and the school they have established and therefore they have not felt comfortable charging a price for the toilet as this may cause tensions and divisions within the community. The CHBCC Round Loo Manager explained how households want to give a deposit for a Round Loo but the centre is not yet prepared to accept this. The CHBCC is considering bringing in a price of K15 to K20 (US\$ 7.5 to US\$ 10) which would go to the centre as there is a strong demand. The centre want to carefully discuss the issue of pricing with the community before bringing in the price as this is considered a sensitive topic.

Sales volume

Records reviewed at the CHBCC at Kerefa showed that the centre sold 32 Round Loos between April and December and 20 Round Loos between January and 15 March - averaging 4.3 Round Loos per month over last 12 months. The records show that these are almost entirely single sales, with 2 or 3 Round Loos sold together on a few occasions. The Round Loo Manager at the CHBCC in Kururumba reported producing 30 Round Loos since the programme began in 2008.

ATProjects M&E records show the overall sales for the Round Loo programme as presented in the table below.

Table 4 Sales volume of Round Loos by year

Year	Number of Round Loos sold
2008	175
2009	450
2010	800*
2011	1052*

*The number of Round Loos produced and sold through ATProjects relationship with Oxfam in Bougainville province are unknown for these years.

Who is buying Round Loos from the CHBCCs?

In the research workshop ATProjects staff commented that they have noticed that the early adopters are people who have already made some improvements to their house, such as a metal roof or a concrete floor. The staff explained the social concept of ‘Daunim yu yet’ prevalent in the Eastern Highlands. This cultural construct means that it is not good for a person to be seen to be doing much better than others in the community, rather it is good to be seen as doing just alright, or the same as other community members. ATProjects staff suggested that this is a strong social force in the community and has the potential to act as a break on the uptake of improved sanitation. ATProjects staff suggested that a way to overcome this would be for the village chiefs to be the early adopters of Round Loos.

The Kururumba CHBCC Round Loo Manager stated that there are around 100 households and so far around 30 Round Loos have been produced. These have been provided to the households who showed interest in the toilets and contributed to the production (see above for discussion on pricing in Kururumba),

Supply chain issues

Discussions with the ATProjects Programme Manager revealed that ATProjects has developed a number of sophisticated strategies to address supply chain constraints across all of its programmes and these measures are also benefiting the Round Loo programme. Based on the discussion with the Programme Manager and a guided tour of the warehouse these strategies are described below.

ATProjects has invested in a large warehouse located at its Technology Centre outside of Gorokha. The warehouse is well stocked and the Programme Manager is employed to oversee procurement and logistics. The warehouse allows ATProjects to purchase items in bulk and benefit from the economies of scale. For example, for its Living with Dignity Kit, a hygiene kit for people living with HIV/AIDS, ATProjects purchases from India orders of 2,500 buckets at a time. For the Round Loo programme, cement, wire and raw materials for production of the fibre glass moulds are purchased and stored in bulk. As an example of the difficulties involved in procuring and transporting materials the Programme Manager described how the materials for the fibre glass required for making Round Loo moulds need to be purchased in Port Moresby, transported to Lae by sea and then transported up the Highlands Highway to Gorokha.

Figure 4 Warehouse at ATProjects Appropriate Technology Centre at Gorokha



Sourcing large supplies of materials from hardware stores is difficult as many people are competing for the scarce supplies. ATProjects has been grappling for this issue for many years and this is felt most acutely with cement where demand across the country is high and supply is limited and unpredictable. ATProjects has developed a relationship with hardware stores as a reliable customer and pays in advance (always maintaining a minimum balance with the main suppliers) in order to receive preferential treatment once the supplier obtains a new load of cement.

4.5.3 Providing options

The Round Loo Product development process

In a key informant interview the ATProjects Co-Director (Steve Layton) explained how ATProjects uses a methodology called Knowledge Sharing Workshops to design some of its products. This is a process whereby a group of users are invited to stay at the ATProjects training centre for a number of days and participate in a workshop facilitated by an external facilitator. The workshop begins with the participants discussing the issues they face and identifying the problem. From here the users move onto proposing solutions and are given use of the ATProjects staff and equipment to start developing products in the workshop. These are refined and proto-types developed and then tested.

Figure 5 **The workshop at the ATProjects Appropriate Technology Centre**



This process has been used by ATProjects in the design of the Living with Dignity Hygiene Kits for People Living with HIV/AIDs, the AT School Loo, the AT Loo for people with disability, and the AT Girls Shower for Menstrual Hygiene Management in schools. In the case of the AT School Loo, school Headmasters and Board members are invited back to a workshop once a year to discuss the sustainability of the School AT Loos and identify design improvements.

However the interview found that in the design of the AT Round Loo programme the Knowledge Sharing Workshop process was not followed and the starting point for the design process was more from technical specifications.

Setting the parameters

The ATProjects Co-Director (Steve Layton) stated that the following parameters were set for the design of the Round Loo: affordable; easy to move; easy to clean (hence the dome shape and smooth finish); the right shaped and sized hole and foot rests to ensure it is comfortable for users and would not be fouled; strength - support 11 kilo-newtons; be able to provide this strength even when produced with low quality sand (up to 15% organic content); reinforced - so it will not break in two parts if it cracks leaving the user in the pit (concerns over the compensation culture where the government/donors are required to pay compensation to local people for any negative impacts on their property); produced using a spade, pliers and a wheelbarrow - tools available in every village. The Co-Director

acknowledged that some of these parameters set a high bar from a strength perspective as these parameters were purposely set at the worst case scenario end of the scale.

Researching the product

The Co-Director explained how once the parameters were set, the research was undertaken in Gorokha. Tests were performed on 500 people (men and women) to map foot position while squatting and the point at which faeces touch the ground when defecating, to determine the size and position of the hole in the slab (ATProjects, n.d.). All results were mapped on graph paper and transferred to a computer model. The product was developed in partnership with young Australian engineers from Engineers Without Borders. Based on the findings from these tests the optimum position for foot rests and the hole in the slab was determined

The Co-Director pointed out that the hole tapers the wrong way, suggesting that ideally it should be smaller at the top and wider at the bottom so it cannot be fouled and hence avoid the need for cleaning. However he realised that shaping the hole in this way would require two moulds for production and this was rejected on the basis of complexity and costs.

Discussions in the research workshop revealed that some user feedback was taken at this point in the design process however this appears to have been limited to a few parameters only. For example, consumers were asked if they preferred a rough surface (possibly less slippery) or a smooth surface (easier to clean) and they opted for the smooth surface.

Strengthening the slab

The Co-Director described how the next challenge in the design process was to sufficiently strengthen the slab. The inspiration for the solution used came from the local practice of “Bilum” weaving. PNG women are skilled at twisting local fibres to produce material for weaving into “Bilums”, traditional bags. Watching the female ATProjects staff do this in a lunch break the ATProjects Director came up with the idea of twisting locally available fencing wire to provide strong support to the concrete in the slab at low cost (see below for a description on how to make the slab).

Figure 6 Young engineers in Brisbane working on the wire twisting process



Once prototypes were developed, stress tests were performed on the product at the University of Queensland to check it reached the New Zealand, Australia and PNG building standards. The slab is reported to comply with the structural engineering provisions of the PNG Building Act and the following standards: PNGS 1001-2002, PNGS 1002-1982, AS 3600-2001, AS/NZ 1170.0:2002, AS/NZ 1170.0:2002 and AS 2423-2002 (ATProjects, n.d.). The Co-Director highlighted that one of the reasons for opting for a thicker slab was to maintain strength when the quality of sand is likely to be variable and poor - up to 15% organic matter in some cases.

The research workshop explored the issue of the heavy weight of the slab and the difficulties in moving it, resulting from the focus on strength. ATProjects staff explained that they considered adding handles to the slab to make it easier to lift, however this was rejected because it adds complexity and costs to the mould. ATProjects staff also reported how they have considered doming the bottom of the slab to provide strength and allow for a reduction in the thickness of the slab and hence the weight. However it was considered that this would make the production process harder and increase the chances of poor quality production by local producers and this too was rejected. In the discussions it was evident that ATProjects are wary of any design changes that may weaken the slab. The ATProjects staff consider a broken slab to be devastating for their reputation and are also fearful of what may happen should someone be injured using a Round Loo given the compensation culture in PNG.

Once the product was designed, fibreglass moulds were produced by the ATProjects staff for casting of the slabs. ATProjects employ a specialist craftsman for designing and producing fibreglass moulds.

Figure 7 **Mould for Round Loo at the ATProjects Technology Centre**



Production process for a Round Loo

In a key informant interview the Round Loo Sanitation Manger described the production process for a Round Loo. The following materials are needed: Tools - one Round Loo mould, one spade, one pair of pliers. Raw materials - engine oil, one bag of cement, sand, water.

The AT Round Loo is produced in this way. First the wire reinforcing is constructed. This is done by attaching either end of the wire to two short sticks and twisting the wire. The longer lengths of wire (note the wires are pre-cut by ATProjects) are bent into circles and the ends tied using the pliers.

Figure 8 Pre-cut-to-size wired provided to producers by ATProjects



These three circles are placed inside the mould and the short wires are attached between them forming a target shape. The wire is removed from the mould and the old engine oil is poured into the mould. The oil helps to remove the slab from the mould and maintain a smooth surface. The concrete mix is prepared using a sand/cement/water ratio of 3/1/1. Half of the concrete mix is shovelled into the mould. The wire reinforcement is placed on the concrete and the rest of the mix is shovelled on top. The product is left to cure for 3 days in the mould with plenty of water to maintain the smooth finish.

Figure 9 Round Loo slab curing in mould at Kerefa CHBCC



Production costs

The inputs for production of a Round Loo were clarified in the research workshop and costed as follows: 1 bag of cement - between K24 and K28 (US\$ 12 to 14) depending on market prices; wire - around K8 (US\$ 4). Sand is sourced locally for free from river beds. Total cost of materials is estimated at around K35 (US\$ 17.5) with a total production cost, including labour, of K50 (US\$25).

Experiences of using the Round Loo Product

Interviews with users of the Round Loo identified the following positive aspects of the Round Loo are: all members of the family can use it; it is safe to use; there is no smell; people no longer step in excreta like they do when open defecating; the slab is durable; the slab is easy to clean .

The interviews also revealed the following negative feedback from users: users cannot sit down, especially important for elderly and pregnant people; it has sharp edges which hurt your hands when you lift it; the narrow pit is difficult to dig; the Round Loo slab is heavy to move. In interviews with the CHBCC Round Loo Programme Managers they too complained that the Round Loo slab was very heavy requiring four adults to lift it onto a vehicle for transportation.

Observation in households using the Round Loos found that in some cases installation was found to have been incorrect. For example the slab was placed with the vent pipe hole at the front rather than the back and the user thought the vent pipe hole was for urinating in. In only one of the households visited was the vent pipe correctly installed. The observation visit also noted one instance of a completed Round Loo slab not being installed and lying next to a home.

Figure 10 Round Loos with uninstalled vent pipe in Kururumba



The ATProjects Sanitation Manager explained that given that the Round Loo programme only began around 5 years ago, it is assumed that none of the pits have yet filled up, although he recognised that there is no mechanism to find out whether this is the case. The assumption in the design of the Round Loo programme is that when a pit fills up households will roll the slab to another location and place it over a new pit and then move or reconstruct the superstructure.

4.5.4 Ensuring quality

Monitoring sales but not quality and use

The ATProjects M&E Manager described how for the CHBCC sales model, the materials leaving the ATProjects warehouse are counted and the number of Round Loos produced in the CHBC centres are counted and reported back to ATProjects. He acknowledged that this system means that ATProjects know how many Round Loos have been produced, but not how many are actually installed and used. For the INGO model, the INGO informs ATProjects how many Round Loos have been sold and this is all that is known.

Use of Information Communications Technology

In the research workshop ATProjects staff explained how they are exploring the potential to introduce Information Communications Technology (ICT) into the Round Loo programme to improve monitoring, taking advantage of the extensive and affordable

mobile phone network has recently been introduced across PNG, covering all areas of the Eastern Highlands Province. ATProjects have been experimenting with the potential of the new extensive mobile phone network in other programmes. For example ATProjects can provide staff in remote areas with a mobile phone on a closed user network with unlimited calls and SMS messages back to ATProjects for K55 (US\$ 27.5) per month. ATProjects are also linking these phones directly to their database so that the monitoring data sent via SMS can directly update the database. The ATProjects M&E Manager described how this is being trialled as a way to reduce travel costs for monitoring in remote locations through providing more local staff with these devices rather than centrally based staff making regular visits.

4.6 Chapter summary

This chapter presented the findings from the research workshops, key informant interviews and interviews with Round Loo users. The sanitation situation in PNG and the Eastern Highlands was first presented before describing the findings relating to the Round Loo programme, organised under the framework of the enabling environment, supply and demand. Within these three areas, the findings were organised under the core components and key lessons of sanitation marketing identified in the literature review.

Chapter 5 Discussion

This chapter takes the lessons on sanitation marketing identified in the literature review, Section 2, and uses these to analyse the findings from the research on ATProjects' Round Loo programme, Section 4, to determine the likely effectiveness of this programme. For ease of reference the lessons identified in the literature review are summarised and presented here in Table 5 below. In this chapter each lesson is presented followed by a discussion of the analysis.

5.1 Enabling Environment

5.1.1 Political support

Lesson 1 summary: Importance of political support for scaling up and difficulty of garnering such support.

The findings highlighted the lack of engagement by ATProjects at the political level and the lack of involvement of local government in the Round Loo programme; this is likely to act as barriers to the scale up of the programme throughout the province. There are a number of roles local government could play such as promotion of sanitation and acting as sales agents, as in the case of Laos (Pedi et al., 2011). However given that local government is inactive it seems unlikely that there would be a willingness to perform such roles. Whilst political support for sanitation remains very low from both national and local government it is unlikely that the sanitation marketing programme can scale up rapidly.

Since the national WASH conference in November 2011 there appears to be an increased interest from Government in developing a national WASH policy and strategy (RWSSP, 2011). As this policy development process begins there are opportunities to introduce principles from the Round Loo programme and ensure that the policy and strategy create a supportive environment for sanitation marketing approaches.

There is a possibility that local government may take an interest in promoting sanitation using ATProjects promotional materials. Demonstrating how the local sanitation budget could be utilised could lead to local government taking action on sanitation using allocated funds.

Table 5 **Lessons on sanitation marketing (identified in literature review)**

Key lessons	
<i>Enabling environment</i>	
<ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. 7. 	<p>Importance of political support for scaling up and difficulty of garnering such support.</p> <p>Long timeframes are required for a sanitation marketing approach to flourish.</p> <p>Need to plan for sustainability once direct programme support is withdrawn.</p> <p>Hardware subsidies for toilets undermine sanitation marketing businesses.</p> <p>Achieving equity through a sanitation marketing approach is challenging and detailed poor inclusive strategies are required.</p> <p>Simple monitoring systems in line with national reporting structures are key.</p> <p>There is a human resources capacity gap for implementing a sanitation marketing approach – retraining is needed, as is procuring new skills from outside the sanitation sector.</p>
<i>Demand side</i>	
<ol style="list-style-type: none"> 8. 9. 10. 	<p>Insightful formative research to deepen understanding into the drives and blockages to new behaviours is vital. These motivations and barriers differ for various segments of the population and these nuances need to be understood.</p> <p>Tailored promotion strategies are required including promotion by individuals and mass media and building on available opportunities.</p> <p>Successful programmes start by targeting locations and/or segments of the population where sanitation uptake is likely to be most rapid and greatest.</p>
<i>Supply side</i>	
<ol style="list-style-type: none"> 11. 12. 13. 14. 15. 16. 17. 	<p>Using market studies to find the right size of entrepreneur to involve in sanitation marketing is critical.</p> <p>Building sanitation onto an existing business has proven to improve sustainability.</p> <p>Successful approaches consider aesthetic as well as technical aspect of the product.</p> <p>A range of latrine options at different price points is required.</p> <p>Experiences highlight the need to keep the toilet product and purchase simple for the consumer.</p> <p>Establish processes to facilitate interaction between consumers and service providers.</p> <p>Sequencing is vital to ensure there is a supply of sanitation products in place to meet an increase in demand.</p>

Lesson 2 summary: Long timeframes are required for a sanitation marketing approach to flourish.

In discussing the experience of a sanitation promotion programme in Mozambique, Cairncross points out how long it takes for demand to increase; this programme was initiated in the early 1980's and it took until the mid-1990's for tens of thousands of latrines to be produced each year (Cairncross, 2010, p. S130)

This indicates that programmes are effective over decades rather than years. The 5 year strategies currently developed by ATProjects for the Round Loo programme and the intention of long-term partnership between WaterAid and ATProjects are a positive indication of a comprehension of the time scales involved and the commitment to a programme of the duration that will be required to see significant change in scale of latrine uptake in PNG. Experiences from other countries such as Mozambique and Benin highlight the need for perseverance even when demand appears not to be rapidly increasing in the early years; the adoption curve demonstrates that demand picks up over time.

Lesson 3 summary: Need to plan for sustainability once direct programme support is withdrawn.

Despite the intentions for a long-term partnership with WaterAid, the ATProjects Round Loo programme is still vulnerable in being supported by just one donor and heavily dependent on this funding for use in hardware subsidies. In its current design, the Round Loo programme would not pass the sustainability test posed by Mukherjee (2009, p.14). A withdrawal of funding would mean ATProjects would need to increase the cost of each Round Loo to around K50.

Furthermore, if ATProjects were to end its support to CHBCCs it seems unlikely that they would continue to produce and sell the Round Loos. ATProjects business model seems to be based on adding more products to its range and increasing the institutional client base for ATProjects products. Whilst this approach is proving successful for ATProjects, it is arguable that this way of working is too centralist for the sanitation marketing approach to flourish. If a strong market of local sanitation sales agents and providers of sanitation products is to emerge this will require ATProjects ceding some control and supporting these small enterprises to function independently.

Lesson 4 summary: Hardware subsidies for toilets undermine sanitation marketing businesses.

At all the current price points the ATProjects Round Loos are sold at subsidised prices. All the sales models may all be suppressing demand through providing subsidised latrines. There is a risk that the subsidy provided can kill the purchase intention of all households in the area.

As Cairncross finds in his discussion on subsidy, with a subsidy approach the number of latrines that can be built is limited by the budget for the subsidy (Cairncross, 2010, p.S129) and so the number of Round Loos ATProjects can sell in the current model is determined by the size of the grant provided by WaterAid.

Lesson 5 summary: Achieving equity through a sanitation marketing approach is challenging and detailed poor inclusive strategies are required.

As Scott, Jenkins and Kpinsoton (2011, p.14) highlight, the sanitation marketing approach is appropriate for reaching certain segments of the population, but not all. As noted in the discussion on definitions highlighted in Section 2 above, there is a tendency to include a focus on the poor in some definitions of sanitation marketing. ATProjects have not identified the poorest as a specific audience for the Round Loo programme and this is considered appropriate at the current stage of development of the programme. A focus on building on the strengths of the existing programme has the potential to result in scale up to reach large segments of the population of the Eastern Highlands. For reaching the poorest and most vulnerable groups, variations of the Round Loo programme or entirely different approaches may be required. This may however raise some questions for the donor, WaterAid, which aims to support the poorest and most vulnerable communities.

One of the consequences of the limited information gathered on customers is that ATProjects and the donor WaterAid do not know if the Round Loos are being purchased by the poor and disadvantaged members of the community.

Lesson 6 summary: Simple monitoring systems in line with national reporting structures are key.

As there are no government systems for monitoring currently in place, the approach taken by ATProjects to set up its own monitoring system is appropriate.

In the research workshop ATProjects suggested that there is a possible role for local government in the future in terms of monitoring latrine use and enforcing local laws and imposing sanctions on open defecators. ATProjects staff reported that this happened under the colonial rule of the Kiap's and was effective in increasing latrine use.

However given how difficult it has proven to be to set up and sustain government led monitoring systems for sanitation in other countries it seems very unlikely that an effective system will be established in PNG in the short to medium term (Mukherjee, 2009, p.16). An interim step would be for organisations to report sanitation progress using a common set of indicators at the provincial WASHCOM meetings, should these be re-established in future (Dutton, 2011).

Lesson 7 summary: There is a human resources capacity gap for implementing a sanitation marketing approach – retraining is needed, as is procuring new skills from outside the sanitation sector.

Government capacity

The findings showed that there is clearly a huge gap in local government capacity to support a sanitation marketing programme. The approach is likely new to existing Environmental Health Officers. Their capacity to manage any type of sanitation programme is extremely limited and extensive support would be required to mentor and build skills required to support this new approach.

ATProjects capacity

As Godfrey, Hart and Rosenweig noted, organisations implementing a social marketing approach are unlikely to have the right mix of skills in the organisation (2010, p.30). ATProjects has been very successful in building a team with a diverse range of skills covering many of the diverse disciplines required. However there do remain skills gaps in the areas of market research, communications and small business development. Where these skills are required for one-off activities, such as market research and communications skills for understanding drivers, testing messages and developing promotional materials, these skills could be procured through consultants on a short term basis. Other skills which will be needed on a more regular basis, such as small business development skills to build the sales and marketing strength of CHBCCs and other enterprises could be brought into the ATProjects team through recruitment.

5.2 Demand

Lesson 8 summary: Insightful formative research to deepen understanding into the drives and blockages to new behaviours is vital. These motivations and barriers differ for various segments of the population and these nuances need to be understood.

The findings showed how ATProjects has not undertaken any formative research into the drivers and barriers to latrine usage in PNG. It is understood from the document review and interviews with ATProjects staff and other WASH sector professionals in PNG that no such research has ever been undertaken in the PNG context. As a result of this gap, the messages promoted by ATProjects through their various promotion channels (discussed above) are not based around a clear set of identified and tested behavioural drivers and this is likely to be reducing the effectiveness of these messages in bringing about sanitation uptake. A more sound grasp on the exact motivations and barriers would enable ATProjects to be strategically build all promotional efforts around these drives. It would be prudent to delay the development of further promotional activities until after the formative research is conducted and key messages have been tested and determined.

The cost of undertaking formative research can be perceived as too expensive and for this reason it may not be undertaken. WSP estimates that it costs between US\$75,000 to US\$300,000 to conduct formative research for demand and supply and in Ghana for example market research agencies charge between US\$500 to US\$1,000 per focus group discussion. The cost of developing and pre-testing a communication strategy and materials is also high at between US\$75,000 to US\$300,000 depending on the country (Godfrey, Hart and Rosenweig, 2010, p.30). However, it needs to be understood that if done well, these are one time investments that produce vital outputs that can be used by all sanitation actors in the country. Therefore this is considered a sound investment and potentially the costs can be shared by a range of actors.

Lesson 9 summary: Tailored promotion strategies are required including promotion by individuals and mass media and building on available opportunities.

The findings show that ATProjects does not have a clear plan in place regarding when and where to use each of the different promotional activities in a sales drive for the Round Loos. The one exception to this is the TV advertisements which were strategically linked to the national elections. ATProjects believe that because the annual sales targets set are being met early, the current mix of marketing strategies is effective.

However a promotion plan detailing when to use which promotion channels based on a strategic analysis of the opportunities for promotion would likely increase the effectiveness of promotion efforts. For example the research workshops identified two seasons in the year when there is a coffee harvest and households' disposable income is greatest; this would appear a good time of the year to increase sanitation promotion activities.

Currently in the ATProjects model promotion by individuals is done by the CHBCC staff that are present in the community and considered trustworthy and are also selling the Round Loos. The limitation of this approach is that the CHBCC staff are active only in their own community and are therefore unable to promote Round Loos in other areas.

ATProjects are considering a number of additional ideas for promoting sanitation messages and the Round Loo product (as described in Section 4 above). Whilst promotion is critical to the success of a sanitation marketing programme, it is important not to place all resources on the promotional side, to the detriment of the other 'Ps'. Weinreich highlights as a common mistake an over emphasis on promotion to the detriment of the other areas of social marketing, resulting in communications rather than social marketing campaigns (Weinreich, 2011, p.13).

Lesson 10 summary: Successful programmes start by targeting locations and/or segments of the population where sanitation uptake is likely to be most rapid and greatest.

The findings show that ATProjects have not specifically defined their target audience by segmenting the market; rather the targeted customers have been kept broad as anyone living in the Eastern Highlands Province without a latrine.

ATProjects staff have noticed that the people purchasing the latrines are those in the community with some other home improvements, such as a concrete house and a tin roof. This would suggest that as per the experiences in other countries highlighted by the literature review, in every community there are likely to be early adopters and that they are often the relatively better-off members of the community.

Jenkins and Scott found that for certain lifestyles and environments, such as subsistence farmers in off-road small villages, it may prove very difficult to arouse drives for latrines (2005, p. 2457). This is due to the fact that many of the often identified drives, relating to prestige, modernity, affiliation with an urban elite, and privacy and lack of suitable open defecation sites, are not at play in these areas. The location in which the Round Loo programme is currently promoted is not yet based on an analysis of in which parts of the Province lifestyles and environments are likely to be most conducive for the sanitation marketing approach to flourish.

Rather decisions on areas to target with sanitation marketing are based on operational presence instead of an analysis of the locations where the approach is most likely to be successful. It is likely that the CHBCCs and other INGO programmes have been established to serve particularly vulnerable populations in remote locations and are therefore likely to prove difficult areas for the sanitation marketing approach to succeed.

Despite this lack of strategic analysis, the small sample of CHBCCs may actually prove this point. The limited data available and anecdotal reports from ATProjects staff suggest that the volume of sales from the CHBCC in Kerefa and sales directly from the ATProjects office in Gorokha are significantly higher than sales from the other CHBCCs. This is likely because more of the motivators used in the promotion material are relevant to the populations in these areas and these populations have greater disposable income and transportation options for moving the slabs. Strategic planning would clearly identify these segments of the population and focus promotion efforts on these areas first.

5.3 Supply

Lesson 11 summary: Using market studies to find the right size of entrepreneur to involve in sanitation marketing is critical.

The findings showed that ATProjects are yet to undertake a market study. A market study may reveal other more entrepreneurial partners for sanitation marketing instead of CHBCCs leading to increased effectiveness of the programme. A market study may also help to find out in which areas latrine uptake is likely to be fastest due to stronger supply chains and market access and the marketing strategy, discussed above, could be designed to start from these areas.

Lesson 12 summary: Building sanitation onto an existing business has proven to improve sustainability.

ATProjects orientation as a social enterprise producing and selling an increasing range of products, mainly to institutions, mean that it is well placed to sell Round Loos and is likely to continue with this product into the future. However it seems that most of ATProjects sales are bulk orders to institutions, for example the AT School Loo, the Living with Dignity Kits (a hygiene kit for People Living with HIV/AIDS) and its solar lights for health posts, rather than high volume sales to individuals.

It seems that there will be a limit to the number of people that can be reached through bulk orders and that for scale up to take place, massive increase in sales to individuals will be required. Marketing to many individuals is a new direction for ATProjects requiring a different skill set.

ATProjects decided to base the production centres and sales points at the CHBCCs, which were not existing businesses but rather service centres for community health. The centres primary role is to provide home based care to people living with HIV/AIDS for free. As such, the centres are not motivated by business principles nor staffed with people with business skills. The CHBCC sales points and production centres are functioning more like Sanitation Marts focussed on latrine production for their community and are not really thinking and acting like businesses. The Round Loos are the only product they are selling.

The views expressed by the CHBCC Round Loo programme staff in Kururumba in terms of providing Round Loos to the people in their community and the sensitivity around charging for the Round Loo and their awareness of the need for community level agreement on this issue illustrate how this is a community development model and the difficulties there may be in moving to a more business oriented operation. The pricing of the product means that there is no financial incentive for the CHBCC staff to sell latrines, as this revenue accrues to the centre and not the staff. As such there may be motivation for the centre to sell Round Loos to everyone in their community if they are motivated by improving community health; however motivations for increasing sales to other customers are weak.

The location of sales points is a key factor in determining the effectiveness of the programme. In the light of the discussion above on the benefits of starting sanitation marketing programmes in areas where sanitation uptake is likely to be higher, the decision to close the Round Loo sales outlet at the ATProjects Gorokha office seems unjustified and could be revisited.

Since making this decision to close the outlet at the ATProjects Gorokha office and decentralise, it is possible that insufficient support has been provided to the CHBCCs to take on all aspects of this new activity. Training has been provided under the Round Loo programme however this appears to focus more on the production of the slabs and not so much on sales techniques. The CHBCC at Kerefa, near to the ATProjects office, clearly receives regular mentoring as ATProjects staff regularly pass by the centre; however it is unknown to what extent the other CHBCCs are being supported in their many roles of promotion and production.

The supply chain, comprising raw materials, manufacturing and distribution (the 'Place' of the '4 Ps') is a challenge given the remoteness of customers and the limited availability of materials. The distribution channel for sanitation is described as diverse, fragmented and largely informal (Devine, 2010, p.45). Scott, Jenkins and Kpinsoton describe the difficulty and expense of accessing cement in rural areas in Benin and highlight the need to improve supply chains if the sanitation marketing programme is to have a larger impact (2011, p.14). ATProjects has had some success in finding ways around these barriers for its own business, as described in Section 4 above. The question is whether ATProjects may be able to work with the CHBCCs or different small sanitation enterprises to help them minimise the impact of supply chain issues on their businesses.

Lesson 13 summary: Experiences highlight the need to keep the toilet product and purchase simple for the consumer.

The findings showed that for the Round Loo producers, the construction process has been made easy. Producers are provided a mould, the required amount of cement and the required lengths of wire, pre-cut to size. The additional construction inputs required - oil, sand and water - all can be sourced locally. For the customer however, further improvements could be made to provide a complete product, meaning that all elements of the Round Loo are sold together including installation instructions. The main difficulty facing people who purchase the Round Loo is how to then source and install the vent pipe (see Section 4 for discussion on non-installation of the vent pipe).

Users and producers complained that the Round Loo slab is very heavy and difficult to move. In the future when pits are full (none of the installed latrines have yet reached this stage) the weight may prevent households from moving the slab, although it is designed to be rolled. Whilst ATProjects did consider some options during the design phase, it may be possible to revisit the design of the slab to look at ways to reduce weight and make it easier to move or try to reduce weight.

Lesson 14 summary: A range of latrine options at different price points is required.

Sanitation marketing experiences discussed in the literature review highlight the need for a range of options to cater to the various aspirations and ability to pay of different customers. The Round Loo is basically the only household sanitation option being offered to customers. ATProjects do produce other toilet models however these are for specific types of users, for example the AT Loo for schools and the Urine Diversion Toilet for high water table areas. Other household sanitation options are not available.

It is noted that whilst the Knowledge Sharing Workshop, discussed in Section 4 above, process is used by ATProjects to develop a number of its products it was not fully used in the development of the Round Loo and a more typical engineering process lead by technical design parameters was used. This may in part explain why the final product scores well against various technical standards but was found not to meet all the aspirations of users. The Knowledge Sharing Workshop process was found to be similar to and follows many of principles of Human Centred Design to understand desirability, feasibility and viability such as Hear (market research), Create (model/prototype/test) and Deliver (pilot/test) (IDEO, 2009). ATProjects could consider using their high quality Knowledge Sharing workshop process to develop different options in collaboration with users.

There may be ways to reduce the cost of the product. The greatest cost is the cement and there may be ways to reduce costs by producing a thinner slab. ATProjects argue that using one full bag of cement is convenient and that a reduction of 10-20% cement use would result in wasted cement. While this may be the case with production of a single or small number of slabs, there are ways to store and immediately reuse saved cement when a greater volume of slabs are being produced.

Cairncross (2010, p.S129) suggests the problem lies in the fact that most technicians working in the field of sanitation originally trained as civil engineers, whose approach is not to design to a target cost, but rather to a technical specification. In the Round Loo programme it seems this is the case, with technical parameters determining design to a greater extent than cost. Cairncross suggests there "is a need for technicians to take an approach more similar to that of production engineers who are making consumer products, such as motor cars or electric toasters, where the design is for a market niche at a target price. If the product made is too expensive, then there is a need for it to be modified so as

to reduce the price. This approach needs to be applied to sanitation" (Cairncross, 2010, p.S129).

Lesson 15 summary: Successful approaches consider aesthetic as well as technical aspect of the product.

If other options were to be added to the range, they could take into consideration aesthetic aspects. The Round Loo has been designed with functionality in mind. However sanitation marketing theory shows that other aspects such as the look (the colour and the finishing) as well as the name and the branding are all important considerations in the purchasing decision relating to desirability of the product. ATProjects have considered ways to get colour into or onto the slab and found that there were no cost effective ways to do this given the materials available in PNG. However, this may be an area worth revisiting to see and if adding colour or other aesthetic modification (for which ideas can be sought from users) does add to the cost, other higher price points can be set for these versions of the Round Loo.

Figure 11 Customer had painted the slab after installation and added a cover, Kururumba



Lesson 16 summary: Establish processes to facilitate interaction between consumers and service providers.

The findings showed that the current monitoring system is limited to monitoring production of Round Loo slabs and does not allow ATProjects to know what happens to Round Loos after they leave the production centres. Information is not collected on installation and use; rather it is assumed that any slab which is purchased will be installed correctly and used because the user has made some form of cash or in kind contribution to the Round Loo. However it is vital for ATProjects to have a better understanding of whether the Round Loos are actually being used. Information is also not collected on which members of the community are purchasing the Round Loos, which would enable an equity analysis.

A key weakness of the Round Loo programme is the lack of any structured user feedback on the product. The current M&E system does not capture information on users' experiences and suggestions for improvements. ATProjects are working on the assumption that as demand for the Round Loos is increasing there must be a high degree of satisfaction with the product.

Given that the design phase interaction with users was limited to gaining a detailed understanding of the shape, size and location of the foot rests and squatting hole, information on customer experiences on a wider range of parameters would be valuable. Munch-Petersen emphasised the need to test a number of varying designs for user acceptability and preferences with a fast-feedback loop as to market responses and demand (Munch-Petersen, 1989, p.35). For the Round Loo, areas for exploration would include whether the product is meeting people's aspirations, desirability, installation experience, cleaning experience, and affordability. This information would be used to make changes to refine the current product and installation services and also marketing strategies and feed into development of other sanitation products to increase the range of options offered to customers.

Such information could be gathered through simple community level data collection, interviews or focus group discussions, or through the Knowledge Management Workshop process.

The findings showed that ATProjects is starting to make use of Information Communications Technology in some of its other programmes. There is the potential to make use of this technology in the Round Loo programme. For example the CHBCC staff, and other future sales agents, could send in real time data on sales, installation and use through this system. This data would be verified through regular or spot checks by ATProjects M&E team.

Lesson 17 summary: Sequencing is vital to ensure there is a supply of sanitation products in place to meet an increase in demand.

ATProjects have not yet reached the situation where demand is outstripping supply. However as the Round Loo promotional activities are expanding in reach and if the effectiveness of messages is improved by grounding these in the key drivers it is possible that ATProjects will experience a surge in demand. The findings showed that ATProjects is placing a fair amount of emphasis on how to expand and improve promotion activities and this is understandable as the perceived priority is to build demand for the Round Loo product. However simultaneously more thought could be given to how to increase and

improve the cost efficiency of the supply of the Round Loo and other variants that may be developed.

5.4 Chapter summary

This chapter presented a discussion of the analysis of the findings from the field work. The first research question was to identify lessons learned from international best practice on sanitation marketing. These lessons, identified in the literature review, were summarised here and used to assess the likely effectiveness of the ATProjects Round Loo programme, the second research question, by relating the findings back to these lessons. The discussion was again organised around the framework of enabling environment, demand and supply.

Chapter 6 Conclusion and recommendations

6.1 Overall conclusions

The research objective was ‘to synthesise recent international experience of sanitation marketing and identify the main lessons learned for remote rural contexts and use these to examine the effectiveness of the ATProjects sanitation marketing programme in rural PNG’. The main lessons learned from international experience of sanitation marketing were identified in the literature and are summarised in Table 3 above (in Section 2.8).

These lessons were used to analyse and discuss the likely effectiveness of the ATProjects Round Loo programme in Section 5. Based on this discussion, this section offers conclusions and a number of recommendations for ATProjects, and in some cases WaterAid Australia, to consider. Finally areas for further research identified through the research process are identified.

The hypothesis of this research is that international lessons of sanitation marketing can be identified and used to determine the likely effectiveness of the ATProjects Round Loo approach. The literature review found that international experiences of sanitation marketing, whilst still not extensive and whilst many programmes are yet to be thoroughly documented and evaluated, has reached the stage where it is possible to discern core components of the approach and identify key lessons. The research showed that the synthesis of these lessons can be used to assess the likely effectiveness of other sanitation marketing programmes, in the case the ATProjects Round Loo programme.

The research found that the ATProjects Round Loo programme included some, but not all the core components of a sanitation marketing approach. The main components not adequately addressed by the current approach were found to be political and government engagement and formative and market studies. The lessons from international experience were used to analyse in more detail the likely effectiveness of these core components of the programme and conclusions are presented below.

6.2 Conclusions and recommendations on the enabling environment components

Whilst the Government, both national and provincial, remains disengaged from rural sanitation promotion the sanitation marketing programme is likely to remain limited to ATProjects working area. As the national sanitation policy discussion takes place in the coming years this may result in increased government activity in the sanitation sector.

Recommendations

- ATProjects and WaterAid engage in the national policy development process to ensure the future sector strategies and plans provide a conducive environment for sanitation marketing approaches.

Experience shows that sanitation marketing approaches can take at least a decade to reach the point at which demand increases exponentially. Therefore the long-term approach being taken by ATProjects and WaterAid is appropriate.

ATProjects defines itself as a social enterprise, rather than an NGO, and works on a for-profit basis with a number of products selling on the market. As such there is a definite business orientation to the organisation. However ATProjects also has relationships with a number of donors and this distinguishes it from a pure business model. ATProjects has a hesitation in embracing a complete market model and charging customers at cost-recovery rates and consider using donor money to subsidise products to meet people's needs as a good model and a valid use of donor support. The way donor financing from WaterAid is used in the current Round Loo programme means that the scale up of the programme is limited by the size of the grant provided by WaterAid.

Recommendations

- Review the way WaterAid funds are used and consider if it is possible to use this funding only for activities that will not hamper the scale up and sustainability of the programme. This would include activities such as research, design and promotion and exclude hardware subsidies to households.

- The current focus at ATProjects in selling as many Round Loos where there is demand and not focussing explicitly on reaching the poorest is considered prudent for this stage in the development of the programme. However there may be ways to offer a number of different products, variations on the Round Loo, at different price points to make the products affordable and appealing to a wider proportion of the population.

Recommendations

- Look for ways to reduce and eventually remove the hardware subsidy in the Round Loo range while maintaining an affordable price point for products.
- Instead of having different prices for the same product and possibly dampening demand and causing confusion for consumers, ATProjects could have different products at different price points, with small differences such as coloured cement.

Local government capacity to promote sanitation is very limited. Should government interest increase in light of the policy development process identified above or for other reasons, ATProjects is well placed to mentor local government in how to promote sanitation using its existing sanitation promotional materials.

As Cairncross says "The marketing perspective has implications for the way sanitation programmes need to be organised, because manufacturing an item and marketing it are different operations and probably need to be kept separate so that each operation is performed optimally by the best people " (Cairncross, 2010, p.S130). ATProjects has taken on the task of performing both the manufacturing and the marketing roles and has been successful at building a skilled and diverse team covering many of the varied skills required for sanitation marketing. However a few key skill sets are not yet within the team and the further expansion of the programme would benefit from this expertise. It could be argued that ATProjects focus only on role, perhaps product design and marketing would be closest to its core strengths, however in the Eastern Highlands there is no obvious stakeholder to take on the marketing role.

Recommendations

- ATProjects develop a package for local government showing how existing budgets, for example from the District Sector Investment Program programme, could be allocated for sanitation promotion using the ATProjects demand creation materials.
- ATProjects recruit staff with skills in small business development and procure on a short term basis expertise in market research and creative communications.

6.3 Conclusions and recommendations on the demand side components

The lack of a comprehensive and detailed understanding of the motivations to adopting use of improved sanitation and of the constraints people face to doing this is holding back the development of optimal sanitation promotion. Greater insights in this area would increase the likelihood that promotional materials are effective.

Furthermore the lack of a coherent marketing strategy and a feedback loop from customers to find out which channels are working, mean that current marketing activities are to some extent ad hoc and could likely achieve better results with more strategic planning.

Recommendations

- Undertake research into the drivers for sanitation uptake in the Eastern Highlands and use this to develop and test messages and develop a communications strategy and materials.
- Identify geographic areas where people are most likely to be responsive to the drivers for latrines and initially focus the Round Loo programme on these areas.
- Undertake rapid research with existing Round Loo customers to understand the effectiveness of different promotional channels.
- Based on the above insights, develop a more detailed marketing strategy taking into consideration seasonality of disposable income, geographical focus, and effectiveness of promotional channels.

6.4 Conclusions and recommendations on the supply side components

The current model is constricted to supplying products through ATProjects satellite operations in communities, the CHBCCs. The CHBCCs are community development focussed by nature rather than entrepreneurial and this model is limited by the small number of CHBCCs. There are steps ATProjects could take to further improve the effectiveness of the current model, however for the sanitation market to flourish in the Eastern Highlands it may be necessary to look beyond ATProjects' own structures and to see if there are other established businesses that may be well-placed to add sanitation to the services they provide.

Recommendations

- Undertake market studies to see if there are other potential existing businesses or local organisations that may be well placed to add sanitation service provision to their enterprises.
- Provide more regular mentoring to the CHBCCs through technical advice on sales tactics, incentivise sales through prizes and create opportunities for peer to peer support. For example the CHBCC representatives come to the ATProjects office on a monthly basis for a 2 day meeting on their home based care activities. Their work on Round Loo promotions could also be covered at these meetings.

Presently it appears the Round Loo is not being installed correctly and this may be reducing the effectiveness of the technology in breaking the faecal-oral transmission route. This in part stems from the fact that a 'complete product' is not sold and communities are required to source vent pipes for themselves and there may be some confusion in how to correctly size and shape the pit and install the slab. Another constraint customers face is in moving the heavy slab; currently this is an inconvenience that may be dampening sales, at a later stage it may hamper reinstallation once pits are filled.

Recommendations

- A vent pipe, either plastic or pre-cut bamboo, could be sold along with the Round Loo. Alternatively a simple pictorial installation guide could be distributed along with the product to show how to size and install a vent pipe. Such a guide could also demonstrate through pictures how to size the pit correctly, different ways to construct the superstructure, and ways to construct a hole cover.
- Look for ways to reduce the weight of the slab, whilst still maintaining safety. There may be a middle ground whereby the slab is strong enough, yet below the high engineering standards set in the original design parameters.

The current monitoring programme provides limited information that can be used to refine the effectiveness of the Round Loo programme. There are no formal feedback loops to inform ATProjects whether the Round Loos are installed and used properly and what the customer's think of the product. ATProjects are beginning to experiment with use of ICT technology that could enable such information to be gathered at low cost.

Recommendations

- Put in place systems to monitor installation and use of the Round Loos and gather customer feedback on their experiences of using the Round Loo.
- Monitor the sustainability of the Round Loos including finding out what happens when pits fill up.

6.5 Further research

A number of areas for further research, beyond the scope of this study were identified.

These include:

- In contexts such as PNG, where the national and provincial enabling environment is very weak, is it feasible to improve the enabling environment for the sanitation sector alone, in the absence of broader whole of government reforms?
- How does the sanitation marketing approach work in remote and sparsely populated areas where there is a very limited entrepreneurial culture, no local enterprises and transportation costs are very high?

- Given the timeframes involved in developing the conditions for sanitation marketing programmes and allowing demand to flourish, often decades, further longitudinal studies will be required in the coming decades to measure the effectiveness of the sanitation marketing programmes currently being implemented in the Eastern Highlands.

6.6 Chapter summary

This chapter presented the conclusions of the study and a number of recommendations deriving from these conclusions for ATPProjects and also WaterAid Australia to consider. Finally areas identified for further research are identified.

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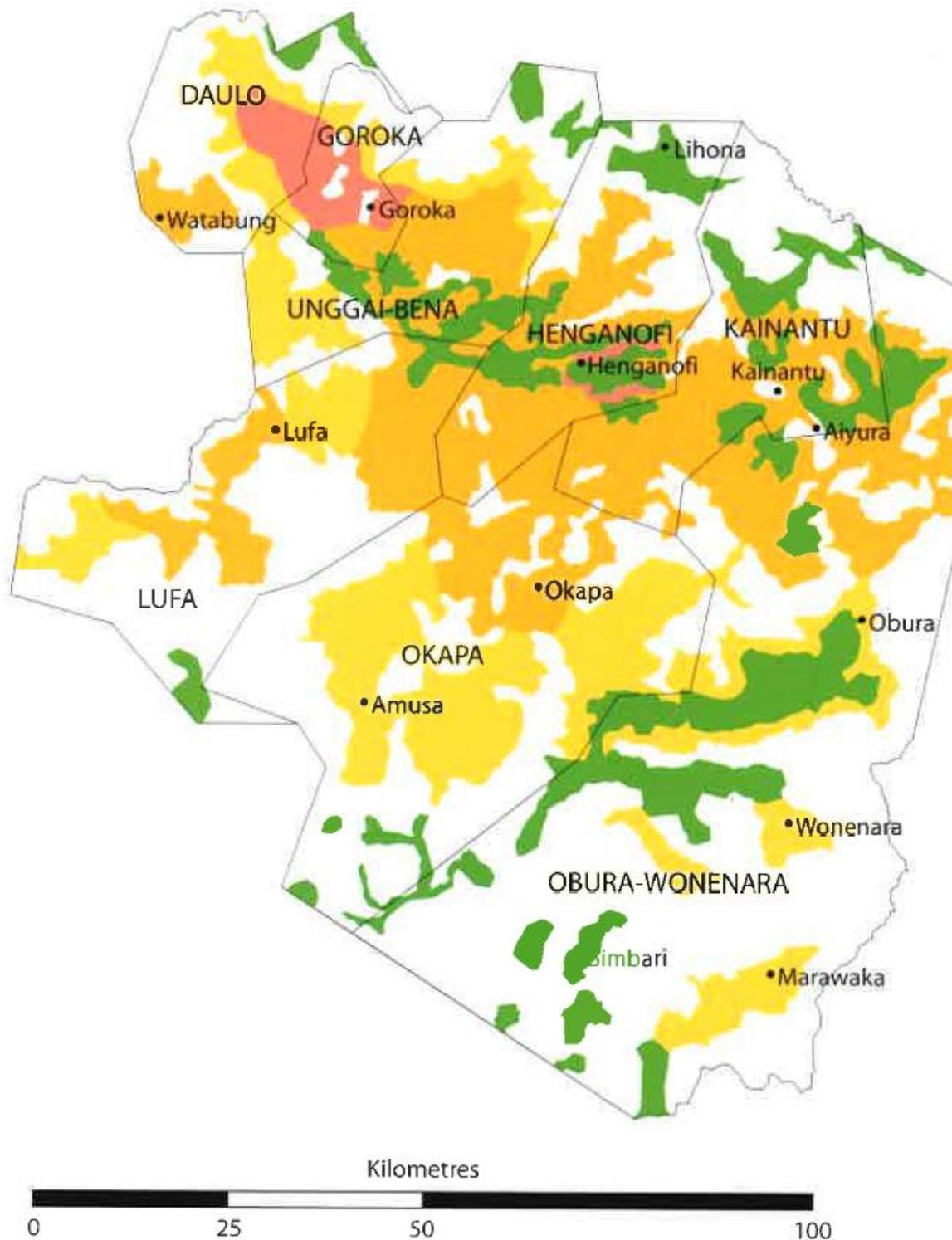
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Appendix A Papua New Guinea map



Appendix B Eastern Highlands map



Note: Colours represent population density. Green: low density (1-20 persons/km²); Yellow: moderate density (21-60 persons/km²); Orange: high density (61-100 persons/km²); Red: very high density (101-600 persons/km²); White – unoccupied land.

Source: Hanson et al., p.155.

Appendix C Research instruments

Appendix C presents some of the research instruments used in the research.

- Semi-structured interview with the ATProjects Procurement and Logistics Manager
- Semi-structured interview with Community Home Based Care Programme Managers
- Interview and observation with households using Round Loos

C.1 Semi-structured interview with ATProjects Procurement and Logistics Manager

Workshop

How many staff work in the workshop and what are their skills?

What products are produced in the workshop?

How are the Round Loo moulds produced?

Warehouse

What is stored in the warehouse? Which of these materials relate to the Round Loo programme?

Where are materials procured?

What is the cost of these materials (including any fluctuation and changes in last few years)?

How are these transported to the warehouse?

Which suppliers does ATProjects use?

How does ATProjects maintain a supply of materials in its warehouse?

How does ATProjects transfer materials needed for the Round Loos to the Community Home Based Care Centres (e.g. wire and cement)?

How is information recorded on materials used in the Round Loo programme leaving the warehouse?

Vehicle fleet

How many vehicles does ATProjects own and what types?

How are these maintained?

What does it cost to operate and maintain the vehicles? – per distance travelled.

C.2 Semi-structured interview with Community Home Based Care Programme Managers

Round Loo Production

How do you produce the Round Loos?

How many moulds do you have?

Where do you obtain raw materials?

Who produces the Round Loos?

Were these people provided with any training?

Where do you store the Round Loos?

Do you face any difficulties in producing the Round Loo?

Sales and promotion

How do people find out that they can buy a Round Loo from here?

Where do your customers come from? How far away is this?

How do your customers transport the Round Loo back home?

Price and costs

What is the price of the Round Loo? Has the price ever changed?

What do your customers think of the price? Would they be able to pay more?

Do you have any provisions for customers who cannot afford this price?

How much does it cost you to produce a Round Loo?

Do you earn a profit? What happens to the profit?

Record keeping

When did you start selling Round Loos?

Do you keep a record of sales? (view any record books)

What type of information do you record?

What type of information do you provide to ATProjects?

How many Round Loos do you sell each month? Do you notice any changes from month to month/season to season?

Other

What motivates you to sell Round Loos?

What sort of support do you receive from ATPProjects for the Round Loo programme?

C.3 Interview and observation at households using Round Loos

Interview with householder

Round Loo number

How many people use the Round Loo?

What do they like about the Round Loo?

What do they dislike about the Round Loo?

What would the household change about the Round Loo?

What is the superstructure like?

What does the household plan to do when the pit fills up?

Observations

Does the Round Loo appear to be used?

Is the Round Loo installed properly (e.g. is the slab installed the right way round?; is there a vent pipe fitted?)

Have any modifications been made to the Round Loo?