



**Water and
Sanitation
Program**

An International
partnership to help
the poor gain sustained
access to improved
water supply and
sanitation services

Learning What Works for Sanitation

Revisiting Sanitation Successes in Cambodia



**Water and Sanitation Program
East Asia and the Pacific
(WSP-EAP)**

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Photo - Bruce Cross

Context for the Study

Why does sanitation progress lag?

During the past two decades, the water portion of the water and sanitation sector has made substantial gains. Heavy investment since the 1980s has brought clean water supply to millions in East Asia and around the world, but public health gains have been far lower than anticipated because progress on the sanitation front has lagged.

East Asian governments have tried to incorporate lessons from the limited impact of sanitation interventions in other parts of the globe in forming their own national strategies and policies for the sub-sector in the 21st century. But avoiding past mistakes is not enough. Sanitation improvements are household and community issues, and, thus require recognition of specific situational social and cultural factors. The key to public health gains requires investigating not just failures elsewhere but *what makes sanitation interventions succeed, in country-and culture-*

specific settings. Unfortunately, there is very limited knowledge of successful sanitation interventions available to policy makers. This study presents the experiences of communities that have experienced relatively successful interventions in Cambodia - both during the period of the assistance program and in the years since. From the experiences of these villages in Cambodia, policy makers can draw insights about what works and why, and use that knowledge to create strategies to bridge the gap between national policy and local practice.

Who has the answers?

If policies are to make an impact at the community level, it makes sense to conduct research at the community level. Participatory assessment studies such as this one bring into the policy development process the voices of an excluded principal stakeholder group - the intended users of services, the poor men and women from rural

communities in different parts of the country. Through such studies, their voices can reach national debates, raise questions about existing policies, and suggest alternatives that so-called experts may not otherwise consider.

Policy development needs to follow this participatory model at all levels, utilizing the knowledge and talent of stakeholders, rather than relying on a few top national bureaucrats and international consultants. This study, executed and analyzed by a team of Cambodian stakeholders and assisted technically by the Water and Sanitation Program East Asia and the Pacific (WSP-EAP), is a tool designed to promote stakeholder participation. Similar studies have been carried out with country teams and communities in Indonesia and Vietnam. The findings of these studies are discussed and debated at national stakeholder workshops where conclusions and recommendations for policies and strategies emerge

from government personnel, NGOs, donor agencies and private sector agencies engaged in the sector.

WSP-EAP is privileged to assist the process of sector policy development, improvement and implementation in Cambodia, Laos and Indonesia, Philippines and Vietnam. The values guiding this work are: optimal stakeholder participation; informed choice by all concerned; national leadership and ownership of the process and learning generated; national capacity development; bottom-up and horizontal knowledge sharing.

For ultimate impact on the country's people, *who* learns *what* lessons from what *local situations and exchanges* can be of vastly greater importance than whether the learning generated adds unique new insights to the global store of sector knowledge. This report documents the learning gained by sector stakeholders in Cambodia.

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WSP-EAP

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Photo : Nilanjana Mukherjee

Introduction - A Quest for Understanding

The Cambodian countryside has been ravaged by civil war resulting in destroyed infrastructure, impassable roads, broken bridges and an economy that is struggling to recover. The Khmer Rouge displaced many villagers from their communities in the 1970s. Then again thousands fled to camps on the Thai-Cambodian border when the Khmer Rouge collapsed in 1979. In the 1980s people remaining in Cambodia struggled to survive, scraping the soil for food and hand digging wells for water. In 1993 people began to return from the border camps, settling back into their original and often destroyed villages or resettled into new habitations, often in areas where the land was arid and vegetation sparse. Political instability and violence was still rife. It was not until after 1997 that the communities could settle down to a more peaceful existence and start investing in their land and homes.

Hygiene and sanitation activities have not yet received much attention in Cambodia. 91 per cent of the rural population today does not have access to a household latrine.¹ The rural population has traditionally used local rice fields, banana groves and water sources for

defecation. Funding for Sanitation and Hygiene promotion and activities has been limited, and has not in the past been a priority in budget allocation. Cambodian development activities supported by international donors have focused on other areas such as public infrastructure including water supply, agriculture and small co-operatives such as rice and buffalo banks.

Since January 1999 the Ministry of Rural Development (MRD) has been developing a “Rural Water Supply and Sanitation (RWSS) Policy Framework and Strategy” by means of the Planning and Capacity Building Project (PCBP). One of the aims of this strategy is for 32 per cent of rural families to have access to family latrines and practice good hygiene behaviors by the year 2011.

From a baseline coverage rate of 9 per cent and no clear behavioral baselines available in 2000, ways of reaching such a strategy goal are far from clearly visible. Much learning remains to be done and assimilated about what works in the Cambodian rural context, what does not and why, from small successes available for study, since large-scale sanitation programs do not exist. It was

¹ General Population Census of Cambodia 1998, National Institute of Statistics, Ministry of Planning, Phnom Penh, Cambodia. July 1999.

therefore considered worthwhile to consult rural communities in Cambodia which had experienced sanitation interventions and where these interventions had been relatively more successful than average. The rationale was that such communities could provide clues as to what strategies may be most successful in promoting sanitation and hygiene in Cambodia.

The Cambodian Sanitation Study was part of a three-

country study carried out by WSP-EAP with country partners in Cambodia, Indonesia and Vietnam. The studies are integral to sector policy and strategy development initiatives ongoing in the three countries which are led by country governments, technically assisted by WSP-EAP and involve all major stakeholders i.e. various government ministries, NGOs, donor partners, the private sector and community organizations.

Figure 1 Access to sanitation services in districts of Cambodia

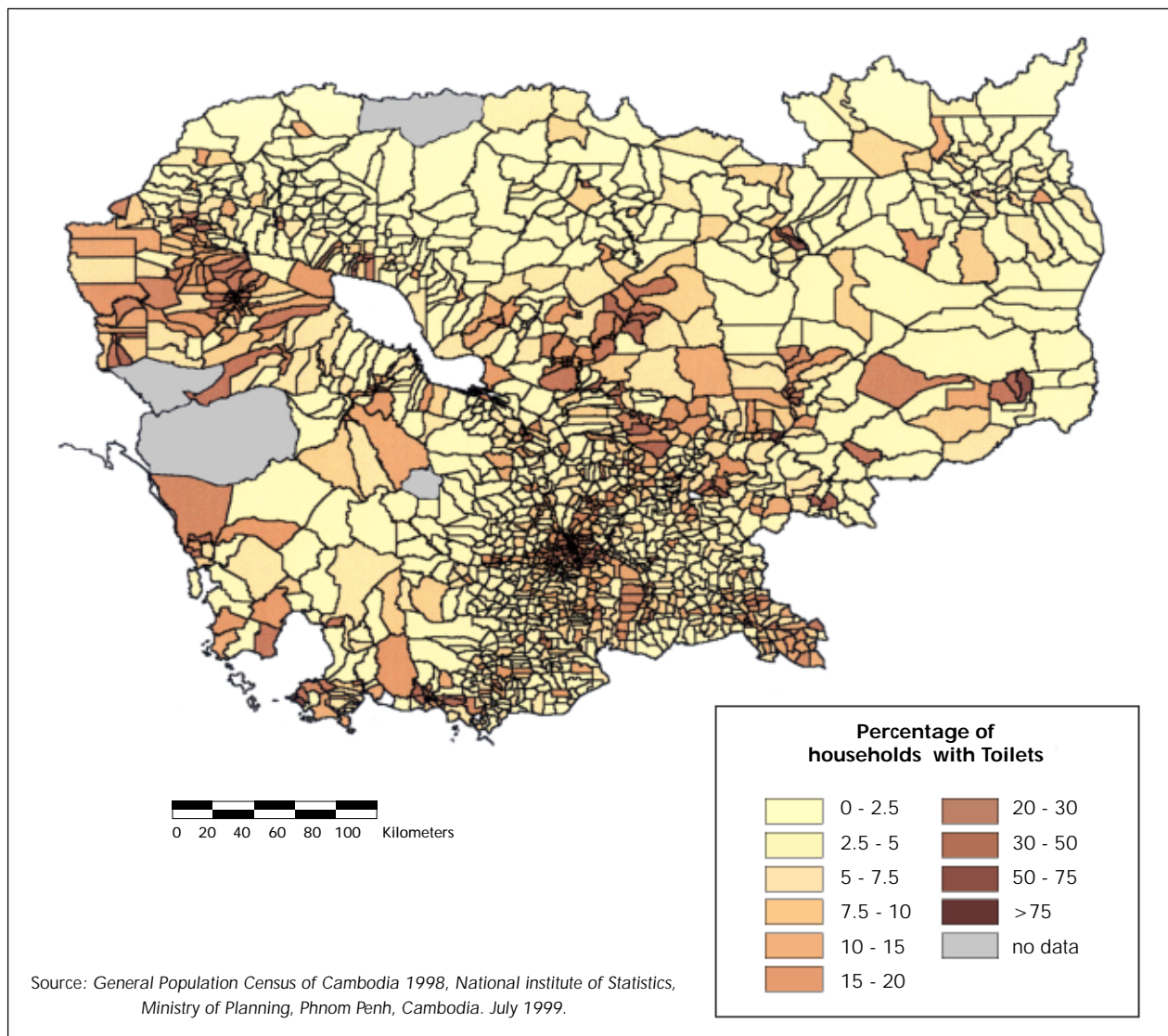
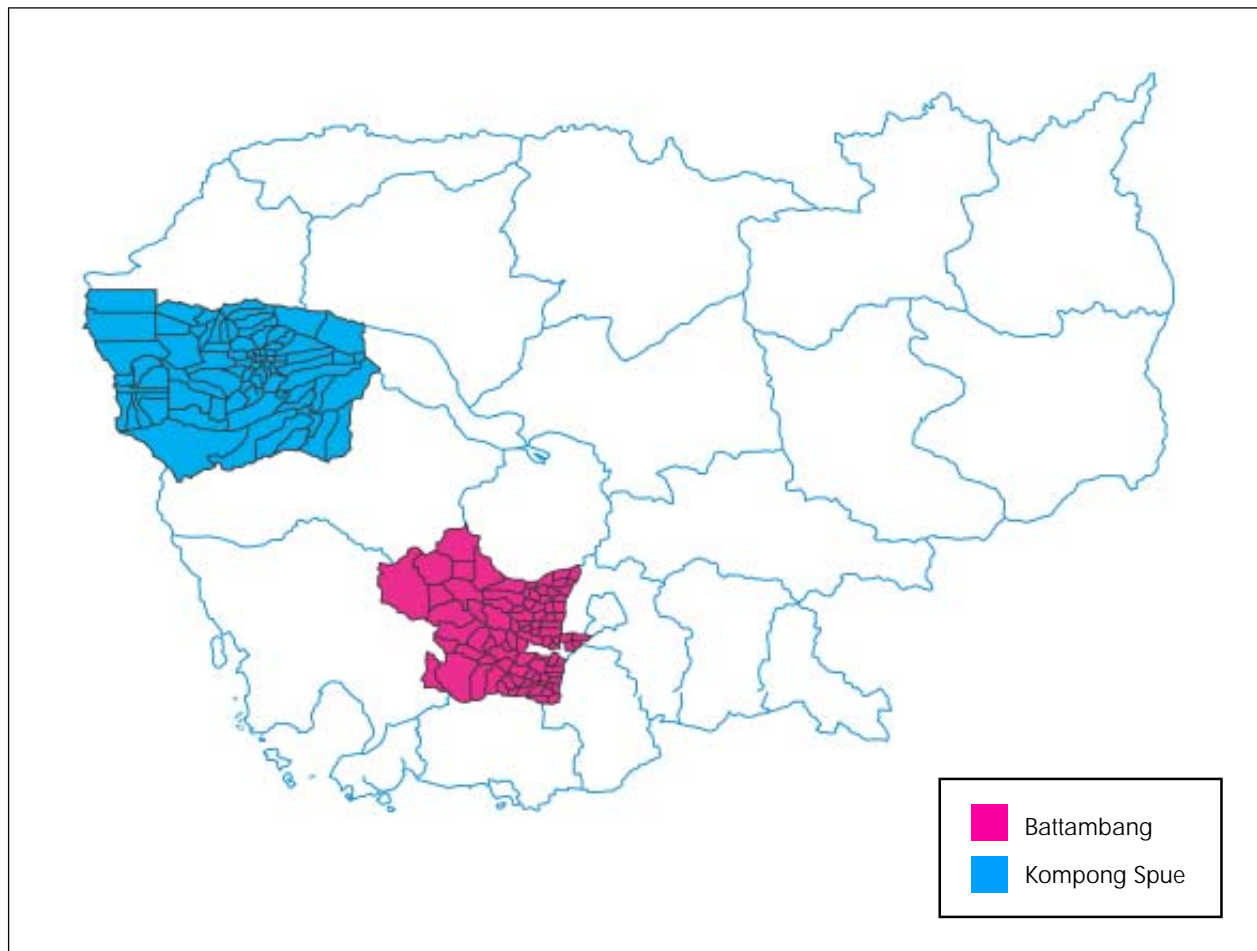


Figure 2 Provinces identified for selecting sample communities for the sanitation study in Cambodia



Sample Selection and Methodology

The first water-seal toilets were constructed in rural Cambodia by World Vision in 1993 and UNICEF in 1996. Since then, population coverage for family toilets has grown, gradually at first, and somewhat faster during the last few years of the millennium. Other agencies such as SEILA/CARERE have added further sanitation interventions. All sanitation projects to date have been offered with subsidies by agencies building the toilets. As access to building materials was difficult due to poor road conditions, agencies' subsidies included bringing materials to the village.

The 1998 Census mapped population access to sanitation facilities and found communities having higher than average coverage concentrated in certain parts of the country (Figure 1). Two such provinces, Battambang and Kompong Spue were selected from geographically diverse locations. Battambang province is located in the northwest and borders on Thailand. Kompong Spue is in the south-central part of the country, 48 kilometers west of Phnom Penh, the capital of Cambodia (Figure 2). In consultation with provincial government departments, a short list of about 20 communities was identified, which had received sanitation assistance from UNICEF, SEILA/CARERE and

World Vision International, and had achieved unusually high sanitation coverage rates (i.e. around 30 per cent of community households with sanitation access as compared to the national average of only 9 per cent). The communities were contacted by the research team to verify the coverage situation, explain the purpose of the study and ascertain the community's interest in participating in the study. A final selection of 10 communities was thus made, 5 in each province, which met the required criteria and where people were willing to participate in assessing their sanitation situation.

Two gender-balanced field teams were formed which included local NGO personnel (SAWAC) with social research experience, personnel from the Ministry of Rural Development and the Provincial Departments of Rural Development. They were trained together by WSP-EAP in the use of a specially designed sequence of PHAST² and MPA³ participatory tools and a discussion guide to consult men's and women's groups in the villages. In each village they also used observation checklists to assess environmental and household hygiene conditions and reviewed secondary data (see Annexure A for tools).

In each community the researchers met with key individuals and groups of men and women at times and places of their convenience, over a period of 3-5 days. The assessment process involved 95 - 244 people in different communities.⁴ Considering that the populations of the communities visited ranged between 50 and 389 households, this meant that the process covered at least 50 per cent or more of the adult populations of the communities. Poverty targeting methods were employed to ensure that the groups met represented both the poor

and the non-poor categories of households. For topics considered sensitive to gender issues, assessment was done in gender-segregated groups.

The decision to explore patterns associated with "success stories" rather than using classic comparative studies of successful and unsuccessful examples was based on three considerations:

- Substantial global research evidence already exists about why sanitation programs fail, but little documented evidence is available about why some sanitation interventions succeed.
- A Cambodia-specific exploration of what works is the aim. What works or has worked in another country may not apply to Cambodia, as sanitation is a behavioral issue embedded in local culture and practices.
- For identifying the range of possibly diverse and not fully predictable factors associated with "successful sanitation" in Cambodia, it is more efficient and cost-effective to study known high coverage cases (in the absence of other indicators for success), instead of studying a sample representing good, bad and average cases in the country.

The Study Communities

The participating communities in the two provinces consisted of between 50 and 389 households, the Battambang villages being somewhat larger on average. The primary livelihood activity in all villages was agriculture. A small minority (3-5 per cent of the households) was engaged in

² *Participatory Hygiene and Sanitation Transformation: Step-by-Step Guide*, WHO, Sida and UNDP-World Bank Water and Sanitation Program, 1998.

³ *Methodology for Participatory Assessments: Linking Sustainability with Demand, Gender and Poverty*, R. Dayal, C. van Wijk, and N. Mukherjee, Water and Sanitation Program and IRC International Water and Sanitation Centre, 2000.

⁴ In each community the researchers held 6-8 group assessment sessions, of which at least 4-6 were gender-desegregated. Groups varied in size between 10-30 people for different assessment activities.

small business, government service or other service employment, and they were mostly in Battambang, which has better developed roads and transportation infrastructure. In Kompong Spue secondary sources of livelihoods were more rural, area-specific and natural resource based, such as making palm sugar, producing charcoal from forests, river and stream fishing and small livestock breeding.

All 10 communities had access to 2-4 common property natural water sources such as lakes, large ponds, streams or man-made irrigation canals. Improved public water supply facilities included between 1-7 hand pump wells in 9 villages and 6 hand-dug wells in the remaining village. Privately owned water supply facilities included a rare private hand pump in 1 village and household dug

wells in 3 other villages out of the 10. Almost all villages had a large number of privately owned ponds.

The Poor within the Communities

Using their own criteria for well being, community groups identified an average 8 per cent of households as “rich/better off/prosperous”, 54 per cent as “poor/very poor” and 38 per cent as “in-between/middle income group/neither poor nor rich”. Within each community these percentages varied considerably, but the largest majority being classified as “poor” was a common feature across the sample. The table on the following page provides an idea of the nature and level of well-being and poverty in villages of the two provinces.

Province	District	Commune	Village	Project
Battambang	Thmor Kol	Ta Moeun	Kok Trop	CASD/UNICEF
	Thmor Kol	Boeng Phring	O-Nhor	CASD/UNICEF SEILA/CARERE
	Thmor Kol	Rong Chrey	Balang Krom	CASD/UNICEF
	Thmor Kol	Rong Chrey	Kok Khpos	CASD/UNICEF
	Sang Ker	Rang Kasey	Rang Krol	SEILA/CARERE
Kompong Spue	O-Dong	Preah Sre	Srei-Chenda	World Vision International
	O-Dong	Preah Sre	Praveuk Pong	World Vision International
	Samrong Tong	Tang Kroch	Samrith	CASD/UNICEF
	Samrong Tong	Tang Kroch	Pech Sang Va	CASD/UNICEF
	Samrong Tong	Tang Kroch	Aundong Sla	CASD/UNICEF

Criteria for categories of well-being, as defined by community groups

Province	Rich/Well-off	In Between/Middle	Poor/Very Poor
Battambang	<ul style="list-style-type: none"> - Rice field >10-30 Ha - Orange trees >50-200 - Have tractor - Drainage pump - Concrete house - >10 pigs - Chickens 30-100 - Rice mill/Harvesting machine - Motor bike/Car/Truck - Color TV - University education 	<ul style="list-style-type: none"> - Rice field 2-10 Ha - Orange trees 10-50 - Zinc roofed house - 2-5 pigs/10-20 chickens - Black and White TV - Secondary school education 	<ul style="list-style-type: none"> - Rice field only 5 rai⁵ - No rice field - Thatch roofed house - Chickens/Ducks 2-5 - Old bicycle - Many children/7-10 children - Physical labor for food - Have loans/In debt - Primary school education
Kompong Spue	<ul style="list-style-type: none"> - Have irrigated rice land 2-5 Ha - NEVER short of food, have rice for selling - Generator/Battery/ Electric pump/Rice mill - Zinc or tile roof house, brick walls - Household latrine - Cows >2 - Chickens/Pigs/Ducks - Bicycle/Motor bike/ Ox Cart - Black and White TV - Good clothes - Few children/all children go to school - Clever person - Gives loans - High education 	<ul style="list-style-type: none"> - Rice field 1 Ha - Tile roof/thatch roof - 1-2 cows, <u>or</u> 1 bull - Old motorcycle/bicycle - Shortage of food for 1-4 months a year - Sometimes borrow money and rice - Children don't go to college - <u>Either</u> ox cart <u>or</u> cow - Black and White TV or Radio 	<ul style="list-style-type: none"> - No rice field — already pawned or sold off - No capital - No cow - Many children - Bad clothes/Second hand clothes - Thatch roof house - Can't buy seeds/feed for animals - Children go to primary school only - Often sick - No agricultural tools - No chicken, pig - Many loans

5 Measure of land, less than a hectare.

1. Who has Access to Sanitation?

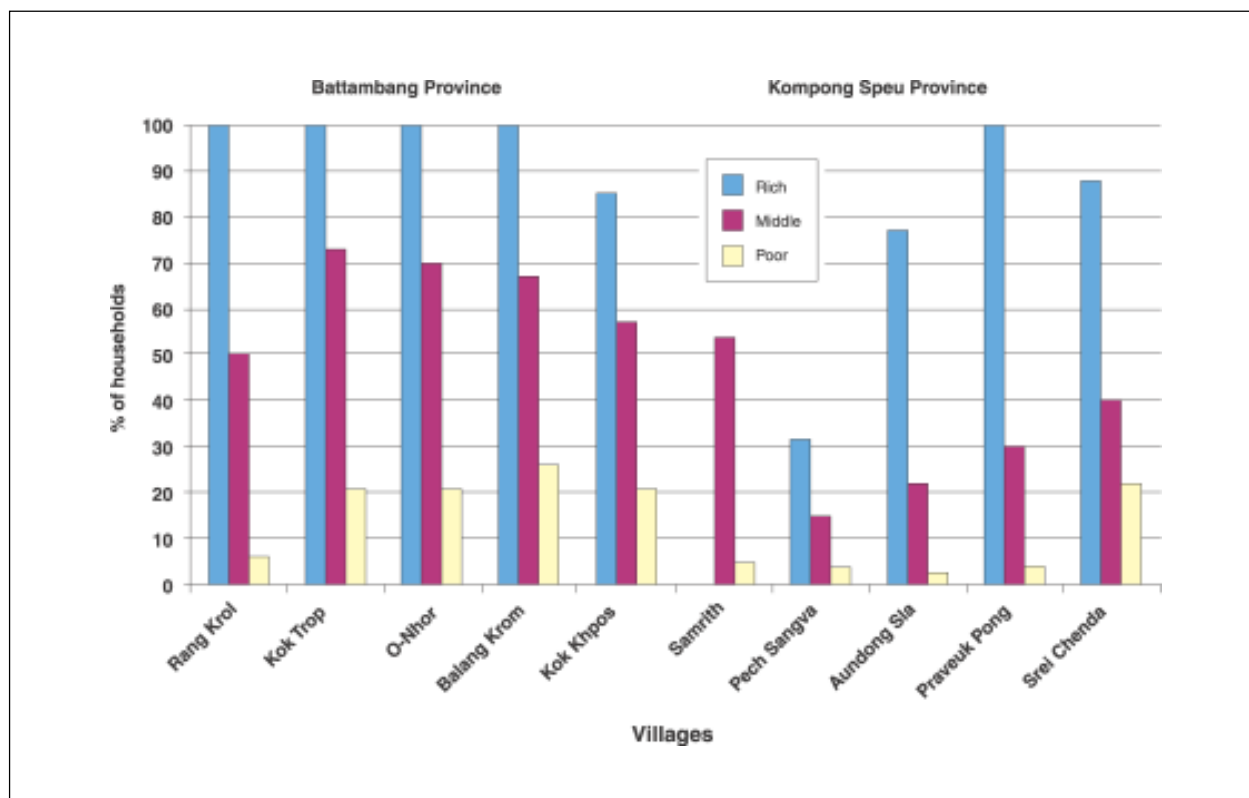


Photo : Bruce Gross

The study team began by requesting the village men and women's groups to classify households into various well-being classes using locally relevant criteria and culturally acceptable terminology. They then helped villagers to draw a map of their community, mark all households as rich, poor, middle etc. and mark the households that have their own sanitary latrines, or household that could access and use one.

In the 10 communities 33 per cent of the households had access to household latrines, as compared to the national average of only 9 per cent. However, as Figure 3 shows, the benefits of sanitation interventions had been disproportionately shared within the communities. The rich/better-off households comprise only 8 per cent of the population but typically 77-100 per cent of them have sanitation access. The middle-income group makes up 38 per cent of the sample households, but 22-73 per cent of them have access. The poor households, on the other hand, comprise 54 per cent of the population, but only 3-26 per cent of them have access to sanitation. The poor in Kompong Spue are far worse off than the poor in Battambang in this respect, with 4 out of 5 Kompong Spue villages showing 5 per cent or less of poor households having access.

Figure 3 Percentage of Rich, Middle-income, and Poor households that own/have access to household latrines in the 10 selected communities



In Battambang province, known for its large rice production, the groups stated that it was because there was “less assistance” and villagers “lack enough money”. In Kompong Speu, both men and women said “no money” was the main constraint, suggesting that the absolute extent of poverty was higher in Kompong Speu. As can be seen in Figure 3, all well-being categories in Battambang villages had higher levels of sanitation access than in Kompong Speu. The poorest in Battambang had access levels similar to those of the middle-income group in Kompong Speu.

In these 10 villages, which represent high coverage cases in the Cambodian context, after 6-7 years of sanitation project intervention only 3-20 per cent of the poor households have gained access to sanitation. It is important to note that the poor constituted well over half

the total population in the sample villages, and probably comprise similar proportions of total households in Cambodian villages countrywide. Together these findings suggest that increasing overall population access to sanitation to 32 per cent (the RWSS Strategy goal) by 2011 will only be possible if special poverty targeting methods and locally relevant enabling strategies are employed in sanitation interventions for the rural poor.

Discussions with the community groups yielded the following ideas about what might make it easier for the poor to acquire sanitation facilities:

- Poor households find it almost impossible to pay their share of the cost in cash, and at one time. In many of the study villages a cash contribution of 30,000 riel⁶

6 3800 Riels = US \$1 at year 2000-01 prices.

had been necessary to get the subsidized latrine construction materials from projects. This was at a time when the daily wages of an agricultural laborer amounted to 3000 riel a day. Project rules need to have more flexibility in the modes and schedules of payment.

- Making it possible for poor households to pay in labor and kind rather than cash, letting them pay in installments, linking payments to times of harvest (when they can get more work and rice prices are lower) are some ways in which the poor can be better empowered to gain sanitation access.
- Two or more poor households often decide to contribute and share ownership of sanitation facilities. Revolving micro-credit schemes for household sanitation could allow several households to jointly take loans, provided they stand guarantee for each other in getting repayments made on time.



Photo : Nilanjana Mukherjee



Photo : Nilanjana Mukherjee

2. What Factors Influenced Demand for Household Latrines?



families started to settle down in the villages and take initiatives to improve their dwellings. The first flush toilets were brought to the villages by World Vision International during 1992 and 1993 and by CASD/UNICEF or SEILA/CARERE in 1998.

It is interesting to compare how sanitation coverage grew in the two provinces. The Kompong Spue villages were served only by sanitation projects. In comparison, the Battambang villages

Villages in Cambodia are not large and population densities in rural areas are low. Availability of land to build household latrines is not a problem. Discussion groups in 3 villages reported that they had first dug their own pit latrines in 1979, without any outside assistance but encouraged by the new government after the Pol Pot regime had fallen. After the national elections and the return of the population from the Thai/Cambodian border camps in 1991-92,

experienced project interventions together with infrastructure development, which linked villages to urban markets. Timeline explorations with men's and women's groups found that it took only 4 years in Battambang villages for coverage to grow from 0-40 per cent, as compared to 8 years in the Kompong Spue villages. Presently, 16 per cent of all latrines in the Battambang villages are self-financed. None in the Kompong Spue villages are.

What catalyzed demand for household latrines?

The groups discussed reasons why they had decided to build household toilets. Two reasons were mentioned in several villages and seem to be more common motivators of demand as shown in Table 1. The most common motivating factor seemed to be prior exposure to and positive experience of using a latrine. These experiences came from visits to an urban area or having lived in a camp on the Thai-Cambodian border where there were latrines. 3 of the men's and 4 of the women's groups out of 10 also said that people in the community were influenced and encouraged to own a household toilet by seeing their neighbors' practice.

However, the desire to own latrines translates into reality only when it is easy to act on the desire. In 4 out of 10 villages people mentioned the ease of getting sanitation materials and construction skills from nearby towns and availability of transport services as the next most important motivating factor.

In 3 out of 10 villages the motivating factor was the lack of forest cover and rice fields getting farther from the village. Both men's and women's groups said that it was getting increasingly difficult to reach the fields or woods to defecate as villages grew bigger or as more land was cleared and women especially wanted the privacy the household toilet allowed. Women's groups in 3 villages also mentioned that latrines were easier and more convenient for their children to use.

In 2 out of 10 villages it was mentioned that having an awareness of hygiene and being already accustomed to pit latrines influenced people's motivation to build the newer flush latrines when they became available from projects or otherwise. 2 villages also identified affordability due to greater overall prosperity in the village as the motivator.

At the same time, in 2 villages out of the 10 people said that there really was no demand for toilets, but they were built because the project provided sanitation materials free of cost. Elsewhere projects had promoted latrines

Table 1 What motivated people to build household latrines?

Major influencing factors according to village groups	Frequency of mention in 10 villages
Previous exposure to sanitation facilities through visits to urban areas, from family members working in the city, from living in camps on the Thai-Cambodian border where there were latrines, seeing/using neighbors' latrines	5
Nearness/easy access to towns for getting sanitation supplies and skills for latrine construction	4
Diminishing forest cover/forests far from villages/rice fields unavailable	3
Awareness of good hygiene, being already accustomed to using pit latrines	2
Well-off village, can afford latrines because of 4 harvests per year	2

with subsidized latrine construction materials, which required cost sharing by user households. In addition, in Battambang villages many latrines were also built through complete self-financing, through private initiative. Water access was crucial because the only project-promoted design option was a water-flush toilet. All sanitation projects had been in villages that had reasonable access to water either from streams, ponds, reservoirs or pump wells.

At any given time a number of influencing factors are likely to be operating, singly or in combination. The results seem to suggest that there was no single, strongly motivating factor for sanitation improvements in all the communities, and that certain situation-specific facilitating conditions tend to interact with existing motivating factors to produce a resultant level of demand. The implication is that generating demand for sanitation and scaling it up will call for careful exploratory research and strategic promotion.

What discouraged people from getting their household toilets?

Discussions with men's and women's groups revealed those users' demands and preferences had nothing to do with the way sanitation projects were implemented in the sample communities.

The villagers did not make decisions about which communities would get sanitation assistance and which household would participate in the sanitation project. 10 out of 20 discussion groups⁷ said that the international project agencies made that decision. In 8 villages people said that the International agency had decided with the local provincial government. In 2 villages the village development committee (VDC) was also consulted.

Beyond the point of project intervention, lack of supply options emerged as the most important factor obstructing the growth of demand for household latrines (see Table 2). When water-seal latrines were introduced by projects, concrete rings and bowls were brought in from long distances and in limited quantities. There was no encouragement for local production of sanitation supplies or for local business enterprise to supply materials. People who did not receive project-supplied materials could not readily access them from anywhere else. In Kompong Spue particularly, bad roads and lack of transport facilities made it difficult to buy materials and skills from outside the community.

In general, people felt that sanitation projects did not communicate adequately with the villagers about project benefits and rules. When initial project-supplied latrines got built, more interested households requested latrine packages but projects had pre-allocated quotas for supply in each village and did not adjust the supply to emerging demand. In 6 discussion groups out of 20, men and women said that they had either not been informed of meetings to discuss family sanitation or that their request for a household toilet was put in too late and was therefore not considered.

In 3 villages water scarcity or water sources being far from homes was mentioned as an inhibiting factor. Since all projects were promoting only the water-flushed latrine design, this discouraged households who would have to haul the water for flushing from distant sources everyday.

In 2 villages, which were flood-prone, people mentioned unpleasant experiences with initially built latrines being flooded or pits collapsing, which put many people off household latrines. People felt that projects should have provided technical advice about ways to prevent flooding

⁷ These were 10 groups of women and 10 of men, formed out of the gatherings of villagers at the discussions over the community map, which they had drawn at a public meeting place in each village.

of latrines, e.g. by building raised platforms for latrine pans and better protected pits that withstand flooding. However, such measures also increased costs of construction and no advice was available from projects on ways to cut costs safely. There was no technical advice available from projects about special problem areas.

The cash cost of getting sanitation facilities was mentioned as an important factor even when there were external subsidies, but only in 2 villages. In 1999 32.4 per cent of the Cambodian rural population were below a poverty line of 54,050 riel (approximately US\$14) per head per month.⁸ For them the expected contribution of \$9-12 per family for a latrine was considered too large an amount. The rate of cash contribution however had not been uniform across different projects. A few villages had even got latrines for free.

Implications arising out of the above findings are that:

- Demand for sanitation grows when people can see and experience its benefits before investing in it. Initial

negative experiences with sanitation can kill demand. Projects need to invest in ensuring that people’s first experiences are positive. To do this, local motivating factors, which are diverse and not always predictable, need to be considered and catered to. Providing sanitation choices and relevant information about choices can be one way of ensuring better matches between what people want and what projects can offer.

- By the time demand emerges, supply options need to be in place to respond to demand. Sanitation projects have to help develop self-sustaining local alternatives for supply of sanitation materials and skills, instead of being service provision monopolies.
- Single-option sanitation projects tend not to benefit the poor within communities. Affordable options for sanitation facilities and modes of payment need to be offered to the poor, in order to generate the extent of community demand needed for achieving national RWSS Strategy goals.

Table 2 What hindered demand for household latrines?

Major inhibiting factors, according to village groups	Frequency of mention in 10 villages
Difficult to access sanitation supplies	7
Agency had a limited number of toilets to build/project does not supply as many latrines as requested/no option except from projects	6
Water is scarce/water source too far from household	3
People can not pay 30,000-50,000 riel in cash	2
Lack of technical skills in village for construction, especially in flood-prone areas	2

⁸ The Second Five Year Socioeconomic Development Plan, 20001-2005, Part 1, Ministry of Planning, Cambodia.

3. Was There a Change in Sanitation Behavior?



Behavior change does not happen until people realize or experience the benefits resulting from the change. When behavior change is dependent on external factors such as supplies of materials and skills for sanitation facilities, the process takes still longer. Behavior can be said to have changed only when newer behavior patterns replace older ones consistently and are sustained thereafter. The present study used pocket voting⁹ to identify defecation sites used by different age-sex groups in the village. In view of multiple possibilities for preferred sites, pocket voting was done twice in each community, once to find out the most frequently/regularly used site and a second time to identify alternative sites that people continue to use occasionally.

When community groups analyzed their defecation behavior before and after sanitation project interventions, the result showed a significant reduction in people's regular use of rice fields, orange and banana groves and water sources for defecation purposes, along with a large increase in the use of flush latrines (Figure 4). As compared to men, women seemed to have made a

⁹ Participatory analysis tool from the SARAR methodology, adapted by the PHAST methodology for use in sanitation, supplemented with procedures for quantification of results from the MPA.

greater shift away from open defecation after getting household latrines. They had stopped using water bodies for defecation altogether. Older women seemed to have made the greatest shift towards using latrines after the project. Babies' feces were however still being thrown in banana groves instead of into latrines. And, despite the overall change towards use of latrines, a large proportion of people continued to use the rice fields and fruit groves for "occasional" defecation, signaling the fact there had not been a real change of behavior (Figure 5).

Hence, people use whatever site is most convenient, regardless of the fact that they have household latrines. If they need to defecate when they are in rice fields, which tend to be far from homes, it is impractical to try to return home for defecation. Also, there is a prevailing belief that feces would add to the fertility of the crop fields. Orange and banana groves likewise provide vegetation cover and privacy outdoors when one needs to defecate. Water bodies are convenient for cleaning purposes after defecation. Banana groves behind the house may be convenient in case the latrine is out of stored water for flushing and one is not willing to carry more water in at that time.

This suggests that the construction of household latrines in large numbers and high coverage levels are no reasons for complacency, if the goal is public health improvement. Places where people earn their livelihoods in the rural environment are rarely equipped with sanitation facilities. Continued use of places other than latrines for defecation is highly likely to continue even after people acquire household toilets, unless they make conscious decisions to change their sanitation behavior, requiring not just investing in construction but also adjustments to their lifestyles and time-use patterns.

Sanitation programs thus need to focus on assessing sanitation behavior at the start and thereafter periodically, with tools that go beyond superficial yes/no answers. Programs need to understand people's rationale underlying their behavior, in order to identify what will trigger consistent behavior change, and use that information in sanitation promotion strategies.

Functionality, Maintenance and Use of Latrines

From the community map prepared in each village, approximately 10 household latrines were selected for observation, taking care to distribute them evenly across the community and representing latrines in poor, middle-income and rich households. A total of 95 latrines were observed in the 10 communities, using an observation checklist during transect walks through the villages.¹⁰

Functionality, maintenance and use scores were higher for communities in Battambang as compared to Kompong Spue, as shown in Table 5. All family latrines observed in the Battambang province communities were found to be functional, in regular use and most were maintained in a hygienic condition. In contrast, one-third of the observed latrines in the Kompong Spue villages were broken up and no longer in use. These were mainly in 2 villages where latrines had been provided by the earliest sanitation projects, in 1992-93. These 2 communities present a classic illustration of the pitfalls of not using a demand-responsive approach for sanitation. The 2 communities had poor access to water sources (public dug wells far from most homes, the ponds dry up in summer), and it was only in these two villages that projects had provided many latrines completely free of cost to villagers. Moreover, while the projects provided

¹⁰ Each latrine observed was scored between 0-10 using a 10-item dichotomous checklist. It included 3 items on functionality, 3 items on design and construction quality, 4 items on hygienic quality of use and maintenance. Scores from all latrines observed were averaged and converted to a percentage, taking the sum of maximum possible scores (10 per latrine) as 100 per cent.

Figure 4 Percentage of total responses about defecation sites “Always” used by different age-sex groups in 10 Cambodian villages

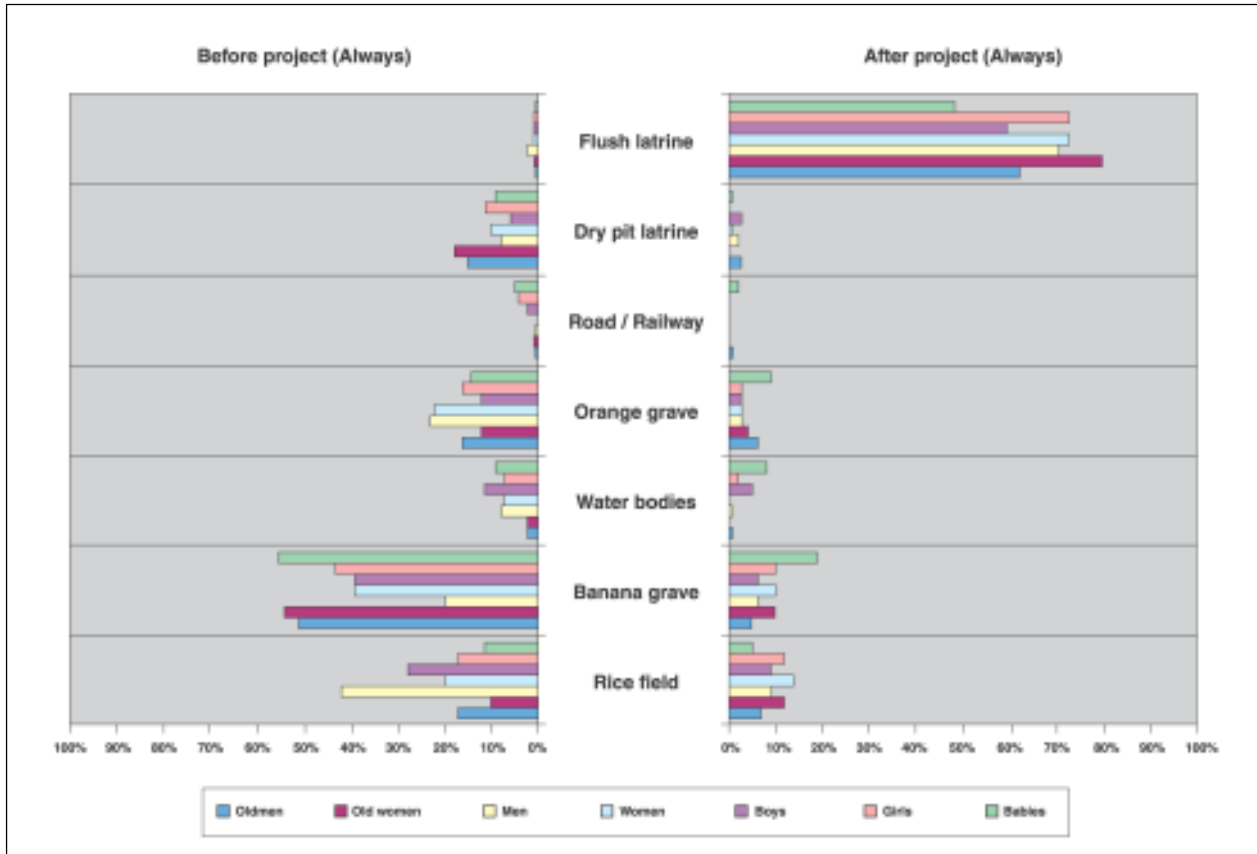
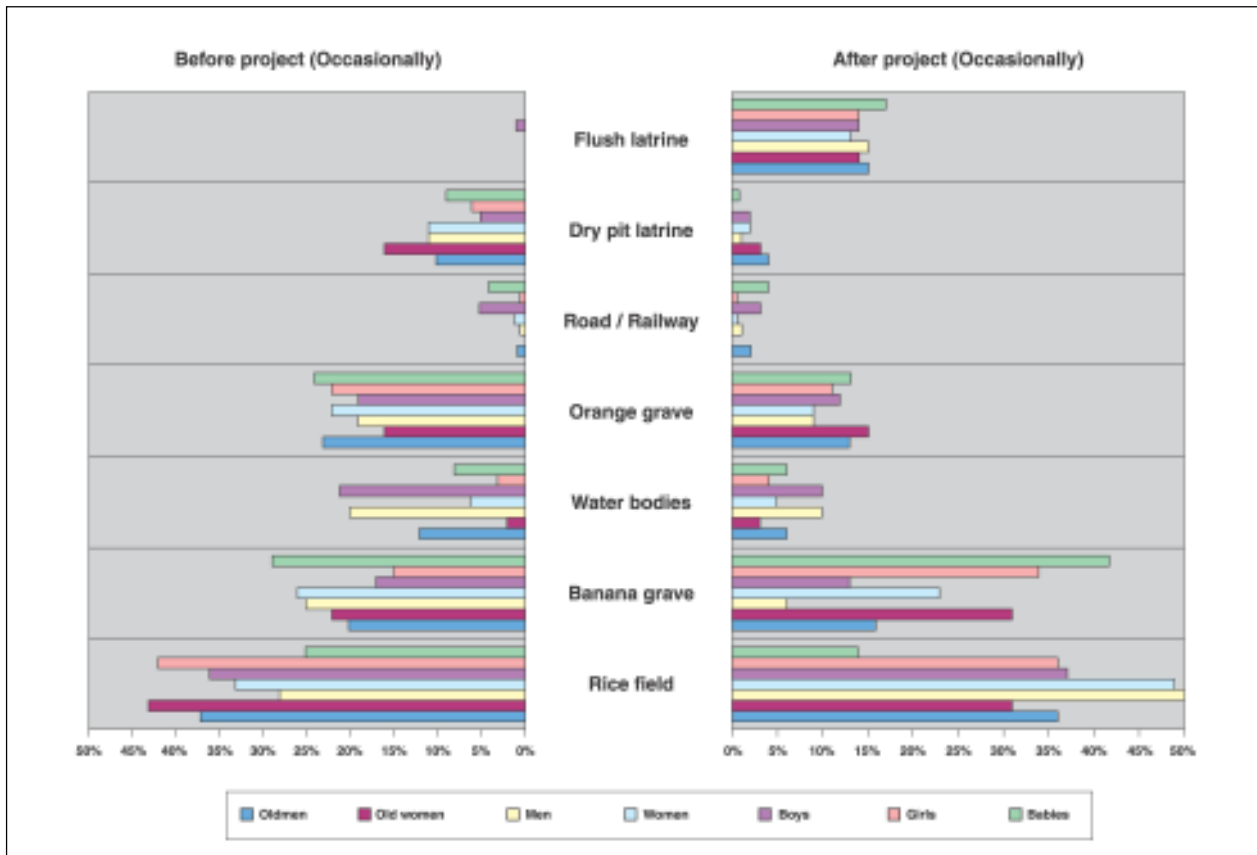


Figure 5 Percentage of total responses about defecation sites “Occasionally” used by different age-sex groups in 10 Cambodian villages



all toilet construction materials, they had no hygiene education components, thus indicating that there was little communication between the villagers and project personnel about the benefits, operation and maintenance requirements of pour-flush latrines that were being provided.

Only in 4 out of the 10 villages (2 in each province), feces were not visible on the floors or walls of all latrines observed. In the rest of the villages up to 30 per cent of the latrines showed some fecal pollution. In Battambang communities almost all latrines observed had walls, screens and shutters to provide adequate privacy, which is often an indication of regular use. In Kompong Spue only 61 per cent of latrines observed provided enough privacy. Water for cleaning purposes was available in

or just outside 30 per cent of the observed latrines in the Battambang communities, and 15 per cent of those observed in Kompong Spue.

Sanitation projects came more recently (late 1990s) to the Battambang communities. They provided subsidized family toilet construction materials and included technical instruction and hygiene education. In addition, better roads and transport facility to nearby towns allowed families to self-finance their latrines by buying necessary technical skills and sanitation materials of their choice from non-project sources. Latrines that people can choose from several possible options, after making a conscious decision to invest their own resources, are evidently better valued and maintained by them.

Table 5 Average functionality, use and maintenance scores for latrines in 10 communities

Community	# of latrines observed	Latrines functioning	Latrines in use*	Total score	Average score for community out of max. 10
Battambang Province					
Rang Krol	10	10	10	75	7.5
Kok Trop	10	10	10	94	9.4
O-Nhor	10	10	10	92	9.2
Balang Krom	10	10	10	73	7.3
Kok Khpos	10	10	10	83	8.3
Kompong Spue Province					
Samrith	10	10	10	88	8.8
Pech Sangva	9	6	6	67	7.4
Aundong Sla	9	9	7	58	6.4
Praveuk Pong	7	7	5	57	8.1
Srei Chenda	10	8	5	58	5.8
Battambang communities average use and maintenance score: 417/500 = 83%					
Kompong Spue communities average use and maintenance score: 328/450 = 73%					

* Latrines can be functional (capable of being used) without being in regular use, i.e. when water for flushing is not available near homes because the household pond has dried up. Households may devise ways of obstructing access to the latrine seasonally in such cases.

4. What Benefits Matter Most to Users?



Groups of women and men from latrine-owning households were met separately in the 10 communities for discussions regarding their perceptions of the benefits experienced from having household latrines. MPA tools were used to help them assess the extent to which they were experiencing specific benefits, the value of these benefits to them as compared to the cost of getting a latrine, and their user satisfaction.

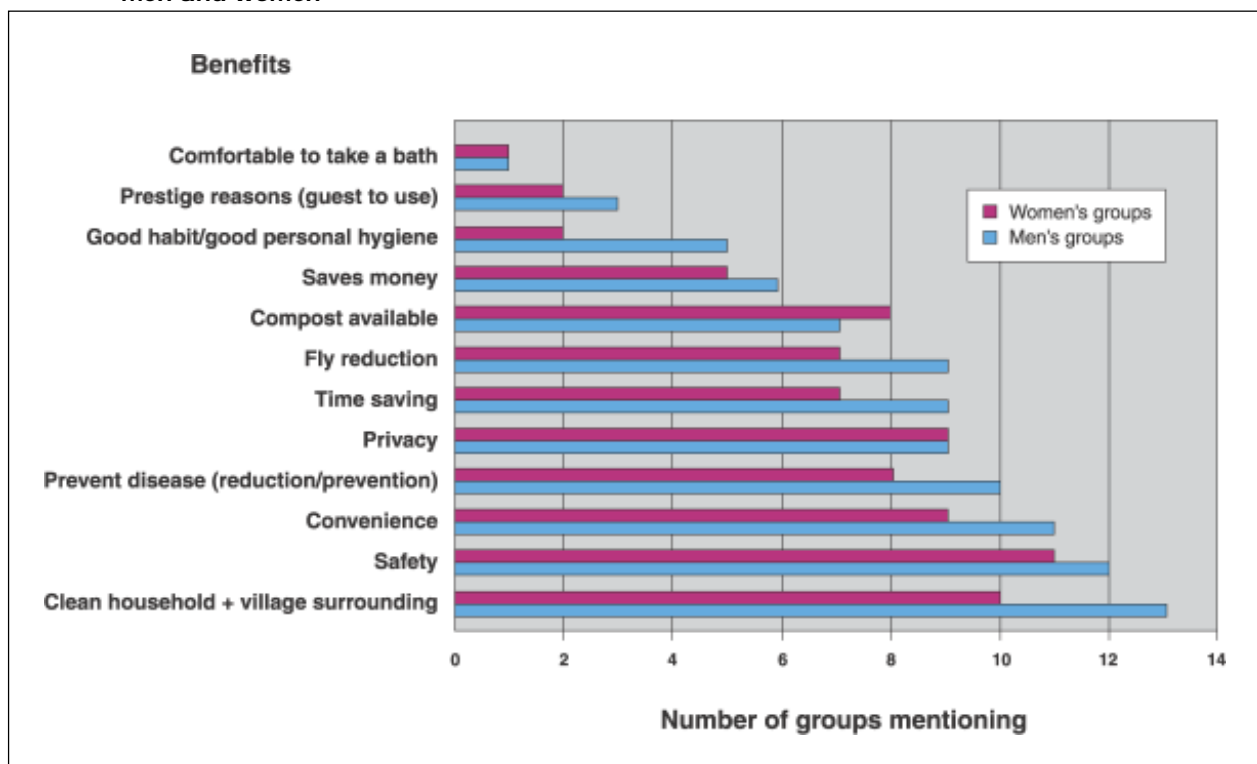
Having a clean and smell-free house and village environment was the leading benefit of having household latrines, according to both men and women groups. The next most important benefit was “safety”, followed by “convenience” and “disease prevention”. “Privacy” was next, and equally felt by both men and women. This was mentioned especially by participants in more populous villages where houses were close together and it was getting more difficult to find secluded places to defecate. “Time saving” and “reduction of flies” were almost as important. Economic benefits were mentioned in more than half the groups, implying the availability of manure and savings from fewer working days lost to diarrheal diseases. Benefits such as prestige and comfort were mentioned by very few groups (Figure 6).

Women in most groups voiced their main benefit as privacy and safety that their household toilets afforded them. The two benefits are related. The need for privacy requires seclusion, which on the other hand invites risks to personal security. For reasons of privacy, outdoor defecation is usually practiced under cover of darkness, at pre-dawn or at night, and darkness spells danger. A household latrine provides privacy without the danger. Both sexes valued the safety from the culturally accepted dark spirits of the night, and snake and insect bites, particularly during the rainy season. For women, going out alone at night in rural Cambodia poses risks of criminal attack from bandits and robbers who still roam the countryside. Also, forests and fields in many parts of the country are still unsafe due to mines, which continue to kill and maim farmers as they clear and prepare the land. Safety from these risks are important to all families yet it is the wealthy families who can better afford to

protect themselves against them by acquiring household latrines, among other things.

Since both women and men in rural Cambodian communities seem to highly value benefits from latrines such as safety, cleanliness of homes and surroundings, convenience and privacy in addition to disease reduction, rural sanitation programs are likely to be a lot more effective if they use demand-creating and promotional strategies based on a combination of these motivations. As seen in many other countries, health benefits are included among the benefits perceived by users, but they are not necessarily the ones most readily perceived, nor the ones ranked highest in importance. A promotional strategy based on a researched combination of local motivating factors is likely to be more successful in creating demand for sanitation facilities, which would allow sanitation services

Figure 6 Frequency of mention of perceived benefits of a household latrine in 20 discussion groups of men and women



to be provided exclusively through demand-responsive approaches, thus leading to better sustained services for all.

Cost-Benefit Perceptions

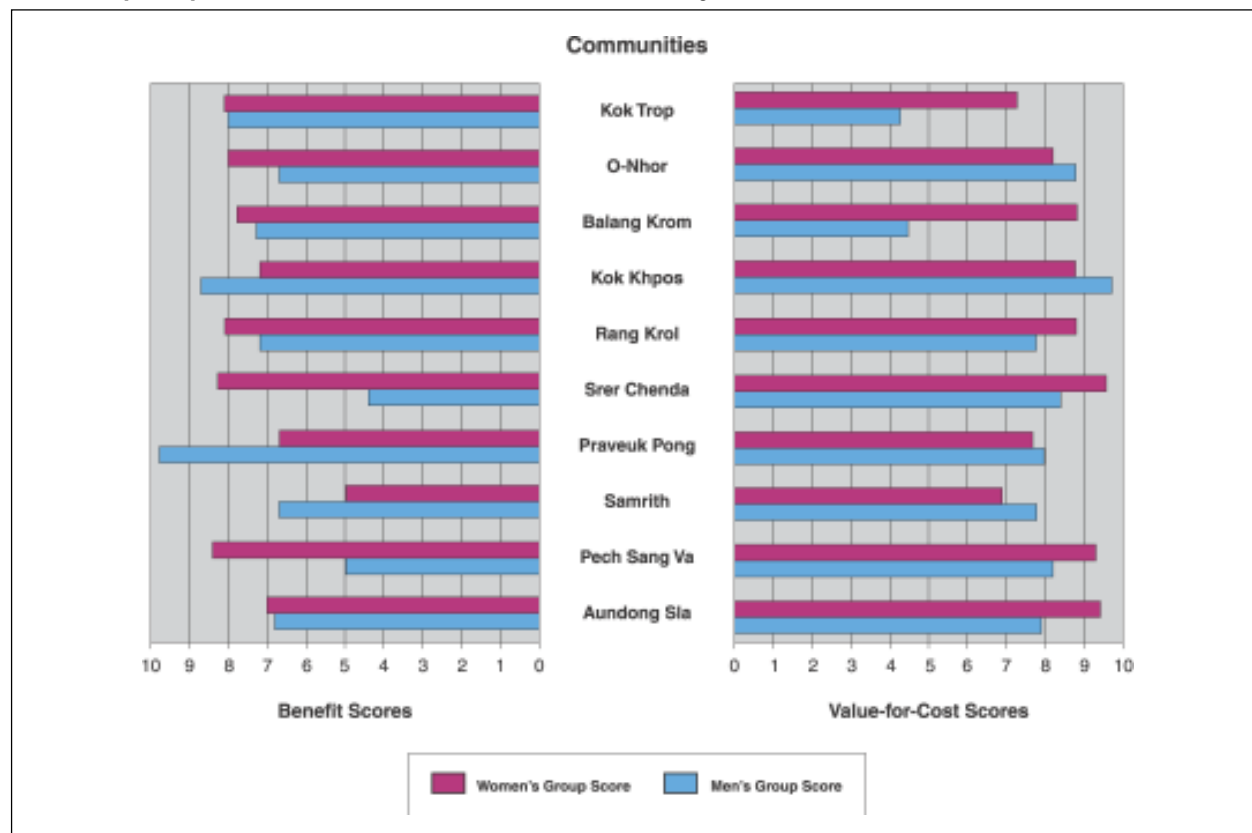
Men's and women's groups used a MPA tool to quantify the extent to which they felt their expectations of benefits from their latrines were being met, and how worthwhile they considered their latrines to be, considering the cost incurred in getting and using them.

As Figure 7 shows, average benefit scores given by men and women were comparable in 7 out of 10 communities. However, women's value-for-cost scores were higher than men's scores in 6 out of 10 villages,

and women's average value-for-cost score from 10 villages was also 15 per cent higher than men's average value-for-cost score. This meant that while both sexes experienced similar benefits, women valued their benefits somewhat more than the men did. Women felt that the costs incurred in getting household latrines had been more worthwhile, as compared to men. When discussing cost, 6 men's groups out of 10 and 5 women's groups out of 10 felt they had saved money by building a household toilet, that is, they felt the benefits outweighed the costs of construction.

According to 11 out of 20 discussion groups, the husband and wife jointly decided to acquire a household toilet. Women in the family initiated the decision according to 6 other groups and 3 groups said that the whole family

Figure 7 Men's and Women's average scores for Benefit Expectations Met and Value-for-Cost perceptions for household latrines in the 10 study communities



decided together to get a household toilet. This reflects how the husband and wife, both of whom work the farm and bring in any income, discuss use of their financial resources. Any sanitation promotion needs to target both men and women equally well if it expects to achieve successful outcomes.

User Satisfaction

User satisfaction with household toilets was measured using a visual rating scale¹¹ with groups of women and men separately. Generally, women were marginally more satisfied than men with their pour-flush household latrines, the only kind constructed and assessed. 7 out of 10 women's groups gave a score of full satisfaction (100



per cent) or something very close (95 per cent). Half the men's groups were fully satisfied. Results from all communities are shown in Figure 8.

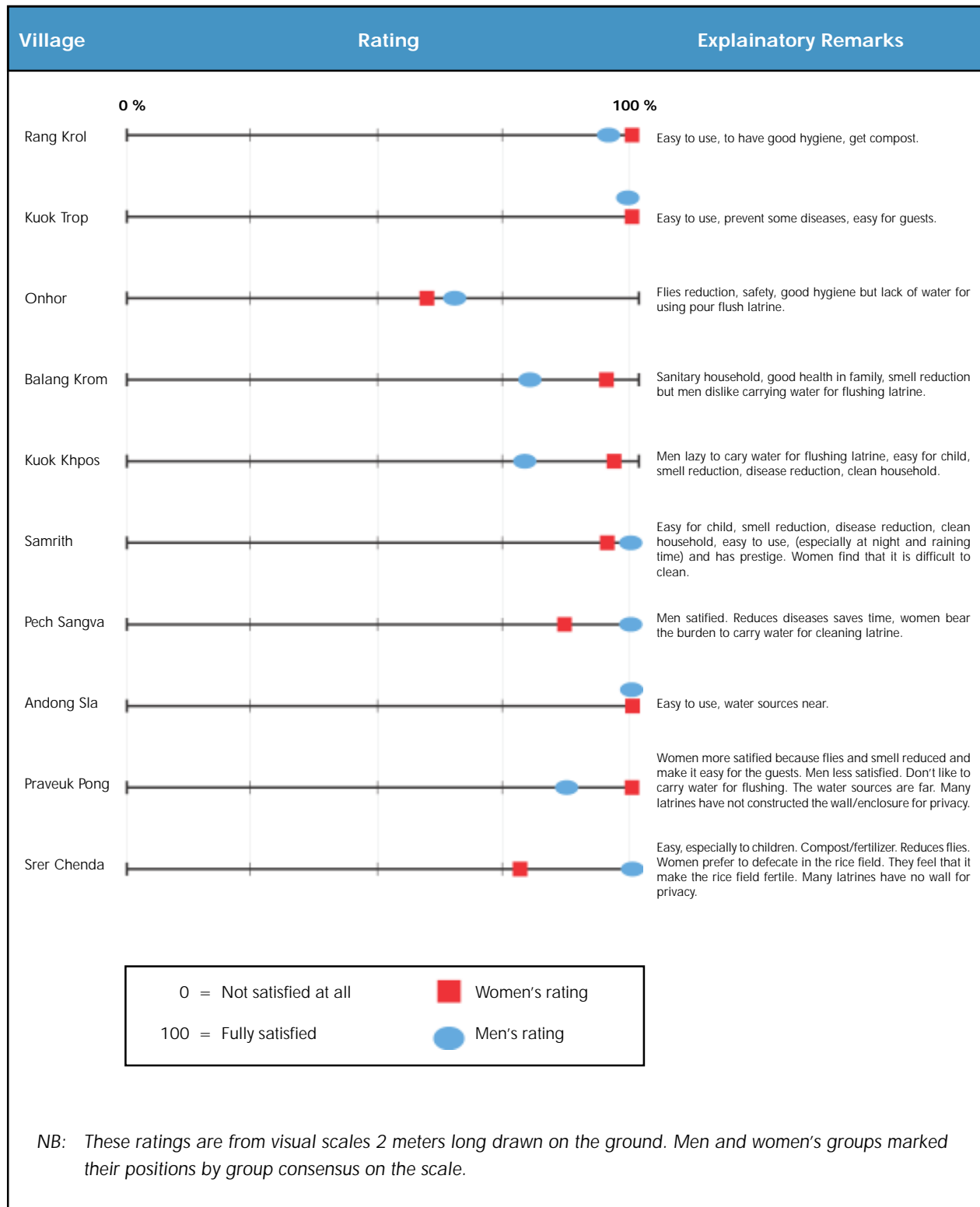
Men do not like to carry water to their toilets. Their principal reason for lower satisfaction scores was a lack of water close to the toilets. Men found carrying water to latrines to be more of a chore than women did. In three villages where the women were fully satisfied, the men were only 55-80 per cent satisfied because they had to carry water to the toilets. In Praveuk Prong men are fully satisfied, but women are not, because women have to bear the burden of carrying all the water needed for flushing the toilets and cleaning it periodically, while men do not share the tasks. Thus ease of cleaning is another factor that adds to women's satisfaction.

Women's satisfaction had more to do with privacy. In Srei Chenda village, Kompong Spue, women were only 75 per cent satisfied, because the walls of the toilet were never finished and thus provide less than total privacy. Men of this village gave 100 per cent user satisfaction score, which indicates the greater importance of total privacy to women. Other reasons included ease of use, especially for children, good hygiene and fly reduction.

Sustained use and maintenance of household sanitation facilities are functions of continued satisfaction of their users. As seen in the study, men and women can have different reasons to be satisfied or dissatisfied. Sanitation programs that consult men and women about their expectations and offer and discuss service options with them are likely to be more successful because they allow the most satisfying and sustainable solutions to be identified and implemented.

¹¹ The two ends of the scale represented "Full Satisfaction" (100 per cent) and "No Satisfaction" (0 per cent) respectively. The groups indicated their satisfaction by marking a point anywhere between the two ends, or the ends themselves.

Figure 8 Satisfaction with sanitary latrines, as perceived by men and women user groups



5. Was Sanitation Coverage Linked to Hygiene Awareness and Practices?



A participatory flow diagramming exercise (PHAST) was used to explore men and women's awareness of how fecal-oral transmission happens and possible hygiene practices that can block transmission routes and prevent diseases borne by food, water and vectors.

Results from the 10 communities showed that women were somewhat more aware of good hygiene practices. There was universal awareness of a few key hygiene practices among men and women, which is a good foundation to build upon. However, there were also

major gaps in awareness of both men and women, leading to inconsistent hygiene behaviors. It is always risky to assume that high awareness levels correlate with extent of hygiene practice. It is possible to spread awareness of certain standard hygiene education messages without making any difference to actual practice, some examples of which were seen in this study. Table 5 presents an analysis of the 20 flow diagrams prepared by men and women, which reveals the following range of awareness:

Very high awareness (mentioned by 80-100 per cent of groups) of:

- Need to boil drinking water (all groups).
- Need to keep food covered and protected from flies (all groups).
- Sanitary toilet use as a way to prevent disease transmission (all groups).
- The 3 major routes of transmission of fecal contamination being food, water and hands.

Moderate awareness (mentioned by 45 per cent of groups) of:

- Need to wash hands before feeding a child.
- Need to wash hands after cleaning babies' feces.

Low awareness (mentioned by 30-35 per cent of groups) of:

- Need to wash hands after working in the fields.
- Need to wash hands before eating.
- Need to wash hands with soap and water after defecating.

Very low awareness (only 15 per cent of groups, only women) of:

- Need to dispose of babies' feces in the latrine.

All men and women were aware that the use of a sanitary toilet can block disease transmission, that boiling water makes it safer to drink and that it is important to keep food covered so that flies cannot access it, thereby acknowledging that flies spread diseases. On further examination, however, several discrepancies in hygiene awareness become evident.

Even though all groups identified the use of sanitary latrines as a means to block disease transmission, only 3 women's groups and none of the men's groups identified the need to dispose of babies' feces into latrines. When probed, the other groups said that the common practice was to scrape infants' feces to the edge of a path or into a bush. Some villagers explained their belief that babies' feces are "harmless" and "safe" (when, in reality they contain higher concentrations of disease-causing microorganisms than adult feces). The results of this misconception are reflected Figures 4 and 5, which show babies' feces still being thrown into corners of yards and banana groves behind homes even when people have household latrines.

Although 16 out of 20 discussion groups identified hands as one of the three principal routes for fecal-oral transmission, for both men and women hand washing was neither a high priority nor a common practice. Less than half the groups considered hand washing with soap and water necessary after defecation. In fact, more than half the groups did not consider washing even with water

important after cleaning up babies' feces or working in the field, and before feeding a child or eating. Both men's and women's groups were either little aware or generally unconvinced that hand washing was an important way to reduce or prevent the transmission of disease, particularly after defecating and cleaning up babies' feces, before eating and feeding the children. No hand washing facilities were observed near household latrines in 80 per cent of cases. Soap or soap substitutes were generally absent even where water was available for hand washing.

Observed Household and Environmental Hygiene

The field team used an environmental and household observation checklist to assess overall hygiene conditions as they undertook transect walks with community members. They discussed what was observed with community members and sought their opinions about why conditions were good or bad.

Households that had latrines usually built them inside their yards, but not attached to or inside the main dwelling unit. This was in keeping with people's preference to have a facility that was close enough to be convenient but not too close in case it smelled bad. The availability of land around homes made it possible. However, there was no hand washing facility near the latrine in 80 per cent of cases. Most households reported cleaning their latrines 2-3 times a week. The rest did not have a regular schedule and cleaned when they considered it necessary. Animal pens were usually adjoining dwelling units or in a corner of the yard.

Garbage was generally disposed of into a hole in the yard for composting, or accumulated for a few days and burnt off. Wastewater from the house was let out into the yard to flow into banana groves or led through small drainage channels to ponds at the back of homes. People

Table 5 Hygiene awareness assessed from contamination route diagrams prepared by men and women in 10 communities

	Awareness of	Identified by Men in	Identified by Women in
1	Using sanitary toilet a way to block disease transmission	10/10 villages	10/10 villages
2	Need to keep food covered	10/10 villages	10/10 villages
3	Need to boil drinking water	10/10 villages	10/10 villages
4	3 major routes of transmission of fecal contamination (food, water hands)	7/10 villages	9/10 villages
5	Need for hand washing after cleaning babies' feces	5/10 villages	4/10 villages
6	Need to hand wash before feeding a child	5/10 villages	4/10 villages
7	Need for hand washing before eating	2/10 villages	5/10 villages
8	Need for hand washing after working in the field	3/10 villages	4/10 villages
9	Need to hand wash with soap and water after defecating	4/10 villages	2/10 villages
10	Need to dispose of babies' feces in the toilet	0/10 villages	3/10 villages

confirmed that these become stagnant pools in the rainy season and breed mosquitoes. Kitchens were not always shuttered, allowing access by domestic animals such as chickens, cats and dogs, which carries substantial risks of contaminating food. The villagers said that cooked food is rarely stored in the kitchen as it is consumed or carried away soon after cooking.

The areas with the greatest contamination with animal dung were along village roads and footpaths, as well as the yards outside dwelling units. Villagers feel that animal feces are not as polluting as human feces, and that people clean their households periodically but care less about cleaning common property such as roads and footpaths clean.

The findings suggest that improving community understanding of the locally operating routes of fecal contamination could be the key to popularizing preventive hygiene practices, crucial among which would be effective hand washing and safe handling of infant excreta. **This implies using hygiene promotion approaches that work with community groups to:** a) identify local practices representing the greatest health hazards; b) identify locally developed strategies to eliminate or replace them with safer practices; and c) build a community movement for promoting the same few key behavior changes, through local groups and institutions.

6. What Factors Influence Behavior Change?

The researchers consulted men's and women's groups about what strategies worked best in changing people's sanitation behaviors in their communities. The villagers' views are summarized below.

Behavior-changing communication

Focus on what is already achieved. According to women, hearing stories about the benefits of sanitation as experienced by other villagers is a potent catalyzer

of thinking about changing one's own behavior. In several villages women said that project functionaries generally talk about the benefits that will come in the future if people acquire sanitary latrines. People are skeptical because no one can predict the future. They said that it would be more convincing if project personnel told stories of



benefits already achieved elsewhere, such as *“children are not getting diarrhea every month, after the sanitation project”* or *“people in 8 out of every 10 villages are not losing so many working days any more because last year they built household latrines and they get sick less often now.”*

Communication can be more effective if it focuses on benefits that are important to local people.¹²

Men's groups illustrated this by suggesting messages highlighting various benefits, e.g. the safety provided by latrines from criminals, snakebites, etc. *"if you have a latrine, you are safe forever."* About the convenience and laborsaving benefits, it could be *"families that have latrines do not have to dig and bury their stools everyday."* About economic benefits they suggested *"families that have latrines can save 100,000 to 150,000 riel in medical costs every year because they do not get diarrheal diseases."*

Local people make more convincing motivators.

Both men and women in many villages said that people are convinced to change their behaviors only when someone they know well and trust tells them that it would be beneficial to make the change. Therefore, they suggested that owners of the first few latrines in a village could be the best carriers of messages for further behavior change in the community, because they can talk credibly about the benefits that they experience from their latrines. Village chiefs, Village Development Committee members, Village Development Volunteers all can fit this role well, particularly if they own a sanitary latrine. Also, they said that *"telling or reminding each other regularly"* about practices to change such as washing hands after defecation, using latrines, not throwing babies' feces in the yard, etc. can gradually lead to change in behavior for the whole community. They felt that hearing these messages a few times from external authorities such as the mass media may create some awareness, but really has no effect on community behavior.¹³ For behavior to change, communication from sources external to the community must be followed up with interpersonal

communication, particularly from people who are known and credible to villagers, with whom they can also have a dialogue for further information and clarification of doubts.

Seeing others experiencing benefits is a powerful motivator.

Many discussion groups mentioned that observing the practice and benefit that neighbors with household toilets received caused them to want the same for themselves and their families. Even a small number of successful installations of household toilets can have a positive influencing effect among the families without toilets.

Other facilitators of behavior change

Prioritize villages that are more ready for sanitation.

In some villages people suggested that there is greater readiness for sanitation behavior change in certain types of villages. They suggested that villages which are far from forests, are crowded, where it is difficult to find secluded spots for outdoor defecation, and prosperous villages that have several rice harvests a year, are those most likely to ready for change. Sanitation projects could be more successful if they prioritized such villages for intervention, and later used them as good examples to promote change in other villages. However, easy household access to water sources must also be considered if the project promotes water-flushed latrines.

Within prioritized villages, target the poorest with special provisions.

Several women's groups and one men's group recommended special strategies to make it possible for the poorest households to acquire latrines.

¹² This confirms conclusions drawn in Chapter 4.

¹³ Same recommendation is made in Chapter 5, i.e. identifying key behaviors to change and building a community movement around those behaviors, through schools, men's and women's groups, village leaders, community organizations.

They said, "Everyone wants to be healthy and clean, even the poorest. But they cannot pay cash like the better off. They can pay in labor or materials, particularly if given a longer period to pay." Some recommended that projects should provide free spare parts for latrine repair and maintenance, once people have invested their own funds to get one.

Link with earning opportunities. Several women's groups suggested linking sanitation services with earning opportunities for villagers, e.g. providing them training for production of sanitation materials and construction and repair skills. They said that would provide them with incentives to promote sanitation coverage in their own village, as well as in others nearby.

Three-pronged promotion strategy advice from a group of Cambodian villagers:

- o Provide information about sanitation benefits and facilities through radio and television (*mass media for information*).
- o Government or NGO to introduce sanitation activity in community (*supplies and skills for trying things out*).
- o Use neighbors to convince people to change behavior (*interpersonal media for influencing*).

- Men's discussion group in Pech Sang Va, Kompong Spue province

Key Lessons Learned



For accelerating demand for and access to sanitation:

- Sanitation promotion strategies need to be based on researched understanding of local motivation to acquire household toilets, which could be as diverse as convenience, safety, privacy, health improvement or money saving. Using a combination

of locally motivating factors to develop culturally appropriate promotional strategies is likely to be more effective than standard health-education based promotion.

- Promoting a set of design, cost and payment options for household toilets is important for scaling up sanitation coverage. In a situation where only one design is offered and that design is relatively expensive or has an inflexible mode of

payment, poorer village families are unable to afford to buy a household toilet. High proportions of rural Cambodian families still fall in this category.

- Until poverty in the rural areas is reduced, special poverty-targeted strategies must be found to assist the poorest families and/or communities to build household latrines. This does not have to mean

highly subsidized or free toilets, which tend not to have good sustainability records. Developing very low cost toilet designs, allowing poor households to pay in non-cash form and over long periods of time, micro-credit schemes to finance toilets, and promoting shared toilets between several household are some innovative solutions that are possible.

- **Sanitation promotion needs to be gender-sensitive and gender-inclusive.** Sanitation services can mean different types and extent of benefits and costs for women and men. Unless these differences are considered and catered to (gender-sensitive approach), sanitation interventions may even end up adding to women's existing burdens. Moreover, it was found that in most cases the husband and wife jointly decided to acquire a household toilet. Therefore, to awaken potential population demand and to make the greatest possible positive impact on the lives of poor rural communities, both women and men must be reached and consulted adequately (gender-inclusive approach) by sanitation programs.

For sustaining sanitation improvements and impact on community lives:

- **Sanitation projects need to plan for longer contact periods with communities.** The first 1.5-2 years may be necessary to devote to the exploration of the local hygiene awareness, assessment of sanitation demand and its underlying causes, developing demand-generating interventions and

local supply capacity to respond to projected household sanitation demand. The next few years could then be used for sanitation and hygiene behavior promotion, latrine construction and follow up monitoring of sanitation interventions including technical support to the families with newly installed latrines.

- **Promoting local technical and building skills may be key to sustainable rural sanitation services.** Particularly in remote rural areas isolated from urban markets, local ability to make concrete bowls and platforms made of locally appropriate materials would help develop a local market enterprise for sanitation as well as other concrete building products.
- **Developing behavior change strategies in consultation with communities can pay off in terms of their effectiveness.** Communities know best how to bring about behavior change amongst their people. They need information support about hygiene, and the freedom to plan how change will be effected. Projects can help village groups to select their own sanitation and hygiene promotion strategies and monitoring indicators. Community members are the best influencers and communicators for change. Indigenous potential change agents can be supported by projects through training and incentives for the time and energy they devote to promoting sanitation, e.g. by linking incentives to every new adopter of sanitation/home hygiene services or facilities.

Annex A

Participatory Tools used for investigation

The following participatory tools supplemented open-ended focus group discussions. They did not necessitate literacy skills. Where illiteracy was a problem, symbols and visuals replaced writing. Locally available drawing and marking materials in the communities were used optimally.

Well Being Classification (MPA tool)– Discussion is initiated with a group of local community members about how they differentiate between households in their community. Names for different categories and criteria begin to emerge in the discussion. The facilitator guides discussion toward upper, lower and middle socio-economic categories, using the local terms emerging from the discussion. People are then asked to draw pictures of a typical person from each category and list the criteria characterizing each category. They are then asked to distribute a pre-counted pile of 100 seeds representing the total population of their community among the three categories, showing their approximation of the proportion of households falling in each category.

Social Mapping (PRA tool): A group of 8-10 community members are requested to draw a map of their community on the ground/large sheets of paper, showing natural or artificial boundaries, major landmarks, water sources, public water supply and sanitation facilities, paths and streets and houses. They are requested to mark each house with a color code to show its well being category according to criteria developed earlier, and mark the homes which have each different type of latrine. The completed map is used for assessing latrine coverage and access (who uses which facility), in discussion with a larger community gathering of about 30-40 people. The map is used for deciding the route for the environmental transect, selection of latrines to observe in different parts of the hamlet, and also used as a reference with other tools like Timeline.

Process History Timeline (PRA tool): A group of community members, most of whom are above 50 years old, are asked to identify when they had first seen or heard about latrines. A discussion is facilitated to help them trace events linked to their sanitation experience in the community since then, to the present day. As discussion proceeds, a co-facilitator visually documents it along a Timeline, writing on lengths of chart paper sheets the years/other time milestones mentioned and adding brief remarks about events associated with them. A completed Timeline is used together with the Social Map earlier prepared, to further probe why things proceeded the way they did and what led to the present situation. Can be done separately for men and women.

Ladder 1 (Cost – benefit perceptions, MPA tool): Groups of users of latrines (men and women separately) are asked whether using latrines has made any difference to their lives. Out of the ensuing discussion the benefits they perceive from latrines are identified. They are then asked to score each benefit on a scale of 0-10, according to the extent to which their expectation of it is being met (the Benefit perceived score). Seeds/stones are used to show the score for each benefit. They are then asked to think about the costs incurred in getting and using the latrine and re-score each benefit using a different type of seeds/tones on a scale of 0-10, to reflect the extent to which the value of the benefit justifies the cost, according to them (value for cost score). The results are verified by facilitators in discussion with the group and reasons for the scores given are explored.

Contamination Routes and Blocks (PHAST tool): Separate groups of men and women are presented with an assortment of 25 line drawings showing human feces, a human mouth and various possible routes by which feces may reach the mouth, e.g. hand, food, water in natural sources/storage containers/drinking utensil/flies, people eating using hands, working in fields etc. A number of unrelated pictures are also included. The groups are asked to arrange the pictures to show how feces could be carried to the mouth. Then they are presented with pictures of various types of hygiene practices which may block the routes of such transmission and asked to select which blocks may be used where in their transmission diagram to prevent feces from entering the mouth. The resulting diagram reveals existing hygiene awareness of the group, and may be used to further plan behavior change strategies for their communities (which was not an objective of the present investigation).

Environmental transect walk (PRA tool adapted by MPA): The Social Map was used to identify areas that were relevant to observe in terms of the community sanitation situation and areas which had concentrations of poor, middle income and better off households. A route was then charted on the map so that the latrines chosen for observation and the neighborhoods observed would be properly representative of the hamlet's environmental hygiene status. **Visual rating scales** were used during the transect to measure users' satisfaction with their latrines.

Observation Checklists

Observation checklist for Environmental Hygiene Transect

(Record numbers as appropriate)	Transect Points in community							
	1	2	3	4	5	6	7	8
<u>Is there evidence of fecal contamination at particular sites?</u> 1) Along roads 2) Along foot paths 3) Near clean water sources 4) Around paddy fields 5) Outside house 6) Inside house								
<u>Where are latrines installed?</u> 1) Inside home yard (why?) 2) Outside home yard (why?)								
<u>Where are infants' feces disposed of?</u> 1) In the yard or field 2) Into latrine 3) In garbage hole 4) Into river, ditch or drain 5) Anywhere								
<u>At what frequency per week are latrines cleaned?</u> 1) Each day 2) 2-3 times a week 3) Once a week 4) Do not know/not regularly cleaned								
<u>What is the distance between hand-washing facilities to latrines?</u> 1) Hand washing facility stands beside latrine 2) Within short walking distance of latrine 3) Inside the house								
<u>How is garbage disposed of?</u> 1) In a hole in the home yard 2) Burned 3) Thrown into the river/ditch 4) Into ravine (in hilly area) 5) Others								
<u>Disposal of liquid household waste :</u> 1) Thrown out of window/door 2) Flows into open ditch/drain 3) Thrown into drains flowing into fish pond 4) Others (explain.....)								
<u>Access of animals to the kitchen :</u> 1) Cats and dogs 2) Chickens, goats or other livestock 3) Rats 4) Pigs 5) Flies, roaches, lizards 6) Others								
<u>Do households have a stable/cattle pen?</u> 1) No 2) Yes, adjoining the house/kitchen 3) Yes, separate from the house								
<u>Fly prevention measures in the homes</u> 1) Garbage in yard covered 2) Cooked food kept covered 3) Fly screen on window/door 4) Others (describe.....)								

Observation checklist for Use & Maintenance of Household Latrines

Score (0=negative, 1=positive)	Transect points									
	1	2	3	4	5	6	7	8	9	10
1. Latrines functioning (usable)										
2. Latrines currently in use for defecation										
3. Pit built according to safety criteria (to be agreed during training)										
4. Closet construction according to technically sound criteria (3-4 tech. criteria – to be agreed during training)										
5. Septic tank/pit placed over 7 m's distance and downstream from water source										
6. External structure provides privacy to user (walls, door, woven bamboo/shutter)										
7. Lid present over pit OR water present in water seal.										
8. No feces visible on floor, walls or latrine surface										
9. Water and soap/substitute available near facility (examine those for evidence of hand washing activity)										
10. No human feces in yard/at garbage pile										
TOTAL SCORE										

Water and Sanitation Program
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The Water and Sanitation Program is an international partnership to help the poor gain sustained access to improved water supply and sanitation services. The program's funding partners are the Governments of Australia, Belgium, Canada, Denmark, Germany, Italy, Japan, Luxemburg, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom; the United Nations Development Programme and the World Bank.
