Characteristics of Subsidised Latrines in Rural Cambodia

A deep look into the database of the MRD KAP Survey, 2010

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LIST OF ABBREVIATIONS

CLTS   Community Led Total Sanitation

DORD   District Officer of Rural Development

DRHC   Department of Rural Health Care in MRD

HH   Household

JMP   Joint Monitoring Programme for Water Supply and Sanitation

KAP   Knowledge Attitudes Practices

MRD   Ministry of Rural Development

NGO   Non-Governmental Organisation

NIS   National Institute of Statistics, Ministry of Plan, Cambodia

PDRD   Provincial Department of Rural Development

SNV   Netherlands Development Organisation

UNICEF   United Nations Children

WHO   World Health Organisation

WSSCC   Water Supply and Sanitation Collaborative Council

A. Executive Summary

This paper describes characteristics of latrines that have been built with financial support from a development program in rural Cambodia. But it does not intend to capture the outcome of any specific program or project. On the contrary, the analysis is based on the database of the comprehensive multi-stakeholder KAP Household Survey led by MRD in 2010.

The **objective** is to better understand the effects that the act of subsidising may or may not have on the behaviour of rural households and communities

The KAP Survey was conducted with a total **sample size** of 1,620 households. For the details of the sampling procedure please refer to the descriptions of the original KAP survey (in Annex).

Out of the total sample size of 1,620 households 479 households, or **29.6%** respectively, were found to **own a latrine** or toilet.

Out of the total sample size of 1,620 households 99 households, or **6.1%** respectively, were found to **own a latrine or toilet that has been built with subsidies**.

Consequently, out of the subsample of the 479 households that own a latrine, 380 households (79.3%) have built their latrine with proper means and **99 households (20.7%) received subsidies** to do so.

20.7% of all latrines in rural Cambodia have been built with subsidies. We can estimate that in rural Cambodia **141,000 subsidised latrines exist in** rural Cambodia.

Subsidised latrines are almost entirely **pour flush latrines**. Non-subsidised latrines divide into 77% pour flush, 20% simple pit latrines and 3% others.

The cluster of subsidised latrines contains a significantly larger portion of **improved** latrines: 93% of all subsidised latrines are improved according to JMP standards. The portion of improved latrines in the non-subsidised cluster is only 77%.

Targeting of the subsidies towards the poorest households did either take place only to a very limited extend, or has been done ineffectively.

4% of the subsidised latrines were **non-functioning / usable** at the moment of survey compared to 3.4% of the non-subsidised latrines. This difference is statistically not significant. We can state that the fact, whether a latrine had been constructed with or without subsidies, has no influence on the eventual use of the latrine.

In terms of day to day **maintenance**, frequency of access and cleanliness no significant differences were detected in between latrines that where built with or without subsidies. If at all, subsidised latrines were slightly more often cleaned.

The influence of the technical quality or type of latrine on functionality seems to be much higher than the influence of subsidies. In particular **simple pit latrines** are often non-functioning or dirty: 66% of all non-functioning latrines are simple pit latrines and 57% of all simple pit latrines are reported to have an unclean appearance.

The portion of respondents that do **not use** their latrine, despite owning a functioning pour flush latrine is very low (2%) and equal for subsidised as well as for non-subsidised latrines.

Rates of coverage of subsidised and non-subsidised latrines on village level: Villages with complete absence of subsidised latrines have an average coverage rate of only 23%. Villages, where at least one subsidised latrine was detected, have a coverage rate of 40%. Surprisingly, even the coverage rate with solely non-subsidised latrines is higher in the villages where subsidised latrines are present (26%) compared to the cluster of villages, where subsidised latrines are absent (23%). In villages where intensive subsidy programmes are present (coverage with subsidised latrines > 20%) the coverage rate with non-subsidised latrines drops to 14% (Cluster size: 12 villages). These data do not allow concluding on cause and effect relationships, but they cast severe doubts on the hypothesis that subsidised latrines are crowding out private investment. Further research into this matter is needed.

a) CONCLUSIONS

In all aspects the subsidised latrines prove to deliver access to sanitation on similar or better levels as non-subsidised latrines.

Whether a latrine had been constructed with or without subsidies has no influence on the eventual use of the latrine.

The widespread assumption that non-subsidised latrines create more ownership and are consequently better maintained, used and cleaned is not valid.

The argument that the presence of subsidised latrines may lower the presence of self-financed latrines in the households that are not served could neither be falsified nor validated. Further research into this highly complex issue is needed.

We also see that the most determining single factor influencing sustainability, functionality and maintenance of latrines is the type and quality of latrines (pour flush vs. simple pit) and not the presence or absence of subsidies. This in turn means that increasing roll out of so called software approaches as CLTS, hygiene promotion and behavioural change communication at the expense of the focus on hardware, whether subsidies for the poor or sanitation marketing for the better off, most probably leads to increased problems with non-used and badly maintained latrines.

At the same time the data also plausibly show the vast effect that CLTS has in sheer numbers of latrines and again proves the effectiveness this approach has for changing people's minds and/or community's norms respectively.

b) RECOMMENDATIONS

Since subsidised latrines turn out to be just as good as privately funded latrines this analysis suggests to duly revise the reservations against hardware subsidies, which are currently prevalent in the sanitation sector. Hardware subsidies should be considered as one viable component amongst others and be part of approaches to sanitation, in particular for the poorest strata of the populace.

This obviously includes the urge for more effective and harmonised targeting methodologies, than what has been done in the past. The weakness in targeting in the past is a clear finding of this analysis and improving the targeting of subsidies is probably the single most influential determinant for future success. Likewise, with the roll out of ID Poor targeting becomes harmonised, uncomplicated and inexpensive.

The efficiency of hardware and software components for increased up take should be analysed separately for different poverty levels. Such an analysis would allow for informed policy decisions on the optimum combination of software and hardware for varying target populations on different poverty levels.

Further research is also needed to better understand the effects that the presence of subsidised latrines may or may not have on private investments in sanitation.

Despite the sustainability issues with simple pit latrines, CLTS clearly shows capability to trigger effective behavioural change. It is recommended to preserve the powerful aspects in behavioural change, but, at the same time, to allow communities to go for higher technical standards.

c) TECHNICAL RECOMMENDATIONS FOR THE QUESTIONNAIRE AND DATA ANALYSIS

Include two more questions on latrine construction:
1. In what year did you build your current latrine?
2. How much did your current latrine cost?

Modify the formulation of the misleading question 9c: Replace "If yes, why did you build this latrine in the first place?" with "Why did you build this latrine in the first place?"

Include the number of household members (adults and children separate) in the database

Questions 46 – 51 do not need to be that elaborate. Distinct questions for day, night, wet and dry seasons do not generate additional information.

1. INTRODUCTION

In 2010 MRD conducted the first ever Cambodian comprehensive KAP Survey (Knowledge Attitudes Practices) related to sanitation and hygiene issues. This survey was supported by UNICEF, WHO, Lien Aid and Plan International. The database of the household survey, which has been conducted as part of the KAP study serves as the basis for this working paper. This endeavour was undertaken to inform the Cambodian WASH sector and the interested wider public in more detail about the reality of subsidised latrines in the field. Questions around the use of subsidies in sanitation are often and sometimes hotly discussed. However, often these discussions are rather based on anecdotal evidence than on proper research. We hope that this analysis contributes to the wider discussion on "subsidies" by providing robust and evidence based information on some characteristics of subsidised latrines in Cambodia.

The KAP Survey was conducted with a total sample size of 1,620 households. For the details of the sampling procedure please refer to the descriptions of the methodology in the original KAP survey and also attached to this document in Annex 1 and 2. Annex 3 contains the original household questionnaire and Annex 4 the guideline for observations.

Out of the total sample size of 1,620 households 479 households, or 29.6% respectively, were found to own a latrine or toilet.

Out of the total sample size of 1,620 households 99 households, or 6.1% respectively, were found to own a latrine or toilet that has been built with subsidies.

Consequently, out of the subsample of the 479 households that own a latrine, 380 households (79.3%) have built their latrine with proper means and 99 households (20.7%) received subsidies. These ratios are consistent with prior research conducted in Cambodia.

20.7% of all latrines in rural Cambodia have been built with subsidies. We can estimate that in rural Cambodia 141,000 subsidised latrines exist.

The comparison of the sub-sample of households living with subsidises latrines to the ones having paid for their latrines with their own money is in the very focus of this analysis. The objective is to better understand the effects that subsidised latrines may or may not have on the behaviour of rural households and communities.

One word on the terminology: Generally, the term subsidy describes money given by a government to help support a sector, an industry, a business, a person or a household, which the market does not support. Though, in the sanitation sector the term is commonly used to exclusively designate the direct transfers of money or hardware components to private households. This tacit agreement to use the term with a restricted meaning is problematic. Particularly the term "subsidy-free approaches" is misleading, when used for software based approaches. Most if not all programs intervening in the sanitation sector heavily depend on flows of public funds designated to support the sector. But in some cases these funds are eventually going into hardware and in others they are going into salaries, capacity building, training, and DSA. The issue, which financial flows are called "subsidies" and which ones are not (often an arbitrary choice) becomes critical in contexts where the term carries a negative connotation.

However, we acknowledge that this particular use of the term subsidy effectively delegitimises the financial interests of private households (who actually are the primary service providers of on-site sanitation) and at the same time conceals the self-interest of the implementing organisations.

2. SOME CONSIDERATIONS ON CONSISTENCY AND SAMPLE SIZE

The detailed methodology of the selection of survey sites and the sampling procedure is not given here in detail. A comprehensive presentation is found in the original KAP report (MRD 2010, p. 2-4 and Annex 2) and is annexed to this document.

During the analysis several sets of subsamples with varying and sometimes rather small sample sizes are used. This makes it necessary to say some words on the significance and the confidence intervals that the results have.

In this analysis we are mainly comparing a subsample of non-subsidised latrines with N=378 and a subsample of subsidised latrines with N=99. How "reliable" or how precise can the results be that are being computed? This question is best answered by

determining the respective confidence intervals. For this purpose the confidence level is set at 95%. This means that we want to define the range of results that contains the "real" value for the entire Cambodian rural population with a probability of 95%.

If we look, for example, how many of the respective latrines were not functioning at the moment of survey, we see that a mean of 4% of subsidised latrines were not functioning but a mean of 3.4% of the non-subsidised latrines. The confidence intervals for the two values with sample sizes of N=99 and N=378 respectively are as follows:

Subsidised latrines: Value: 4%; N=99 Confidence Interval: 0.14% – 7.86%

Non-subsidised latrines: Value: 3.4%; N=378 Confidence Interval: 1.57% - 5.23%

For the smaller sample with N=99 (subsidised latrines) we can state with a probability of 95% that the real value for the mean of non-functioning latrines in the entire population lies between 0.14% and 7.86%. The value of non-functioning latrines from the second sample (non-subsidised latrines), which is bigger and consequently has a shorter confidence interval, lies between 1.57% and 5.23%, again with a probability of 95%.

It is to be kept in mind that in particular the values for the subsidised samples may have confidence intervals that open some range for interpretation. This is in particular valid when the sub-sample size for a certain analysis gets close to 50 or even drops below N=50, as for example in the regional analysis for the provinces of Ratanakiri, Oddar Meanchey, Stung Treng and Koh Kong.

The confidence intervals were taken into account when claiming a difference significant or not. E.g. the difference in the mean of improved latrines in the subsidised latrines cluster (93%) against the non-subsidised cluster (77%) was labelled significant because the two confidence intervals with 87.97% - 98.03% on the one side and 72.76%-81.24% on the other do not overlap.

In more general terms we can state that the findings of the household survey are highly consistent with the major recent Cambodian surveys. Percentages fit very well with the Cambodian Socio-Economic Survey 2009. The CSES reports an overall coverage rate of 28.3% and even split into improved and unimproved clusters the data are highly consistent (cp. NIS 2009a p. 130):

TABLE 1: COMPARISON JMP LATRINE TYPES IN CENSUS 2008, CSES 2009, KAP 2010

	JMP/Census 2008[1]	CSES 2009	KAP 2010
Improved	18.30%	22.90%	23.70%
Unimproved	4.90%	5.40%	5.80%
Open Defecation	76.80%	71.70%	70.50%
Total	100%	100%	100%

The table shows a slight decrease in OD and a 0.8% increase in improved latrines in one year, which is in line with the 1% increase per year, which has been estimated by JMP (JMP 2010). This is what is to be expected and confirms the validity of the data. It should be mentioned here that the KAP survey applied the same sampling methodology as the CSES (cp. MRD 2010, Annex2). As has been done in the original KAP report all latrines classified as "other latrines" have been counted as unimproved types. These "other latrines" are entirely described as pit latrines or ashes latrines and account for 2% of the 5.8% of unimproved latrines. Since most probably quite some of them are actually improved types the percentage of improved latrines is likely to be slightly and some 1% higher.

In 2008, i.e. two years prior to the KAP survey, the population census found a rural coverage rate of 23.2%, but the questionnaire of the Census doesn't differentiate between improved and unimproved toilets and moreover, it only asks for facilities within the premises and, thereby, does not capture the use of public or shared latrines. Despite these methodological issues the JMP used the Census data and computed a rural coverage rate of 18.3% with improved latrines (JMP 2010). This seems rather low and is most probably due to the fact that JMP overestimates the share of unimproved latrines. Apparently JMP used the CSES 2004 data for this estimation, but did not take into account that the share of unimproved latrines dropped

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[1] The Census household questionnaire does not differentiate in between improved and unimproved latrines and consequently only gives the overall number of 23.2% for rural coverage. The numbers for (un-)improved latrines are based on a JMP estimation (JMP 2010).

significantly in the period in between the CSES 2004 and CSES 2009. If we repeat the calculation of improved latrines from the Census data but based on the ratios found in the CSES 2009 we get a value of 19.6% for improved latrines instead of the 18.3% suggested by JMP. However, this issue is slightly outside the focus of this paper.

Concluding, one can state that the sampling methodology applied in both the CSES and the KAP surveys produces slightly higher coverage rates than the population census. Nevertheless, the KAP survey is highly consistent with the previous CSES 2009 and this shows at least that the sampling method and the limitation to only 12 provinces did not distort the validity of the data.

3. REGIONAL DISTRIBUTION OF THE SAMPLE

The KAP survey was conducted in 12 provinces selected according to their geographical representativeness. These provinces are: Kampot, Koh Kong, Kampong Cham, Prey Veng, Takeo, Kampong Speu, Ratanak Kiri, Stung Treng, Kampong Thom, Oddar Meanchey, Pursat and Siem Reap.

In order to give the reader a better understanding on the foundations of this analysis some figures on the regional distribution of the sample are given. This is not intended to give representative numbers, as the sample sizes vary strongly from province to province, but to allow for a better understanding, where the latrines that are analysed are located (And for insiders: which program may have funded them).

The percentage of households possessing latrines that were constructed with subsidies is 6.1% of the rural population. The subsidised latrines where found in the following provinces:

TABLE 2 NUMBER OF HH THAT HAVE BUILT LATRINES WITH SUBSIDY PER PROVINCE

			Household build latrine with subsidy		
			Yes	No	Total
Province Name	Kampong Cham	Count	21	359	380
		Percent	5.5%	94.5%	100%
	Kampong Speu	Count	19	141	160
		Percent	11.9%	88.1%	100%
	Kampong Thom	Count	7	133	140
		Percent	5.0%	95.0%	100%
	Kampot	Count	7	133	140
		Percent	5.0%	95.0%	100%
	Koh Kong	Count	1	19	20
		Percent	5.0%	95.0%	100%
	Prey Veng	Count	5	235	240
		Percent	2.1%	97.9%	100%
	Pursat	Count	7	93	100
		Percent	7.0%	93.0%	100%
	Ratanak Kiri	Count	0	20	20
		Percent	0.0%	100%	100%
	Siem Reap	Count	16	144	160
		Percent	10.0%	90.0%	100%
	Stung Treng	Count	1	19	20
		Percent	5.0%	95.0%	100%
	Takeo	Count	13	187	200
		Percent	6.5%	93.5%	100%
	Oddar Meanchey	Count	2	38	40
		Percent	5.0%	95.0%	100%
Total		Count	99	1,521	1,620
		Percent	6.1%	93.9%	100%

Or the same data as a graph:

PERCENTAGE OF HH THAT HAVE BUILT LATRINES WITH SUBSIDIES PER PROVINCE
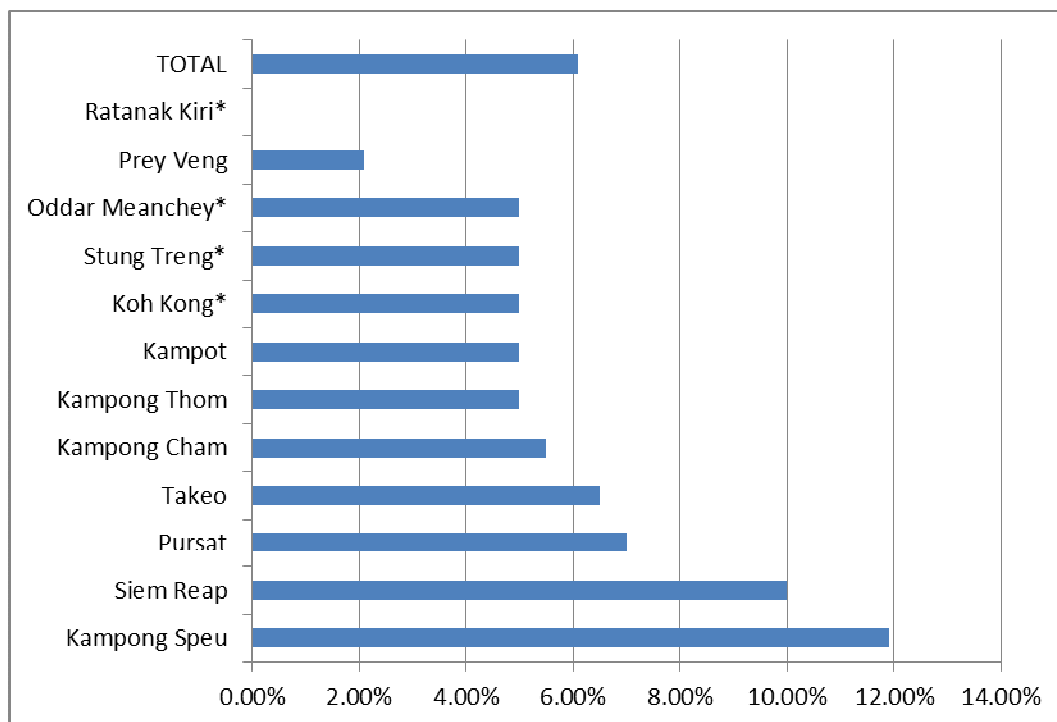
* = sub sample size N < 50

The highest coverage rates with subsidised latrines far above the national mean are found in Kampong Speu and Siem Reap. In Prey Veng the rate is three times lower than the national average.

4. CHARACTERISTICS OF SUBSIDISED AND NON-SUBSIDISED LATRINES

4.1.   GENERAL FINDINGS

The KAP Survey was conducted with a total sample size of 1,620 households. Out of the total sample 479 households (29.6%) were found to own a latrine/toilet. 99 households out of this 479 households (20.7%) indicated that they build their latrine in the first place because a "programme was offering subsidy".

Concentrating on the 384 (= 80%) pour flush latrines only, we see that 24% or almost one quarter of all pour flush latrines in rural Cambodia are built with subsidies.

The percentage of households with subsidised latrines out of the overall sample is 6.1%. According to the Census 2008 2,311 million households are living in rural Cambodia (NIS 2009a, p. 135). Therefore, we can estimate a total rough number of 141,000 subsidised latrines in rural Cambodia. The confidence interval, i.e. the range that contains the true value for the number of subsidised latrines in the overall population in rural Cambodia with a probability of 95% lies between 114,000 and 168,000 (confidence level 95%).

4.2.   TECHNICAL TYPES OF LATRINES

It is worthwhile to have a look at technical types of latrines according to sources of funding. Please note that for this analysis factors of improved and unimproved latrines according to the JMP standards are not yet taken into account. This is done in the following chapter 4.3. In this chapter all pour flush latrines are just pour flush latrines and simple pit latrines are just that: simple pit latrines.

Privately financed latrines are 77% pour flush latrines, 20% pit latrines and some 3% of other types.

Subsidised latrines are virtually totally pour flush latrines. It is surprising that the survey detected 6 pit latrines that were reportedly built with subsidies. However, looking at the data we can see that 5 of this 6 latrines where observed in the same region in two consecutive days. This can be interpreted either as an enumerator error or a local NGO subsidising simple pit latrines (all in Siem Reap Province, Districts Angkor Chum and Puok. Survey questionnaires: ID No 383, 384, 388,430,431).

TABLE 3 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH TECHNICAL TYPE OF LATRINE

| | | | Technical Type of Latrine | | | | Total |
			Pour flush latrine	Simple pit latrine	Public / Shared Latrine	Hanging latrine	
Programme was offering subsidy	Yes	Count	93	6	0	0	99
		%	93.9%	6.1%	.0%	.0%	100%
	No	Count	291	77	2	8	378
		%	77.0%	20.4%	.5%	2.1%	100%
Total		Count	384	83	2	8	477
		%	80.5%	17.4%	.4%	1.7%	100%

4.3. IMPROVED AND UNIMPROVED LATRINES

Now we look at the improved and unimproved types of latrines according to the JMP standard. In the sample of subsidized latrines 93% fall in the category of improved latrines. In the non-subsidised sample only 77% of the latrines are improved types. 23% of the non-subsidised latrines are unimproved.

TABLE 4 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH (UN-)IMPROVED LATRINES (JMP)

| | | | JMP Latrine Type | | Total |
			Improved	Unimproved	
Programme was offering subsidy	Yes	Count	92	7	99
		%	92.9%	7.1%	100%
	No	Count	291	87	378
		%	77.0%	23.0%	100%
Total		Count	383	94	477
		%	80.3%	19.7%	100%

The 23% of unimproved latrines are "other latrines" (8%)[2], dry pit without slab (7%), pour flush to elsewhere (5%), overhanging water (2%) and shared/public latrines (1%). The 7% of unimproved but subsidised latrines are almost entirely pour flush to elsewhere apart from one latrine which is "simple pit without slab". But the latter case contains more improbable values for variables and is most likely an enumerator error (ID 713).

4.4. TARGETING OF SUBSIDIES

The question of targeting refers to the problem of reaching the poor. We assume that it is a desirable outcome and a goal of most of the subsidising programmes to target their support towards the poorest strata of the population. We want to look at the extent to which this has been achieved. A robust statistical capture of poverty levels is in itself a tricky thing, and goes beyond

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[2] According to the logic applied in the official report of the KAP survey "other latrines" (mainly "ashes latrines" and dry pit) are counted as unimproved latrines and account for 8%. However, this is questionable and it is to be assumed that a big portion of these are pit latrines with a slab and should be counted as improved types.

the resources available for this working paper as it goes beyond what can be achieved with the database. Therefore, we content ourselves with giving some very rough numbers on the rather vague indicator of self-reported "household income over the last 12 months". Please note that the indicator refers to household income and not to household income per capita. Data on the number of household members were not extractable from the database.

Ranking the household income into wealth quintiles returns the following five clusters:

TABLE 5 INCOME QUINTILES IN USD AS REPORTED BY THE HOUSEHOLD

Quintile		N	Minimum (USD)	Maximum (USD)	**Mean (USD)**	Std. Deviation
1	HH income last 12 months in USD	307	3	238	**114.05**	59.607
2	HH income last 12 months in USD	353	250	375	**292.18**	53.973
3	HH income last 12 months in USD	303	385	618	**497.28**	38.134
4	HH income last 12 months in USD	303	625	975	**775.43**	94.427
5	HH income last 12 months in USD	349	1000	18000	**1702.87**	1449.996

If we now distribute the coverage rates with non-subsidised and subsidised latrines respectively across all quintiles we get the following picture:

FIGURE 2 DISTRIBUTION OF LATRINES BY INCOME QUINTILE AND (NON-)SUBSIDY:
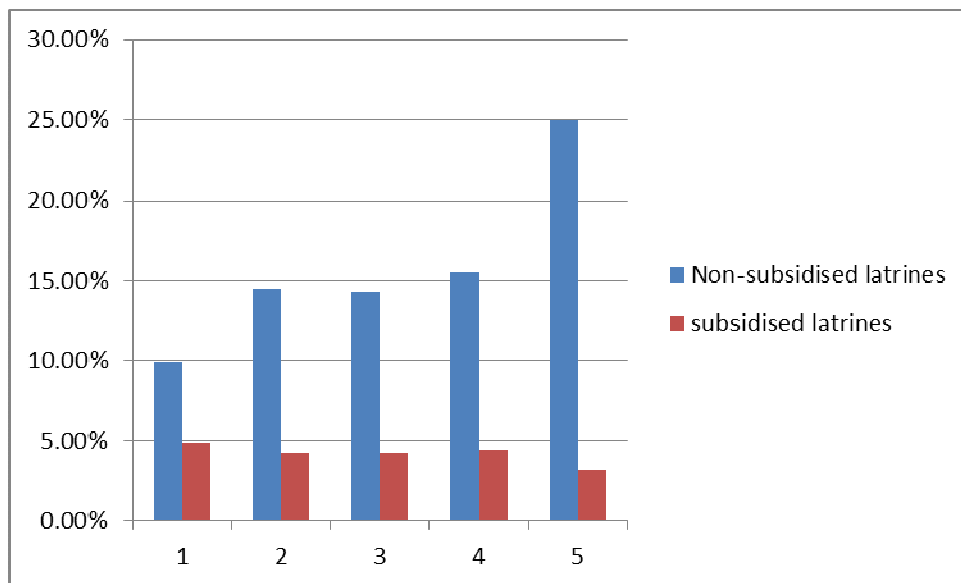
We see an increasing percentage of privately funded latrines with increasing wealth. Households in the highest quintile are two and a half time more likely to own a latrine (25%) than households in the lowest quintile (10%); the middle quintiles ranging in between 14 and 16%. This is to be expected and gives an indication that the indicator "Household income over the last 12 months" as reported by the respondent delivers results that can be worked with. The reliability of the income data for this purpose is sufficiently accurate. The graph also shows that the subsidised latrines are distributed almost equally across the quintiles with a slight slope toward the higher income groups. The poorest quintile has a 4.8% coverage rate with subsidised latrines and in the best off quintile it drops to 3.2%; the middle quintiles ranging from 4.2% to 4.4%. Obviously, if no targeting would have taken place at all, it is to be expected to see an increase towards the better off quintiles, because the richer households are more influential and, therefore, have more means to capture the subsidies. What we see instead is a slight slope, with slightly higher coverage rates in the poorer quintiles. This plausibly means that some targeting has taken place but either not to a big extent or that the subsidies were mainly captured by the wealthier groups.

However, it is obvious that targeting of sanitation subsidies towards the neediest groups is to be improved. In this regard, expectations in the sector are high towards the current role out of the new official Cambodian poverty assessment system (ID

Poor) by the Ministry of Plan, and it can be assumed that a targeting based on these lists will overcome this problem to a large extend.

A proper targeting is also important because a clear and transparent procedure, which is openly and pro-actively communicated to the recipient communities and strictly adhered to, is expected to reduce negative impacts that improper distribution of "indiscriminate" subsidies may have on investments.

4.5. ARE SUBSIDISED LATRINES MORE OFTEN NOT FUNCTIONING OR BADLY MAINTAINED?

It is an often used argument, that subsidised latrines do not create feelings of ownership and are consequently rarely used and badly maintained. WSSCC formulates it as follows: "**False demand** when households take a subsidized toilet or service because it's available without truly wanting it. This is also likely to arise when hardware funding is not accompanied by sufficient investment in software. Goods and services purchased under these conditions may never be used or may be used for other activities once the programme ends (…) They are also likely to be badly managed and may fall into disrepair quickly." (WSSCC 2009, pp. 14). This analysis is undertaken to estimate up to what extend this "False Demand" may undermine Cambodian programmes offering subsidies.

Here it is necessary to make one comment on data quality: The enumerators noted for each latrine, whether it was functioning / usable at the moment of interview or not. A slight inconsistency in the questionnaire led to some problems in this case: The Questions 9, 9a, 9b and 9c, which this analysis is based upon are not properly related to each other in the questionnaire (see Annex 3)[3]. Consequently, out of the 18 cases of non-functional latrines in 8 cases the enumerator erroneously skipped the question, whether the latrine was built with subsidies or not. For this analysis this error is of some importance, because we are lacking the information about subsidies for these 8 cases. However, 7 of the 8 cases where ashes latrines / simple pit latrines and in these 7 cases the assumption is made that simple pit latrines are non-subsidised latrines and the data were corrected accordingly. The last case is left out missing (ID numbers: 119, 130, 131, 132, 133, 135, 138, 417).

4.5.1. LATRINES THAT ARE FUNCTIONING / USABLE

TABLE 6 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "IS THE LATRINE FUNCTIONING / USABLE NOW?"

			Is the latrine functioning?		Total
			Yes	No	Yes
Programme was offering subsidy	Yes	Count	95	4	99
		%	96.0%	4.0%	100%
	No	Count	366	13	379
		%	96.6%	3.4%	100%
Total		Count	461	17	478
		%	96.4%	3.6%	100%

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[3] Question 9 asks "Do you have a latrine?" After comes question 9a. "If yes, is the latrine functioning/ usable now?" and 9b: "If no, why not?". And after this question it comes to 9c which is read "If yes, why did you build this latrine in the first place?" and this is problematic. The initial "If yes…" should refer to the last preceding question of a higher level, which is question number 9 "Do you have a latrine" but in some cases it was understood as referring to the directly preceding yes/no question, which is 9a and asks for functionality. Consequently, out of the 18 cases, where question number 9a was answered with "no" (i.e. the 18 non-functional latrines) in 8 cases the enumerator erroneously skipped question 9c.

In average 3.6% of the overall total of latrines are not functioning / usable. 3.4% of the non-subsidised latrines are not functioning compared to 4% of the subsidised latrines. This difference is not statistically significant. The reasons given for the four subsidised latrines that are not functioning are the following: Slab broken, infiltrating water, superstructure broken/missing, no water to flush.

In this regard it is actually interesting to turn the question around: Which ones are the latrines which are not functioning:

TABLE 7 "Is the latrine functioning?" cross tabulated with Technical Type of Latrine

			Technical Type of Latrine				Total
			Pour flush latrine	Simple pit or ashes latrine	Public / Shared Latrine	Hanging latrine	
Is the latrine functioning?	Yes	Count	379	71	2	8	460
		%	82.4%	15.4%	.4%	1.7%	100%
	No	Count	6	12	0	0	18
		%	33.3%	66.7%	.0%	.0%	100%
Total		Count	385	83	2	8	478
		%	80.5%	17.4%	.4%	1.7%	100%

We can see that 66% of all non-functioning latrines are simple pit latrines. This may partly be attributed to the time the survey was conducted (September) and problems with the rainy season.

However, it is to be expected that with decreasing support for subsidised approaches and an increase of non-subsidised activities as CLTS, which in the Cambodian context often lead to the construction of simple pit latrines, the share of non-functioning latrines will increase. But hardware subsidies are not the reason for this; it is rather just the other way around: The increase of simple pit latrines promoted by so called subsidy free programs most likely leads to more non-functioning latrines.

4.5.2. LATRINE SUPERSTRUCTURE MAINTENANCE

One observation during the KAP survey referred to the maintenance of the latrine (roof, walls and doors). Please note that the maintenance of the underground structures is not included here. Also note that for this analysis only the latrines that are functioning are taken into account and non-functioning ones are excluded. Cross tabulated to the subsidies we get the following outcome:

TABLE 8 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "IS THE LATRINE WELL MAINTAINED?"

			Are the latrine roof/ walls/ door well maintained?		Total
			Yes	No	
Programme was offering subsidy	Yes	Count	65	6	71
		%	91.5%	8.5%	100%
	No	Count	268	31	299
		%	89.6%	10.4%	100%
Total		Count	333	37	370
		%	90.0%	10.0%	100%

Actually the subsidised latrines are with 91.5% better maintained than the non-subsidised ones with 89.6%, but again the difference is statistically not significant. Note that the further reduction of the sub sample size to 71 for subsidised latrines increases the confidence interval of the results.

It might be argued that in general pour flush latrines are better maintained than simple pit latrines, and that the share of simple pit latrines is much bigger in the cluster of non-subsidised latrines. To avoid this methodological problem the same observation is done for just only the pour flush latrines:

TABLE 9 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "WELL MAINTAINED?" (ONLY POUR FLUSH)

			4.Are the latrine roof/ walls/ door well maintained?		Total
			Yes	No	Yes
HH build his latrine with subsidies	Yes	Count	65	4	69
		%	94.2%	5.8%	100%
	No	Count	219	7	226
		%	96.9%	3.1%	100%
Total		Count	284	11	295
		%	96.3%	3.7%	100%

The broad picture remains the same: Now the non-subsidised latrines are with 96.9% better maintained than the subsidised ones with 94.2, but again the difference is statistically not significant.

4.5.3. FREQUENCY OF ACCESS

Another observation to indicate if the latrines are actually used was: "Is there a well-trodden (well-used) footpath/ access path towards the latrine?" Note that for this analysis only the latrines that are still functioning are taken into account and latrines not functioning at the time of the survey are excluded. Cross tabulated with subsidies we get the following results:

TABLE 10 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "WELL-TRODDEN FOOTPATH?"

			Is there a well-trodden (well-used) footpath/ access path towards the latrine?		Total
			Yes	No	
Programme was offering subsidy	Yes	Count	63	8	71
		%	88.7%	11.3%	100%
	No	Count	257	46	303
		%	84.8%	15.2%	100%
Total		Count	320	54	374
		%	85.6%	14.4%	100%

Again the value for subsidised latrines is higher but again not in a significant range.

13

It might again be argued that in general pour flush latrines are more frequently accessed than simple pit latrines, and that the share of simple pit latrines is much bigger in the cluster of non-subsidised latrines. To avoid this methodological problem the same observation is done for just only the pour flush latrines:

TABLE 11 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "WELL-TRODDEN FOOTPATH?" (ONLY POUR FLUSH)

			Is there a well-trodden (well-used) footpath/ access path towards the latrine?		Total
			Yes	No	Yes
HH build his latrine with subsidies	Yes	Count	61	8	69
		%	88.4%	11.6%	100%
	No	Count	189	38	227
		%	83.3%	16.7%	100%
Total		Count	250	46	296
		%	84.5%	15.5%	100%

Apparently there is no difference in the criterion of the "well-trodden foot path" with regard to the latrine type. Still the subsidised latrines are accessed slightly but not significantly more frequently.

4.5.4. CLEANLINESS

During the household survey the interviewees were asked how often they clean their latrines (again only functioning latrines):

TABLE 12 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "HOW OFTEN DO YOU CLEAN YOUR LATRINE?"

			How often do you/your family member clean your latrine?					
			1. once a day	2. more than once a day	3. once every 2 - 3 days	4. not very often (less than once a week	5. almost never	TOTAL
HH build his latrine with subsidies	Yes	Count	56	9	27	2	1	95
		% within HH build his latrine with subsidies	58.9%	9.5%	28.4%	2.1%	1.1%	100%
	No	Count	160	45	107	28	25	365
		% within HH build his latrine with subsidies	43.8%	12.3%	29.3%	7.7%	6.8%	100%
Total		Count	216	54	134	30	26	460
		% within HH build his latrine with subsidies	47.0%	11.7%	29.1%	6.5%	5.7%	100%

68% of the subsidised latrines are cleaned at least daily, whereas only 56% of the non-subsidised latrines are cleaned at least daily.

Only 3% of the subsidised latrines are cleaned less than once a week, but 15% of the non-subsidised latrines are cleaned less than once a week.

Subsidised latrines are significantly more frequently cleaned than non-subsidised latrines. This is based on self-reported data from the households.

During the survey the cleanliness of the latrines was also observed by the enumerators. One can assume that observations by the enumerators have less bias than self-reported data may have. One observation referred to the cleanliness inside the latrines and in particular to visible traces of human faeces (only functioning latrines at the moment of survey):

TABLE 13 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "FAECES VISIBLE ON FLOOR OR SLAB?"

			Are human faeces visible on the floor or slab of latrine?		Total
			Yes	No	
Programme was offering subsidy	Yes	Count	7	63	70
		%	10%	90%	100%
	No	Count	54	249	303
		%	17.8%	82.2%	100%
Total		Count	61	312	373
		%	16.4%	83.6%	100%

With 90% the subsidised latrines have fewer traces of visible human faeces than the non-subsidised latrines.

It might again be argued that in general pour flush latrines are better cleaned than simple pit latrines, and that the share of simple pit latrines is much bigger in the cluster of non-subsidised latrines. To avoid this methodological problem the same analysis as above is done for only the pour flush latrines:

TABLE 14 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "FAECES VISIBLE ON FLOOR OR SLAB?" (ONLY POUR FLUSH)

			Are human faeces visible on the floor or slab of latrine?		Total
			Yes	No	Yes
HH build his latrine with subsidies	Yes	Count	7	61	68
		%	10.3%	89.7%	100%
	No	Count	27	201	228
		%	11.8%	88.2%	100%
Total		Count	34	262	296
		%	11.5%	88.5%	100%

Still subsidised latrines have less visible traces of human faeces, but the difference is not significant.

One more observation referred to the general appearance and condition in and around the latrine. The cross tabulation reveals the following (again only functioning latrines at the moment of survey are taken into account):

TABLE 15 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "GENERAL APPEARANCE/ CONDITION OF THE LATRINE AREA CLEAN?"

			In your opinion, is the general appearance/ condition of the latrine area clean?		Total
			Yes	No	
Programme was offering subsidy	Yes	Count	60	10	70
		%	85.7%	14.3%	100%
	No	Count	234	67	301
		%	77.7%	22.3%	100%
Total		Count	294	77	371
		%	79.2%	20.8%	100%

The area around the subsidised latrines is significantly cleaner.

Again the same observation is done for just only the pour flush latrines:

TABLE 16 (NON-)SUBSIDISED LATRINES CROSS TABULATED WITH "APPEARANCE OF THE LATRINE AREA CLEAN?" (ONLY POUR FLUSH)

			In your opinion, is the general appearance/ condition of the latrine area clean		Total
			Yes	No	Yes
HH build his latrine with subsidies	Yes	Count	59	9	68
		%	86.8%	13.2%	100%
	No	Count	203	24	227
		%	89.4%	10.6%	100%
Total		Count	262	33	295
		%	88.8%	11.2%	100%

Here actually the numbers turn around: When only looking at pour flush latrines the "the general appearance / condition of the latrine area" is slightly but not significantly cleaner. But the skipping of simple pit latrines clearly raised the value for the non-subsidised latrines from 78% to 89% of "clean latrines"

This means that the pit latrines have a major influence on the perception of general appearance. So it is worthwhile to have a look at the numbers for pit latrines and their "general appearance": out of the total 75 pit latrines the general appearance of the latrine area was judged unclean in 57% and clean only in 43% of the cases. It seems that simple pit latrines in general gave a more unclean impression to the enumerators.

4.6.   ARE SUBSIDISED LATRINES MORE OFTEN NOT USED THAN NON-SUBSIDISED LATRINES?

In the household survey the interviewer asked the question, where the respondent usually goes for defecation in day or in night time respectively and in dry or in wet season as well. For the calculation of the respective percentages we again exclude the latrines reported non-functioning in order to assess if there is non-use even when a latrine is functioning, e.g. for cultural or habitual reasons.

The four questions (day time, night time, dry season and wet season) cross tabulated with the subsidy variable give the following results for the cross tabulation of (non-)subsidised latrines with "Where do you usually defecate?":

TABLE 17 WHERE DO YOU USUALLY DEFECATE IN DAYTIME IN THE DRY SEASON

			In own latrine		Total
			Yes	No	
HH build his latrine with subsidies	Yes	Count	93	2	95
		%	97.9%	2.1%	100%
	No	Count	360	6	366
		%	98.4%	1.6%	100%
Total		Count	453	8	461
		%	98.3%	1.7%	100%

TABLE 18 WHERE DO YOU USUALLY DEFECATE IN DAYTIME IN THE WET SEASON

			In own latrine		Total
			Yes	No	
HH build his latrine with subsidies	Yes	Count	93	2	95
		%	97.9%	2.1%	100%
	No	Count	359	7	366
		%	98.1%	1.9%	100%
Total		Count	452	9	461
		%	98%	2%	100%

TABLE 19 WHERE DO YOU USUALLY DEFECATE IN NIGHT-TIME IN THE DRY SEASON

			In own latrine		Total
			Yes	No	
HH build his latrine with subsidies	Yes	Count	93	2	95
		%	97.9%	2.1%	100%
	No	Count	358	8	366
		%	97.8%	2.2%	100%
Total		Count	451	10	461
		%	97.8%	2.2%	100%

TABLE 20 WHERE DO YOU USUALLY DEFECATE IN NIGHT-TIME IN THE WET SEASON

			In own latrine		Total
			Yes	No	No
HH build his latrine with subsidies	Yes	Count	93	2	95
		%	97.9%	2.1%	100%
	No	Count	357	9	366
		%	97.5%	2.5%	100%
Total		Count	450	11	461
		%	97.6%	2.4%	100%

The data give no evidence that either subsidised or non-subsidised latrines may be used less frequently at any time (day, night, dry or wet season). All values are very low and on equal levels in all settings.

4.7. DOES THE PRESENCE OF SUBSIDISED LATRINES DECREASE THE RATE OF NON-SUBSIDISED LATRINES?

It is one of the arguments against the use of subsidies that the act of subsidising latrines for some households in one village may crowd out other sources of financing and discourage other households to purchase a toilet with personal money[4]. For this exercise the data were rearranged on village level, because the influence of subsidies on individual purchasing decisions is to be assumed to only happen in a neighbourhood or a very close local context.

The database does not give specific data to clearly answer this question, first and foremost because data on the time sequence of events are not available. Consequently, it is not possible to establish cause and effect relationships. Therefore, we can only look into the occurrence of subsidised and non-subsidised latrines in general terms. Another important determining factor is also unknown: The targeting criteria of the subsidising programs. It is highly probable that programmes give out subsidies to particular villages according to certain unknown criteria, but probably being poverty or low latrine coverage rates. These influences are not known but may have strong influence on the results of this analysis. These methodological weaknesses are to be kept in mind.

A recommendation from this observation is that in future surveys it should be considered to capture the year the current latrine was constructed. This may give more insights into cause and effect relationships.

The survey took place in a total of 81 villages. In each village 20 households were randomly selected. These 81 villages are clustered according to the presence / absence of subsidised latrines. The following table gives the data on coverage rates in the respective clusters with non-subsidised and subsidised latrines respectively (Table 21, next page):

In 49 villages not a single subsidised latrine was detected, so subsidised latrines were "absent". In these villages the sanitation coverage rate is at 23% and significantly lower than the coverage rate of 40%, which was found in the 32 villages were subsidised latrines were "present", i.e. where at least one subsidised latrine was detected. This rate of 40% consists of 15% subsidised latrines and of 25% non-subsidised latrines.

Thus, even in the villages where programs did provide subsidies for latrines the coverage rate with non-subsidised latrines is higher than in the villages where no subsidised latrine exists, or at least: none has been spotted by the survey. More households actually had invested in a latrine using their personal money in the villages, which had experienced subsidy programs. However, it is to be assumed that in many of those villages, where subsidised latrines are present, also activities of hygiene promotion have taken place, which in turn may have triggered the construction of additional latrines with private funds. Again: This analysis should not lead to conclusions on cause and effect relationships.

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[4] As for example in WSSCC 2009 it is stated that "the delivery of infrastructure, operational and regulatory subsidies all have the effect of 'crowding out' other sources of funding (from households) who prefer to wait for 'free' goods rather than accessing credit or paying for their own investments."

TABLE 21 **COVERAGE RATES (SUBSIDISED, NON-SUBSIDISED, TOTAL) IN VILLAGES WITH OR WITHOUT SUBSIDISED LATRINES**

Subsidised Latrines		N	Minimum	Maximum	**Mean**	Std. Deviation
Absent	% coverage with subsidised latrines	49	0%	0%	**0%**	0
	% coverage with non-subsidised latrines	49	0%	85%	**22.65%**	19.635
	% coverage Total	49	0%	85%	**22.65%**	19.635
Present	% coverage with subsidised latrines	32	5%	45%	**15.47%**	12.139
	% coverage with non-subsidised latrines	32	0	85%	**24.69%**	22.250
	% coverage Total	32	5%	95%	**40.16%**	21.270

A more detailed look into the repartition is given below. A scatter plot of all 81 villages arranged by coverage rates with subsidised (y-axis) and non-subsidized latrines (x-axis) gives the flowing picture:

FIGURE 3 **COVERAGE RATES IN ALL VILLAGES SEPERATELY FOR SUBSIDISED AND NON-SUBSIDISED LATRINES**
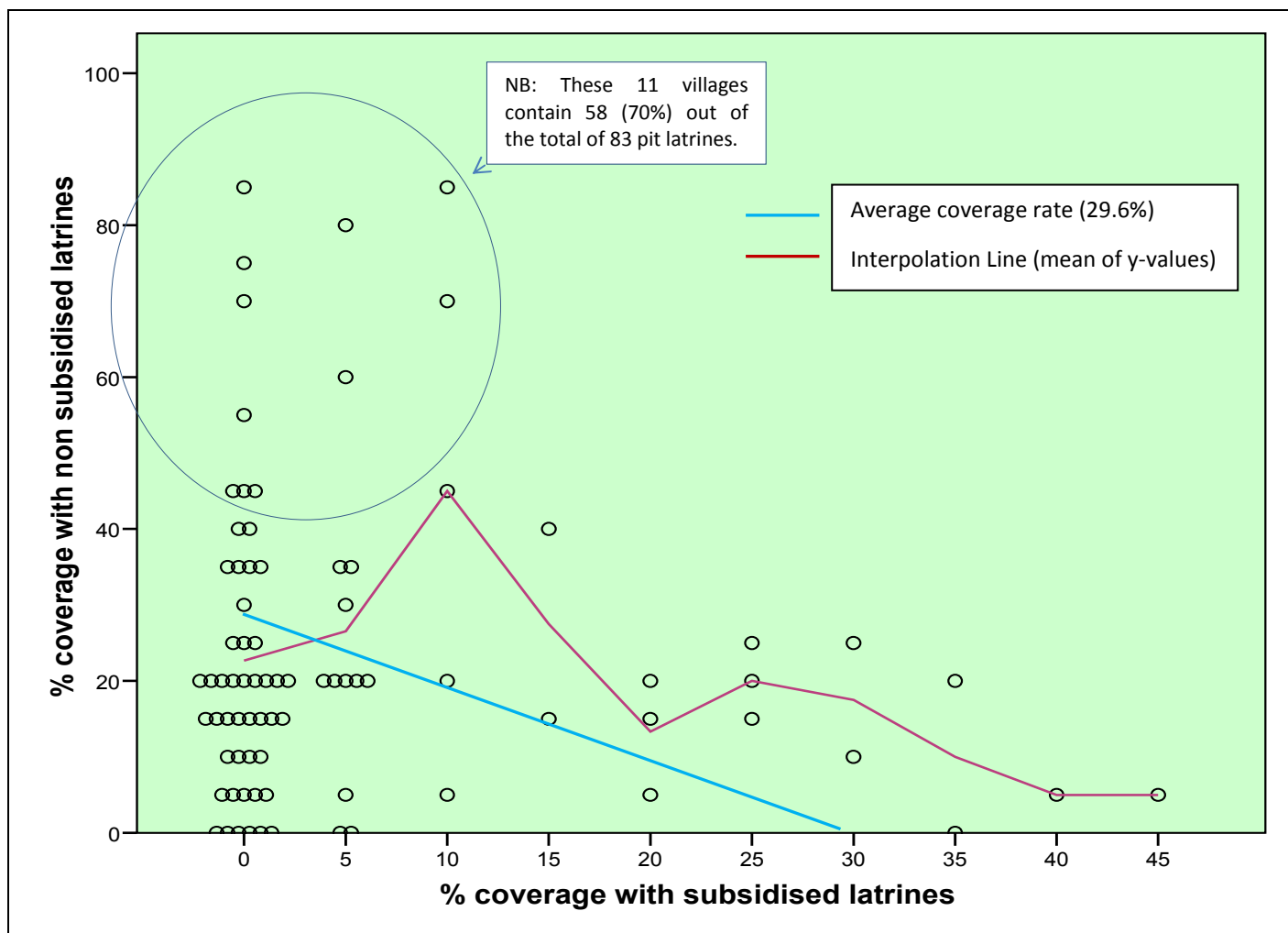
Let's first leave the subsidised latrines aside and put our focus to the villages with the highest coverage rates in non-subsidised latrines (coverage >= 45%; in the blue circle). These 11 villages make up for only 14% out of all villages but contain 70% of all simple pit latrines. The data confirm that this is a result of CLTS triggering and, thus, gives a striking example of the huge effect that CLTS is actually capable to achieve in sheer numbers.

However, shifting back the focus on the leading question for subsidised latrines we see that the coverage with privately financed latrines is lower on the right side of the graph, as the red interpolation line is going down. However, most important is how the interpolation line relates to the blue line representing the national average. Where the red line is below the blue line, as is the case for the villages, where subsidised latrines are absent, the overall coverage rate is lower than the national average. Where the red line is above the blue line, as is the case for all other villages, the coverage rate is above average. We can state that in the villages where subsidised latrines are present the coverage rate is above average and that in the villages where subsidised latrines are absent the coverage rate is below average.

However, where it comes to more intensive coverage rates with subsidised latrines we also observe that the coverage rates with non-subsidised latrines drops. The coverage rates for the cluster of the 12 villages where the rate of subsidised latrines is higher or equal to 20% are as follows:

TABLE 22 COVERAGE RATES (SUBSIDISED, NON-SUBSIDISED AND TOTAL) IN VILLAGES WITH INTENSIVE HARDWARE SUPPORT (COVERAGE WITH SUBSIDISED LATRINES >= 20%)

SubsidyYN		N	Minimum	Maximum	Mean	Std. Deviation
Yes	% coverage with subsidised latrines	12	20	45	29.17	8.211
	% coverage with non-subsidised latrines	12	0	25	13.75	8.561
	% coverage	12	25	55	42.92	8.908

In these 12 villages we have an overall coverage rate of 43%, which is amongst the highest of all clusters. But at the same time coverage with privately funded latrines is at only 14% and even lower than in the villages, where subsidised latrines are completely absent. But still the positive effect of the intensive subsidies on coverage outweighs the decrease in privately financed latrines.

These data obviously cast severe doubt upon the hypothesis that hardware subsidies are crowding out private investments, but as mentioned before these results cannot be simply translated into a cause and effect relationship because of several reasons:
1. Information about timing and sequence of the events is lacking
2. No baseline data are available
3. It is unknown what influence the criteria for the selection of target zones by the subsidising programmes may have had, but they certainly had some.
4. It is difficult to assess is the influence of hygiene promotion. Most likely the villages with subsidised latrines received some kind of hygiene promotion. This is less likely for the villages where subsidised latrines are absent.

Therefore, additional research is needed to shade more light on this relevant issue. The considerations above should be taken into account when designing such a research plan.

5. CONCLUSIONS

In all aspects the subsidised latrines prove to deliver access to sanitation on similar or better levels as non-subsidised latrines.

Whether a latrine had been constructed with or without subsidies has no influence on the eventual use of the latrine.

The widespread assumption that non-subsidised latrines create more ownership and are consequently better maintained, used and cleaned is not valid.

The argument that the presence of subsidised latrines may lower the presence of self-financed latrines in the households that are not served could neither be falsified nor validated. Further research into this highly complex issue is needed.

We also see that the most determining single factor influencing sustainability, functionality and maintenance of latrines is the type and quality of latrines (pour flush vs. simple pit) and not the presence or absence of subsidies. This in turn means that increasing roll out of so called software approaches as CLTS, hygiene promotion and behavioural change communication at the expense of the focus on hardware, whether subsidies for the poor or sanitation marketing for the better off, most probably leads to increased problems with non-used and badly maintained latrines.

At the same time the data also plausibly show the vast effect that CLTS has in sheer numbers of latrines and again proves the effectiveness this approach has for changing people's minds and/or community's norms respectively.

6. RECOMMENDATIONS

Since subsidised latrines turn out to be just as good as privately funded latrines this analysis suggests to duly revise the reservations against hardware subsidies, which are currently prevalent in the sanitation sector. Hardware subsidies should be considered as one viable component amongst others and be part of approaches to sanitation, in particular for the poorest strata of the populace.

This obviously includes the urge for more effective and harmonised targeting methodologies, than what has been done in the past. The weakness in targeting in the past is a clear finding of this analysis and improving the targeting of subsidies is probably the single most influential determinant for future success. Likewise, with the roll out of ID Poor targeting becomes harmonised, uncomplicated and inexpensive.

The efficiency of hardware and software components for increased up take should be analysed separately for different poverty levels. Such an analysis would allow for informed policy decisions on the optimum combination of software and hardware for varying target populations on different poverty levels.

Further research is also needed to better understand the effects that the presence of subsidised latrines may or may not have on private investments in sanitation.

Despite the sustainability issues with simple pit latrines, CLTS clearly shows capability to trigger effective behavioural change. It is recommended to preserve the powerful aspects in behavioural change, but, at the same time, to allow communities to go for higher technical standards.

7. TECHNICAL RECOMMENDATIONS FOR THE QUESTIONNAIRE AND DATA ANALYSIS

Include two more questions on latrine construction:
3. In what year did you build your current latrine?
4. How much did your current latrine cost?

Modify the formulation of the misleading question 9c: Replace "If yes, why did you build this latrine in the first place?" with "Why did you build this latrine in the first place?"

Include the number of household members (adults and children separate) in the database

Questions 46 – 51 do not need to be that elaborate. Distinct questions for day, night, wet and dry seasons do not generate additional information.

8. REFERENCES

- JMP, Joint Monitoring Programme for Water Supply and Sanitation: Estimates for the use of Improved Sanitation Facilities, Updated March 2010, Cambodia.
- MRD, Department of Rural Health Care Ministry of Rural Development: National Sanitation and Hygiene Knowledge Attitudes and Practices (KAP) Survey, Phnom Penh, 2010.
- NIS, National Institute of Statistics, Ministry of Planning: Cambodia Socio-Economic Survey. Phnom Penh, December 2009a.
- NIS, National Institute of Statistics, Ministry of Planning: General Population Census of Cambodia 2008. National Report on Final Census Results. Phnom Penh, August 2009b.
- Robinson, Andy: Why is the queue for the toilet so long? Practical hints on improving sanitation behaviour in rural areas. Power Point Presentation given on the Sanitation and Water Conference 27th October 2008 in Melbourne.
- WSSCC, Water Supply and Sanitation Collaborative Council: Public Funding for Sanitation, The many faces of sanitation subsidies. Geneva, 2009.

2. Description of Methods

2.1 Selection of KAP survey areas

The coverage of the KAP survey was designed by the MRD support group. The group comprises of representatives of the DRHC-MRD, UNICEF, WHO, Lien Aid organization, Plan International Cambodia, and WSP. Of the five regions of the country, the KAP survey was designed to be done in the Coastal, Plain, Plateau and Mountain, and Tonle Sap regions where most of the country's rural households are located. Survey provinces within each survey region were selected in terms of their representativeness of the region's geographic characteristics.

Table 1: KAP Survey areas

Survey Regions	Survey Provinces
Coastal Region	Kampot
	Koh Kong
Plain Region	Kampong Cham
	Prey Veng
	Takeo
Plateau and Mountain Region	Kampong Speu
	Ratanak Kiri
	Stung Treng
Tonle Sap Region	Kampong Thom
	Oddar Meanchey
	Pursat
	Siem Reap

2.2 Sampling process/ methodology[5]

The computation of optimum households sample size was based on the formula below:

$$n_h = \left[\frac{Z^2_\alpha \cdot p \cdot q}{d^2} \times deff \right] / R$$

Where:

			Value	Equivalent
n_h	Total number of sample households in all region,		1.96	1.99
z_α	95% confident level,		3%	0.03
d	The error margin suggested		23%	0.23
p	Proportion No of household access to latrine		77%	0.77
q	Proportion No of household without latrine		2	2
deff	the design effect between simple random sampling and clusters sampling		95%	0.95
R	The overall respond rate			

The updated 2008 Population Census of the National Institute of Statistics - Ministry of Planning was used as the sampling frame. The frame consists of province code, province name, district code, district name, village code, village name, number of households and number of population.

The sampling design was done in two stages. The first stage was the stratified selection of villages or the so called primary sampling unit (PUS) while the second stage was the selection of households, the secondary sampling unit (SSU).

- *First stage*: The Linear Systematic Sampling with Probability Proportional to Size (LSS-PPS) method was employed in the selection of PSUs the size of which was based on the number of households in a village as recorded in the frame.

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[5] Prepared by Mr. They Kheam, NIS-MoP

- Second stage: Twenty (20) households were selected with equal probability in each selected village by using Linear Systematic Sample Selection (LSS). The MRD Support Group agreed on a sample size of 20 respondents per village as this closely approximates that of Government surveys such as the CDHS and CSES for rural areas.

Table 2 below shows the distribution of sample villages and households for the KAP survey by selected survey provinces and regions. The number of sample village per province was determined using the proportional allocation method with the number of households in each province as basis for allocation.

Table 2: Distribution of KAP Household Survey sample villages and households by Region and Province

Region Name	Province Name	Total No of HH	No of Sample Villages	No of Sample HH	No of Sample Head of HH
Coastal Region	Kampot	119697	7	140	140
	Koh Kong	16771	1	20	20
	Subtotal	136468	8	160	160
Plain Region	Kampong Cham	342704	19	380	380
	Prey Veng	219272	12	240	240
	Takeo	181017	10	200	200
	Subtotal	742993	41	820	820
Plateau and Mountain Region	Kampong Speu	138615	8	160	160
	Ratanak Kiri	23722	1	20	20
	Stung Treng	17633	1	20	20
	Subtotal	179970	10	200	200
Tonle Sap Region	Kampong Thom	127156	7	140	140
	Oddar Meanchey	34568	2	40	40
	Pursat	77899	5	100	100
	Siem Reap	144878	8	160	160
	Subtotal	384501	22	440	440
Grand Total		1443932	81	1620	1620

A detailed description of the sampling methodology and process is found in Annex 2.

2.3 Ethics and Consent Procedures

Selection of respondents in sample villages required official consultation with the village authorities. After respondents were randomly selected in each sample village, interviewers were then required to formally introduce themselves and the purpose of the interviews. During this introductory phase, the respondents were informed that all responses would be noted down but would be kept confidential at all times. Respondents were informed that they could choose to or not to participate in the survey.

2.4 Training

The training of interviewers was conducted at the JICA Maternal and Child Health Institute on September 2 and 3 2010. The training was facilitated by MRD-DRHC staff. The survey consultant along with the survey research associate participated as observers and resource persons.

Fifty-two (52) PDRD staff from the 12 survey provinces and 19 MRD national staff attended the 2-day training. PDRD staffs were the designated survey interviewers while the MRD national staffs were the designated survey monitors – making sure that respondent selection was correctly done at the sample villages and that the questionnaires were administered properly.

The training spent a day and a half on discussions of the household questionnaire and the focus group discussion (FGD) guide and on the sample villages and the process of selecting survey respondents and FGD participants. FGD participants were chosen with the assistance of the Village Chief. Where possible, respondents of the household survey were not invited to participate in the FGDs. On the afternoon of the second day, the interviewers had mock interviews amongst themselves to better familiarize themselves with the household questionnaire. Further, trial runs of the FGD process including the pocket-voting method that was used to obtain quantitative indicators of key hygiene practices among FGD participants.

Prior to the training proper, staffs of the DRHC-MRD conducted a 1-day field test of the survey tools in Kandal province. The field-test experience fed into the finalization of the household questionnaire and to the FGD guide.

The survey tools were developed through a consultative and collaborative process with the MRD support group.

2.5 Data collection and quality control

Aside from being trained for two days, survey interviewers' daily outputs (completed questionnaires) were reviewed and checked by survey monitors. Further daily debriefings were done where issues/questions on questionnaire use were discussed and resolved. The survey monitors were assigned to each survey province and stayed with the interviewer teams until the survey was completed.

Members of the support group conducted field monitoring visits in the course of the field survey. In these visits, the interview and FGD processes were observed and completed questionnaires also checked for errors in terms of administration and consistency of responses obtained.

At the completion of the survey, all questionnaires were brought to the DRHC-MRD for final checking before being turned over to the data processing team.

Identification numbers were assigned to each interview respondent while household members were assigned codes. Only the survey and data processing teams were allowed to view hard copies of the questionnaires and the database. The names of respondents and household members were not encoded. The database created for the survey results was disseminated only to members of the survey team and the support group. Completed questionnaires are kept in a secure place until these are transferred to the DRHC-MRD upon finalization of the survey report.

2.6 Data analysis

2.6.1 Household questionnaires

The household survey results were processed using Statistical Package for the Social Science (SPSS) software.

After the staffs of the DRHC have checked and edited all completed household questionnaires, these were re-checked and manually edited by the Database Specialist and the data encoders. All open-ended questions were grouped into similar categories and coded before inputting to the SPSS database. Processing of open-ended questions was done using a special application of SPSS data entry builder which has a special function for data entry and cleaning.

To further improve the quality of data, survey results were encoded twice producing two data sets. The first data entry pass included all checked and edited questionnaires while the second data entry pass used 25% of the total questionnaires randomly selected from the total set. This second pass was for the purpose of verifying the encoded data of the total questionnaires. After the verification process, all continue variable were printed and compared with the hard copies of the household questionnaires to further minimize errors in data entry. Other variables were cleaned based on the logic and skip pattern instructions in the survey questionnaire. All errors that have been detected during the data checking and cleaning were sent to the research associate, study coordinator, and the research consultant for final verification.

Data analysis was done after a consultation workshop and discussion with relevant stakeholders, including World Bank Cambodia poverty specialists, representatives of the MRD support group. Secondary data was checked against the Cambodia Socio-Economic Survey (CSES) and the Cambodia Demographic and Health Survey (CDHS). Dummy tables were developed for leveled information such as gender and education. Data was also disaggregated by households who have access to sanitation and household who do not have access to sanitation.

2.6.2 Focus group discussions (FGD)

FGD results were first cleaned and checked to obtain a more consistent presentation of narrative information. Thereafter, the results were compiled at the provincial and national levels. Results were summarized according to the structure and flow of questions in the FGD guide. Results of pocket-voting on the *use of latrines, hand-washing with soap, and safe treatment and storage of drinking water* conducted among FGD participants were compiled in tabular summaries at the national level. FGD results processing was done by a separate team of researchers led by the survey team's Research Associate.

2.6.3 Reporting

The KAP survey report structure follows the structure and content agreed with the MRD Support Group.

As discussed and agreed during the same meeting, the survey results discussion section would contain a narrative of the survey results according to the flow of the questionnaire with Observation and FGD results integrated to the discussion. Discussion of KAP survey would focus on a) KAP of respondents that have no access to latrines according to 3 key hygiene behaviors in terms of gender and education levels where educations are grouped as none/ no education, primary education, and higher/ greater than primary education; and b) KAP of respondents that have access to latrines according to 3 key hygiene behaviors in terms of gender and education levels.

Annex 2: Sampling Design[6]

The KAP survey called for a regional representation of households with and without access to latrines based on a sample of 1,620 households in the four geographical regions.

I. Sample size requirement

The computation of optimum households sample size is based on the formula below:

$$n_h = \left[\frac{Z^2_\alpha \cdot p \cdot q}{d^2} \times deff \right] / R$$

Where:

			Value	Equivalent
n_h	total number of sample households in all region,		1.96	1.99
z_α	95% confidence level,		3%	0.03
d	the error margin suggested		23%	0.23
p	proportion of households with latrine		77%	0.77
q	proportion of households without latrine		2	2
deff	the design effect between simple random and clusters sampling		95%	0.95
R	the overall response rate			

II. Sampling frame

The National Institute of Statistics Ministry of Planning reviewed the 2008 Population Census to come up with the sampling frame which consists of the province code, province name, district code, district name, village code, village name, number of households and population.

Table 8Distribution of sample villages and households by Region and Province

Region Name	Province Name	Total No of HH	No of Sample Villages	No of Sample HH	No of Sample Head of HH
Coastal Region	Kampot	119697	7	140	140
	Koh Kong	16771	1	20	20
	Subtotal	136468	8	160	160
Plain Region	Kampong Cham	342704	19	380	380
	Prey Veng	219272	12	240	240
	Takeo	181017	10	200	200
	Subtotal	742993	41	820	820
Plateau and Mountain Region	Kampong Speu	138615	8	160	160
	Ratanak Kiri	23722	1	20	20
	Stung Treng	17633	1	20	20
	Subtotal	179970	10	200	200
Tonle Sap Region	Kampong Thom	127156	7	140	140
	Oddar Meanchey	34568	2	40	40
	Pursat	77899	5	100	100
	Siem Reap	144878	8	160	160
	Subtotal	384501	22	440	440
Grand Total		1443932	81	1620	1620

Source: 2008 population Census database updated by NIS)

III. Characteristics of the Sample

The survey's sample design was done in two stages. The first stage was the stratified selection of villages or the so called primary sampling unit (PUS) while the second stage was the selection of households, the secondary sampling unit (SSU).

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[6]Prepared by Mr. They Kheam, NIS-MoP

1-The first sample selection stage

The 81sample villages were selected based on the updated 2008 Population Census frame conducted by National Institute of Statistics Ministry of Planning. The Linear Systematic Sampling with Probability Proportional to Size (LSS-PPS) method was employed in the selection of PSUs the size of which was based on the number of households in a village as recorded in the frame. This method is explained below:

Step 1: Create a table with seven columns and N rows - one for each of the domain. The seven columns are: 1- Serial number of village (i), 2- Identification of the village consisting of province, district, commune, and village codes, 3- Name of village, 4-Size of village (S_i), 5- Lower limit of selection probability interval (L_i): where Lo=1 and $L_i = S_1+S_2+......+S_{(i-1)} +1$. 6- Upper limit of selection probability interval (U_i): $U_i = S_1+S_2+......+S_i$, the cumulative size, for i=1,2,.....,N, 7- Order of selection.

Step 2: Compute the sampling interval as $I=U_N/n$, round off to the nearest integer. U_N is the last cumulative value in column 6, where **n** is the total number of sample villages (PSUs) in the region.

Step 3:Chose the integer of random number *R* in the range *1* to *I* from the supplied table random number.

Step 4: Take R_1= random number R, and generate a sequence of n selector number R_1, R_2, R_3,............,R_n in this order. To get the next selector number, add (*I*) to the previous selector number. The sample villages will be selected using a computer program based on the number of households in the village.

2- The second stage sampling selection (household selection)

Twenty (20) households were selected with equal probability in each selected villages using Linear Systematic Sample Selection (LSS).

IV. Sample allocation

Table 1 shows the number and distribution of sample villages and households. The number of sample villages per province was in proportion to the number of households in each province based on the assumption of 20 sample households per village.

V. Sample probability

a. First Stage

The selection probability of village i[th] in stratum h was computed as:

$$P_{1hi} = \frac{n_h \cdot M_{hi}}{M_h}$$

Where:

P_{1hi} = probability of selecting the ith village in region (*h*)

n_h = number of sample villages to be drawn from region (*h*)

M_{hi} = number of households in village (*i*) as recorded in the sampling frame

M_h = total number of households in region (*h)* as recorded in the sampling frame.

b. Second Stage

In the second stage, 20 sample households were selected with equal probability in each selected village. The probability of selecting *householdj* in the i[th] sample village was computed as:

$$P_{2hij} = \frac{20}{V_{hi}}$$

Where:

$V_{hi}$is the number of households in the selected i[th]village according to the village chief.

20 is the actual number of sample households in the sample i[th] village.

The overall selection probability for household (*j*) in (i^{th}) sample village of region (**h**) would be:

$$P_{hij} = \frac{n_h \times M_{hi}}{M_h} \times \frac{20}{V_{hi}}$$

VI. Sampling weight

The sampling weight for region (**h_i**) informationis the inverse of the overall selection probability:

$$W_{hij} = \frac{M_h}{n_h \times M_{hi}} \times \frac{V_{hi}}{20}$$

VII. Estimation procedure (Extrapolation)

a. Estimation Procedure for Household Information

The estimate of the stratum total is given in the following formula:

$$\hat{Y}_h = \sum_{i=1}^{n_h} \sum_{j=1}^{m_{hi}} w_{hij}\, y_{hij}$$

for   i = 1, 2,..., n_h
             j = 1, 2, ..., m_{hi}

Where:

$\hat{Y}_h$ =   estimate of characteristic **y** for region (**h)**
y_{hij}   =   any characteristic of household (**j)** in sample village **(i)** in region (**h)**
m_{hi}   =   number of sample households in village **(i)** (20)
n_h   =   number of sample villages in region (**h)**
W_{hij}   =   as defined

The estimate for the total of all regions ($\hat{Y}$) was computed as the sum of the estimates for each region, i.e.,

$$\hat{Y} = \sum_{h=1}^{L} \hat{Y}_h$$

$$= \sum_{h=1}^{L} \sum_{i=1}^{n_h} w_{hij}\, y_{hij}$$

The estimated region ratio mean is computed as:

$$\hat{R}_h = \frac{\hat{Y}_h}{\hat{X}_h} = \frac{\sum\limits_{i=1}^{n_h} \sum\limits_{j=1}^{m_h} w_{hij}\, y_{hij}}{\sum\limits_{i=1}^{n_h} \sum\limits_{j=1}^{m_{hi}} w_{hij}\, x_{hij}}$$

Where:

y_{hij}, n_{h,} , m_{hi} , w_{hij} is as defined earlier

The population ratio mean is ($\hat{R}$), which was estimated using the following formula:

Where:

$$\hat{R} = \frac{\hat{Y}}{\hat{X}} = \frac{\sum_{h}^{L}\sum_{i}^{n_h} w_{hij}\, y_{hij}}{\sum_{h}^{L}\sum_{i}^{n_h} w_{hij}\, y_{hij}}$$

y_{hij}, $a_{h,}$, n_{hi} , w_{hij} is as defined earlier

b. Estimation of Variances

Since most of the estimates from the survey were in the form of weighted ratios, variances for ratio estimates will be presented. The procedures in deriving the estimates for the variances are described below.

All variances of the ratio estimates will be given of the form:

$$Var(\hat{R}) = \frac{1}{\hat{X}^2}\left\{ Var(\hat{Y}) + \hat{R}^2 Var(\hat{X}) - 2\hat{R}.Cov(\hat{X},\hat{Y}) \right\}$$

Where: $Var(\hat{Y}) = \sum_{h=1}^{L}\frac{n}{n_h - 1}\left\{ \sum_{i=1}^{n_h}(y^`_{hi})^2 - (\sum_{i=1}^{n_h} y^`_{hi})^2 / n_h \right\}$

And $y^`_{hi} = \sum_{j=1}^{m_{hi}} w_{hij}\, y_{hij}$

ANNEX 3: KAP QUESTIONNAIRE FOR HOUSEHOLD SURVEY

I. Interview Identification

Province:	
District:	
Commune:	
Village:	

Questionnaire code:			
Name of interviewer:			
Date of Interview:			
Time of Interview:	Start:	End:	
Checked by:		Date:	

Respondent should be the Household Head or the Spouse of the Household Head

Greetings! My name is _____ and I am working for the Survey Team of the Ministry of Rural Development.

MRD with support from UNICEF/ DFiD, WHO, WB-WSP, Lien Aid, and Plan Cambodia, is conducting a survey of households to find out about the knowledge, attitudes and practices of communities in relation to Sanitation and Hygiene. The information you provide will help your government and international organizations design and monitor projects that will improve the existing sanitation conditions in your area.

Because time is limited, not all households in this village will be included in the survey. We would like to request that only household heads (husband or wife) should answer the questionnaire. Please rest assured that any information you provide us will remain confidential and will not be used for any reason other than the study. Should you choose to participate, please remember that there are no correct or wrong answers. There are no disadvantages if you decide not to participate or not to answer certain questions. However, we would greatly appreciate your cooperation. We would only like you to give us your honest opinion. It will probably take you about 30 minutes to 1 Hour to complete the questionnaire.

Thank you.

II. Demographic Data (Household Information)

1. Please tell us about yourself and the composition of your household starting with the head of the household?

Household members *(no names to be written down)*	Gender (1=M; 2=F)	Age	Education [USE CODE]	Marital status [USE CODE]	Primary Occupation [USE CODE]	Disability/ Physical Impairment	Still living in the house?	
1.							[__]Yes	[__]No
2. Spouse of household head							[__]Yes	[__]No
3.							[__]Yes	[__]No
4.							[__]Yes	[__]No
…							[__]Yes	[__]No

Education Codes

Pre-Primary	Primary	Lower Secondary	Upper Secondary	Higher	DK
=0	=1	=2	=3	=4	=8
00= ANY YEAR	01=GRADE 1	07=GRADE 7	10=GRADE 10	01=YEAR 1	98 = DON'T KNOW
	02=GRADE 2	08=GRADE 8	11=GRADE 11	02=YEAR 2	
	03=GRADE 3	09=GRADE 9	12=GRADE 12	03=YEAR 3	
	04=GRADE 4			04=YEAR 4	
	05=GRADE 5				
	06=GRADE 6				

Marital Status Code	Primary Occupation Code	Disability Code
01= Married	01 = Selling labour	01= disable
02= Single	02 = Farmer	02= not disable
03= Divorced	03 = Self-employed	
04= Stay together	04 = Unpaid family worker	
05= Separate	05= Housewife	
06= Widow/widower	06=Student/too young to work	
	07=Retired/ too old to work	
	08 = Unemployed	
	09= Other specify……………	

2. How much was the total household income in the last 12 months (this relates to cash income including cash gifts from relatives not living in the household)?   _____Riels

3. Do you receive non-financial income and gifts from others?   [__]Yes   [__]No

    10a. If yes, what is the value per year?   _____Riel

4. Can you give an estimate on how much you or your family spend on the following last month?

EXPENDITURE ITEM	Amount (Riel)
[_] 1= Food	
[_] 2= Education	
[_] 3=Health	
[_] 4= Entertainment/Leisure activities	
[_] 5= Expenses for weddings, funerals etc	
[_] 6= Others, specify_____	

III.   Water Sources

5. What is the main source of drinking water for members of this household?

Improved water source	Unimproved water source
[_] 1. Household connection	[_]5. Unprotected dug well
[_] 2. Tube well or Borehole	[_] 6. Pond, river or stream
[_] 3. Protected dug well	[_] 7. Unimproved rainwater collection
[_] 4. Improved rainwater collection [1]	[_] 8. Vendor-provided water
	[_] 9. Bottled water
	[_] 10. Tanker truck water
	[_] 11. Others, specify

[1]To be considered improved; the rainwater catchment tank needs to have **all** of the following: **completely closed, tap to withdraw water, and at least 3,000 litres capacity**

6. Do you use the main water source all year or only part of the year?

[_] 1. Whole year	→ **8**
[_] 2. Dry Season only	→ **7**
[_] 2. Wet Season only	→ **7**

7. During the other part of the year (dry or wet season), what is the main source of drinking

Improved water source	Unimproved water source
[_] 1. Household connection	[_]5. Unprotected dug well

water for members of this household?	[_] 2. Tube well or Borehole	[_] 6. Pond, river or stream
	[_] 3. Protected dug well	[_] 7. Unimproved rainwater collection
	[_] 4. Improved rainwater collection [1]	[_] 8. Vendor-provided water
		[_] 9. Bottled water
		[_] 10. Tanker truck water
		[_] 11. Others, specify

8. What is the main source of water used by this household for handwashing?	**Improved water source**	**Unimproved water source**
	[_] 1. Household connection	[_]5. Unprotected dug well
	[_] 2. Tubewell or Borehole	[_] 6. Pond, river or stream
	[_] 3. Protected dug well	[_] 7. Unimproved rainwater collection
	[_] 4. Improved rainwater collection [1]	[_] 8. Vendor-provided water
		[_] 9. Bottled water
		[_] 10. Tanker truck water
		[_] 11. Others, specify

IV. Sanitation Facilities

9. Do you have a latrine?	[__]Yes	[__]No → **25**

9a. If yes, is the latrine functioning/ usable now?	[__]Yes →**9c**	[__]No → **9b**

9b. If no, why not?	Check appropriate boxes → 9d	
	[_] 1. Dirty	[_] 6. Not finished building
	[_] 2. Full	[_] 7. Used as storage
	[_] 3. No water to flush	[_] 8. Smells bad
	[_] 4. Slab broken	[_] 9. Prefer the field/ forest
	[_] 5. Superstructure broken/ missing	[_] 10. Other

9c. If yes, why did you build this latrine in the first place?	Check appropriate box	
	[_] 1. Program was offering subsidy	[_] 7. For events (wedding/ funeral/ wedding/ New Year, etc.)
	[_] 2. Someone told me I had to	[_] 8. For visitors
	[_] 3. Had enough money to buy	[_] 9. For relatives coming to visit
	[_] 4. For sick/ old relatives	[_] 10. Requested by children
	[_] 5. Construction of new house	[_] 11. Don't know
	[_] 6. Neighbour got one	[_] 12. Others, specify

9d. Who in your household decided to build a latrine?	[_] 1. Husband	[_] 4. All (joint decision)
	[_] 2. Wife	[_] 5. Others, specify
	[_] 3. Husband and wife jointly	

10. What kind of latrine do you have? Check appropriate box	**Improved**	**Unimproved**
	[_] 1. Flush or pour flush to sewerage	[_] 5. Flush or pour flush to elsewhere
	[_] 2. Flush or pour flush to septic tank or pit	[_] 6. Open pit latrine without slab
	[_] 3. Pit latrine with slab	[_] 7. Latrine overhanging water
	[_] 4. Public or shared latrine (any type)	[_] 8. Other

11. Was your latrine flooded in the past year?	[__]Yes	[__]No

12. How far is your latrine with reference to the closest drinking water sources ?	_____ meters(if 15 meters and below, Question

12a. What type is that drinking water source?	**Improved water source**	**Unimproved water source**
	[_] 1. Household connection	[_] 6. Unprotected dug well
	[_] 2. Public standpipe	[_] 7. Pond, river or stream
	[_] 3. Tubewell or Borehole	[_] 8. Unimproved rainwater collection
	[_] 4. Protected dug well	[_] 9. Vendor-provided water
	[_] 5. Improved rainwater collection	[_] 10. Bottled water
		[_] 11. Tanker truck water
		[_] 12. Others, specify

13. How often do you/ your family members clean your latrine? Only one answer.	Check appropriate box	
	[_] 1. once a day	[_] 6. Others, specify
	[_] 2. more than once a day	
	[_] 3. once every 2 – 3 days	
	[_] 4. not very often (less than once a week	
	[_] 5. almost never	

14. Who among the HHs members help to clean your latrine? Can be more than one answer.	Check appropriate box	
	[_] 1. Husband	[_] 5. Daughter>15 yrs
	[_] 2. Wife	[_] 6. Son>15 yrs
	[_] 3. Daughter <15 yrs	[_] 7. Other relatives, specify
	[_] 4. Son<15 yrs	

15. What do you do when your latrine is full?	Check appropriate box	
	[_] 1. Build new latrine	[_] 5. Use public latrine
	[_] 2. Pump-off latrine	[_] 6. Others, specify
	[_] 3. Use neighbor's latrine	
	[_] 4. Use relative's latrine	
	[_] 5. Revert to OD	

16. What happens to the waste when it is removed?	Check appropriate box	
	[_] 1. Used as fertilizer →16a	[_] 5. Other, specify
	[_] 2. Dumped in the forest	
	[_] 3. Dumped in the river/ pond/ canal	
	[_] 4. Empty pit contents in a new hole	

16a. If USED AS FERTILIZER IN THE FIELD, is this done	Check appropriate box	
	[_] 1. Immediately	
	[_] 2. Keep for some time	_____ Specify number of months

17. What do you do when your latrine is broken/ collapsed/ become unusable?	Check appropriate box	
	[_] 1. Build new latrine→18	[_] 6. Revert to OD
	[_] 2. Fix/ repair latrine→18	[_] 7. Others, specify
	[_] 3. Use neighbor's latrine	
	[_] 4. Use relative's latrine	
	[_] 5. Use public latrine	

18. (IF LATRINE IS REBUILT/FIXED/ REPAIRED) When do you re-build/ build new/ fix/ repair your latrine?	Check appropriate box	
	[_] 1. Immediately/ ASAP	
	[_] 2. When have money/ materials	

[_] 3. When receive external support/ assistance	
[_] 4. After rainy season	
[_] 5. Others, specify	

19. (IF LATRINE IS RE-BUILT/ FIXED/ REPAIRED IMMEDIATELY) Where do you defecate during time when your latrine is unusable?	Check appropriate box	
	[_] 1. neighbor's latrine	[_] 6. Others, specify
	[_] 2. relative's latrine	
	[_] 3. public latrine	
	[_] 4. Chhikkorb	
	[_] 5. OD (Bush/ forest/ water body)	

20. Is this your first latrine?	[__]Yes → **23**	[__]No→20a
20a. If no, how many latrine(s) have you built before?	[_] 1. One	
	[_] 2. Two	
	[_] 3.Three or more	

20b. What type of latrine did you have before this current latrine?	Check appropriate box	
	[_] 1. Flush or pour flush to sewerage	[_] 6. Flush or pour flush to elsewhere
	[_] 2. Flush or pour flush to septic tank or pit	[_] 7. Open pit latrine without slab
	[_] 3. Pit latrine with slab	[_] 8. Latrine overhanging water
	[_] 4. Ventilated Improved Pit (VIP) latrine	[_] 9. Other
	[_] 5. Public or shared latrine (any type)	

20c. Is your latrine same as previous one?   [_] 1.Yes → **21**   [_] 2. No→ **22**

21. What are your reasons for not improving/ changing your latrine type? (If the current latrine is the same as the previous latrines built)	[_] 1. No money/ Cost is too high
	[_] 2. No materials to build improved latrine
	[_] 3. No external support/ assistance
	[_] 4. Don't know how to build improved latrine
	[_] 5. We do not have a nearby water source for a flush toilet
	[_] 6. Satisfied with same latrine type
	[_] 7. No space in or near house for improved latrine
	[_] 8. No one to build improved latrine
	[_] 9. Others, specify

22. What are your reasons for improving/ changing your latrine type? (If the current latrine is improved/ changed from the previous latrines built)	[_] 1. Have enough money/ resources
	[_] 2. For more privacy
	[_] 3. For more comfort/ convenience
	[_] 4. Improve status/prestige
	[_] 5. Improved safety
	[_] 6. Not satisfied with previous latrine
	[_] 7. Many problems with previous latrine (bad smell, collapse, ants, flooding, etc.)
	[_] 8. Others, specify
	[_] 9.

23. What are the <u>advantages</u> of owning your own latrine? **Please check all that apply**	[_] 1. Improve hygiene/ cleanness	[_] 6. Improve safety
	[_] 2. Improve health	[_] 7. Improve status/prestige
	[_] 3. More privacy	[_] 8. Do not Know
	[_] 4. More comfortable	[_] 9. Others, Specify
	[_] 5. Convenience/save time	

24. What specific problems do you encounter with your latrine? Please check all that apply **(Skip to 35)**	Dry Season	Wet Season
	[_] 1. Bad smell	[_] 1. Bad smell
	[_] 2. Flies/ insects	[_] 2. Flies/ insects
	[_] 3. Animals	[_] 3. Animals
	[_] 4. Flooding	[_] 4. Flooding
	[_] 5. Difficulty in cleaning	[_] 5. Difficulty in cleaning
	[_] 6. Lack of water	[_] 6. Lack of water
	[_] 7. Collapse/ frequent repairs	[_] 7. Collapse/ frequent repairs
	[_] 8. Ants/ termites	[_] 8. Ants/ termites
	[_] 9. Others, specify	[_] 9. Others, specify

25. If no, what are the reasons why you don't have a latrine? Check all appropriate boxes and then ask to rank given reasons from main to least reason. DO NOT READ OUT CHOICES, CHECK THOSE THAT CORRESPOND TO RESPONSES	Reasons (some choices from ESI HH Q)	Rank
	[_] 1. No money/ Cost is too high	
	[_] 2. No materials to build latrine	
	[_] 3. Latrine not important	
	[_] 4. Open defecation tradition	
	[_] 5. Habit of open defecation during field or forest work	
	[_] 6. Vast/ available area (open fields/ forests/ water bodies for open defecation	
	[_] 7. No external support/ assistance/ Never been offered toilet facilities	
	[_] 8. Never receive information on the importance of using latrine	
	[_] 9. Prefer the field/ forest	
	[_] 10. No one to build latrine	
	[_] 11. No space in or near house	
	[_] 12. A pit toilet smells too much	
	[_] 13. We do not own the house/land	
	[_] 14. We do not have a nearby water source for a flush toilet	
	[_] 15. Don't want to spend time on cleaning	
	[_] 16. Not thought about it; we are fine the way we do it now	
	[_] 17. Others, specify	

For Households who have no latrines

26. What are the possible ways of making/ encouraging you and people like you change your present defecation practices/ build a latrine?	Reasons	Rank
	[_] 1. Full subsidy	
	[_] 2. Contribution from NGOs	
	[_] 3. Provision of latrine materials (ring, slab)	
	[_] 4. Microfinance/ loan sources	
	[_] 5. Government law/ regulation	
	[_] 6. Community pressure	
	[_] 7. Community pressure and material and labor assistance	
	[_] 8. If have money	
	[_] 9. Others, specify	

27. What would be the most important characteristics/ features of a latrine if you build or buy by yourself? Why?

Latrine characteristics/ features
[_] 1. Latrine that looks nice
[_] 2. Easy to operate and maintain
[_] 3. Easy to build and cheap
[_] 4. Strong and durable/ can last long
[_] 5. Can provide privacy
[_] 6. Clean and no bad smell
[_] 7. Water-flushed latrine
[_] 8. Others, specify

28. Has your household ever thought about or discussed building a latrine for your family?	[__]Yes→**28a**	[__]No, → **35**
28a. If yes, when was the last time you discussed this?	[_] 1. Less than 1 month ago	[_] 4. More than a year ago
	[_] 2. 1 – 6 months ago	[_] 5. Others, specify

	[_] 3. 7 – 12 months ago	

29.	Who in your household would make the final decision to build a latrine?	[_] 1. Husband	[_] 4. Others, specify
		[_] 2. Wife	
		[_] 3. Husband and wife jointly	

30.	How would you obtain the materials for toilet construction? Check appropriate responses.	[_] 1. Buy from market	[_] 4. Others, specify
		[_] 2. Find it locally	
		[_] 3. Use my existing construction materials	

31.	If you bought a latrine, where would you buy the materials from? How far in kilometers?	_____ Kilometers

32.	What is the highest amount that you would need to spend to have an acceptable latrine for your family?	_____ Riel

33.	Do you currently have any money saved towards having a latrine?	[__]Yes	[__]No

34.	Would you consider taking a microfinance loan to purchase a latrine?	[__]Yes→ **34a**	[__]No→ **34b**	[__] Don't know
	a. If yes, why?			
	b. If no, why?			

V. Knowledge/ Attitudes on Sanitation and Hygiene

35.	What is your understanding of sanitation and hygiene? Check all that apply	[_] 1. Hand hygiene/ cleanliness
		[_] 2. Food hygiene/ cleanliness (proper cooking, storing, preventing cross contamination, washing vegetables)
		[_] 3. Safe disposal of faeces (human and animal)
		[_] 4. General hygiene/ cleanliness (laundry, cleanliness of surfaces, toilets, baths, sinks
		[_] 5. Clean/ safe water (ensuring safe water at "point of use")
		[_] 6. Disposal of solid waste and control of wastewater
		[_] 7.Personal hygiene
		[_] 8. Don't know
		[_] 9. Others, Specify _____

36.	Why do you think you need to maintain good hygiene? Check all that apply	[_] 1. Be healthy/ free from sickness
		[_] 2. Be/ feel clean
		[_] 3. Feel good/ for well-being
		[_] 4. Others, specify

37.	What are the ways to maintain good hygiene/ be hygienic? Check all that apply	[_] 1. Hand-washing with soap
		[_] 2. Treat drinking water (boil, filter, chemical treatment e.g. chlorination)
		[_] 3. Consistent use of latrines
		[_] 4. Cook food well

	[_] 5. Store water properly
	[_] 6. Store food properly
	[_] 7. Bathing/ taking a bath
	[_] 8. Clean the environment
	[_] 9. Don't know
	[_] 10. Others: _____

38. In your opinion, when do you think are the critical times to wash your hands? Check all that apply	[_] 1. After using latrine
	[_] 2. After cleaning children's bottom
	[_] 3. Before preparing meal
	[_] 4. After handling children's faeces
	[_] 5. After defecation
	[_] 6. After touching animals
	[_] 7. After handling animal faeces
	[_] 8. Before feeding others
	[_] 9. After taking care of sick family members
	[_] 10. Before eating
	[_] 11. Don't know
	[_] 12. Others, specify

39. What are the ways to maintain good sanitation? Check all that apply	[_] 1. Safe disposal of adult and infant faeces
	[_] 2. Safe disposal of animal faeces
	[_] 3. Proper disposal of garbage and wastewater
	[_] 4. No open defecation/ consistent use of latrines
	[_] 5. Clean house
	[_] 6. Don't know
	[_] 7. Others, Specify

40. What are the signs or evidences of lack of sanitation and hygiene in your surrounding environment? Check all that apply	[_] 1. Adult and infant faeces
	[_] 2. Animal faeces
	[_] 3. Garbage and wastewater in surroundings
	[_] 4. Bad/ foul smell in the environment/ village
	[_] 5. No/ lack of latrines
	[_] 6. Open defecation
	[_] 7. Don't know
	[_] 8.Others, specify

41. How does a person get diarrhea? Check all that apply	[_] 1. No/ lack of hand-washing before eating
	[_] 2. No/ lack of hand-washing after defecation
	[_] 3. No/ lack of hand-washing after cleaning children's/ disposal of faeces
	[_] 4. Drinking untreated water
	[_] 5. Use of untreated/ improperly stored water for cooking
	[_] 6. Improper/ lack of cooking of food (use MoH guidelines)
	[_] 7. Improper/not cleaning/washing vegetables before cooking/eating
	[_] 8. Don't know
	[_] 9. Others, specify

42. What are the 3 most important ways to prevent diarrhea?	[_] 1. Hand-washing with soap
	[_] 2. Use toilet facility to defecate

DO NOT READ CHOICES. ONLY 3 RESPONSES	[_] 3. Dispose of children's feces in toilet facility
	[_] 4. Bury feces
	[_] 5. Drink clean water
	[_] 6. Store water safely
	[_] 7. Prepare and protect food hygienically
	[_] 8. Dispose of garbage in a pit
	[_] 9. Don't know
	[_] 10. Others, specify

43. In the last 2 weeks, how many HH members have had diarrhea? Please check appropriate code/s. IF NO HH MEMBER EXPERIENCED DIARRHEA, GO TO 45	Household member Code	
	[_] 1.	[_] 7.
	[_] 2.	[_] 8.
	[_] 3.	[_] 9.
	[_] 4.	[_] 10.
	[_] 5.	[_] 11.
	[_] 6.	[_] 12.

44. If your family members got diarrhea where do they go for treatment? *DO NOT READ OUT CHOICES.* *Respondent could have **more than one** answer*	Public Sector	Private Medical	Not Medical Sector
	[_] 1. National Hosp. (PP)	[_] 8. Private Hosp.	[_] 13. Shop selling drugs/ Market
	[_] 2. Provincial Hosp. (RH)	[_] 9. Private Clinic	[_] 14. Kru Khmer/ Magician
	[_] 3. District Hosp. (RH)	[_] 10. Private Pharmacy	[_] 15. Monk/ Religious leader
	[_] 4. Health Center	[_] 11. Home/ Office of Trained Health Worker/ Nurse	[_] 16. Traditional birth attendant
	[_] 5. Health Post	[_] 12. Visit of Trained Health Worker/ Nurse	[_] 17. Don't know
	[_] 6. Outreach		[_] 18. Other, please specify...
	[_] 7. Other Public		

45. Your opinion how is diarrhea spread? *DO NOT READ OUT CHOICES. There can be **more than one** answer*	[_] 1. Dirty hands
	[_] 2. dirty water
	[_] 3. flies
	[_] 4. solid waste
	[_] 5. Unclean food
	[_] 6. Dirty latrine
	[_] 7. Open defecation
	[_] 8. Through animal waste/ manure
	[_] 9. Don't know

	[_] 10. Other, specify

VI. Practices on Sanitation and Hygiene

a. Sanitation/ Excreta disposal

46. Where do you usually defecate when at home during daytime? Please check only one	Dry Season	Wet Season
	[_] 1. OD (ground/forest, water body)	[_] 1. OD (ground/ forest, water body)
	[_] 2. In your own latrine	[_] 2. In your own latrine
	[_] 3. In neighbour latrine	[_] 3. In neighbour latrine
	[_] 4. In public latrine	[_] 4. In public latrine
	[_] 5. Others, Specify	[_] 5. Others, Specify

47. Where do you usually defecate when at home during night-time? Please check only one	Dry Season	Wet Season
	[_] 1. OD (ground/ forest, water body)	[_] 1. OD (ground/ forest, water body)
	[_] 2. In your own latrine	[_] 2. In your own latrine
	[_] 3. In neighbour latrine	[_] 3. In neighbour latrine
	[_] 4. In public latrine	[_] 4. In public latrine
	[_] 5. Others, Specify	[_] 5. Others, Specify

48. Where do you usually defecate when in public places (pagoda, school, health center, etc.)? Please check only one	Dry Season	Wet Season
	[_] 1. OD (ground/ forest, water body)	[_] 1. OD (ground/ forest, water body)
	[_] 2. In neighbour latrine	[_] 2. In neighbour latrine
	[_] 3. In public latrine	[_] 3. In public latrine
	[_] 4. Others, Specify	[_] 4. Others, Specify

49. Where do children of your household usually defecate when at home during day-time? Please check only one.	Dry Season	Wet Season
	[_] 1. OD (ground/ forest, water body)	[_] 1. OD (ground/ forest, water body)
	[_] 2. In your own latrine	[_] 2. In your own latrine
	[_] 3. In neighbour latrine	[_] 3. In neighbour latrine
	[_] 4. In public latrine	[_] 4. In public latrine
	[_] 5. Others, Specify	[_] 5. Others, Specify

50. Where do children of your household usually defecate when at home during night-time? Please check only one.	Dry Season	Wet Season
	[_] 1. OD (ground/ forest, water body)	[_] 1. OD (ground/ forest, water body)
	[_] 2. In your own latrine	[_] 2. In your own latrine
	[_] 3. In neighbour latrine	[_] 3. In neighbour latrine
	[_] 4. In public latrine	[_] 4. In public latrine
	[_] 5. Others, Specify	[_] 5. Others, Specify

51. Where do children of your household usually defecate when in public places (pagoda, school, health center, etc.)? Please check only one.	Dry Season	Wet Season
	[_] 1. OD (ground/ forest, water body)	[_] 1. OD (ground/ forest, water body)
	[_] 2. In neighbour latrine	[_] 2. In neighbour latrine
	[_] 3. In public latrine	[_] 3. In public latrine
	[_] 4. Others, Specify	[_] 4. Others, Specify

52. (If there is an infant in the HHs) Where do you usually dispose of infants' faeces? Please check only one.	Dry Season	Wet Season
	[_] 1. Bury	[_] 1. Bury
	[_] 2. Throw in forest/ bush/ water body	[_] 2. Throw in forest/ bush/ water body
	[_] 3. Throw in your own latrine	[_] 3. Throw in your own latrine
	[_] 4. Throw in neighbour latrine	[_] 4. Throw in neighbour latrine
	[_] 5. Throw in public latrine	[_] 5. Throw in public latrine
	[_] 6. Throw in community dumpsite	[_] 6. Throw in community dumpsite
	[_] 7. Others, Specify	[_] 7. Others, Specify

53. What do you usually use for anal cleansing after defecation? Please check only one.	Dry Season	Wet Season
	[_] 1. Water only	[_] 1. Water only
	[_] 2. Leaves	[_] 2. Leaves
	[_] 3. Paper	[_] 3. Paper
	[_] 4. Stone	[_] 4. Stone
	[_] 5. Wood	[_] 5. Wood
	[_] 6. Corn cob	[_] 6. Corn cob
	[_] 7. Others, Specify	[_] 7. Others, Specify

54. What do your children/ children in the HH usually use for anal cleansing after defecation? Please check only one	Dry Season	Wet Season
	[_] 1. Water only	[_] 1. Water only
	[_] 2. Leaves	[_] 2. Leaves
	[_] 3. Paper	[_] 3. Paper
	[_] 4. Stone	[_] 4. Stone
	[_] 5. Wood	[_] 5. Wood
	[_] 6. Corn cob	[_] 6. Corn cob
	[_] 7. Others, Specify	[_] 7. Others, Specify

55. Are there disabled persons in the household? REFER to Question 1, Disability Column	[__]Yes	[__]No, → 56
56a. If yes, do they experience difficulty in using latrines?	[__]Yes	[__]No, → 56
56b. If yes, what difficulties do they experience and how do they cope with these difficulties	Difficulties/ Problems	Coping means

b. Hand-washing

56. Do you have a habit of handwashing?	[__]Yes	[__]No,→57

56a. If yes, what do you usually use in handwashing? Choose only one.	[_] 1. Water only	[_] 4. Others, specify
	[_] 2. Water and soap	
	[_] 3. Water with ash	

56b. If yes, how often do you usually wash your hands with _ (Response in 57a)?	_____ Number of times/ Frequency of hand-washing

56c. If yes, when do you wash your hands with _ (Response in 56a)? Please check all that apply	[_] 1. when hands are dirty	[_] 6. Before preparing food
	[_] 2. when returning to house from work/ from outside	[_] 7. After cleaning infant who has defecated

	[_] 3. Before eating	[_] 8. After touching animals
	[_] 4. After eating	[_] 9. After disposal of animal faeces
	[_] 5. After defecation	[_] 10. Others, specify

57. Do your children (1-14 yrs) have a habit of handwashing?	[__]Yes	[__]No,→ **61**

57a. If yes, what do your children usually use in handwashing? Choose only one.	[_] 1. Water only	[_] 4. Others, specify
	[_] 2. Water and soap	
	[_] 3. Water with ash	

57b. If yes, how often do your children usually wash their hands with _ (Response in 58a)?	_____ Number of times/ Frequency of hand-washing

57c. If yes, when do your children wash their hands with _ (Response in 58a)? Please check all that apply	[_] 1. when hands are dirty	[_] 6. Before preparing food
	[_] 2. when returning to house from work/ from outside	[_] 7. After cleaning infant who has defecated
	[_] 3. Before eating	[_] 8. After touching animals
	[_] 4. After eating	[_] 9. After disposal of animal faeces
	[_] 5. After defecation	[_] 10. Others, specify

58. What type of soap do you usually use for hand-washing? (Please check only one)	[_] 1. Bar soap	[_] 4. Others, specify
	[_] 2. Liquid soap	
	[_] 3. Powder soap	

59. Where do you get your soap for handwashing? (Please circle all apply)	[_] 1. Buy from market	[_] 6. Buy from health center
	[_] 2. From neighbors	[_] 7. Others, specify
	[_] 3. Buy from NGO	
	[_] 4. Buy from village chief/ commune	
	[_] 5. Buy from provincial agency	

60. How much do you do you send for soap per month?	_____ Riels per month

61. At home, do you have a fixed hand-washing place/ station?	[__]Yes	[__]No→ **61c**

61a. If yes, does it always have water and soap?	[__]Yes	[__]No → **62**

61b. If yes, where is your fixed hand-washing place located? <u>Note: Visit the reported handwashing area for observations</u>	[_] 1. Inside the house, specify location:	
	[_] 2. Outside the house, specify location:	
	[_] 3. Other, specify location:	
61c. If no, where else do you/ your children wash your hands with soap?	[_] 1. At the water source	[_] 4. In the kitchen area
	[_] 2. In the latrine	[_] 5. Other, specify
	[_] 3. Near the latrine	

62. Why is it important for you to wash your hands with soap?	[_] 1. Prevents disease	[_] 9. Heard from other people
	[_] 2. Prevents diarrhea	[_] 10. Heard from radio/TV
	[_] 3. Cleans hands/removes dirt	[_] 11. Have seen other people do so
	[_] 4. Is good hygiene	[_] 12. Smells good
	[_] 5. Prevents dirt from getting into mouth	[_] 13. Looks/feels clean
	[_] 6. Prevents dirt from getting into food	[_] 14. Others, specify
	[_] 7. Removes germs	
	[_] 8. Heard from parents/other family	

c. Drinking water treatment and storage

63. Who in your household usually goes to collect water? Check one only	[_] 1. Adult woman	[_] 4. Male child (under 15)
	[_] 2. Adult man	[_] 5. Don't know
	[_] 3. Female child (under 15)	[_] 6. Others, specify

64. Do you store your drinking water at home?	[__]Yes, → **66**	[__]No, → **65**

65. If no, is your house connected to piped water supply, have own well, have own RWH tank??	[__]Yes, → **65a**		[__]No, → **69**
65a. If yes, to which is your house connected to?	Check appropriate box		
	[_] 1. Connected to piped water supply	[_] 4. Others, specify	
	[_] 2. Have own well		
	[_] 3. Have own RWH tank		

66. Why do you store your drinking water?	Check appropriate box	
	[_] 1. Prevent contamination	[_] 5. Others, specify

	[_] 2. Keep clean	
	[_] 3. Limit/ reduce water treatment tasks	
	[_] 4. Keep safe	

67. How long does the drinking water in the storage container stay stored before it is refilled?	Wet Season	Dry Season
	[_] 1. Every day	[_] 1. Every day
	[_] 2. Every week	[_] 2. Every week
	[_] 3. Every two weeks	[_] 3. Every two weeks
	[_] 4. Every month	[_] 4. Every month
	[_] 5. Every six months	[_] 5. Every six months
	[_] 6. Others, specify	[_] 6. Others, specify

68. Do the drinking water storage containers get cleaned?	[__]Yes	[__]No→69
68a. If yes, when was the last time these were cleaned?	Check appropriate box	
	[_] 1. Today/ This week	[_] 4. Don't know
	[_] 2. This month	[_] 5. Others, specify
	[_] 3. More than a month ago	

69. Do you treat your drinking water?	[__]Yes	[__]No,→ 71
69a. If yes, why do you treat your drinking water?	[_] 1. Boil	[_] 3. Put against the sun
	[_] 2. Water filter	[_] 4. Others
69b. If yes, why do you treat your drinking water?	Check appropriate box	
	[_] 1. Contaminated with dirt	[_] 7. Water looks bad
	[_] 2. Contaminated with feces/human/animal waste	[_] 8. Insects in the water
	[_] 3. Contaminated with germs, bacteria, viruses	[_] 9. So I don't get sick/ Prevent sickness
	[_] 4. Good for health/appearance	[_] 10. Don't know
	[_]5. Animals use the water	[_] 11. Other, specify
	[_]6. Water smells bad	

70. How often do you treat drinking water?	Check appropriate box	
	[_] 1. Always	[_] 4. Never
	[_] 2. Usually	[_] 5. Don't know
	[_] 3. Sometimes	[_] 6. Others, specify

VII. Messages on sanitation and hygiene

71. In the last year, have you seen, heard or received any messages or materials on sanitation and hygiene?	[__]Yes	[__]No **(Finish the Interview and proceed to Observations Part)**

71a. If yes, what sanitation and hygiene messages have you seen, heard or received?	[_] 1. Build a latrine	[_] 8. Good food hygiene
	[_] 2. Always use a latrine/ stop open defecation	[_] 9. Wastewater/ stagnant water management
	[_] 3. Safe disposal of infants' faeces	[_] 10. Proper solid waste disposal/ management
	[_] 4. Wash hands with soap	[_] 11. Don't know
	[_] 5. Drink safe water	[_] 12. Others, specify
	[_] 6. Treat drinking water	

	[_] 7. Store drinking water safely	

71b. If yes, where did you see, hear, receive these messages?	[_] 1. Posters or leaflets in village/ commune	[_] 7. On TV
	[_] 2. At community meetings	[_] 8. On radio
	[_] 3. In government offices	[_] 9. Don't know
	[_] 4. When visiting a health facility	[_] 10. Other, specify
	[_] 5. Material received at your home	
	[_] 6. In newspapers or magazines	

71c. If yes, when did you see, hear, receive these messages?	[_] 1. Today	[_] 7. 6 months ago
	[_] 2. Yesterday	[_] 8. Don't know
	[_] 3. This week	[_] 9. Other, specify
	[_] 4. Last two weeks	
	[_] 5. Last month	
	[_] 6. More than a month ago	

71d. If yes, from whom did you hear/ receive these messages?	[_] 1. Village chief
	[_] 2. Commune chief/ council
	[_] 3. Government agency, specify _____
	[_] 4. NGO, specify name _____
	[_] 5. From family members
	[_] 6. From neighbors
	[_] 7. Don't know
	[_] 8. Can not remember
	[_] 9. Other, specify

ANNEX 4: KAP HOUSEHOLD OBSERVATION GUIDE

(*To be used after administering the Household Questionnaire*)

A. Latrines

					Observation Notes
1. (For Pit Latrines) – Is there a cover for the hole?	Yes		No		
2. Is the slab smooth and easy to clean?	Yes		No		
3. Does the latrine have walls, a roof, and a door?	Yes		No		
4. Are the latrine roof/ walls/ door well maintained?	Yes		No		
5. Is there a well-trodden (well-used) footpath/ access path towards the latrine?	Yes		No		
6. Are human faeces visible on the floor or slab of latrine?	Yes		No		
7. Are there flies near/ at the latrine?	Yes		No		
8. In your opinion, is the general appearance/ condition of the latrine area clean	Yes		No		
9. Is there a handwashing place inside or just outside the latrine?	Yes		No		
a. If yes, please note down what types of handwashing materials	Yes		No		
Jar and Water	Yes		No		
Soap	Yes		No		
Ash	Yes		No		
b. Are there materials to cover the faeces after defecation? What type of materials?	Yes		No		
Ash	Yes		No		
Sawdust	Yes		No		
Rice husk					
Soil/ Sand					

10. Where is the latrine located with respect to the reported regular water source/s?	Distance in meters	

11. (IF THE HOUSEHOLD HAS CHILDREN <5 YEARS) Are there children's potty/ies in the house or around the house?	Yes		No		

12. If yes, are there observable evidence that the potties are used?	Yes		No		

B. **Main Drinking Water Sources**

13. Are the immediate surroundings of the drinking water source clean? (not muddy, no human or animal faeces/ wastes, no trash/ garbage)	Yes		No		
14. Are animals loitering and/ or drinking from the drinking water source?	Yes		No		
15. Are there observable indications that people take a bath in/at the drinking water source? (Soap/ soap leftovers, clothes, towels, etc.)	Yes		No		

16. What observable equipment at the HH is/ are used for collecting/ getting water from the drinking water source?	Check appropriate box	
	[_] 1. Narrow-mouthed <u>capped</u> containers	[_] 4. Wide mouthed containers <u>without</u> covers (pails, paint cans, etc.)
	[_] 2. Narrow-mouthed <u>uncapped</u> containers	[_] 5. Others, specify
	[_] 3. Wide mouthed containers <u>with</u> covers (pails, paint cans, etc.)	
a. Are the equipment clean?	Check appropriate box	
	[_] 1. Clean	[_] 2. Dirty

C. **Hand-washing facility/ area**

17. IF IN Question 61 of the Questionnaire, A fixed HAND-WASHING AREA IS IDENTIFIED, OBSERVE FOR THE FOLLOWING:

a. Is there water at the fixed handwashing facility?	Yes		No		

b. What handwashing materials are observed?	Check appropriate box	
	[_] 1. Bar soap	[_] 5. Sand
	[_] 2. Liquid soap	[_] 6. Others, specify
	[_] 3. Powder soap	
	[_] 4. Ash	

c. Is there a water jar with bucket?	Yes		No		
d. Is there a tap on the water container?	Yes		No		
e. Is there a towel or cloth to dry hands?	Yes		No		
f. condition of the towel if it is there (clean, dirty, evidence of use)	Yes		No		
g. Is there evidence of having been recently used (wet ground/ cement/ presence of water, etc.)?	Yes		No		

18. If in Question 61c of the Questionnaire, No DESIGNATED HAND-WASHING AREA IS IDENTIFIED, observe for the following in the area where hand-washing is usually done:

a. Is there a place for hand-washing?	Yes		No		
b. Is there water?	Yes		No		

c. What handwashing materials are observed?	Check appropriate box	
	[_] 1. Bar soap	[_] 4. Ash
	[_] 2. Liquid soap	[_] 6. Others, specify
	[_] 3. Powder soap	

d. Is there a towel or clothe to dry hands?	Yes		No		

e. condition of the towel if it is there (clean, dirty, evidence of use)	Yes		No		
f. Is there evidence of having been recently used (wet ground/ cement/ presence of water, etc.)?	Yes		No		
19. Ask to wash your hands... a. Were you offered soap?	Yes		No		
b. If no, ask if they have soap – Is soap provided?	Yes		No		

D. Drinking water storage and water treatment

20. What kind of drinking water storage containers are observed?	Type	Number
	[_] 1. Narrow mouthed	[_] 3. Both types
	[_] 2. Wide mouthed	[_] 4. Others, specify

21. Are the drinking water containers covered?	Check appropriate box	
	[_] 1. all are covered	[_] 4. Others, specify
	[_] 2. some are covered	
	[_] 3. none are covered	

22. Is the water in the drinking water storage containers clean?	Clean	Not clean
	[_] 1. All are clean and covered	[_] 1. Water is turbid
	[_] 2. Some are clean and un-covered	[_] 2. Algal growth in water
	[_] 3. All are dirty and covered	[_] 3. Mosquitoes/ Larvae
	[_] 4. Some are dirty and un-covered	[_] 4. Leaves or other floating material

23. Where are the drinking water storage containers placed?	Check appropriate box	
	[_] 1. On the floor	[_] 3. Others, specify
	[_] 2. Elevated above the floor	

24. How is water taken from the drinking water containers?	Check appropriate box	
	[_] 1. Pouring	[_] 4. Don't know
	[_] 2. Dipping (dipper/ ladle/)	[_] 5. Other, specify
	[_] 3. Container has spigot or tap	

25. Observe for different types of water treatment practices/ equipment	Check appropriate boxes	
	[_] 1. Boil	[_] 6. Solar disinfection
	[_] 2. Add Bleach/ Chlorine?	[_] 7. Let it Stand and Settle
	[_] 3. White Alum	[_] 8. Others, specify
	[_] 4. Strain through a cloth	
	[_] 5. Water Filters (Ceramic, Sand, Composite, etc.)	

E. Messages

26. *Inside the house, in the outside walls, or within immediate vicinity of the house (on trees, latrines, etc.)*, are there posters/ signs showing/ encouraging good/ proper sanitation and hygiene practices?		[_] Yes	[_] No/ None
a. If yes, what types/ kinds of messages are observed in the posters/ signs?	Check appropriate boxes		
	[_] 1. Stop open defecation	[_] 4. Ways to avoid/ prevent diarrhea	
	[_] 2. Consistent hand-washing with soap	[_] 5. Other, specify	
	[_] 3. Proper treatment and storage of drinking water		