

A Survey on Basic Water and Sanitation Facilities
In Eight Target Provinces of WaterSHED in Cambodia

WaterSHED

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Contents

Introduction 3

Objectives of the Survey 3

Methodology 4

Findings 7

 Demographic Characteristics 7

 Latrine Coverage 8

 Overview..... 8

 Battambang..... 10

 Kampong Cham 10

 Kampong Chhnang..... 13

 Kampong Speu 14

 Pailin 14

 Pursat 16

 Takeo..... 16

 Tboung Khmum 18

 Comparison to other available data on sanitation coverage 20

 Summary..... 21

 Water Supply Access 24

 Latrine Sales facilitated by WaterSHED 25

Conclusions 27

Annex 1: Definition and count manner of each variation: 28

Annex 2: Coverage Data Overview 29

List of Tables

Table 1: Number of districts, communes, and villages included in this study.....	4
Table 2: Basic demographic characteristics by province	7
Table 3: Latrine Coverage by Province.....	9
Table 4: Latrine Coverage by District in Battambang, 2014 and 2011	11
Table 5: Latrine Coverage by District in Kampong Cham	12
Table 6: Latrine Coverage by District in Kampong Chhnang.....	13
Table 7: Latrine Coverage by District in Kampong Speu	15
Table 8: Latrine Coverage by District in Krong Pailing	15
Table 9: Latrine Coverage by District in Pursat	17
Table 10: Latrine Coverage by District in Takeo	17
Table 11: Latrine Coverage by District in Tboung Khmum	19
Table 12: Districts with lowest latrine coverage in 2014 across all eight provinces	21
Table 13: Districts with the highest number of households without latrines	22
Table 14: Districts with low latrine coverage and high number of households without latrines	22
Table 15: Classification of water filter by province	24
Table 16: Inventory of public and private wells and their use by province	24
Table 17: Latrine Coverage plus sales data from latrine sales facilitated by WaterSHED's field staff	26

List of Figures

Figure 1: Percentage of latrine coverage by number of households without latrine by district	23
Figure 2: Water filter coverage and ratio of wells per household.....	25

Abbreviations:

CIPS	Cambodia Inter-Censal Population Survey
DHS	Demographic and Health Survey
NIS	National Institute of Statistics
PDoP	Provincial Department of Planning
PDRD	Provincial Department of Rural Development

Introduction

Inadequate sanitation and hygiene behavior is a major cause of infant and child mortality in developing countries. Like more than one billion people worldwide, millions of Cambodians still practice open defecation every day. This is not only putting their own health at risk, but also the health and well-being of those around them. Yet, only one third of Cambodia's rural population has access to improved sanitation¹.

To address this problem, WaterSHED began implementing its *Hands-Off* sanitation marketing approach in two provinces in 2010 and has since grown to eight provinces since 2012. Working with latrine suppliers, local government officials, and sales agents, WaterSHED aims to stimulate both demand and supply of latrines. Until December 2014, WaterSHED was able to facilitate the sale of more than 100,000 latrines.

However, there is a significant lack of data on latrine coverage and water supply, making effective targeting difficult, inhibiting efficient marketing activities and thus limits the ability to make important decisions regarding the focus of the program. WaterSHED is only one among a number of governmental and non-governmental organizations working in the Cambodian WASH sector that is faced with this challenge.

Therefore, WaterSHED has embarked on the important exercise to collect data regarding sanitation facilities and basic water supply in all eight provinces in which WaterSHED operates, including Battambang, Kampong Cham, Kampong Chhnang, Kampong Speu, Pailin, Pursat, Takeo and Tboung Khmum. This report presents a detailed account of the methodology, data collection and processing, findings, and conclusions from the study.

Objectives of the Survey

WaterSHED has been implementing its project to improve the adoption of appropriate water, sanitation and hygiene practices for three years across eight provinces through its market-based *Hands-Off* approach to sanitation marketing. As this project aims to deliver tangible outputs, it is important to measure progress in sanitation coverage at district and commune levels against its baseline data. However, such data is not regularly collected in Cambodia and the data collection is a resource-intensive exercise. WaterSHED working alongside the local and provincial authorities to use existing administrative infrastructure on a sub-national level to conduct the data collection. These data are their data, the authorities have ownership of these data to use for planning and reporting purposes.

In short, the objectives of this sanitation coverage report are:

- (1) to improve the efficiency and effectiveness of WaterSHED's sanitation intervention by providing reliable data on sanitation coverage
- (2) to establish a data collection mechanism at the village, commune and district levels involving existing administrative infrastructure
- (3) to prove the viability of such a data collection exercise
- (4) to explore of the market for other WASH opportunities for example point of use water filters, hand-washing devices, etc.)
- (5) to provide other governmental and non-governmental organization operating in the sanitation sector of Cambodia with reliable data.

¹ Cambodia Socio-Economic Survey 2011

Methodology

WaterSHED operates in Cambodia in the eight provinces of Battambang, Kampong Cham, Kampong Chhnang, Kampong Speu, Pailin, Pursat, Takeo, and Tboung Khmum. The data collection for this survey has been conducted in 5,801 villages in 527 communes across 58 districts in these eight provinces. The following districts were not included in the survey: Angkor Borei, Bati, Koh Andaet, Daun Kaev in Takeo province; Chol Kiri in Kampong Chhnang province; Veal Veng in Pursat province; and Krong Kampong Cham in Kampong Cham province. Table 1 summarizes the number of villages, communes and districts by province surveyed for this report. Since data collection was not completed simultaneously, Table 1 also indicates the completion dates of data collection in each province.

Table 1: Number of districts, communes, and villages included in this study

Province	District	Commune	Village	Completed Date
Battambang	14	99	803	03/2014
Kampong Cham	9	104	885	06/2014
Kampong Chhnang	7	59	508	03/2014
Kampong Speu	8	87	1,375	01/2014
Pailin	2	8	91	03/2014
Pursat	5	42	471	03/2014
Takeo	6	64	797	01/2014
Tboung Khmum	7	64	871	06/2014
Total	58	527	5,801	06/2014

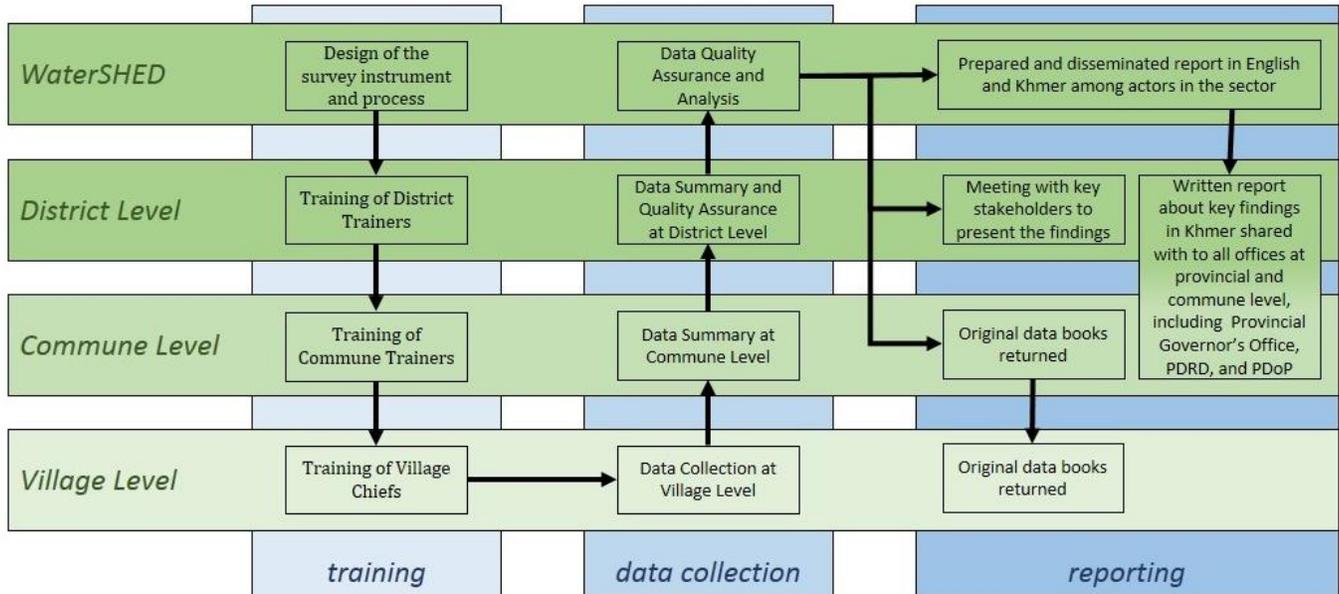
Table 2: 10 steps of data collection, processing and dissemination of the results

Preparation	1	Meeting with local authorities <ul style="list-style-type: none"> • District Chief • PDRD • PDoP 	In order to actively involve local authorities in the process of data collection, analysis and usage, a meeting with local authorities, including district chiefs as well as representatives of the PDRD and the PDoP, was set up to discuss the proposed questionnaire, data collection tools, and strategies for data collection. The involvement of these institutions from the very first stage was crucial to ensure their ownership and later the usage of the data.
	2	Training of District Trainers	After the final design of the survey was agreed, WaterSHED conducted a training for Key Persons (KP) at district level, including administrative officers in the district. The training included (1) general information about the survey design and process; and (2) training on the use of the data collection tools
	3	Training of Commune Trainers	With the support of WaterSHED staff, the newly trained district officials instructed commune administrative officers or clerks (Smean Khum) at commune level in (1) the general design and process of the survey; and (2) the use of the data collection tools.
	4	Training of Village Chiefs	Thereafter, commune officers trained each village chief in their commune how to collect and record the data.
Data collection, entry and verification	5	Data Collection at Village Level	Village chiefs were expected to count the number latrines in use in their village according to physical appearance. In doing this, they were supported by a KP at commune level when needed. Upon completing the data collection, the village chief passed the data on to the KP at commune level responsible for the respective village.
	6	Data Summary at Commune Level	The KP was responsible for: <ol style="list-style-type: none"> (1) collecting the village data books; (2) ensuring the data is complete; (3) summarizing the data records into a separate data sheet for the entire commune; (4) verifying if the collected data matches with the commune's own data; (5) passing the data on to the responsible officer at district level
	7	Data Summary and Quality Assurance at District Level	At district level, the data is summarized and newly verified to match with existing records.
	8	Data Entry to Database at WaterSHED Office	For data entry, WaterSHED's team used Microsoft Access Database to record all data following four steps: <ol style="list-style-type: none"> (1) Record data on MS Access database; (2) Verify data entry by hand; (3) Once data from one commune is complete, verify the correctness of the data entry by matching the calculated total from village data with the summary provided by the commune level; and (4) Once data from one district is complete, verify numbers again to ensure that data entry and commune records match
Dissemination	9	Distribute Back To Commune after Completion of Data Entry	Once the data entry at WaterSHED's office was completed, the original hard copies of the village data books were returned to each village via the commune office
	10	Data Analysis, Report Writing, and Dissemination	WaterSHED analyzed the collected data and reported key findings in Khmer. The written report was shared with all district and provincial offices, such as Provincial governor's office, PDRD and PDoP. Furthermore, WaterSHED organized a meeting with other key stakeholders to present the results in each province.

To ensure the quality of the data, the accuracy of the data was checked at each step of summary, at commune and at district level. After the data was entered in a Microsoft Access Database, it was again verified with the hardcopy and existing commune-level data in order to detect any potential error.

Figure 1 illustrates this process.

Figure 1: Mechanism of data collection, processing, analysis, and dissemination of the results



Findings

Demographic Characteristics

Table 3 shows basic demographic characteristics of the districts of all eight provinces under scrutiny in this study. In total, data from 5,107,468 people - or just over one third of the Cambodian population - is included in this study. The size of the population varies significantly across provinces. While Battambang (1,017,418), Kampong Cham (975,984), Kampong Speu (784,807) and Tboung Khmum (775,234) provinces all comprise a population larger than three quarter of a million and together make up almost one quarter of the Cambodian population, in this study the smallest province Pailin (57,026) represents less than 0.5% of the Cambodian population. On average, 4.3 people live in the same household across all eight provinces, ranging between 4.1 in Pursat and 4.7 in Kampong Speu. The female population in each of the provinces constitutes slightly more than half of the overall population (51%), except in Pailin Province which has a slightly lower (49%) share of females among the overall population.

The following districts are not covered by the survey:

- Kampong Chhnang province: Chol Kiri;
- Kampong Cham province: Krong Kampong Cham
- Pursat province: Veal Veng;
- Takeo province: Angkor Borei, Bati, Koh Andaet, Daun Kaev.

Table 3: Basic demographic characteristics by province

Province	Number of hh	Number of families	Population	Average hh size	Male	Female	% Female
Battambang	207,150	237,311	1,017,418	4.29	501,737	515,681	51
Kampong Cham	194,398	235,195	975,984	4.15	473,416	502,568	51
Kampong Chhnang	97,880	106,214	448,799	4.23	215,525	233,274	52
Kampong Speu	159,419	168,123	784,807	4.67	379,952	404,855	52
Pailin	12,072	13,478	57,026	4.23	28,957	28,069	49
Pursat	87,516	97,026	401,847	4.14	193,817	208,030	52
Takeo	133,584	144,953	646,353	4.46	312,349	334,004	52
Tboung Khmum	160,284	184,278	775,234	4.21	378,286	396,948	51
Total	1,052,303	1,186,578	5,107,468	4.30	2,484,039	2,623,429	51

Source: WaterSHED's Latrine Coverage Survey 2014

Note: This table shows population data from all districts in the eight provinces, except Angkor Borei, Bati, Koh Andaet, Daun Kaev in Takeo province; Chol Kiri in Kampong Chhnang province; Veal Veng in Pursat province; and Krong Kampong Cham in Kampong Cham province

Latrine Coverage

Overview

Table 4 shows latrine coverage by province, including both absolute numbers of latrines and percentage coverage, as well as use of neighbor's latrines. Across all 1.05 million households included in this study 432,039 (41.1%) own a toilet. The vast majority (96.7%) of these toilets are pour-flush latrines. Nevertheless, there are differences between and within provinces. A multi-level analysis shows that only a very small portion (2.6%) of the differences in latrine coverage between districts can be attributed to the province the district belongs to. In other words, the latrine coverage of one district is not dependent on the province it is situated in.

Between provinces, latrine coverage ranges between one third in Kampong Speu (32.1%) to just over half of all households in Battambang (52.9%). In general, latrine coverage is very evenly spread across provinces, with five out of eight provinces (Kampong Chhnang, Tboung Khmum, Takeo, Pursat, and Kampong Cham; in ascending order) falling within a margin of only five percent points (36.2 to 41.2%) in latrine coverage. Pailin (49.8%) and Battambang (52.9%) are positive outliers, while Kampong Speu (32.1%) records a significantly lower toilet coverage compared to the other seven provinces.

Dry pit latrines are most commonly found in Kampong Cham (6.5%) and Tboung Khmum (5.6%), though in general only a very small fraction of all households use dry pits. Considering the prevalence of the use of dry pit latrines is consistently low across provinces and thus does not add to the explanatory value of this report, it is left out of the analysis of the disaggregated data by district. Nevertheless, the data is reported in the appendix.

The percentage of households that share latrines with their neighbors is 4.3% on average. There is very low variation across all provinces ranging from 3.1 to 5.1%.

Table 4: Latrine Coverage by Province

Province	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with pour-flush latrines	% of hh with pour-flush latrines	# of hh with dry pit latrines	% of hh with dry pit latrines	# of hh using Neighbor's Latrine	% of hh using Neighbor's Latrine
Battambang	207,150	109,556	97,594	52.9	107,157	97.8	2,399	2.2	10,582	5.1
Kampong Cham	194,398	80,149	114,249	41.2	74,971	93.5	5,178	6.5	8,394	4.3
Kampong Chhnang	97,880	35,433	62,447	36.2	34,984	98.7	449	1.3	3,180	3.3
Kampong Speu	159,419	51,192	108,227	32.1	50,157	98.0	1,035	2.0	7,992	5.0
Pailin	12,072	6,009	6,063	49.8	5,891	98.0	118	2.0	558	4.6
Pursat	87,516	34,964	52,552	40.0	34,731	99.3	233	0.7	3,025	3.5
Takeo	133,584	53,143	80,441	39.8	51,883	97.6	1,260	2.4	6,040	4.5
Tboung Khmum	160,284	61,593	98,691	38.4	58,123	94.4	3,470	5.6	4,949	3.1
Total	1,052,303	432,039	620,264	41.1	417,897	96.7	14,142	3.3	44,720	4.3

Source: WaterSHED's Latrine Coverage Survey 2014

Note: This table shows population data from all districts in the eight provinces, except Angkor Borei, Bati, Koh Andaet, Daun Kaev in Takeo province; Chol Kiri in Kampong Chhnang province; Veal Veng in Pursat province; and Krong Kampong Cham in Kampong Cham province.

Next, we analyzed the latrine coverage data disaggregated by district in each province, revealing some interesting insights. For each province we describe the relative latrine coverage as well as the absolute number of households without toilets.

Battambang

Table 5 shows the disaggregated latrine coverage data for Battambang province in 2011 and 2014 as well as the change in latrine coverage since 2011. Focusing on 2014, on average 52.9% of all households in Battambang province own a latrine. However, this also means that 97,594 households in this province do not own a latrine. The variation in latrine coverage in Battambang is very high, ranging between 19.4% in Rokha Kiri district and 88.6% in Battambang town. In general, peri-urban areas such as Aek Phnom (67.7%), Sangkae (55.7%), and Banan (55.7%) appear to have a much higher latrine coverage than mainly rural districts such as Samlot (30.5%), Sampov Lun (37.0%), and Kamrieng (37.6%). The number of households without access to a latrine per district also varies across Battambang province from only 2,792 latrines in Battambang town to 13,033 in Moung Ruessei district.

However, for effective targeting not only the relative latrine coverage, but also the absolute number of households without a latrine is important. Although relative latrine coverage is high in peri-urban districts such as Banan and Sangkae (each 55.7%), these districts also comprise a high number of households without latrines, because of their large total populations. In each, Banan and Sangkae, more than 9,000 households do not have latrines. This is approximately 19% of all households without latrines in Battambang.

Latrine coverage in Battambang has increased by nine percentage points between 2011 (44%) and 2014 (53%), equivalent to 17,382 additional households with access to a latrine or a 20% increase in latrine coverage. The variation in change across districts is low. Banan is the district with both the largest increase in number of latrines (4,628) and greatest percentage point increase (21%). Further to that, the district of Koas Krala managed to double its latrine coverage in only three years from 18% in 2011 to 35% in 2014.

Kampong Cham

Table 6 shows the disaggregated latrine coverage data for Kampong Cham province in 2011 and 2014 as well as the change in latrine coverage since 2011. Focusing on 2014, on average 41.2% of all households in Kampong Cham province own a latrine. However, this also means that 114,249 households in this province do not own a latrine. Compared to Battambang province, variation in latrine coverage is smaller in Kampong Cham, ranging from Batheay district (32.8%) to Srey Santhor (51.4%) and Chamkar Leu (51.5%) districts. In absolute terms, the variation in the number of households without latrine is small, ranging from 8,449 in Kaoh Soutin to 16,909 in Prey Chhor district.

Latrine coverage in Kampong Cham has increased by 15 percentage points between 2011 (26%) and 2014 (41%), equivalent to 32,345 new latrines or a 58% increase in latrine coverage. The variation in change across districts is low regarding the percentage point increase in latrine coverage, ranging from 10% points in Chamkar Leu to 19% in Srei Santhor and Cheung Prey. However, while all districts managed to increase their latrine coverage significantly in only three years, Batheay (114%) and Cheung Prey (111%) districts stand out with more than doubling the latrine coverage among their households.

Table 5: Latrine Coverage by District in Battambang, 2014 and 2011

District	2014				2011				Change between 2011 and 2014		
	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with latrine	% point in latrine coverage	% in latrine coverage
Aek Phnum	10,893	7,372	3,521	68%	13,926	7,060	6,866	51%	312	17%	33%
Banan	20,455	11,386	9,069	56%	19,592	6,758	12,834	34%	4,628	21%	61%
Battambang	24,497	21,705	2,792	89%	28,072	23,807	4,265	85%	-2,102	4%	4%
Bavel	21,848	10,808	11,040	49%	21,169	9,928	11,241	47%	880	3%	5%
Kamrieng	11,645	4,380	7,265	38%	10,434	3,358	7,076	32%	1,022	5%	17%
Koas Krala	5,354	1,883	3,471	35%	5,227	925	4,302	18%	958	17%	99%
Moung Ruessei	22,986	9,953	13,033	43%	22,826	6,066	16,760	27%	3,887	17%	63%
Phnum Proek	9,841	3,650	6,191	37%	10,612	3,421	7,191	32%	229	5%	15%
Rotonak Mondol	8,201	3,144	5,057	38%	8,432	2,054	6,378	24%	1,090	14%	57%
Rukh Kiri	9,458	1,834	7,624	19%	7,766	1,504	6,262	19%	330	0%	0%
Samlout	9,102	2,774	6,328	30%	8,027	1,777	6,250	22%	997	8%	38%
Sampov Lun	8,375	3,096	5,279	37%	7,436	3,385	4,051	46%	-289	-9%	-19%
Sangkae	21,471	11,968	9,503	56%	22,640	9,344	13,296	41%	2,624	14%	35%
Thma Koul	23,024	15,603	7,421	68%	23,543	12,787	10,756	54%	2,816	13%	25%
Total Battambang	207,150	109,556	97,594	53%	209,702	92174	117,528	44%	17,382	9%	20%

Source: WaterSHED's Latrine Coverage Survey 2011 and 2014

Table 6: Latrine Coverage by District in Kampong Cham

District	2014				2011				Change between 2011 and 2014		
	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with latrines	% point in latrine coverage	% in latrine coverage
Batheay	23,099	7,566	15,533	33%	22,649	3,473	19,176	15%	4,093	17%	114%
Chamkar Leu	22,377	11,519	10,858	51%	23,465	9,637	13,828	41%	1,882	10%	25%
Cheung Prey	19,400	6,950	12,450	36%	19,498	3,303	16,195	17%	3,647	19%	111%
Kampong Siem	22,657	8,378	14,279	37%	21,881	4,170	17,711	19%	4,208	18%	94%
Kang Meas	19,500	8,546	10,954	44%	6,934	2,026	4,908	29%	6,520	15%	50%
Kaoh Soutin	13,465	5,016	8,449	37%	14,096	3,171	10,925	22%	1,845	15%	66%
Prey Chhor	29,547	12,638	16,909	43%	29,154	9,219	19,935	32%	3,419	11%	35%
Srei Santhor	19,872	10,207	9,665	51%	19,916	6,530	13,386	33%	3,677	19%	57%
Stueng Trang	24,481	9,329	15,152	38%	25,611	6,275	19,336	25%	3,054	14%	56%
Total Kampong Cham	194,398	80,149	114,249	41%	183,204	47,804	135,400	26%	24,635	12%	43%

Source: WaterSHED's Latrine Coverage Survey 2011 and 2014

Kampong Chhnang

Table 5 shows the disaggregated latrine coverage data for Kampong Cham province. On average 36.2% of all households in Kampong Chhnang province own a latrine. However, this also means that 62,447 households in this province do not own a latrine. Except for the provincial center of Kampong Chhnang (73.0%), latrine coverage shows very little variation across districts in Kampong Chhnang, ranging from 28.3% in Kampong Tralach to 38.4% in Rolea B'ier. The districts with the highest number of households without access to a latrines are Sameakki Mean Chey (10,853), Kampong Tralach (12,484) and Rolea B'ier (14,186).

For Kampong Chhnang no latrine coverage data was collected in 2011.

Table 7: Latrine Coverage by District in Kampong Chhnang

District	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage
Baribour	10,817	3,503	7,314	32.4
Kampong Chhnang	7,208	5,262	1,946	73.0
Kampong Leaeng	8,314	2,463	5,851	29.6
Kampong Tralach	17,412	4,928	12,484	28.3
Rolea B'ier	23,032	8,846	14,186	38.4
Sameakki Mean Chey	16,294	5,441	10,853	33.4
Tuek Phos	14,803	4,990	9,813	33.7
Total Kampong Chhnang	97,880	35,433	62,447	36.2
<i>Source: WaterSHED's Latrine Coverage Survey 2014</i>				

Kampong Speu

Table 8 shows the disaggregated latrine coverage data for Kampong Speu province in 2011 and 2014 as well as the change in latrine coverage since 2011. Focusing on 2014, as shown above in Table 2 Kampong Speu is the province with the lowest relative latrine coverage across all eight provinces. Only 32.1% of the households in Kampong Speu own a latrine. Further to that, the district Thpong in Kampong Speu province (17.8%) is also the lowest coverage rate among all the 58 districts. 108,227 households in Kampong Speu province do not own a latrine.

In Kampong Speu Province there seems to be three groups of districts with low (17.8 to 19.9% in Thpong, Basedth and Aoral), medium (26.1 to 40.1% in Phnum Sruoch, Odongk, Kong Pisei, and Samraong Tong) and high (71.7% in Chbar Mon) latrine coverage. The districts with low coverage rates are farther away from the provincial center. Districts with the highest absolute number of missing latrines are Basedth (22,908), Samraong Tong (18,858) and Odongk (17,202).

Between 2011 and 2014 latrine coverage increased by 6 percentage points in Kampong Speu. This is equivalent to 12,690 new latrines or a relative increase in latrine coverage by 21%. Remarkably, the district of Aoral managed to more than triple their relative latrine coverage from 6% of all households owning a latrine in 2011 to 20% in 2014.

Pailin

Pailin is the most North Western province of Cambodia bordering with Thailand. There only two districts in Pailin province and the population is the lowest of all provinces in Cambodia. Table 9 shows the disaggregated latrine coverage data for Pailin province in 2011 and 2014 as well as the change in latrine coverage since 2011. Focusing on the year 2014, on average 49.8% of all households in Pailin province own a latrine, which is the second highest coverage rate of all provinces in the survey. Yet, there are 6,063 households in this province do not own a latrine. Sala Krau district shows both the lower coverage rate (38.4%) and the higher number of households without latrines (3,598) among the two districts.

Between 2011 and 2014 the latrine coverage in Pailin has increased by 10 percentage points. This is equivalent to 331 new household owning a latrine or a 27% relative increase in the latrine coverage rate.

Table 8: Latrine Coverage by District in Kampong Speu

District	2014				2011				Change between 2011 and 2014		
	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with latrines	% point in latrine coverage	% in latrine coverage
Aoral	7,230	1,431	5,799	20%	6,353	380	5,973	6%	1,052	14%	231%
Basedth	28,594	5,686	22,908	20%	26,437	3,515	22,922	13%	2,171	7%	50%
Chbar Mon	8,841	6,342	2,499	72%	8,354	5,157	3,197	62%	1,185	10%	16%
Kong Pisei	25,661	9,320	16,341	36%	24,055	6,466	17,589	27%	2,854	9%	35%
Odongk	25,314	8,112	17,202	32%	23,421	5,578	17,843	24%	2,534	8%	35%
Phnum Sruoch	20,286	5,285	15,001	28%	19,041	5,481	13,560	29%	487	-1%	-4%
Samraong Tong	31,796	12,938	18,858	41%	28,665	10,936	17,729	38%	2,002	3%	7%
Thpong	11,697	2,078	9,619	18%	10,482	1,673	8,809	16%	405	2%	11%
Total Kampong Speu	159,419	51,192	108,227	32%	146,808	39,186	107,622	27%	12,690	6%	21%

Source: WaterSHED's Latrine Coverage Survey 2011 and 2014

Table 9: Latrine Coverage by District in Pailin

District	2014				2011				Change between 2011 and 2014		
	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with latrines	% point in latrine coverage	% in latrine coverage
Pailin	6,228	3,763	2,465	60%	7,380	3,541	3,839	48%	222	12%	26%
Sala Krau	5,844	2,246	3,598	38%	7,056	2,137	4,919	30%	109	8%	27%
Total Pailin	12,072	6,009	6,063	50%	14,436	5,678	8,758	39%	331	10%	27%

Source: WaterSHED's Latrine Coverage Survey 2011 and 2014

Pursat

Table 10 shows the disaggregated latrine coverage data for Pursat province in 2011 and 2014 as well as the change in latrine coverage since 2011. Focusing on the year 2014, on average 40.0% of all households in Pursat province own a latrine. Yet, 52,554 households in this province still do not own a latrine. Both Pursat town (55.8%) and Bakan (43.7%) show higher latrine coverage rates than the rest of the districts, where approximately one third of all households have latrines. However, Bakan (16,113) shows the highest absolute number of households without latrines. In other words, 31% of all households without latrines in Pursat live in Bakan.

Comparing coverage latrine coverage data from 2011 and 2014, Pursat has more than doubled its latrine coverage. In total, more than 20,000 household gained access to a latrine in three years. A strong driver of this overall enormously positive result is the district of Bakan. Within only three year it quadrupled its latrine coverage from 11% in 2011 to 44% in 2014. The other two districts (Krakor and Phnum Kravanh) which had very low latrine coverage in 2011 likewise show a substantial improvement (175% and 240% increase in relative latrine coverage respectively).

Takeo

Table 11 shows the disaggregated latrine coverage data for Takeo province in 2011 and 2014 as well as the change in latrine coverage since 2011. Focusing on the year 2014, on average 39.8% of all households in Takeo province own a latrine. Yet, 80,441 households in this province still do not own a latrine.

Variation among latrine coverage across the districts in Takeo is not high, ranging from 23.1% in Borei Cholsar to 52.2% in Samraong. In absolute terms, Tram Kak (25,299) is home to by far the greatest number of households without latrine in Takeo. In this one districts over 31% of all households without latrines in Takeo live.

Data on latrine coverage in three districts (Borei Cholsar, Prey Kabbas, and Treang) in Takeo province is not available. Analyzing the available data, Kiri Vong and Samraong show a steep increase in latrine coverage (22% and 25% points respectively).

Table 10: Latrine Coverage by District in Pursat

District	2014				2011				Change between 2011 and 2014		
	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with latrines	% point in latrine coverage	% in latrine coverage
Bakan	28,600	12,487	16,113	44%	26,331	2,921	23,410	11%	9,566	33%	294%
Kandieng	12,464	4,062	8,402	33%	12,288	3,400	8,888	28%	662	5%	18%
Krakor	19,104	6,392	12,712	33%	17,550	2,138	15,412	12%	4,254	21%	175%
Phnum Kravanh	14,633	4,927	9,706	34%	12,403	1,229	11,174	10%	3,698	24%	240%
Pursat	12,715	7,096	5,619	56%	12,183	5,274	6,909	43%	1,822	13%	29%
Total Pursat	87,516	34,964	52,552	40%	80,755	14,962	65,793	19%	20,002	21%	116%

Source: WaterSHED's Latrine Coverage Survey 2011 and 2014

Table 11: Latrine Coverage by District in Takeo

District	2014				2011				Change between 2011 and 2014*		
	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with latrines	% point in latrine coverage	% in latrine coverage
Borei Cholsar	4,218	975	3,243	23%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kiri Vong	22,517	9,097	13,420	40%	22,133	4,122	18,011	19%	4,975	22%	117%
Prey Kabbas	21,255	10,051	11,204	47%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Samraong	25,982	13,563	12,419	52%	24,259	6,669	17,590	27%	6,907	25%	90%
Tram Kak	37,237	11,938	25,299	32%	34,084	7,857	26,227	23%	4,081	9%	39%
Treang	22,375	7,519	14,856	34%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Takeo	133,584	53,143	80,441	40%	80,476	18,648	61,828	23%	15,963	17%	74%

Source: WaterSHED's Latrine Coverage Survey 2011 and 2014;
* average estimations of change in latrine coverage for Takeo is based only on the three districts which were included in both rounds of data collection

Tboung Khmum

Table 12 shows the disaggregated latrine coverage data for Tboung Khmum province. Tboung Khmum is the newest Cambodian province, as it has just split from Kampong Cham province in 2014. On average 38.4% of all households in Tboung Khmum province own a latrine. Yet, 98,691 households in this province still do not own a latrine. With the exception of Sount district (69.5%), a long established market place that connects Kratie, Monduliri, Ratanakiri and Vietnam, variation in latrine coverage in Tboung Khmum is low, ranging from 26.4% in Dambae to 44.5% in Krouch Chhmar. In absolute numbers, among all seven districts in Tboung Khmum three districts stick out with a very large number of households without latrines, together hosting 63% of all households without latrines. These three districts are Memot (21,330), Tboung Khmum (21,210), and Ponhea Kraek (19,395).

Table 12: Latrine Coverage by District in Tboung Khmum

District	2014				2011				Change between 2011 and 2014		
	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with latrines	% point in latrine coverage	% in latrine coverage
Dambae	17,637	4,663	12,974	26%	16,601	2,560	14,041	15%	2,103	11%	71%
Krouch Chhmar	18,976	8,451	10,525	45%	20,533	4,692	15,841	23%	3,759	22%	95%
Memot	29,966	8,636	21,330	29%	30,103	5,195	24,908	17%	3,441	12%	67%
Ou Reang Ov	18,613	7,509	11,104	40%	18,951	3,289	15,662	17%	4,220	23%	132%
Ponhea Kraek	29,977	10,582	19,395	35%	28,768	6,698	22,070	23%	3,884	12%	52%
Suong	7,059	4,906	2,153	69%	7,630	4,240	3,390	56%	666	14%	25%
Tboung Khmum	38,056	16,846	21,210	44%	39,408	8,670	30,738	22%	8,176	22%	101%
Total Tboung Khmum	160,284	61,593	98,691	38%	161,994	35,344	126,650	22%	26,249	17%	76%

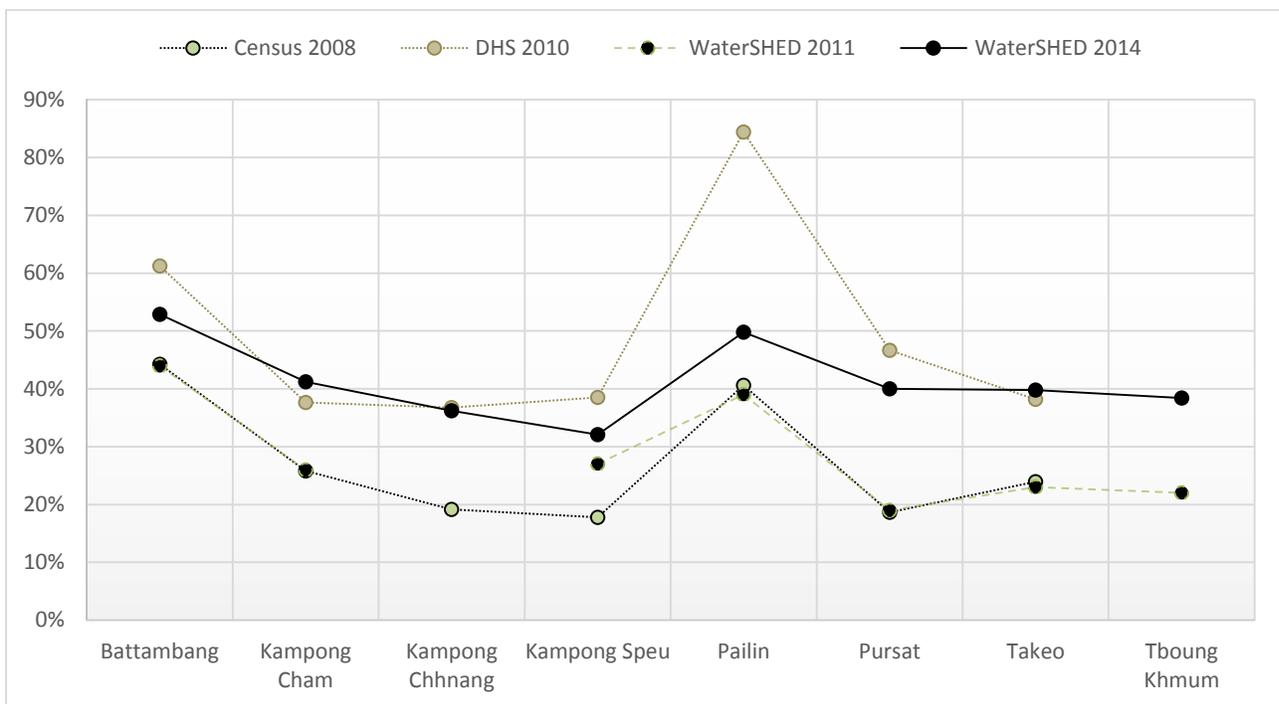
Source: WaterSHED's Latrine Coverage Survey 2011 and 2014

Comparison to other available data on sanitation coverage

We compared our data to other available data on sanitation coverage in Cambodia. Namely, these include the Demographic and Health Survey (DHS) data from 2010², as well as data from the General Population Census of Cambodia from 2008³. Table 13 shows the estimates of sanitation coverage at provincial level according to the different studies. The data is arranged in columns in chronological order from the date the data collection was completed.

As Figure 2 illustrates, the WaterSHED sanitation coverage data from 2011 matches closely the census data from 2008. Only in Kampong Speu the estimates differ by more than two percentage points. On the other hand, data from the DHS 2010 deviates substantially from both the census's and WaterSHED's sanitation coverage data.

Figure 2: Estimation of sanitation coverage by province and survey (2008 to 2011)



² More information about the DHS Programme, see <http://www.dhsprogram.com/>. After registration, the dataset is available from DHS Programme here: http://www.dhsprogram.com/data/dataset/Cambodia_Standard-DHS_2010.cfm?flag=0; DHS 2014 data will be available in October 2015

³ General Population Census data is available from the Cambodian National Institute of Statistics (NIS): <http://www.nada.nis.gov.kh/index.php/catalog/1> and <http://www.nada.nis.gov.kh/index.php/catalog/21>

Summary

In summary, latrine coverage both across provinces and across districts of the same province shows relatively low variation with one important exception, which are major towns and market places where latrine coverage appears to be significantly higher.

Table 13 shows a list of all districts with a latrine coverage below one third of all households, some with latrine coverage as low as less than one fifth as is the case in Thpong district in Kampong Speu, Rukh Kiri district in Battambang, as well as Aoral and Basedth districts in Kampong Speu.

Table 13: Districts with lowest latrine coverage in 2014 across all eight provinces

District	Province	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage
Thpong	Kampong Speu	11,697	2,078	9,619	17.8
Rukh Kiri	Battambang	9,458	1,834	7,624	19.4
Aoral	Kampong Speu	7,230	1,431	5,799	19.8
Basedth	Kampong Speu	28,594	5,686	22,908	19.9
Borei Cholsar	Takeo	4,218	975	3,243	23.1
Phnum Sruoch	Kampong Speu	20,286	5,285	15,001	26.1
Dambae	Tboung Khmum	17,637	4,663	12,974	26.4
Kampong Tralach	Kampong Chhnang	17,412	4,928	12,484	28.3
Memot	Tboung Khmum	29,966	8,636	21,330	28.8
Kampong Leaeng	Kampong Chhnang	8,314	2,463	5,851	29.6
Samlout	Battambang	9,102	2,774	6,328	30.5
Odongk	Kampong Speu	25,314	8,112	17,202	32.1
Tram Kak	Takeo	37,237	11,938	25,299	32.1
Baribour	Kampong Chhnang	10,817	3,503	7,314	32.4
Kandieng	Pursat	12,464	4,062	8,402	32.6
Batheay	Kampong Cham	23,099	7,566	15,533	32.8

Source: WaterSHED's Latrine Coverage Survey 2014

Table 14 shows a list of the districts with more than 15,000 households without latrines each. Especially Tram Kak in Takeo, Basedth in Kampong Speu, as well as Memot and Tboung Khmum in Tboung Khmum stand out with more than 20,000 households without latrines each.

Table 14: Districts with the highest number of households without latrines

District	Province	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage
Tram Kak	Takeo	37,237	11,938	25,299	32.1
Basedth	Kampong Speu	28,594	5,686	22,908	19.9
Memot	Tboung Khmum	29,966	8,636	21,330	28.8
Tboung Khmum	Tboung Khmum	38,056	16,846	21,210	44.3
Ponhea Kraek	Tboung Khmum	29,977	10,582	19,395	35.3
Samraong Tong	Kampong Speu	31,796	12,938	18,858	40.7
Odongk	Kampong Speu	25,314	8,112	17,202	32.1
Prey Chhor	Kampong Cham	29,547	12,638	16,909	42.8
Kong Pisei	Kampong Speu	25,661	9,320	16,341	36.3
Bakan	Pursat	28,600	12,487	16,113	43.7
Batheay	Kampong Cham	23,099	7,566	15,533	32.8
Stueng Trang	Kampong Cham	24,481	9,329	15,152	38.1
Phnum Sruoch	Kampong Speu	20,286	5,285	15,001	26.1

Source: WaterSHED's Latrine Coverage Survey 2014

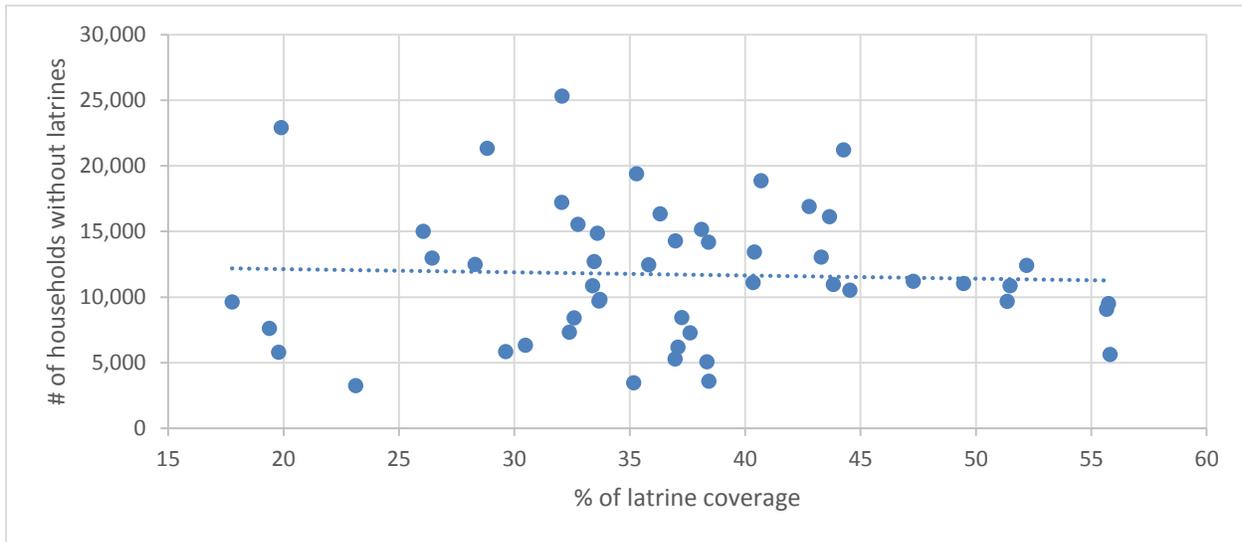
Surprisingly, if the major provincial towns are taken out of the analysis, there appears to be no significant correlation ($R=-0.1213$; $p=0.3915$; $N=52$) between the coverage rate and the absolute number of households without latrines (see Graph 1). However, to truly understand the sanitation situation in an area and for effective targeting several indicators for the sanitation situation are necessary, e.g. absolute and relative gap in sanitation coverage. Hence, we further categorized the districts under scrutiny as follows. The relative latrine coverage in each district was rated as low (below 33.3%), medium (between 33.3 and 50.0%) or high (above 50.0%). Likewise the districts were rated according to the absolute number of households without latrines as low (below 10,000), medium (between 10,000 and 15,000), and high (above 15,000). According to this ranking, six districts have a low latrine coverage and a high number of households without latrines. These are Batheay in Kampong Cham province, Basedth, Odongk and Phnum Sruoch in Kampong Speu province, Tram Kak in Takeo province and Memot in Tboung Khmum province (see Table 15).

Table 15: Districts with low latrine coverage and high number of households without latrines

District	Province	Number of hh	# of hh with latrine	# of hh without latrine	% latrine coverage
Batheay	Kampong Cham	23,099	7,566	15,533	32.8
Basedth	Kampong Speu	28,594	5,686	22,908	19.9
Odongk	Kampong Speu	25,314	8,112	17,202	32.1
Phnum Sruoch	Kampong Speu	20,286	5,285	15,001	26.1
Tram Kak	Takeo	37,237	11,938	25,299	32.1
Memot	Tboung Khmum	29,966	8,636	21,330	28.8

Source: WaterSHED's Latrine Coverage Survey 2014

Figure 3: Percentage of latrine coverage by number of households without latrine by district



A separate analysis suggests that targeting of sanitation programs between 2011 and 2014 has been quite successful. The greatest increase in percentage points of latrine coverage happened in those districts where there was the greatest number of households without latrines ($R=0.3563$; $p=0.0129$) and where latrine coverage was lowest ($R=-0.3434$; $p=0.0169$). A similar pattern applies to the relative change in percentage of latrine coverage.

Water Supply Access

WaterSHED investigated the use of water filters across all eight provinces. Table 14 shows basic descriptive data of the use of water filters by province. In general, the use of water filters is not widely spread, totaling to an average of only 14.9% of all households. The provincial coverage rates for water filters vary between 4.7% in Pailin and 30.6% in Kampong Chhnang. However, this survey does not include data on whether household use other methods of water treatment.

Table 16: Classification of water filter by province

Province	Number of hh	Number of hh with water filter	Number of hh without water filter	% water filter coverage
Battambang	207,150	24,399	182,751	11.8
Kampong Cham	194,398	24,936	169,462	12.8
Kampong Chhnang	97,880	29,960	67,920	30.6
Kampong Speu	159,419	22,904	136,515	14.4
Pailin	12,072	571	11,501	4.7
Pursat	87,516	17,665	69,851	20.2
Takeo	133,584	12,698	120,886	9.5
Tboung Khmum	160,284	23,351	136,933	14.6
Total	1,052,303	156,484	895,819	14.9

Source: WaterSHED's Latrine Coverage Survey 2014

Table 15 shows an inventory of public and private wells and their usage by province. In total, 261,971 wells were identified in all eight provinces, including 57,182 public and 204,789 private wells. On average, there are 0.25 wells for every household, i.e. one well for every four households. However, variation across provinces is considerable. While in Pailin province the density of wells is very low (0.05), two families on average share a well in Kampong Chhnang (0.47) and Tboung Khmum (0.50). Similarly, the percentage of households relying on public water from wells varies between 5.1% in Takeo and 23.0% in Pailin. 124,977 (11.9%) households across the eight provinces rely on public water supply from wells.

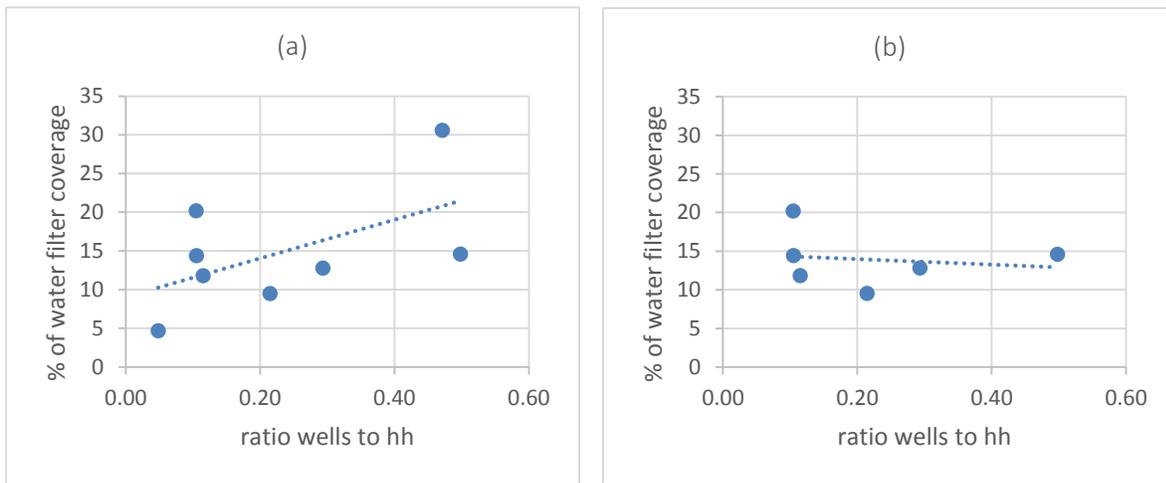
Table 17: Inventory of public and private wells and their use by province

Province	# of hh	# of public wells	# of private wells	Total # of wells	Ratio wells per hh	# of hh using public wells	% of hh using public water
Battambang	207,150	6,138	17,702	23,840	0.12	28,263	13.6
Kampong Cham	194,398	8,667	48,322	56,989	0.29	36,077	18.6
Kampong Chhnang	97,880	15,222	30,891	46,113	0.47	5,709	5.8
Kampong Speu	159,419	9,126	7,645	16,771	0.11	16,117	10.1
Pailin	12,072	265	314	579	0.05	2,780	23.0
Pursat	87,516	3,629	5,528	9,157	0.10	10,295	11.8
Takeo	133,584	8,502	20,162	28,664	0.21	6,809	5.1
Tboung Khmum	160,284	5,633	74,225	79,858	0.50	18,927	11.8
Total	1,052,303	57,182	204,789	261,971	0.25	124,977	11.9

Source: WaterSHED's Latrine Coverage Survey 2014

In rural Cambodia, it is common that water from the wells is consumed without prior treatment while surface water is usually treated before consumption. Hence it a common assumption that water filter coverage might be low in provinces where there are many wells and high in provinces with lower well coverage which rely mainly on other sources such as surface water for their water supply. Graph 2a and 2b show the correlation between the percentage of water filter coverage and the ratio of wells per household by province. Graph 2a suggests a positive relationship between water filter coverage and ratio of wells per household, i.e. the more wells per household, the greater the water filter coverage. However, taking a closer look at the data it turns out that this trend is mainly driven by two provinces: Kampong Chhnang with exceptional high water filter coverage and high ratio of wells per household; as well as Pailin with exceptionally low water filter coverage and low ratio of wells per household. If these two cases are taken out of the analysis, there appears to be no significant correlation between water filter coverage and the ratio of wells per household (see graph 2b). This contradict the common assumption that water filter coverage is closely related to the availability of well water.

Figure 4: Water filter coverage and ratio of wells per household with and without outliers



Source: WaterSHED's latrine coverage survey

Note: Graph 2b excludes data from Pailin und Kampong Chhnang provinces from the analysis.

Latrine Sales facilitated by WaterSHED

Table 16 shows the results from WaterSHED's latrine coverage survey plus sales data from latrine sales facilitated by WaterSHED's field staff until end of December 2014. Because the data collection for the latrine coverage survey was not completed at the same time, this sales data refers to different time periods according to the province. The data shows a noticeable change in sanitation coverage in each province, if we compare the census data from early 2014 with the sum of census data plus WaterSHED facilitated latrine sales until December 2014. In the 11 months since data collection, 21,492 new latrines were sold. This is equivalent to an increase of toilet coverage of 4.2 percent points. On average, latrine coverage has increased by 2.0 percentage points across all eight provinces since the completion of the data collection, only considering WaterSHED facilitated sales.

Table 18: Latrine Coverage plus sales data from latrine sales facilitated by WaterSHED's field staff

Province	Number of hh	Number of hh with latrines	% latrine coverage	Number of WaterSHED latrine sales ¹	Time period (in months) ²	Cumulative number of latrines	% increase in toilet coverage	% latrine coverage including WaterSHED latrine sales
Battambang	207,150	109,556	52.9	3,665	9	113,221	1.8	54.7
Kampong Cham	194,398	80,149	41.2	1,788	6	81,937	0.9	42.2
Kampong Chhnang	97,880	35,433	36.2	2,555	9	37,988	2.6	38.8
Kampong Speu	159,419	51,192	32.1	4,668	11	55,860	2.9	35.0
Pailin	12,072	6,009	49.8	279	9	6,288	2.3	52.1
Pursat	87,516	34,964	40.0	3,640	9	38,604	4.2	44.1
Takeo	133,584	53,143	39.8	3,582	11	56,725	2.7	42.5
Tboung Khmum	160,284	61,593	38.4	1,315	6	62,908	0.8	39.3
Total	1,052,303	432,039	41.1	21,492	8.75	453,531	2.0	43.1

Source: WaterSHED's latrine coverage survey 2014

¹ This column includes the number of latrine sales facilitated through WaterSHED's field staff between completions of the data collection for this survey until the end of December 2014.

² Data collection was completed in different months between January and June 2014 as discussed above. Thus the data of latrine sales refers to different time periods in each province.

Conclusions

This survey provides basic descriptive data on latrine ownership and coverage as well as access to water supply and water treatment for eight provinces of Cambodia. This data is essential for development practitioners as well as academics. The data presented in this report is disaggregated by province and district which makes an in depth analysis possible in order to identify areas of potential intervention and improve targeting of future development interventions.

Access to latrines in the eight provinces under scrutiny in this study is still low. On average 41.1% of all households own a latrine, with no province exceeding 52.9% in latrine coverage. The vast majority of these latrines are pour-flush latrines. Dry pit latrines only comprise 3.3% of all latrines. Across all eight provinces 620,264 households live without a latrine. Disaggregating the data by district shows that particularly urban centers and market places show a significantly higher latrine coverage compared to the rest of the country. Taking into consideration both the relative latrine coverage as well as the absolute number of households without latrines, this report identified six districts in four provinces with critical sanitation coverage: Batheay in Kampong Cham; Basedth, Odongk and Phnum Sruoch in Kampong Speu; Tram Kak in Takeo; and Memot in Tboung Khmum.

Also, this study showed that water filters are not commonly found in Cambodian homes and that access to wells varies significantly across provinces. However, both access to water filters and wells need to be examined more in detail at district level in order to provide reliable recommendations for targeting.

Although WaterSHED's *Hands-Off* sanitation marketing intervention shows a significant increase in toilet coverage across all eight provinces, the gap in sanitation coverage is so substantial that no single organization or approach will suffice to close it. A concerted effort of the Royal Government of Cambodia together with national and international partners is needed in order to reach out to those households without adequate sanitation, especially in remote areas of rural Cambodia.

Annex 1: Definition and count manner of each variation:

1. House Hold (HH): Were counted by the physical appearance of each house.
2. Family: Were counted by those who stated of each head house hold which they could have more than 1 family in that household.
3. Population: is counted by the combination of female or male of each family.
4. Female: Member of each family as female
5. Male: number of each family as male
6. HH Use Own Latrine: This is counted by physical appearance of each household, even though one household could have more than one latrine but we count just one like the household.
7. Pour Flush: Is a toilet using water that has physical appearance in each house hold
8. Dry Pit: is a toilet without any water that has physical appearance in each house hold.
9. HH Use Neighbor Latrine: Number of house hold that respond that they use their neighbor latrine.
10. HH Use Pour Flush Neighbor Latrine: Number of house hold that respond that they use their neighbor latrine as a pour flush.
11. HH Use Dry Pit Neighbor Latrine: Number of house hold that respond that they use their neighbor latrine as a dry pit.
12. HH Use Water Filter: Number of household that respond they use any kind of water filter for their daily use.
13. HH Use Public Water: Number of household which have the ability to access public water this could be the water provided by government or private company.
14. Number of Public Well: Number of well everyone can access publicly or those well are use public money to build.
15. Number of Private Well: Number of well that any household paid their personal money to build for their own usage.
16. Number of Pond: Pond is counted in each village.
17. Number of Lake: Lake is counted in each village.
18. Number of Stream: Stream is counted in each village.
19. Number of Tributary: Tributary is counted in each village.

Annex 2: Coverage Data Overview

The Survey involves of gathering in the demographic data from all of each villages those are included with the following variations:

No	Variations	No	Variations
1	Respond_ID	21	Number_of_dry_pit_neighbour
2	PROVINCE	22	Number_of_HH_use_water_filter
3	DISTRICT	23	Number_of_HH_use_public_water
4	COMMUNE	24	Number_of_public_well
5	VILLAGE	25	Number_of_public_well_pump
6	Village_GIS	26	Number_of_public_well_pully
7	Village_chief_name	27	Number_of_public_well_annual
8	Village_chief_contact	28	Number_of_public_well_pump_annual
9	Commune_clerk_name	29	Number_of_public_well_pully_annual
10	Commune_clerk_contact	30	Number_of_private_well
11	Number_of_HH	31	Number_of_private_well_pump
12	Number_of_family	32	Number_of_private_well_pully
13	Number_of_Population	33	Number_of_private_well_annual
14	Number_of_Male	34	Number_of_private_well_pump_annual
15	Number_of_Female	35	Number_of_private_well_pully_annual
16	Number_of_HH_use_own_latrine	36	Number_of_Pond
17	Number_of_pour_flush	37	Lake
18	Number_of_dry_pit	38	Stream
19	Number_of_HH_use_neighbour_latrine	39	Tributary
20	Number_of_pour_flush_neighbour	40	River

WaterSHED sanitation coverage report 2015

District	Province	# of hh	# of hh with latrine	# of hh without latrine	% latrine coverage	# of hh with pour-flush latrines	% of hh with pour-flush latrines	# of hh with dry pit latrines	% of hh with dry pit latrines	latrine coverage	# of hh without latrines
Aek Phnum	Battambang	10,893	7,372	3,521	67.7	7,266	66.7	106	1.0	high	low
Banan	Battambang	20,455	11,386	9,069	55.7	11,257	55.0	129	0.6	high	low
Battambang	Battambang	24,497	21,705	2,792	88.6	21,582	88.1	123	0.5	high	low
Bavel	Battambang	21,848	10,808	11,040	49.5	10,293	47.1	515	2.4	medium	medium
Kamrieng	Battambang	11,645	4,380	7,265	37.6	4,106	35.3	274	2.4	medium	low
Koas Krala	Battambang	5,354	1,883	3,471	35.2	1,787	33.4	96	1.8	medium	low
Moung Ruessei	Battambang	22,986	9,953	13,033	43.3	9,897	43.1	56	0.2	medium	medium
Phnum Proek	Battambang	9,841	3,650	6,191	37.1	3,549	36.1	101	1.0	medium	low
Rotonak Mondol	Battambang	8,201	3,144	5,057	38.3	2,887	35.2	257	3.1	medium	low
Rukh Kiri	Battambang	9,458	1,834	7,624	19.4	1,794	19.0	40	0.4	low	low
Samlout	Battambang	9,102	2,774	6,328	30.5	2,462	27.1	312	3.4	low	low
Sampov Lun	Battambang	8,375	3,096	5,279	37.0	3,062	36.6	34	0.4	medium	low
Sangkae	Battambang	21,471	11,968	9,503	55.7	11,904	55.4	64	0.3	high	low
Thma Koul	Battambang	23,024	15,603	7,421	67.8	15,311	66.5	292	1.3	high	low
Batheay	Kampong Cham	23,099	7,566	15,533	32.8	7,514	32.5	52	0.2	low	high
Chamkar Leu	Kampong Cham	22,377	11,519	10,858	51.5	9,410	42.1	2,109	9.4	high	medium
Cheung Prey	Kampong Cham	19,400	6,950	12,450	35.8	6,528	33.7	422	2.2	medium	medium
Kampong Siem	Kampong Cham	22,657	8,378	14,279	37.0	8,231	36.3	147	0.7	medium	medium
Kang Meas	Kampong Cham	19,500	8,546	10,954	43.8	8,142	41.8	404	2.1	medium	medium
Kaoh Soutin	Kampong Cham	13,465	5,016	8,449	37.3	4,995	37.1	21	0.2	medium	low
Prey Chhor	Kampong Cham	29,547	12,638	16,909	42.8	11,688	39.6	950	3.2	medium	high
Srei Santhor	Kampong Cham	19,872	10,207	9,665	51.4	9,909	49.9	298	1.5	high	low
Stueng Trang	Kampong Cham	24,481	9,329	15,152	38.1	8,554	34.9	775	3.2	medium	high
Baribour	Kampong Chhnang	10,817	3,503	7,314	32.4	3,477	32.1	26	0.2	low	low
Kampong Chhnang	Kampong Chhnang	7,208	5,262	1,946	73.0	4,978	69.1	284	3.9	high	low
Kampong Leaeng	Kampong Chhnang	8,314	2,463	5,851	29.6	2,435	29.3	28	0.3	low	low
Kampong Tralach	Kampong Chhnang	17,412	4,928	12,484	28.3	4,924	28.3	4	0.0	low	medium
Rolea B'ier	Kampong Chhnang	23,032	8,846	14,186	38.4	8,748	38.0	98	0.4	medium	medium

WaterSHED sanitation coverage report 2015

Sameakki Mean Chey	Kampong Chhnang	16,294	5,441	10,853	33.4	5,438	33.4	3	0.0	medium	medium
Tuek Phos	Kampong Chhnang	14,803	4,990	9,813	33.7	4,984	33.7	6	0.0	medium	low
Aoral	Kampong Speu	7,230	1,431	5,799	19.8	1,407	19.5	24	0.3	low	low
Basedth	Kampong Speu	28,594	5,686	22,908	19.9	5,464	19.1	222	0.8	low	high
Chbar Mon	Kampong Speu	8,841	6,342	2,499	71.7	6,233	70.5	109	1.2	high	low
Kong Pisei	Kampong Speu	25,661	9,320	16,341	36.3	9,157	35.7	163	0.6	medium	high
Odongk	Kampong Speu	25,314	8,112	17,202	32.1	8,084	31.9	28	0.1	low	high
Phnum Sruoch	Kampong Speu	20,286	5,285	15,001	26.1	4,995	24.6	290	1.4	low	high
Samraong Tong	Kampong Speu	31,796	12,938	18,858	40.7	12,766	40.2	172	0.5	medium	high
Thpong	Kampong Speu	11,697	2,078	9,619	17.8	2,051	17.5	27	0.2	low	low
Pailin	Krong Pailin	6,228	3,763	2,465	60.4	3,718	59.7	45	0.7	high	low
Sala Krau	Krong Pailin	5,844	2,246	3,598	38.4	2,173	37.2	73	1.3	medium	low
Bakan	Pursat	28,600	12,487	16,113	43.7	12,445	43.5	42	0.2	medium	high
Kandieng	Pursat	12,464	4,062	8,402	32.6	4,030	32.3	32	0.3	low	low
Krakor	Pursat	19,104	6,392	12,712	33.5	6,349	33.2	43	0.2	medium	medium
Phnum Kravanh	Pursat	14,633	4,927	9,706	33.7	4,915	33.6	12	0.1	medium	low
Pursat	Pursat	12,715	7,096	5,619	55.8	6,992	55.0	104	0.8	high	low
Borei Cholsar	Takeo	4,218	975	3,243	23.1	964	22.9	11	0.3	low	low
Kiri Vong	Takeo	22,517	9,097	13,420	40.4	8,996	40.0	101	0.5	medium	medium
Prey Kabbas	Takeo	21,255	10,051	11,204	47.3	9,655	45.4	396	1.9	medium	medium
Samraong	Takeo	25,982	13,563	12,419	52.2	13,316	51.3	247	1.0	high	medium
Tram Kak	Takeo	37,237	11,938	25,299	32.1	11,481	30.8	457	1.2	low	high
Treang	Takeo	22,375	7,519	14,856	33.6	7,471	33.4	48	0.2	medium	medium
Dambae	Tboung Khmum	17,637	4,663	12,974	26.4	4074	23.1	589	3.3	low	medium
Krouch Chhmar	Tboung Khmum	18,976	8,451	10,525	44.5	8388	44.2	63	0.3	medium	medium
Memot	Tboung Khmum	29,966	8,636	21,330	28.8	7877	26.3	759	2.5	low	high
Ou Reang Ov	Tboung Khmum	18,613	7,509	11,104	40.3	7360	39.5	149	0.8	medium	medium
Ponhea Kraek	Tboung Khmum	29,977	10,582	19,395	35.3	10210	34.1	372	1.2	medium	high
Suong	Tboung Khmum	7,059	4,906	2,153	69.5	4438	62.9	468	6.6	high	low
Tboung Khmum	Tboung Khmum	38,056	16,846	21,210	44.3	15776	41.5	1,070	2.8	medium	high