Vision of a Healthy Village Program Results

Svay Leu, Cambodia
Project 3

A study evaluating the impact of Lifewater International's[1] Vision of a Healthy Village program in Svay Leu Project 3

August 2024

[1] Lifewater and Water For Good merged in 2024. Project implementation activities prior to January 2024 were conducted by Lifewater International.

Contents

03 The Problem

04 Lifewater's Program

05 Study Methods

06 Key Indicators

07 Results: Health

08 Results: Water

09 Results: Sanitation

10 Results: Hygiene

11 Results: Community Institutions

13 Conclusion

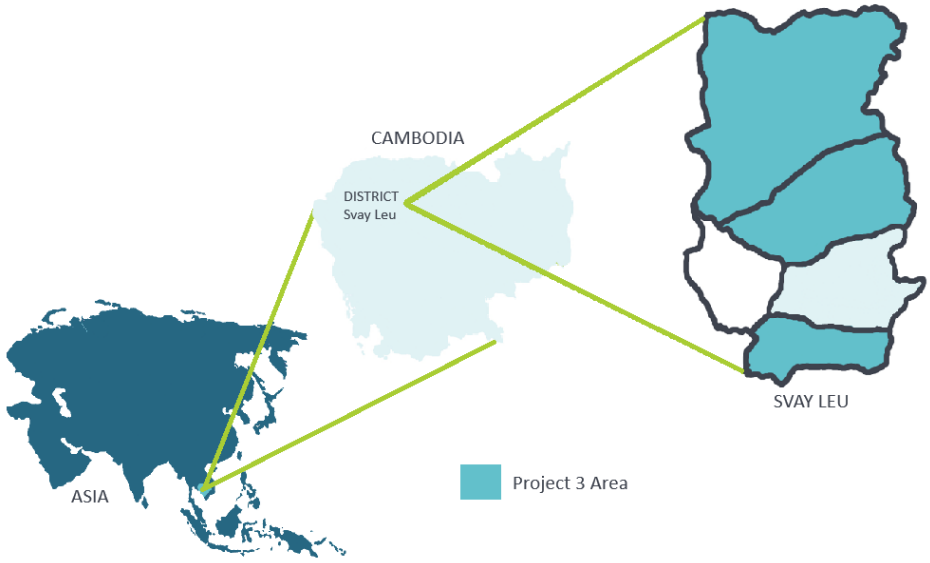
The Problem

In rural Cambodia, safe access to WASH is largely inadequate, with an estimated 28% of people lacking at least basic access to drinking water, 32% lacking at least basic access to sanitation, and 21% lacking basic access to handwashing facilities in 2021.[2]

Svay Leu, Cambodia

The Svay Leu District is administratively divided into five communes with a total population of 42,901 people.[3] Lifewater's third project in this region operated in three rural communes (Boeng Mealea, Kantuot, and Ta Siem) serving 11,904 people across 10 government villages with WASH programming.

Figure 1. Map of the project area



During the baseline study conducted in this region in July 2021 (before project implementation had begun), Lifewater found that access to safe WASH facilities and WASH knowledge was limited:

- 13% of respondents reported using an improved water source (designed to deliver safe water)[4] in both the dry and rainy seasons.
- 47% of households were observed to have improved latrines (hygienically designed to prevent contact with human feces)[5].
- Proper handwashing facilities were not common at households; 30% had a handwashing station with soap/ash and water near their latrine, and 7.4% had one near their kitchen. Furthermore, less than half of respondents (39%) washed their hands with soap and water at the two most critical times (before eating and after using the latrine) in the 24 hours prior to the survey (self-reported).

[2] WHO/UNICEF Joint Programme for Water Supply, Sanitation and Hygiene (2021). Retrieved from: https://washdata.org/data/household#!/dashboard/6643
[3] Per the 2019 census. Retrieved from: https://www.citypopulation.de/en/cambodia/admin/1713__svay_leu/
[4] WHO/UNICEF Joint Programme for Water Supply, Sanitation and Hygiene (2016). Retrieved from: https://washdata.org/monitoring/drinking-water
[5] WHO/UNICEF Joint Programme for Water Supply, Sanitation, and Hygiene (2016). Retrieved from: https://washdata.org/monitoring/sanitation.

Lifewater's Program

Lifewater implemented its third project in the Svay Leu district of Cambodia from July 2021 through June 2024. The project focused on changing WASH behaviors (such as handwashing, water treatment, and latrine use) as well as constructing WASH infrastructure. The project had the following high-level goal: *Reduce WASH-related diseases and improve the health and wellbeing of children and families in the Svay Leu district through safe water, sanitation, and hygiene.*

Water points were constructed in communities, schools, and health facilities, and ventilated improved pit latrines were constructed at schools and health facilities. Between baseline and endline[6], 29 water points were completed and nine ventilated improved pit latrines were constructed.

In addition to the construction of water and sanitation infrastructure, the project emphasized intensive behavior change activities at the household-level. Community Conversation events were undertaken monthly in each village, in which the communities learned about 16 WASH-related topics, such as handwashing and clean compounds. In the communities, trained volunteers made educational visits to every household in the project (at least quarterly) to motivate and support behavior change and to monitor progress. Additionally, communities were encouraged to obtain government Open Defecation Free (ODF) verifications and declarations. Schools and health facilities in the project area were equipped with training on maintaining a healthy environment for students and patients, to prevent WASH-related diseases. Key outputs of Svay Leu Project 3 are displayed in Table 1.

Table 1. Svay Leu Project 3 outputs as of June 2024

Outputs	Number (Percent)
Healthy Homes[7]	1,591 (60%)
Open Defecation Free villages	33 (92%)
Trained water committees	9
New and rehabilitated water points completed	29
New and rehabilitated ventilated improved pit latrines (VIPLs) completed	9
Healthy Villages[8]	4 (9.3%)

[6] Data for the baseline study were collected in July of 2021; data for the endline were collected in June 2024. This project operated on a three-year schedule.

[7] Healthy Homes are verified to be drinking safe water in the dry and rainy seasons, use safe water storage containers, have improved latrines with dignity (with walls, a roof, a pit cover, and a door), two handwashing stations with soap/ash and water (one near the latrine and one near the kitchen), a hygienically raised dish drying rack, a bathing shelter that allows water to drain without pooling, and a clean compound.

[8] Healthy Villages are those that become Open Defecation Free (ODF), have access to safe water, functional water committees, and at least 90% Healthy Homes in their village

Study Methods

For this study, the following data were utilized:

Household survey: A household Knowledge, Attitudes, and Practices (KAP) survey was conducted in July 2021 (baseline) and June 2024 (endline), combining both observation and interview data. At baseline, 419 households were surveyed via a probability proportional to size method of the 10 government villages[9] in the project area. This is a population sample with a 95% confidence level[10] and a 5% margin of error.[11] At endline, 420 households were sampled using the same methods. Enumerators chose which households to randomly sample in each village using the "Spin a Pen" method[12].

Data was collected electronically by enumerators through mWater, a mobile data collection software platform, and downloaded into Excel where it was analyzed. If the data for an indicator were normally distributed, the average value is reported. If they were not normally distributed, the median is provided to give a more representative estimate.

School assessment data: Data on the eight schools within the target area were collected in July 2021 and June 2024. Information on school water sources, sanitation facilities, school enrollment, dropouts, absences, and handwashing stations were analyzed using Excel.

Qualitative data: Five focus group discussions (FGDs) and eight in-depth interviews (IDIs) were conducted at endline with key project stakeholders and community members. Data were analyzed using ATLAS.ti, a qualitative data analysis software tool. For each theme that emerged from the data, a detailed description was created.

[9] Lifewater divided these 10 government villages into 36 smaller sub-villages for project planning and implementation purposes
[10] How sure you can be of your results
[11] The amount of error you are willing to tolerate
[12] UNICEF (n.d.). Retrieved from: https://mics.unicef.org/files?job=W1siZiIsIjIwMTUvMDQvMDMvMDYvNDIvNDgvMzgyL2NoYXAwNi5wZGYiXV0&sha=6509e495a61af931

Key Indicators

Table 2. Summary of key data from baseline and endline household KAP survey of Svay Leu Project 3

Theme	Indicators	Baseline	Endline	Statistically Significant[13]
Health Indicators	% of households with at least one child under 5 that had diarrhea in past 7 days	56%	4.3%	Yes
	% of respondents reporting that child health has improved in the past year	22%	27%	No
	% of respondents reporting that their health has improved in the past year	4.8%	17%	Yes
Water Indicators	% of households using an improved primary drinking water source in the dry and rainy season[14]	13%	61%	Yes
	% of households drinking safe water (source and/or treatment)	35%	99.5%	Yes
	Median journey time to fetch water (travel to/from water source plus queue time) during dry season[15]	0 minutes	10 minutes	Yes
	% of households storing water safely (observed)[16,17]	19%	82%	Yes
Latrine Indicators	% of households with latrines that are improved[18] (observed)[19]	47%	99.8%	Yes
	% of households with latrines that are improved with dignity (slab, walls, roof, pit cover, and door) (observed)[20]	24%	96%	Yes
Hygiene Indicators	% of respondents who washed hands in past 24 hours (with soap/ash and water or alcohol-based rub) at the two most critical times (after defecation and before eating)	39%	92%	Yes
	% of households with handwashing facility and materials (soap/ash and water or sanitizer) located close to latrine (within 10 paces) (observed)[21]	30%	93%	Yes
	% of households with handwashing facility and materials (soap/ash and water or sanitizer) inside or near the kitchen (observed)[22]	7.4%	98%	Yes
	% of households using a hygienic (raised) drying rack (observed)[23]	48%	95%	Yes
	% of households with a bathing shelter (observed)[24]	17%	94%	Yes
	% of households with a clean compound (no visible rubbish or feces) (observed)	20%	82%	Yes
Healthy Homes	% of households meeting all Healthy Home requirements[25]	0.0%	58%	Yes

[13] A p-value tells you how likely it is that your results happened by random chance. If the p-value is below 0.05, it usually means there's strong enough evidence to suggest the result is not just due to chance. If the statistical significance for a key indicator is marked as "Yes", it has a p-value <0.05.

[14] Improved sources of water include "those that have the potential to deliver safe water by nature of their design and construction, and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water". WHO/UNICEF Joint Programme for Water Supply, Sanitation and Hygiene (2016). Retrieved from: https://washdata.org/monitoring/drinking-water

[15] This includes all households for whom we had sufficient data to evaluate their water fetching time (n=390 at baseline; n=382 at endline)

[16] This includes all households for whom we had sufficient data to evaluate their water storage containers (n=398 at baseline; n=418 at endline)

[17] Safe water storage containers are those that are narrow mouthed, covered, and clean/mostly clean

[18] Improved latrines are "designed to hygienically separate excreta from human contact, and include: flush/pour flush toilets connected to piped sewer systems, septic tanks or pit latrines; pit latrines with slabs (including ventilated pit latrines), and composting toilets". WHO/UNICEF Joint Programme for Water Supply, Sanitation, and Hygiene (2016). Retrieved from: https://washdata.org/monitoring/sanitation.

[19] This includes all households for whom we had sufficient data to evaluate their sanitation facility (n=227 at baseline; n=419 at endline)

[20] This includes all households for whom we had sufficient data to evaluate their sanitation facility (n=227 at baseline; n=419 at endline)

[21] This includes all households for whom we had sufficient data to evaluate their handwashing facility (n=294 at baseline; n=419 at endline)

[22] This includes all households for whom we had sufficient data to evaluate their handwashing facility (n=294 at baseline; n=419 at endline)

[23] This includes all households for whom we had sufficient data to evaluate their area for drying dishes (n=292 at baseline; n=420 at endline)

[24] This includes all households for whom we had sufficient data to evaluate their bathing shelter (n=264 at baseline; n=410 at endline)

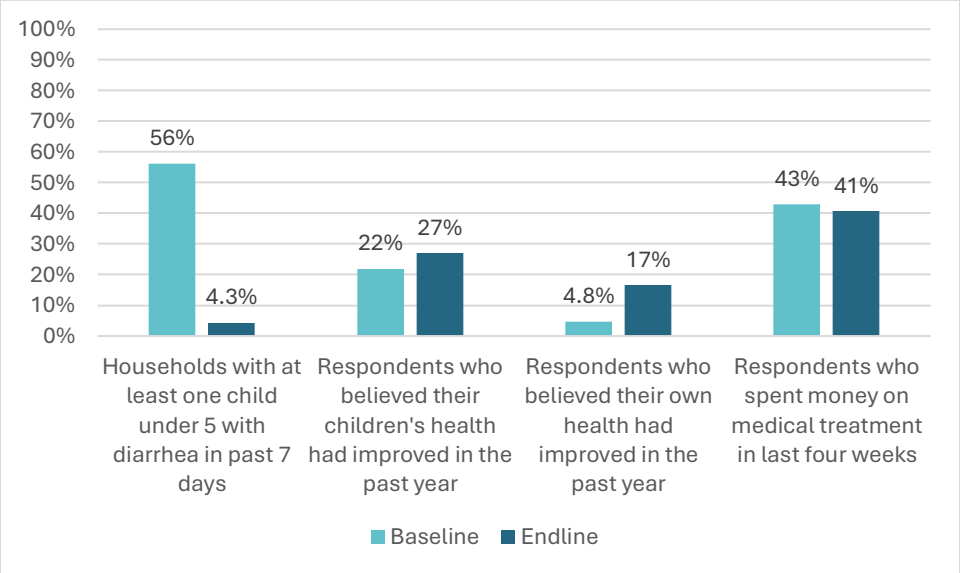
[25] This includes all households for whom we had sufficient data to evaluate Healthy Home criteria (n=341 at baseline; n=408 at endline)

Health

Diarrhea is the third leading cause of death for children under 5 globally, resulting in approximately 443,832 deaths per year.[26] The majority of these deaths are attributed to inadequate WASH.

Key improvements in health were observed between baseline and endline. The percentage of households who reported having at least one child under five with diarrhea in the past week decreased from 52% at baseline to 4.3% at endline. Additionally, the percentage of respondents who believed that their children's health had improved in the year prior to the survey increased from 22% at baseline to 27% at endline, although this change was not statistically significant. Similarly, the percentage of respondents who believed that their own health had improved in the year prior to the survey increased from 4.8% at baseline to 17% at endline.

Figure 2. Key health indicators at baseline and endline



During interviews, respondents reported increased WASH knowledge and improved WASH practices as a result of the VHV program. Respondents recognized how WASH-related illnesses spread (e.g., unwashed hands, flies to food, unsafe water) and how to prevent them through WASH practices (e.g., handwashing at critical times, covering food, drinking safe water). Community members know how to protect themselves from illness and have adapted their lifestyle to this new WASH knowledge.

The burden of medical visits slightly decreased from baseline to endline. Forty-three percent of respondents at baseline indicated that their household had spent money on treatment and transport to medical facilities in the four weeks prior to the survey, as compared to 41% at endline. The median for all respondents stayed the same at 0 KHR spent, however, the median of respondents who reported spending money slightly decreased from 54,497 KHR ($13.27) to 50,000 KHR ($12.17).

[26] WHO (2024). Retrieved from: https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease

Water

Lifewater is interested in understanding the level of "basic access" to drinking water within the project area, which is defined as "Drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing"[27]. Lifewater was able to assess the rate of basic access for 91% (n=383) of respondents for the dry season at baseline, 92% (n=386) of respondents for the rainy season at baseline, 36% of respondents for the dry season at endline (n=152), and 35% (n=145) of respondents for the rainy season at endline. Basic access to water increased from baseline to endline, from 14% to 84% in the dry season and 16% to 86% in the rainy season (Table 3).

Table 3. Drinking water source types in the dry and rainy seasons

	Season	Source type	% of respondents	Median water fetching time	% with basic access
Baseline	Dry	All sources Improved Unimproved	100% (n=383) 14% (n=55) 86% (n=328)	0.0 minutes 14 minutes 0.0 minutes	14% (n=55)
	Rainy	All sources Improved Unimproved	100% (n=386) 16% (n=63) 84% (n=323)	0.0 minutes 12 minutes 0.0 minutes	16% (n=62)
Endline	Dry	All sources Improved Unimproved	100% (n=152) 88% (n=134) 12% (n=18)	10 minutes 9.0 minutes 11 minutes	84% (n=127)
	Rainy	All sources Improved Unimproved	100% (n=145) 90% (n=130) 10% (n=15)	8.0 minutes 8.0 minutes 10 minutes	86% (n=124)

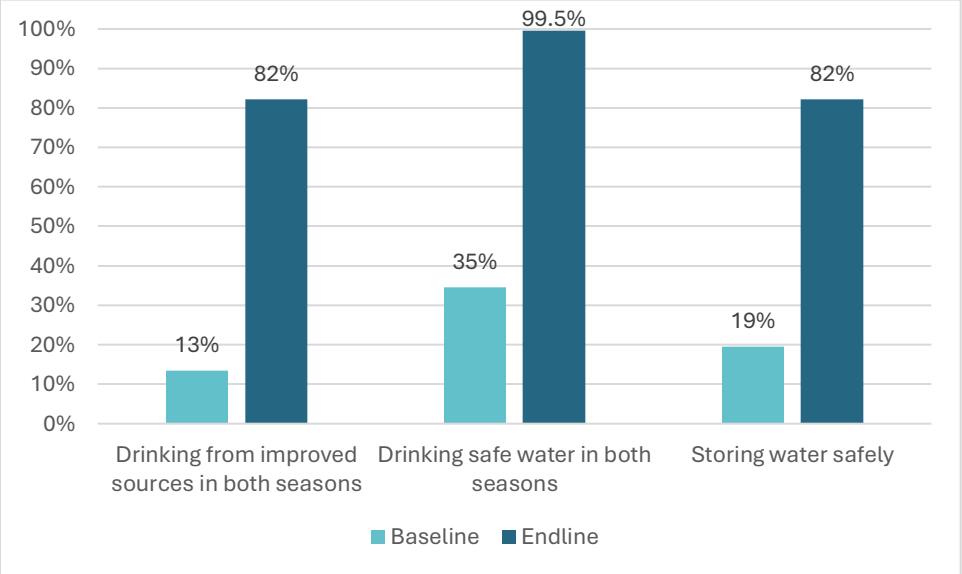
A household is considered to be drinking safe water if they fetch water from an improved source in both seasons, or if they do not use an improved source, they always treat their water with an acceptable water treatment method.[28] Overall, the percentage of households reporting that they were drinking safe water in both seasons (either from an improved source or through consistent treatment of drinking water) increased from 35% at baseline to 99.5% at endline. Additionally, overall satisfaction with the current water situation more than quadrupled from baseline to endline; 19% reported being satisfied at baseline, compared to 90% at endline.

In the qualitative interviews, respondents expressed satisfaction with the improved water infrastructure, noting improvements in water quality and accessibility. Respondents no longer have to search for water, as their water point is centrally located in their communities. Anyone can easily access it at any time, including children, who can now safely gather water.

[27] WHO/UNICEF Joint Programme for Water Supply, Sanitation and Hygiene (2016). Retrieved from: https://washdata.org/monitoring/drinking-water

[28] Effective water treatment methods include boiling, adding chlorine, using a biosand filter, using a ceramic filter, or solar disinfection.

Figure 3. Water key indicators at baseline and endline



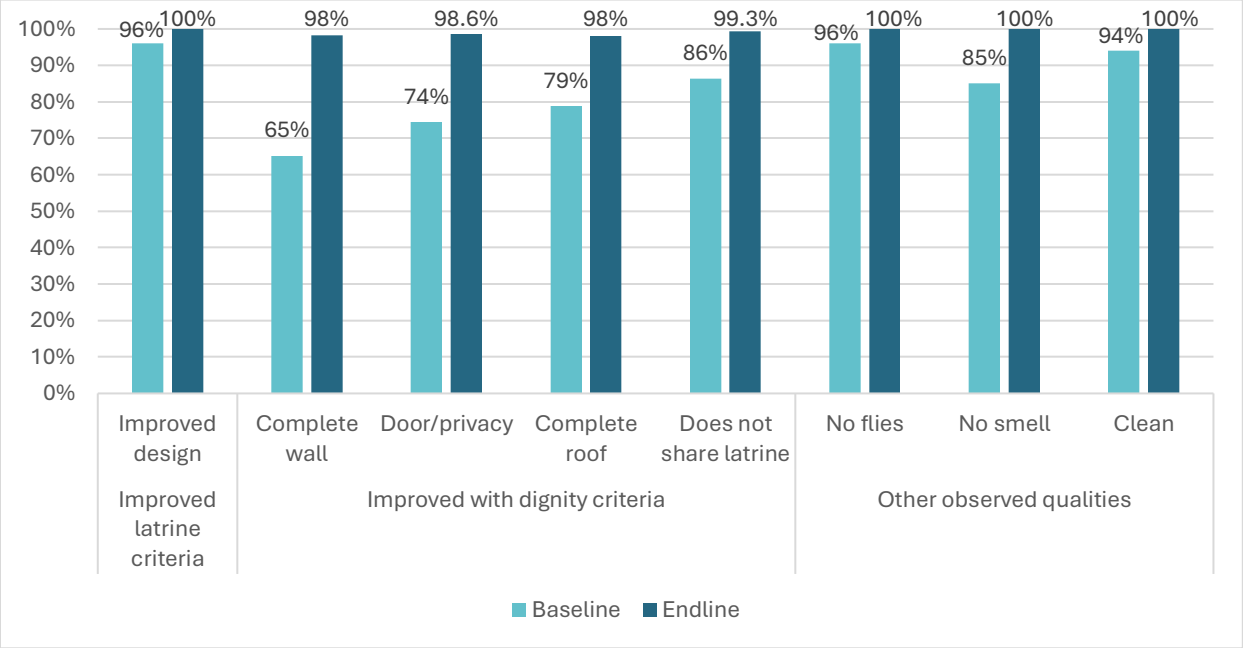
Sanitation

Lifewater trains households to invest in "improved latrines with dignity", which meet all the criteria to be considered an improved latrine while also protecting the dignity of the users. Improved latrines with dignity are not shared with other households and have walls, a roof, a door that provide complete privacy, and a tight-fitting pit cover that keeps flies and insects out. At baseline, 419 households were surveyed, of which 227 latrines were observed, most of which were pour/flush toilets (55%). The majority had complete walls (65%), 79% had complete roofs, 74% had a door that provides complete privacy. Eighty-six percent of respondents did not share their latrine with others (Figure 4). In an in-depth interview, one respondent reported the following:

> *"Sanitation and access to water improved…because [we] gain more knowledge about the [importance] of water, sanitation, and hygiene, and we have the village WASH Facilitators help to mobilize the cleaning event."*

Overall, the percentage of households with improved latrines increased from 47% at baseline to 99.8% at endline, and the percentage of households with improved latrines with dignity increased from 24% at baseline to 96% at endline (p-value <0.05).

Figure 4. Quality of observed latrines at baseline and endline



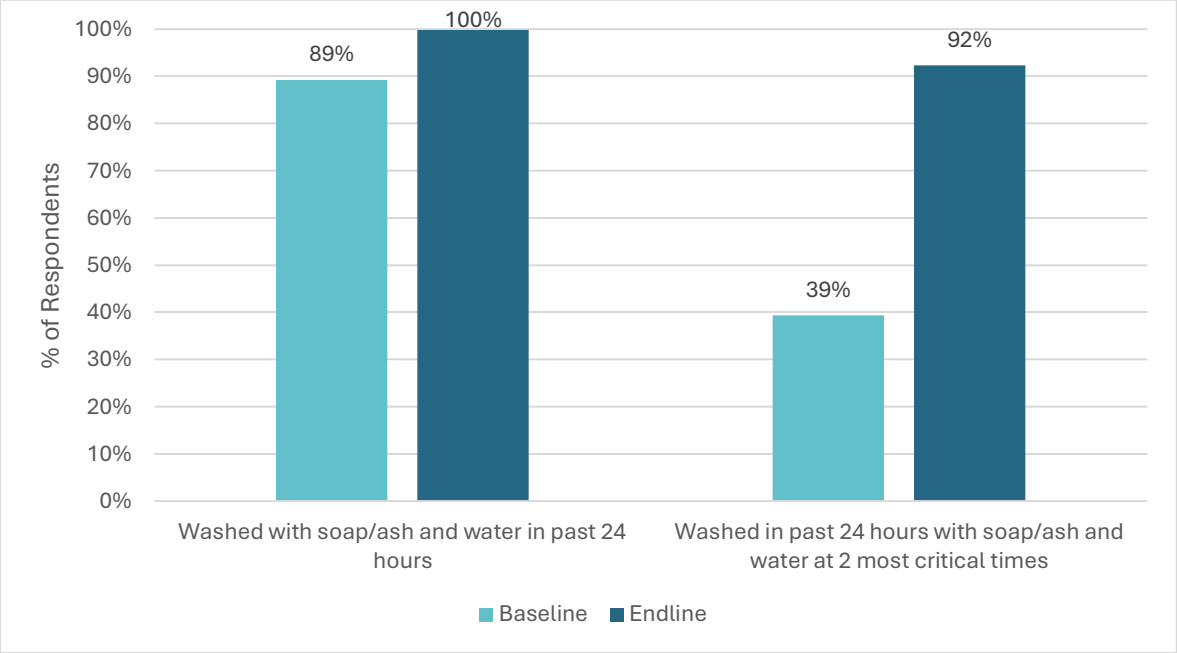
Hygiene

Handwashing facilities and self-reported handwashing behaviors were investigated in each study. The prevalence of handwashing stations near the latrine with the appropriate materials (soap/ash and water) increased from baseline to endline, from 30% to 93% (p-value <0.05). Additionally, the percentage of respondents who reported washing their hands after defecation/using the latrine increased from 53% to 95%, and the percentage who reported washing their hands before eating increased from 82% to 97%. The percentage of respondents who washed their hands with soap/ash and water at the two most critical times (before eating and after defecation) increased from 39% at baseline to 92% at endline (p-value <0.05). Many respondents during qualitative interviews emphasized handwashing as a regular part of their WASH practices. Figure 5 visualizes the increase in handwashing practices from baseline to endline.

Focus group discussions revealed that community members are motivated to wash their hands more frequently due to their increased awareness of disease pathways since the Lifewater WASH program. When asked if community members used handwashing stations, a water committee member reported the following:

> *"Yes, they are truly used after latrine, before and after cooking or eating meal, after feeding and touching animal, after sweeping and managing kitchen, before and after feeding baby, because the habit of practicing good hygiene enable family to have good health and avoiding sickness."*

Figure 5. Self-reported handwashing behavior in the 24 hours prior to the survey



Enumerators also observed the households' waste management. The percentage of households observed to have animal feces on the compound decreased from 18% at baseline to 1.0% at endline, and the percentage observed to have rubbish on their compound decreased from 80% to 17%. Overall, the percentage of households observed to have clean compounds increased from 20% at baseline to 83% at endline (p-value <0.05).

Community Institutions

Schools

Eight schools were included in Svay Leu Project 3, however, enumerators obtained sufficient data to evaluate absenteeism and dropouts from five schools. Three schools did not provide sufficient data for analysis. Data collected from the five schools revealed that both absenteeism and student dropouts varied over the course of the project. During the qualitative interviews, participants reported that the WASH conditions at schools have overall improved, and that before the Lifewater program, students would miss many days of school due to WASH-related illnesses.

Figure 6. Absenteeism Data at Svay Leu Project 3 Schools

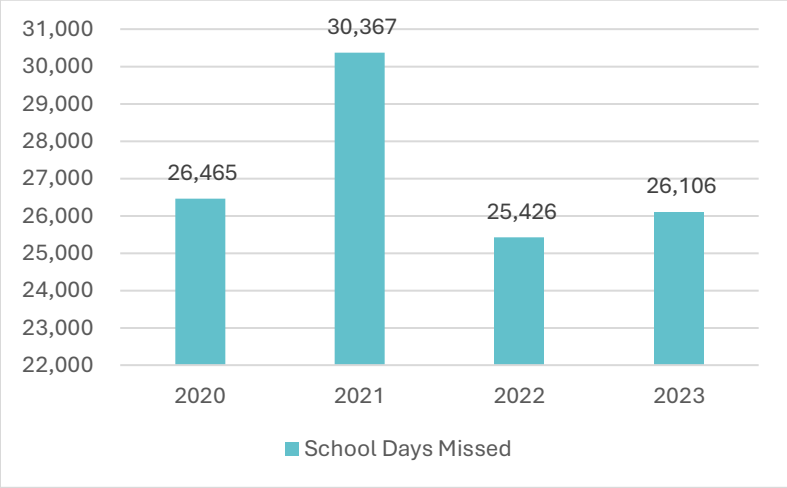
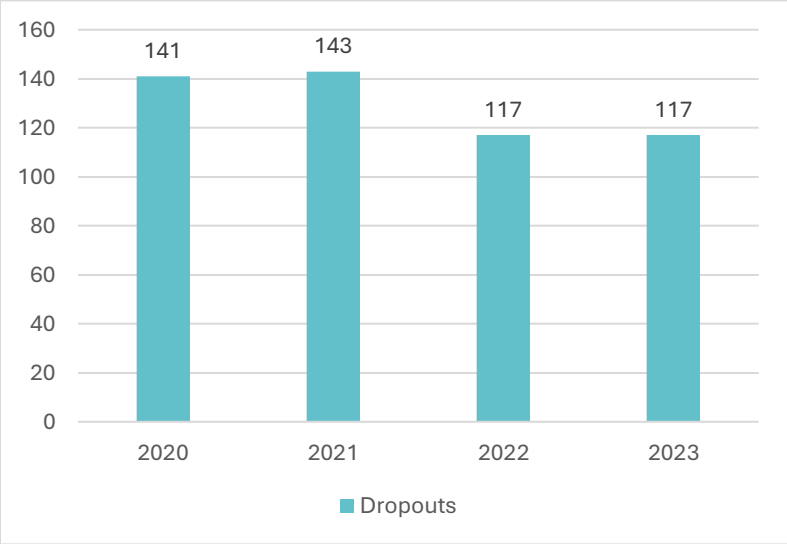


Figure 7. Dropout Data at Svay Leu Project 3 Schools



When asked about the changes in WASH in schools, respondents identified several key changes that have positively impacted teachers and students, including the implementation of student WASH clubs, the construction of safe and appropriate sanitation facilities for male and female students, the sensitization of teachers on student menstrual hygiene management, and teacher WASH training. These factors have empowered teachers and students to reduce the transmission of WASH-related illnesses at their school and educate the wider community.

Conclusion

Water, sanitation, and hygiene conditions improved in the Svay Leu Project 3 area between baseline and endline. Households received training on WASH practices, schools were mobilized to teach their students about WASH, water points were rehabilitated and constructed, and water committees were established for ongoing maintenance and operations of water points. As a result, communities are equipped to prevent WASH-related diseases through healthy practices such as safe water consumption, handwashing, and improved latrine use. Of the 1,676 households in the project area, 60% were registered as Healthy Homes, and 92% of the villages were verified as Open Defecation Free at the time of the endline study.

Due to improved water, sanitation, and hygiene conditions, households at endline were generally more equipped to reduce the transmission of WASH-related diseases than at baseline. More households are using improved sources, although they are spending more time collecting it. The use of improved water sources increased from 13% to 82%. Considerable improvements were also observed in latrine quality and hygiene facilities, with the percentage of households with improved latrines with dignity increasing from 24% to 96%. Essential hygiene infrastructure was more prevalent at endline, as 93% had fully equipped handwashing stations near their latrine (compared to 30% at baseline), and 95% had raised drying racks (compared to 48% at baseline).

Households also demonstrated improved awareness of WASH practices and disease transmission. The percentage of respondents who recognized using a latrine as a key diarrhea prevention method increased from 45% at baseline to 63% at endline. Reported handwashing behavior after using the latrine increased from 53% at baseline to 95% at endline.

Reported WASH illness prevalence also decreased between the studies. Diarrhea cases in children under the age of five decreased from 56% at baseline to 4.3% at endline, and the percentage of respondents who believed their health had improved in the previous year increased from 4.8% at baseline to 17% at endline.

These findings will be used to inform future project implementation.